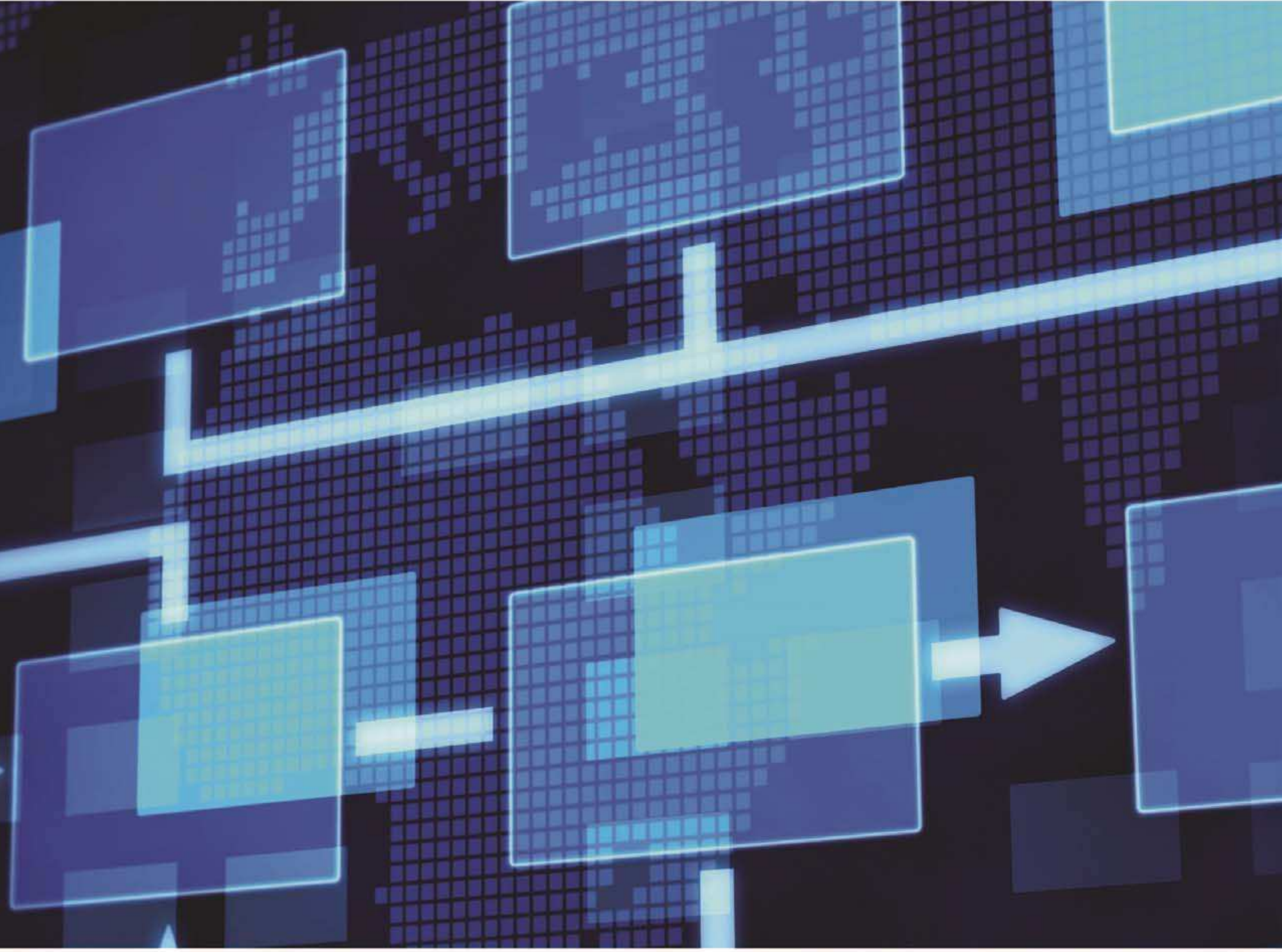

ABPMP International

ASSOCIATION OF BUSINESS PROCESS MANAGEMENT PROFESSIONALS

BPM CBOK

VERSION 3.0

1st EDITION

ISBN-13: 978-1490516592
ISBN-10: 149051659X

Foreword by Connie Moore, Vice President and Principal Analyst, Forrester Research

I'm so honored that ABPMP asked me to write the foreword to the third version of the ABPMP Common Body of Knowledge. Why? Because the certification work that ABPMP has embarked on is one of the most important initiatives in the business process management (BPM) sphere. At Forrester Research, we know there are not nearly enough trained process professionals to meet the growing demand for skilled BPM-knowledgeable and experienced employees, and the lack of skilled practitioners will hold back the adoption of BPM for process improvement and transformation.

While North American and European economies continue to experience unrelenting job cutbacks, chronic unemployment and underemployment, and stagnant salaries, the BPM skills shortage is a great news (not just a good news) story for people looking for work or wanting to advance their careers, whether in business or IT. But the issue goes beyond individuals getting trained in BPM for their own advancement: companies not only seek to fill positions now but also will scale their training programs over the next decade to staff an accelerating BPM transformation program. This means that businesses and government agencies must step up to the internal challenge of adequately training a large number of knowledgeable BPM practitioners, and also that more professional organizations must provide a place and way for people to craft and hone their skills.

But that's not all. Recently, Forrester identified the need for organizations to move their BPM focus to Big Process to support process-driven businesses of the future. We defined Big Process as follows:

> *When senior-most business and technology leaders embrace business process change by shifting the organization's focus from isolated BPM and process improvement projects to a sustainable, enterprise-wide business process transformation program supported by top executives.*

Further, we said there are Five Tenets of Big Process thinking:

Tenet 1: Transform Processes, Don't Just Improve

Tenet 2: Give The Customer Control

Tenet 3: Globalize, Standardize, And Humanize Processes

Tenet 4: Embrace Big Data

Tenet 5: Double Down On Process Skills

These tenets mean that organizations will double down on hiring, building and growing BPM skills, and also that experienced BPM practitioners will expand their knowledge to include new disciplines, such as how customer experience and big data fit into business processes. That's where ABPMP and the Common Body of Knowledge come in. They fill a vital role.

It's so ironic that—having decided to work on this foreword today—when I opened my e-mail inbox this morning, the very first message I received (from the UK) said:

"Read your article on BPM and am interested in developing BPM skill-sets. How best can I go about acquiring the necessary skill set?"

And my response was:

"I recommend that you check out the certification program from ABPMP, the Association of Business Process Professionals. They have a Common Body of Knowledge that you can download from their website or buy in book form, and then take the certification test. I think that is a very good first step."

What a great validation that people all over the world really need and even crave the material in this BPM Common Body of Knowledge.

Here's how I personally know that BPM skills are in high demand:

Process islands within organizations. In my work with large companies and government agencies, I run into many groups within organizations that have deep process skills, often with expertise in Lean, Six Sigma, Lean Six Sigma or other methodologies and tools. Typically these folks are within business operations or spread across business units, or less often, they may be within IT. It's amazing how often these impressive specialists in process excellence or process improvement don't know much about BPM suites or the discipline of BPM. In my view, applying all this process intellect and firepower to improve or transform a process without codifying it in software is a mistake. That's because it's hard to sustain process changes without embedding them in the software that people use to get work done. Process practitioners need to understand the other side of the BPM coin—the technologies that support processes.

BPM technology pockets within organizations. Similarly, a few BPM software specialists can be found in isolated islands of the organization, usually in IT. These specialists (and there are not many of them) understand how BPM software works and see it as part of the new application-development platform for next-generation applications, which embody a process. Often these specialists have deep backgrounds in programming: they understand business rules technologies, event management, analytics, social media, and mobile technologies, so they embrace learning about BPM suites as another new technology to be mastered. And while these application developers and enterprise architects may know and understand Lean from an Agile perspective, they lack many of the core BPM methodology disciplines. They need exposure to the side of the coin that Lean and Six Sigma experts already understand.

Confusion about BPM analyst skills development. Four generic positions are essential to a BPM program: 1) the BPM change agent executive who sells the vision, drives the program and obtains sponsorship; 2) the business architect or guru with a big picture view of process transformation; 3) the process architect who understands the interrelationship between many processes and helps build new processes; and 4) the process analyst (or business analyst) who helps with the as-is, the to-be, and develops a single process at a time. Many people believe that business analysts who already identify requirements—say for ERP or CRM—can move into the BPM process analyst job fairly seamlessly. But I've learned through feedback at conferences and discussions with senior BPM leaders that most business analysts cannot simply move into that position: some don't have the technical aptitude, while others don't have any interest. But some do have both and want to learn about BPM process design. Because there's a chronic shortage of skilled people, we've got to find a way to develop their skills so they can move into BPM projects and climb up the career-progression ladder over time.

It's an exciting time to be in this field. Many new jobs, at a senior level, are being carved out even now. That will only accelerate as Big Process takes hold and organizations become process-driven enterprises. Training people for these positions is a tremendous need, a huge opportunity, and is great for the economy, so I am thrilled to see ABPMP step up to the challenge.

ABPMP President's Note

BPM is a rapidly growing discipline that is changing the way businesses look at managing processes and the role of automation in managing those processes and flow of work within and across enterprises. For many of us, this evolving discipline, along with the automation that supports it, represents a revolution in delivering rapid business change and innovative business capabilities to optimize work and the relationships between customers, suppliers, and employees. Through the techniques and approaches that it offers, BPM helps to deliver a new level of operational management support and a new ability to monitor and measure performance at all levels in the company. For those who adopt these approaches, techniques, and tools, the playing field is about to change and a new paradigm based on rapid, iterative change is about to initiate new ways to look at effectiveness and efficiency of business processes

BPM is now emerging to support enterprise-wide functions and help manage them to deliver the promises of continuous improvement. This emerging capability to deliver rapid change has promoted a new level of collaboration between business and technology professionals who need to understand the strategic nature and impact of the changes they are implementing.

The power of combining BPM methods, approaches, and techniques with the supporting BPMS technology is becoming better understood as success stories become more and more common across multiple industries. This, in turn, is driving a growing awareness of BPM that we believe will continue for many years.

The third version of the ABPMP CBOK® is a response to a growing demand for information on how BPM really works and how it can really help companies compete in a global community. As an association, ABPMP has adopted a position that there are two very different perspectives on creating a BPM competency. One is what we call the foundational concepts, which are based on theory and some form of instruction. These are an important component of building competency, but they are far from the defining set of capabilities that ensure success. That is why we have focused this book and our professional BPM certification on practitioner-level knowledge and experience. We believe that the broad and deep practitioner experience is at the core of BPM, and that it is essential to ensure consistent success in organizations. The result is that this book is not simply theory. It certainly provides information on concepts and on the basics, but it also provides advice and direction on what needs to be done and how to approach doing it. This makes the ABPMP CBOK® unique.

The experience of the authors and reviewers is also important in a book of this type. It represents the collaboration of numerous authors, chapter reviewers, and full CBOK reviewers, all of whom are experienced BPM practitioners. Most of these people have their Certified Business Process Professional (CBPP®) designation. All live in the BPM trenches every day.

Additionally, the authors are all "doers." They work at all levels, from strategy to SOA, but all roll up their sleeves and do the work. That gives a different perspective.

This is not simply a compilation of what others have told an author in interviews, nor is it based on limited experience. The ABPMP CBOK® is practical and represents down-to-earth discussion a wide range of BPM topics.

As with all emerging disciplines or approaches, terminology and concepts are anything but standardized. The variances are evident in ABPMP meetings and in discussions at conferences, so the terminology used in this Body of Knowledge will certainly follow suit. Recognizing this growing pain in the BPM industry, ABPMP provides a glossary with definitions at the end of this book. In addition, we are in the process of creating a broader coverage of terminology and definitions in a BPM dictionary. Until the industry can mature and standardize, it will be necessary to consider terms in each chapter and how they align to the ones you are used to using.

The result of the approach taken in producing this third version is a "how to" look at topics that we hope will introduce new ideas and concepts to those who read it.

As parts of a common body of knowledge, the chapters are semi-independent of one another. Each covers a specific area of BPM. While much can be gained by reading the book front to back, cover to cover, it is meant to be much more. The organization of the book promotes not only a general reading, but also its use as a reference that helps the reader address different aspects of BPM projects. Because it is a compendium of knowledge and experience on BPM and business change, it should be consulted as needed for focusing on different areas at different phases in a project.

As with any discussion on BPM and business transformation, we expect this information to become dated. This book addresses the current and near-future BPM world. It represents a solid discussion on what works, by people who must deliver its uses every day. But the concepts, techniques, and tools are changing, and ABPMP is committed as an association to keeping up with this change. The result is that we are planning to send periodic updates of this Common Body of Knowledge to our members. Of course updates will only take us so far, and we know that a fourth and eventually fifth version will be needed.

On behalf of the Association of Business Process Professionals, I thank you for engaging in this discussion on BPM. Please join us as a member and share your experiences at our local chapter meetings or across our membership. I think you will enjoy these discussions with your peers.

Tony Benedict, CBPP

President, ABPMP International

About the CBOK

Approaching the CBOK® rewrite —Creating Version 3

The project to rewrite the ABPMP CBOK began in late 2010. The first step was to consider the comments that had been collected from people who were using the second version of the CBOK®. This was augmented by comments and suggestions from association members in Europe and Brazil. In late 2011, the decision was made to rewrite the CBOK®. This was because the BPM and BPMS industries had change so much that it would be more feasible to start over than to simply add information.

The project to rewrite the CBOK was headed by Dan Morris. The effort was divided into three main sub projects —the chapter rewrite, the chapter content review, full CBOK review. In addition, a final professional edit was performed to ensure grammar and spelling accuracy.

The rewrite sub-project was led by Raju Saxena, who made certain we kept the rewrite moving. The chapter reviews were led by Owen Crowley, whose dedication was unfailing. Dan Morris also led the full chapter review and coordinated the work to address comments. Tony Benedict led the final edit and diagram cleanup.

The approach that evolved recognized that the evolution of the industry has reached a point where it will be necessary to create a baseline version and then modify it frequently. This modification will address comments and industry changes through a release of new sub versions on an as-needed basis. The intent is to highlight changes and allow subscribers to download new versions throughout their subscription.

Guiding Principles

In creating this version, the ABPMP board asked that the following principles be used to guide the authors and reviewers.

- Focus on business practitioners
- Support a common understanding of BPM
- Provide a guide to information that aids the alignment of teams and organizations
- Help define a common use of BPM/BPMS language
- Make certain the discussions are easy to read, thorough, and insightful
- Reference related disciplines (e.g. Industrial Engineering, Six Sigma, Lean, etc.)
- Contain commonly accepted practices
- Be vendor- and methodology-neutral
- Guide (don't prescribe)
- Include current concepts

Content

Each chapter in the CBOK® addresses a different topic within BPM and is meant to stand alone. The chapters do not follow a chapter-to-chapter discussion using a central case that builds from activity to activity. Readers should use the CBOK® as a guide that provides comprehensive discussion of topics that, combined, give a broad overview of BPM, BPMS, business transformation, and business change.

The chapters in the CBOK® are:

Chapter	*Title*
Chapter 1:	Guide to the CBOK®
Chapter 2:	Business Process Management
Chapter 3:	Process Modeling
Chapter 4:	Process Analysis
Chapter 5:	Process Design
Chapter 6:	Process Performance Management
Chapter 7:	Process Transformation
Chapter 8:	Process Organization
Chapter 9:	Enterprise Process Management
Chapter 10:	BPM Technologies

The CBOK® version 3 and the ABPMP CBPP®

Together these topics align with the ABPMP Certified Business Process Professional (CBPP™) and support the knowledge testing of the certification test. However, it should be noted that while CBOK® provides a firm foundation for practitioners to understand the components of BPM, the CBPP™ examination is not based on the ABPMP Common Body of Knowledge alone. Experience is the key factor in attaining the proficiency needed to pass the CBPP and earn certification.

Authors

The authors of this CBOK® were selected based on their expertise, as proven in ABPMP chapter meetings, national ABPMP meetings, peer reviews, ABPMP committee involvement, publishing, speaking, and industry leadership. All chapter authors are ABPMP Certified Business Process Professionals (CBPP). They are, as follows:

Chapter	*Author*	*Professional Position*
CBOK® overview	Connie Moore	Vice President and Research Director, Forrester Research

Chapter 1: Guide to the CBOK®	Raju Saxena, CBPP	Senior Manager, Ernst and Young
Chapter 2: Business Process Management	Denis Lee, CBPP	President, BizArch Solutions, Inc.
Chapter 3: Process Modeling	Emmett Powell, CBPP Phil Vitkus, CBPP	Enterprise Business Analyst and Educator Business Process Analyst and Technical Writer
Chapter 4: Process Analysis	Gabrielle Field, CBPP	VP Business Process Improvement, Raymond James Financial
Chapter 5: Process Design	Dan Morris, CBPP	North America Practice Manager for Business Process Excellence, TA TA Consultancy Services (TCS)
Chapter 6: Process Performance Management	Jose Furlan, CBPP Raju Saxena, CBPP Dan Morris, CBPP	Director of Education Services, JDFurlan & Associates Ltd. Senior Manager, Ernst and Young North America Practice Manager for Business Process Excellence, TA TA Consultancy Services (TCS)
Chapter 7: Process Transformation	Dan Morris, CBPP Nancy Bilodeau, CBPP	North America Practice Manager for Business Process Excellence, TA TA Consultancy Services (TCS) Sears Holdings Corporation
Chapter 8: Process Organization	Tony Benedict, CBPP	Vice President Supply Chain, Abrazo Healthcare
Chapter 9: Enterprise Process Management	Dan Morris, CBPP Todd Lohr, CBPP	North America Practice Manager for Business Process Excellence, TA TA Consultancy Services (TCS) Managing Director, KPMG
Chapter 10: BPM Technologies	Dan Morris, CBPP Marc Scharsig, CBPP Michael Fuller	North America Practice Manager for Business Process Excellence, TA TA Consultancy Services (TCS) Senior Manager BPM, Accenture Independent Consultant

All authors contributed on a volunteer basis. The initial consideration in selecting authors was to find people with the deep expertise needed to address the topics in each of the ten chapters. Once this was done, a rewrite team was formed and each chapter's content was discussed. As the chapters were being written, the authors met weekly to discuss concepts, approaches, and techniques to make certain that all aligned in the CBOK®. This sharing allowed ideas to be vetted, assured the comprehensiveness of coverage, and created a consistent ABPMP perspective.

Chapter Introductions

To help provide industry insight, the CBOK® committee was able to engage noted BPM experts to share their views on the direction that various topic areas may be heading in over the near future. These discussions provide additional value to our readers by giving them insight into how these topic areas are expected to evolve.

The following experts provided discussions in the listed topic areas.

Chapter	*Industry Expert*	*Company*
CBOK® overview	Connie Moore	Forrester Research
Chapter 1: Guide to the CBOK®		
Chapter 2: Business Process Management	Janelle Hill	Gartner, Inc.
Chapter 3: Process Modeling	Craig Le Clair	Forrester Research
Chapter 4: Process Analysis	Elise Olding	Gartner, Inc.
Chapter 5: Process Design	Jim Sinur	Gartner, Inc.
Chapter 6: Process Performance Management	David McCoy	Gartner, Inc.
Chapter 7: Process Transformation	David Kish	TCS Global Consulting Practice
Chapter 8: Process Organization	Andrew Spanyi	Spanyi International Inc.
Chapter 9: Enterprise Process Management	Peter Fingar	Author
Chapter 10: BPM Technologies	Dr. Mathias Kirchmer	Accenture

Quality and the ABPMP CBOK®

Quality has been a main concern throughout the CBOK® rewrite process. Our goal was to update the coverage in the last version, adding new ideas, changes in the marketplace understanding of BPM, and changes in the BPMS technology. To do this, ABPMP took an approach that was built on checks and balances.

To ensure that there were no coverage holes and to uncover any controversial discussions, a review committee was formed from additional topic experts. All members of the review committee are ABPMP Certified Business Process Professionals (CBPP). These reviewers went through each chapter and discussed any issues in committee. The discussions resulted in changes that expanded content and provided a different, broader perspective on the topic coverage.

The review committee was managed by Owen Crowley, with content advisory provided by Dan Morris and Gabrielle Field. Owen made certain that the reviewers remained focused on content quality during the six months of the detailed review. The review team members were:

Review Committee	*Role*	*Professional Position*
Owen Crowley, CBPP	Review Committee Manager	President, Exogene Corp.
Todd Lohr, CBPP	Member	Managing Director, KPMG
Marc Scharsig, CBPP	Member	Senior Manager BPM, Accenture
Phil Vitkus, CBPP	Member	Independent Consultant
Chris Ottesen	Member	Specialist Leader, Global Methods and Tools, AMEA, Deloitte Consulting LLP
Dan Morris, CBPP	Review Committee Advisor	NA Practice Manager, Business Process Excellence, TA TA Consultancy Services (TCS)

Full CBOK® quality review

Once modifications were completed, the new CBOK® was reviewed in its entirety by the original authors, the review committee, and a third group of new reviewers. The goal of this review was to make sure that the new version was understandable and complete.

This approach ensured the accuracy and completeness of content, as well as the quality and currency of ideas and discussions. The review delivered a fully vetted and approved discussion of a broad range of BPM and BPMS topics. It also allowed the full CBOK® review team to make a final check to ensure that the discussions in the CBOK® aligned with the current wisdom, philosophies and approaches promoted by the association and accepted by leading industry experts.

Complete CBOK® version 3 reviewers:

Reviewer	*Company*
Tony Benedict	Vice President Supply Chain, Abrazo Healthcare
Dan Morris	North American Practice Manager, Business Process Excellence, TA TA Consultancy Services (TCS)
Connie Moore	Vice President and Research Director, Forrester Research
Janelle Hill	Vice President and Distinguished Analyst, Gartner, Inc.
Marc Scharsig	Senior Manager BPM, Accenture
Todd Lohr	Managing Director, KPMG
Chris Ottesen	Specialist Leader, Global Methods and Tools, AMEA, Deloitte Consulting LLP
Raju Saxena	Senior Manager, Ernst and Young
Denis Lee	President, BizArch Solutions, Inc.
Emmett Powell	Enterprise Business Analyst and Educator
Owen Crowley	President, Exogene Corp.
Phil Vitkus	Independent BPM Consultant
Nancy Bilodeau	Director Loyalty Partner Program, Sears Holdings Corporation

Completing the CBOK®

A final edit was performed by a professional editor to ensure format consistency, grammatical correctness, and spelling accuracy. In addition, graphics were revised by a professional graphics artist to ensure consistency and quality.

Vendor references

In BPM and BPMS, many vendors and research firms create reference models and use different terminology in both their everyday discussions and in these models. ABPMP has NOT adopted any specific research firms', vendors', or consulting firms' models. Instead, we use a variety of these models throughout the CBOK to acquaint the reader with different models and to show that the choice of model is not so important: rather, what's important is that the reader's company either select one model for each issue (such as BPM maturity and process management maturity) and use that model consistently, or that they understand that various models are in use and adjust accordingly.

The CBOK®

Future versions

BPM and BPMS are changing rapidly, and any discussion will need to be revised and updated continuously. To do this, ABPMP will release updates to chapters on an ongoing basis. These will be available on the ABPMP website to ABPMP members and others who purchase annual CBOK® licenses.

We recognize that, regardless of the steps we have put in place to deliver a quality product, there may be topics that members would like added and points that might be more fully discussed. The goal is to provide a foundation or framework for the BPM industry and help our members and other readers obtain a comprehensive perspective of the topics and issues that they must deal with to deliver improvement and transformation.

Readers who would like to see additional topics or discussions in future versions are invited to send all suggestions or recommendations for changes to ABPMP at Edcomm@abpmp.org

Comments

Please send comments to ABPMP through our website, and let us know if there are any topics you believe we should include or if you have disagreements with the association's point of view. Your comments will be used as a foundation for future versions.

Preface

Defining a Business Process Management Professional

The following is an excerpt from an article written by Brett Champlin, past President of the Association of Business Process Management Professionals (ABPMP), for BPM Strategies, October 2006 edition.

Business Process Management Professionals

At several recent BPM conferences, I have asked audiences of several hundred attendees to give me a show of hands, first for "Who is from IT?" Generally about 30-45% of the hands go up; then, "Who is from the Business side?" Another 30-45%; then, "Who here is like me, stuck in the middle?" Nearly the entire group raises their hands, generally emphatically. This is telling. Many of us who work in process management, process redesign, process performance analysis, process automation, and the like, are conflicted. Are we business practitioners who have to understand how to leverage IT to manage by process or are we IT practitioners who have to understand the business in order to fully utilize the capabilities of new IT solutions?

BPM is both a management discipline and a set of technologies that support managing by process. A convergence of technologies for workflow, enterprise application integration (EAI), document and content management, business rules management, performance management and analytics among other have been brought to bear with a focus on supporting process based management. A few years ago BPM software vendors were focused on the execution layer of the technology stack. Today they are delivering BPM Suites with a full range of features and functions to support process managers and analysts as well as technology developers.

Recent research studies confirm that Business Process Management (BPM) is rapidly evolving as the dominant management paradigm of the 21st Century. An April 2005 BPMG study found that "…the practice of BPM as a primary means to manage business has already gained substantial adoption" and "…more than 80% of the world's leading organizations are actively engaged in BPM programs, many of these on a global scale." An APQC benchmarking study completed in March 2005 found that "BPM is the way best-practice organizations conduct business." That study also examined proven strategies, approaches, tools and techniques (including business process frameworks and maturity models) employed by world-class, process-focused enterprises and found that while "technology, by itself, does not constitute Business Process Management, much of the promise of BPM initiatives will not be realized without powerful, flexible and user-friendly IT solutions to support them."

Business Process Management and Performance Management are merging as more and more process management groups begin to recognize the organization as a system of interacting processes whose performance must be balanced, and that must be the focus of fulfilling strategies. Conversely, more and more of those engaged in enterprise performance management are realizing that it is the performance of the business processes, not the organizational functional units or a set of assets, that has to be their central focus in order to gain the true benefits of a performance management initiative. Sophisticated and powerful new technologies are central to successful and sustainable programs for both of these disciplines, and integrating the information delivery capabilities as well as management methods is critical to moving up the scale of maturity in deploying these practices.

Along with this business process management revolution, new organizational structures and roles are emerging and a new genre of professionals is emerging to support these practices. Yet, business schools don't teach us how to manage by process. No textbooks tell us what roles and responsibilities we need to put in place in order to do this kind of work. There is no authoritative research to indicate exactly how we should structure our governance and operations to do this kind of work. In fact, what research there is indicates that there is no "one-size-fits-all" solution. Various models and roles have proven successful in various industries, none showing any clear advantage over the other. One thing that is clear is that managing by process and adapting new information systems tools to support those activities is a successful strategy that brings tremendous advantage to those businesses that adopt it. And, it seems that the more broad-based the process management initiative is in the organization, the more effective it is and the more value it adds.

There seem to be as many companies whose BPM efforts are driven by their IT organizations as there are those whose BPM programs are being led by core business areas. Likewise, there seem to be two major approaches: those that are more project-oriented versus those that view BPM as a continuous process improvement and transformation effort. These different models generate roles and responsibilities with widely varying titles and alignments of responsibilities, yet all are process-management focused.

Within the Association of BPM Professionals, our membership shows a diversity of titles that reflect these divergent approaches to process management. We have well over 150 different titles represented in our database, although there are clusters around some of the titles like Manager, Director, VP, Analyst, Consultant, and Architect, usually preceded or followed by Process, BPM, Process Improvement, Process Innovation, and the like.

One role that is particularly significant in BPM programs is that of the Process Owner. Depending on whether the organization restructures around cross-functional business processes, creates a matrix-managed organization, appoints functional managers to take on a dual role, or relies on a cross-functional council of managers to oversee core business processes, it will ensure that someone takes on the responsibilities of a "Process Owner" for each of the organization's key operational processes. This role seems to be one of the critical success factors in effective process-oriented organizations.

An organizational factor that seems to reflect the evolution or maturity in organizations implementing BPM is the existence of a specialized group that is recognized as the process specialists. Many begin with a BPM "Center of Excellence" or similar group that provides to the organization process modeling, analysis, design, and project expertise along with standard tools, methods and techniques and acts as an internal consulting group. A more mature or experienced process-oriented organization will have a process management governance group or "Process Management Office" that oversees the organization's portfolio of processes, and aligns, prioritizes, and authorizes transformation efforts. And some companies may have both types of groups working together. These groups are staffed with process management professionals with a wide range of titles and alignment of responsibilities.

While there seem to be many successful models for implementing BPM in organizations, one thing they all have in common is the many new roles with new sets of skills and responsibilities all centered on BPM. This is an emerging group of professionals whose work is essential to 21st century business: the business process professional. Judging from the members of ABPMP, they are generally highly educated (67% have a bachelor or advanced degree) and have a significant amount of experience (9.9 years average) working in process improvement and redesign.

Some of the more common roles are:

- Business Process Analyst
- Business Process Engineer
- Business Process Architect
- Business Process Manager
- Business Process Consultant
- Business Process Manager
- Business Process Owner
- Business Analyst
- Business Systems Analyst
- Manager or Director of Business Performance Improvement
- Manager or Director of Business Process Innovation
- Process Owner
- Process Officer

These titles and their variants cover the majority of the new roles and responsibilities in process-managed organizations. Regardless of the roles or organizational structure, they generally are responsible for the same sets of activities: Process Modeling, Process Analysis, Process Design, Process Change and Transformation, Process Implementation, Process Monitoring and Control, and Process Performance Improvement. Some of these roles may be staffed in IT organizations and some in business disciplines. Many organizations are staffing with cross-discipline groups combining both IT and business knowledge or with people who have served in both IT and business units, bringing a depth of knowledge and range of skills that transcend traditional boundaries. Many have found that combining people who have general consulting-type knowledge and skills with others who have a depth of business-specific knowledge is a successful strategy for BPM efforts.

There is a new professional in the business world today, the business process professional. The work they do is critical to the future of competitive organizations. And, even though there is no single or clear model that one can adopt, it doesn't diminish the need for more skilled and motivated people to do this work. Eventually, universities will come out with well-researched and structured models based on some of the most visible success stories. In the meantime, businesses can't wait for someone to tell them the "best" way to do this; they have to do this work today, and there just aren't enough knowledgeable, skilled people to go around. Successful organizations are finding that to staff these groups, they have to invest in training and development. Some are building their own curricula and training programs and bringing entry-level people on board to work closely with the few talented BPM professionals they do have. Others are sending managers, project leaders, and systems analysts to training, such as the BPM-Institute certificate program, to begin to build the requisite knowledge and skills. This situation will likely continue to be the most viable approach to building process organizations for the near future.

The mission of ABPMP and EABPM is to engage in activities that promote the practice of business process management, to develop a common body of knowledge in this field, and to contribute to the advancement and skill development of professionals who work in this discipline. ABPMP and EABPM's local chapters produce periodic events featuring case studies and presentations about BPM topics, which provides an inexpensive continuing education program for their members. ABPMP and EABPM have an education committee that is developing a BPM Common Body of Knowledge. Following that, we will produce recommended curricula for academic and training programs. We intend to create a set of criteria to evaluate training programs and a process for formal endorsement of training providers and academic programs. Following that, we will develop a professional certification program to certify practitioners and expert business process management professionals.

I think working in BPM at this time is the most exciting and valuable business experience managers and professionals can get today. I see Business Process Management professionals as the new training background for future business leaders today, much as project management was 15 years ago. However, we need to develop some baseline standards, minimum qualifications, and some reasonable path for becoming a professional in this area. If you are working in process management, join others in developing the profession—join ABPMP today. Together we can build a new professional discipline that will create the future.

The Association of Business Process Management Professionals

Background on ABPMP

The Association of Business Process Management Professionals (ABPMP) is a non-profit, vendor-independent professional organization dedicated to the advancement of business process management concepts and practices. ABPMP is practitioner-oriented and practitioner-led.

ABPMP has local chapters in several US areas, and many more are forming in the US and internationally. Individuals wishing to participate who are not located near an existing local chapter are urged to investigate the feasibility of starting a chapter in their locality. When not affiliated with a local operating chapter, members will be part of the Members At-Large chapter, which has its own elected officers and participates in ABPMP activities as any other chapter would.

ABPMP is governed by an elected Board of Directors. Each chapter president is an ex-officio, voting member of the International Board of Directors. ABPMP also has a Board of Advisors made up of some of the most well known authors, practitioners, and thought-leaders in the field. These advisors are volunteers who periodically offer advice to the chapters and Board of Directors concerning the industry and how ABPMP can best serve its members.

ABPMP is affiliated with other professional organizations, including the European Association of Business Process Management (EABPM), which administers the ABPMP certification process and translates the BPM CBOK® into the French and German languages. Additional affiliations are described in the Appendix labeled "Reference Disciplines."

For more information on ABPMP, please see our website at www.abpmp.org. For more details about EABPM see the website at www.eabpm.org

Core Mission / Values / Operation

The Association of Business Process Management Professionals is a non-profit, vendor-neutral professional organization dedicated to the advancement of business process management concepts and practices. ABPMP is practitioner-oriented and practitioner-led.

Vision

The vision of the ABPMP is to

- Be the center for the community of practice in business process management
- Provide the leading professional society for business process management professionals
- Define the discipline and practice of business process management
- Recognize, acknowledge and honor those who make outstanding contributions to the business process management discipline.

Mission

The mission of ABPMP is

- To engage in activities that promote the practice of business process management,
- To develop a Common Body of Knowledge for BPM, and
- To contribute to the advancement and skill development of professionals who work in the BPM discipline.

Operation

The ABPMP produces educational and networking events for continuing education and sharing of best practices, new ideas, and experiences of its members and professional colleagues. Information on these events can be found on the ABPMP website at www.abpmp.org.

Code of Ethics

ABPMP is committed to the highest standard of professional ethics and believes that Business Process Management Professionals should

- Conduct their professional and personal lives and activities in an ethical manner
- Recognize a standard of ethics founded on honesty, justice and courtesy as principles guiding their conduct and way of life
- Acknowledge that there is an obligation to practice their profession according to this code of ethics and standards of conduct.

All ABPMP members must agree to and sign the following code of ethics and statement of professional conduct:

The keystone of professional conduct is integrity. Business Process Management Professionals will discharge their duties with fidelity to the public, their employers, and clients with fairness and impartiality to all. It is their duty to interest themselves in public welfare, and be ready to apply their special knowledge for the benefit of humankind and the environment.

I acknowledge that

- I have an obligation to society and will participate to the best of my ability in the dissemination of knowledge pertaining to the general development and understanding of business process management. Further, I shall not use knowledge of a confidential nature to further my personal interest, nor shall I violate the privacy and confidentiality of information entrusted to me or to which I may gain access.
- I have an obligation to my employer/client whose trust I hold. Therefore, I shall endeavor to discharge this obligation to the best of my ability, to guard my employer/clients interests, and provide advice wisely and honestly. I shall promote the understanding of business process management methods and procedures using every resource available to me.
- I have an obligation to my fellow members and professional colleagues. Therefore, I shall uphold the high ideals of ABPMP as outlined in the Association Bylaws. Further, I shall cooperate with my fellow members and shall treat them with honesty and respect at all times.

- I accept these obligations as a personal responsibility and as a member of this Association. I shall actively discharge these obligations and I dedicate myself to that end.

Standards of Conduct

These standards expand on the Code of Ethics by providing specific statements of behavior in support of the Code of Ethics. They are not objectives to be strived for; they are rules that no professional will violate. The following standards address tenets that apply to the profession.

In recognition of my professional obligations, I shall

- Avoid conflict of interest and make known any potential conflicts
- Protect the privacy and confidentiality of all information entrusted to me
- Accept full responsibility for work that I perform
- Ensure that the products of my work are used in a socially responsible way, to the best of my ability
- Support, respect, and abide by the appropriate local, national, and international laws
- Make every effort to ensure that I have the most current knowledge and that the proper expertise is available when needed
- Share my knowledge with others and present factual and objective information to the best of my ability
- Be fair, honest, and objective in all professional relationships
- Cooperate with others in achieving understanding and in identifying problems
- Protect the proper interests of my employer and my clients at all times
- Take appropriate action in regard to any illegal or unethical practices that come to my attention; I will bring charges against any person only when I have reasonable basis for believing in the truth of the allegations and without any regard to personal interest
- Not use knowledge of a confidential or personal nature in any unauthorized manner or to achieve personal gain
- Never misrepresent or withhold information that is germane to a problem or situation of public concern nor will I allow any such known information to remain unchallenged
- Not take advantage of a lack of knowledge or inexperience on the part of others
- Not use or take credit for the work of others without specific acknowledgement and authorization
- Not misuse authority entrusted to me.

We are always concerned about the quality of our information and we have taken care to vet every discussion in this CBOK through multiple reviews by top BPM professionals. Please contact us with comments on this version of our BPM Common Body of Knowledge. Information on the ABPMP Association is provided on our website at http://www.abpmp.org/

ABPMP International Board of Directors

Table of Contents

Chapter 1

Guide to the CBOK®

CONTENTS

1.0 Introduction

What is the Guide to the BPM CBOK®?

As BPM business practices, management discipline, and enabling technologies mature, our understanding of BPM also matures. There is a tremendous body of knowledge on BPM, including hundreds of books, articles, presentations, process models and best practices, which are based upon practice experience, academic study, and lessons learned. The trend in BPM today focuses on enterprise-wide, cross-functional processes that add value for customers (both internal and external). Business processes define how enterprises perform work to deliver value to their customers. The purposeful management of these processes creates stronger business practices that lead to more effective workflow, greater efficiencies, more agility, and ultimately higher returns on stakeholders' investments.

It would be impractical to collect and present in a single volume all of the available knowledge on the practice of BPM. This guide to the BPM Common Body of Knowledge is designed to assist BPM professionals by providing a comprehensive overview of the issues, best practices, and lessons learned as collected by the ABPMP and affiliated associations. BPM is a constantly evolving discipline. Version 3.0 of the ABPMP BPM CBOK® provides a basic understanding of BPM practice along with references to the BPM community and other valuable sources of information. BPM professionals are encouraged to use this guide in conjunction with a variety of other sources of information, get involved in the BPM community, and expand and share their knowledge on the practice of BPM.

Because the term Business Process Management (BPM) is used so frequently throughout this publication, here follows its definition as applied here:

> ***Business Process Management (BPM)*** *is a management discipline that integrates the strategy and goals of an organization with the expectations and needs of customers by focusing on end-to-end processes. BPM comprises strategies, goals, culture, organizational structures, roles, policies, methodologies, and IT tools to (a) analyze, design, implement, control, and continuously improve end-to-end processes, and (b) to establish process governance.*

1.1 Purpose of the Guide to the BPM CBOK®

This Guide to the BPM CBOK® provides a basic reference for BPM practitioners. The primary purpose of this guide is to identify and provide an overview of the Knowledge Areas that are generally recognized and accepted as good practice. It includes roles and organizational structures as well as provisions to steer a process-driven organization. The Guide provides a general overview of each Knowledge Area and a list of common activities and tasks associated with each Knowledge Area. It also provides links and references to other sources of information that are part of the broader BPM Common Body of Knowledge.

This Guide is also intended as a springboard for discussions among BPM professionals. Often, a discipline such as BPM finds different groups using language in different ways, resulting in terminology or conflicting definitions that can confuse discussions on the topic. One purpose of the Guide to the BPM CBOK® is to encourage the use of a common, agreed-upon vocabulary for the BPM discipline.

In addition, the Guide reflects the fundamental knowledge required of a BPM professional. Any assessment or professional certification in the field would require a demonstrated understanding of the core BPM concepts outlined in the knowledge areas, as well as the ability to perform the activities and tasks identified within them. This Guide to the BPM CBOK® is the basis for developing examination questions for the exam that individuals must pass to become a Certified Business Process Professional (CBPP®).

1.2 Status and Feedback

As the Common Body of Knowledge in BPM evolves and expands with additional information and experience, so too will this Guide to the BPM CBOK®. Version 2.0 was published in English, German, and Portuguese. Readers of Version 2.0 provided valuable feedback, which was taken into consideration for the development of this version. The purpose of this third release of the Guide is to further define the scope and structure of the Guide. Version 3.0 was enhanced by an international collaboration between ABPMP and the European Association of Business Process Management. It will be published in French, Japanese, and Arabic, in addition to the previous languages.

The development and management of the Guide to the BPM CBOK® is the responsibility of the Education Committee within the ABPMP. The Education Committee welcomes any feedback in order to improve the BPM CBOK® and gauge its acceptance by the community of BPM professionals.

Membership support and enthusiasm of BPM experts are critical to the success of this Guide, the development of the Certification process, and the promulgation of knowledge on BPM topics. To support membership involvement in the evolution of the BPM CBOK®, the Education Committee has formed a subcommittee which focuses on the support and maintenance of this Guide.

1.3 CBOK® Organization: Summary of Chapters

This Guide to the BPM CBOK® is organized in BPM core areas or chapters, as outlined in Figure 1-1. These BPM core areas are segmented into a broader, organizational-oriented perspective and a process perspective. BPM core areas reflect BPM capabilities that may be considered by an organization implementing Business Process Management.

BPM concepts are covered in the Business Process Management chapter, which sets the stage for all of the BPM core areas.

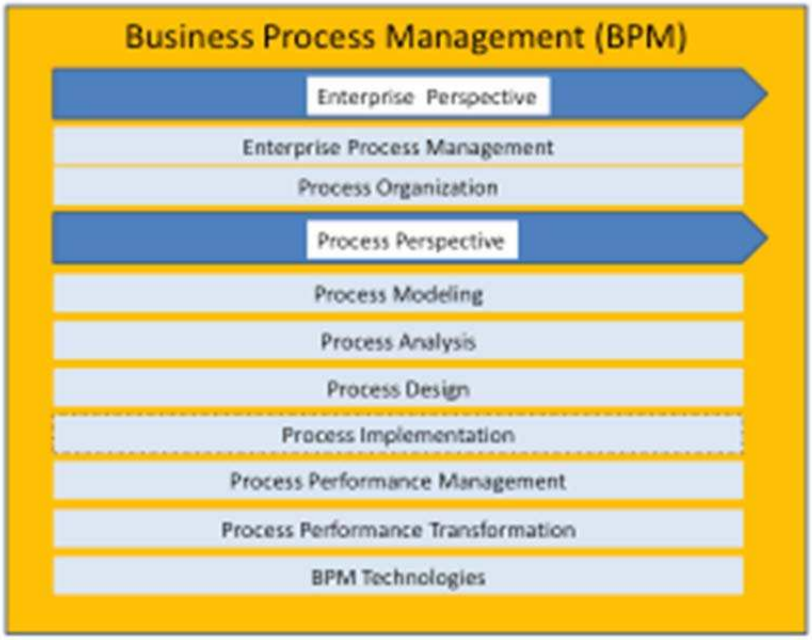

Figure 1. Core Areas of BPM and CBOK Organization

The Process Modeling, Analysis, Design, Implementation, Performance Management, and Transformation BPM core areas cover critical BPM activities and skill sets. Many of the BPM core areas are enabled and supported by BPM Technologies. Please note that there is no dedicated CBOK® chapter for process implementation, since IT-related aspects are covered in the BPM Technologies chapter and organizational aspects are covered in the change management section of the Process Performance Transformation chapter.

The larger BPM environmental issues and how the practice of BPM relates to other organizational dimensions, such as governance and strategic planning, are addressed in the Process Management Organization and Enterprise Process Management chapters.

1.4 Overview of Chapters

Business Process Management (chapter 2)

The Business Process Management chapter focuses on the concepts of BPM, such as key definitions, end-to-end process, customer value, and the nature of cross-functional work. Process types, process components, the BPM lifecycle, along with critical skills and success factors are introduced and explored. This chapter defines BPM and provides the foundation for exploring the Core Areas of BPM.

Process Modeling (chapter 3)

Process Modeling includes a critical set of skills and processes that enable people to understand, communicate, measure, and manage the primary components of business processes. The Process Modeling Core Area provides an overview of these skills, activities, and key definitions, along with an understanding of the purpose and benefits of process modeling, a discussion of the types and uses of process models, and the tools, techniques, and modeling standards.

Process Analysis (chapter 4)

Process Analysis involves an understanding of business processes, including the efficiency and effectiveness of business processes. This chapter explores process analysis purpose, activities to support process decomposition, and analytical techniques along with roles, scope, business context, rules, and performance metrics. The focus is on understanding current-state processes with a view to achieving improvement in the future state. A variety of process analysis types, tools, and techniques are included within this Knowledge Area.

Process Design (chapter 5)

Process design involves creating the specifications for business processes within the context of business goals and process performance objectives. It provides the plans and guidelines for how work flows, how rules are applied, and how business applications, technology platforms, data resources, financial, and operational controls interact with other internal and external processes. Process design is the intentional and thoughtful planning for how business processes function and are measured, governed, and managed. This Core Area explores process design roles, techniques, and principles of good design, along with an exploration of common process-design patterns and considerations such as compliance, executive leadership, and strategic alignment.

Process Performance Measurement (chapter 6)

Process performance measurement is the formal, planned monitoring of process execution and the tracking of results to determine the effectiveness and efficiency of the process. This information is used to make decisions for improving or retiring existing processes and/or introducing new processes in order to meet the strategic objectives of the organization. Topics covered include importance and benefits of performance measurement, key process performance definitions, monitoring and controlling operations, alignment of business process and enterprise performance, what to measure, measurement methods, modeling and simulation, decision support for process owners and managers, and considerations for success.

Process Transformation (chapter 7)

Process transformation addresses process change. Process changes are discussed in the context of a process lifecycle from planning to implementation. Various process improvement, redesign, and reengineering methodologies are explored, along with the tasks associated with 'construction,' quality control, and the introduction and evaluation of new processes. The topic of organizational change management, which is critical to successful process transformation, is also discussed here: it includes the psychological background of change management and success factors for change.

Process Management Organization (chapter 8)

The process management organization knowledge area addresses the roles, responsibilities, and reporting structure to support process-driven organizations. A discussion of what defines a process-driven enterprise, along with cultural considerations and cross-functional, team-based performance is provided. The importance of business process governance is explored, along with a variety of governance structures and the notion of a BPM Center of Excellence (COE) or Competency Center.

Enterprise Process Management (chapter 9)

Enterprise process management is driven by the need to maximize the results of business processes consistent with well-defined business strategies and functional goals based on these strategies. Process portfolio management ensures that the process portfolio supports corporate or business-unit strategies and provides a method to manage and evaluate initiatives. The Enterprise Process Management Knowledge Area identifies tools and methods to assess process management maturity levels, along with required BPM practice areas that can improve a BPM organization state. Several Business Process Frameworks are discussed, along with the notion of process integration—i.e., interaction of various processes with each other and with models that tie performance, goals, technologies, people, and controls (both financial and operational) to business strategy and performance objectives. The topics of process architecture and best practices in enterprise process management are explored.

BPM Technology (chapter 10)

BPM is a technology-enabled and supported management discipline. This chapter discusses the wide range of technologies available to support the planning, design, analysis, operation, and monitoring of business processes. These technologies include the set of application packages, development tools, infrastructure technologies, and data and information stores that provide support to BPM professionals and workers in BPM-related activities. Integrated Business Process Management Suites (BPMS), process repositories, and stand-alone tools for modeling, analysis, design, execution and monitoring are discussed. BPM standards, methodologies, and emerging trends are also covered.

1.5 Benefits of BPM

To gain commitment and momentum for the introduction and further development of BPM, the book summarizes some important potential benefits and advantages for different stakeholders, particularly four important groups of stakeholders who may benefit directly or indirectly from BPM. This list should not be read as a roadmap, but as the types of opportunity available, depending on the company's maturity and the energy it decides to give the BPM development.

Benefits of BPM for the			
Enterprise	**Customer**	**Management**	**Actor**
Clear ownership for continuous improvement	Improved processes will positively impact customer satisfaction	Making sure that all the activities realized along a process add value	Security and awareness for actors
Agile response to measured performance	Mobilizing staff on stakeholders expectations	Optimizing performance all along the process	Better understanding of 'the whole picture'
Performance measurement benefits cost and quality	Keeping control on commitments to the customer	Improved planning and projections	Clarifying the requirements of a workplace
Monitoring improves compliance		Overcoming the obstacles of departmental borders	Defining precisely the appropriate set of tools for actors
Visibility, understanding, and change readiness improve agility		Facilitating internal and external benchmarking of operations	
Access to information simplifies process improvement		Organizing alerts levels in case of incident and analyzing the impacts	
Assessing process costs facilitates cost control and reduction			
Competence, consistency and			

adequacy			
Sustaining the knowledge			

Table 1. Benefits of BPM

1.5.1 Benefits to the Enterprise

Clear ownership and responsibility for continuous improvement

If responsibilities for processes are clearly assigned (e.g. to process owners), a lasting commitment to maintain and permanently improve processes can be ensured. If the customer does not get what they want or if internal goals are not achieved, clear-cut responsibilities ensure quick and well mapped-out actions.

Agile response to measured performance

BPM can feed day-to-day information control systems that measure process performance. Organizations with robust BPM capabilities can then respond rapidly to deviations in measured performance.

Performance measurement benefits cost and quality

Active measurement of process performance reinforces and benefits cost control and quality. Without performance measurement, organizations will not have the capability to achieve optimal performance.

Monitoring improves compliance

Most organizations face internal or external compliance risk through inaction or improper response to events. Monitoring process execution against compliance requirements can greatly mitigate such risks. Automated monitoring coupled with quality management and clear procedures and authorities can further mitigate compliance risk, while at the same time reducing compliance cost and improving overall quality.

Visibility, understanding, and change readiness improves agility

Without process management, organizations become bogged down in the unknowns, and can be blindsided by unaccounted internal or external changes. Organizations that document, manage, and measure their processes are prepared for continuous improvement and are better positioned to recognize and stay ahead of challenges.

Access to useful information simplifies process improvement

Having immediate access to process repositories and best practices facilitates and accelerates the improvement of processes or the effective reaction to environment changes and new rules and regulations.

Assessing costs of processes facilitates cost control and reduction

Knowing all the activities in a process facilitates assessing direct costs of processes and identifying the most effective ways to reduce them. Additionally this helps to better price delivered products and services.

Competence consistency and adequacy

Knowing all the activities executed in an organization enables competence consistency, standardization, and adequacy. This is also a foundation for assessing and managing core and competitive capabilities.

Documenting operations and sustaining the knowledge

The knowledge of activities and tasks performed by each entity of an organization is the basis for describing procedures (how the business is run). This set of documents provides a repository of knowledge useful to ensure its sustainability all around the company. It is an important part of the knowledge management of an organization.

1.5.2 Benefits to Customers

Improved processes will positively impact customer satisfaction

The improvement of processes helps to meet time expectations, increase the quality of products and services, and opens the possibility to reduce prices through cost reduction. All this leads to higher customer satisfaction.

Mobilizing staff on stakeholders' expectations

A process is designed to meet stakeholder requirements. It highlights all the actors who contribute to stakeholder satisfaction and allows each of them to recognize the purpose of their work, giving sense to the work they do.

Keeping control on commitments to the customer

Steering the processes gives control to individuals to regularly measure performance and, if necessary, to correct excesses in each part of the business. This allows individuals to focus on the customer's benefit.

1.5.3 Benefits to Management

Making sure that all the activities realized along a process add value

A process contains a set of activities that succeed one another and are linked. Every activity made has to bring an added value to the process. The identification of the various activities enables questions about their value, and if value cannot be found, it is advisable to delete them.

Optimizing performance all along the process

The process design helps staff to learn and master all of the necessary contributions. It helps focus performance analyses on each contributor and finds specific organizational and technological ways to improve the process. In the end, changes will reduce time and cost, while improving quality.

Improved planning and projections

Visible and measureable processes augment traditional sources of planning data. Leadership can take organizational performance and change plans into account in medium and long-term planning.

Overcoming the obstacles of departmental borders

Many companies are structured according to vertical silos where each branch optimizes its own activities. A process-based approach highlights the operational linkages between departments, necessary to effectively satisfy every request. A process view helps an organization focus on interactions and handoffs that will allow it to improve its overall processes and effectiveness.

Facilitating internal and external benchmarking of operations

A process approach based on activities and not on organization structures enables the comparison of different ways to achieve a common objective. In addition, Key Performance Indicators (KPIs) attached to the process make it easier to compare the relative performance of different solutions. These internal or external assessments facilitate to choose the best practices.

Organizing alerts levels in case of incident and analyzing the impacts

The process owner is in charge of the day-to-day execution of their processes. Within various process teams, the process owner must develop ways and means for early detection of dysfunctions that emerge and ensure organized and focused ways to communicate with others, depending on the nature of the situation.

1.5.4 Benefits to Actors

Security and awareness for actors

Knowing the importance of an individual's contributions and performance according to goals and indicators creates awareness of the work performed, clarifies the importance of each position, and helps to build the importance of the customer's experience.

Better understanding of 'the whole picture'

Documented and well-understood processes promote awareness of the interdependence among activities, and therefore the importance of compliance as a key success factor for the overall business success. Designing processes requires analyzing existing practices and offers the opportunity to identify any gaps in the business documentation (non-described or outdated procedures, etc.).

Clarifying the requirements of a workplace

The knowledge of the work performed provides the ability to design training modules adjusted to the needs of the workplace.

Defining precisely the appropriate set of tools for actors

Knowing processes in details help accurately identify all the necessary resources consistent in quantitative (workload) and qualitative (skills) terms. It optimizes the workplace and its documentation.

1.6 BPM Overview

BPM provides a means to focus on results as well as course of action. Figure 2 illustrates three broad applications for BPM.

Business Process Management (BPM)		
Business Process Improvement	**Enterprise Process Management**	**Continuous Refinement**
Singular **Initiative** (mostly project driven) • Selection • analysis • design and • implementation of a particular process in order to improve the alignment and performance .	**Application of BPM** • principles and • methods to an **individual enterprise**, aligning process • governance • portfolio and • architecture with the strategy and resources of an organization.	**Sustained feed-back control system** to make specified processes more efficient and effective.
Applied methods e.g. • BPM methodology (lifecycle) • Six Sigma • Lean Management • TQM • Business Reengineering • Performance Improvement • Activity based costing	**Process Management Maturity Level** To determine the standard achieved	

Figure 2. Views of BPM

Initiatives can be limited in scope, such as a project that is targeted on **Business Process Improvement (BPI)**. This can be achieved by the application of the BPM Lifecycle as described in this Guide or by applying other methodologies like Lean Management or Six Sigma.

> ***Business Process Improvement (BPI)*** *is a singular initiative or project to improve the alignment and performance of a particular process with the organizational strategy and customer expectations. BPI includes the selection, analysis, design, and implementation of the (improved) process.*

BPM can also mean a holistic system as the outcome of initiatives or projects. This result, called **Enterprise Process Management (EPM)**, includes the strategy, values and culture, structures and roles, and a whole set of end-to-end processes with their associated goals and indicators, IT, and people. The degree of progress reached can be assessed as Process Management Maturity Level.

> ***Enterprise Process Management*** *(EPM) is the application of BPM principles, methods, and processes to an individual enterprise. EPM (a) assures the alignment of the portfolio and architecture of end-to-end processes with the organization's strategy and resources and (b) provides a governance model for the management and evaluation of BPM initiatives.*

BPM can also be seen as a **Continuous Refinement**, which can be achieved by the application of a day-to-day feedback control system to permanently improve the quality of single processes and the Enterprise Process Management System.

> ***Business Process Continuous Refinement*** *is the sustained approach to make specified processes more efficient and effective by applying a concurrent and responsive feedback control system.*

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Chapter 2

Business Process Management

Foreword by Janelle Hill, VP Gartner, Inc.

Gartner's Vision for Business Process Management

During the past 100 years, breakthroughs in process management have been fundamental to the progress of corporations, industries, and economies. Process and quality discipline transformed Japan's fortunes in the decades after World War II, which shows the economic muscle that better process management can deliver.

In 2011, we are at the beginning of another era in process thinking—a period that, in Gartner's view, will be distinguished by operationally resilient processes, not just standardized and efficient processes. In Gartner's view "operational excellence" should no longer simply be measured by inward-looking, efficiency-oriented metrics. Instead, key tenets of BPM emphasize process visibility, accountability, and adaptability in order to continually optimize results and better meet the challenges of a globally diverse business environment.

To meet these challenges, enterprises need to improve their ability to anticipate and respond to shifting market and customer demands. Businesses want their operations to become more resilient, especially given the frequency of disruptive events in a global economy. Yet, despite 'business agility' having been the mantra of BPM for the last 10 years, few organizations have actually achieved this goal. Although leaders in BPM are delivering more frequent changes to their processes and have fostered a culture of continuous process improvement, their processes are still not designed for change. Implementing change continues to be difficult, often requiring deep technical skills. More typically, IT delivery cycles rather than the pace of business still control process adaptability.

There are many reasons for this lack of achievement. One factor is that few organizations have yet identified those processes that truly need to become more agile. Few business leaders have asked themselves questions such as:

- What are the signals in our work that would indicate that operational change might be needed? And how can we monitor the environment for those signals?
- What events (internally and externally triggered) would drive us to change how work is done?
- What aspects of work specifically need to change and how often?
- Who should decide that change is appropriate and what specific change is needed?
- How can we communicate the desired change and ensure that it is implemented?
- How can we know if the change achieves the desired outcome? And if it doesn't, could we undo the change easily?

Furthermore, our research finds that most organizations continue to focus on small improvements to structured processes, when the bigger opportunity for process differentiation is in knowledge-intensive work. Work performed by knowledge workers is largely unstructured: it is non-routine and not performed in a predictable, sequential fashion.

Knowledge work involves research, analysis, high levels of expertise and judgment, collaboration, risk assessment, and creativity, in addition to investigative, negotiating, and communication skills and more. The characteristics of knowledge work have largely precluded it from the benefits of software automation for decades. This can’t continue. Why? Because leading economies around the world depend on knowledge worker success. The world’s leading economies are all services-based—not agricultural- or industrial-based anymore. Services-based industries depend on harnessing knowledge. Therefore, organizations should start to apply process management techniques to better support and coordinate these more unstructured work domains.

Yet the exposure is high because knowledge work is inherently complex and will challenge traditional process thinking. Applying BPM to knowledge-centric domains does *not* mean forcing structure and routine onto these areas. Instead, advanced BPM-enabling technologies like explicit models, real-time data feeds, virtualization, social media, and statistical analysis can be incorporated to *coordinate (not automate)* resource interactions, to prioritize work, and make the process and individual work efforts transparent. By incorporating modern BPM techniques (such as empowering those closest to the customer experience of the work) and technologies, businesses can become more responsive to shifting market demands. BPM is increasingly about fostering effective work habits, not just standardizing processes to increase efficiencies.

Implementing BPM is difficult. The main barriers to any significant change are the human ones: inertia and vested interests. And knowledge workers are among the most resistant to process improvement. They see it as diminishing their expertise and unique insight. However, even this attitude reflects long-held misperceptions of process improvement. Process improvement does not always mean making all work routine. A lot of BPM effort is about managing the aggregate performance outcome of the end-to-end process, not just increasing controls over the individual activities and tasks. To achieve operational resilience, the culture and attitudes of the organization must also change. The shift in management practices for BPM will not come easily but can have far-reaching consequences.

BPM is a journey, not a destination. The adoption of BPM will strengthen competitive advantage in well-positioned companies. BPM-centric companies will enjoy increased alignment between operations and strategy, greater operational resilience, less-intrusive compliance and of course, increased efficiencies. Begin your journey today!

Contents

2.0 Introduction

This chapter introduces general Business Process Management definitions and concepts, which provide an essential foundation for exploring the remainder of the BPM CBOK.

2.1 What is Business Process Management?

By definition, Business Process Management is a management discipline that treats business processes as assets. It presumes that organizational objectives can be achieved through the definition, engineering, control and dedication to continuous improvement of business processes.

While this definition of Business Process Management is a good start, to truly understand what BPM is, it must be looked at from a number of perspectives. Following is an introduction to several BPM Core Concepts, which will be elaborated throughout the remainder of the CBOK. These core concepts are:

- Business Process Management is a Management Discipline
- Successfully implemented, Business Process Management is a Core Internal Capability
- Business Process Management addresses the delivery of value to customer
- Business Process Management addresses end-to-end work and the orchestration of activities across business functions
- Business Process Management addresses What, Where, When, Why and How work is done and Who is responsible for performing it
- The means by which business processes are defined and represented should be Fit For Purpose and Fit For Use
- Business Processes should be managed in a closed-loop cycle to maintain process integrity and enable continuous improvement
- Coordinated and proactive management of business processes requires significant investment in internal business capability development
- Internal capabilities required to support enterprise-wide Business Process Management are developed along a Process Maturity Curve
- A Business Process Management implementation requires the introduction of new roles into the organization
- Business Process Management is not a prescribed framework, methodology, or set of tools
- Technology plays a supporting role, not a leading role in a Business Process Management implementation
- The Implementation of Business Process Management is a Strategic Decision and requires strong executive sponsorship for successful implementation

2.2 BPM Core Concepts

2.2.1 Business Process Management is a Management Discipline

The word "Management" traces to the French word *ménagement*, "the art of conducting, directing," and to the Latin word *manu agere,* "to lead by the hand." It describes the act of leading all or part of an organization through the deployment of human, financial, material, and intellectual resources toward fulfillment of stated objectives, specifically the maximization of value to customer and thereby a return on investment to shareholders.

A "Discipline" is a body of knowledge that addresses commonly accepted principles and practices in a specific subject area.

A "Management Discipline" therefore is a body of knowledge that addresses the principles and practices of business administration. It specifies the principles and practices that direct the management of business resources toward stated objectives.

Business Process Management is a Management Discipline which assumes that organizational objectives can best be achieved through focused management of the organization's business processes. Defined in this context, Business Process Management is a body of knowledge used to establish principles and practices to direct the management of resources under this assumption.

The relevance of introducing Business Process Management as a management discipline is threefold:

- Business Process Management is not a prescribed methodology and toolkit consumed wholly by an organization, but instead a Body of Knowledge consisting of principles and best practices to guide an organization in the development of these elements
- The Body of Knowledge can be applied to any organization, whether a for-profit, non-profit or government entity, for the purpose of directing business resources toward strategic objectives
- Effective management of business processes requires participation from the entire organization, from executive management through operational staff and across all functions and roles. Successfully implemented, Business Process Management becomes engrained in the culture and defines the way business is conducted.

2.2.2 Successfully implemented, Business Process Management is a Core Internal Capability

Implicit in the definition of Business Process Management as a Management Discipline is the assumption that organizations that have successfully implemented it "have the ability to" effectively manage their business processes. In other words, they have developed a Business Process Management capability.

A capability in this context is a collection of processes, people, and technologies that together provide value toward the achievement of strategic objectives.

To "have the ability to" effectively manage business processes (to have a Business Process Management capability), an organization must possess the processes, people, and technologies to do so. To put it another way, an audit of an organization's Business Process Management capability should uncover:

1. Business processes which themselves support the management of business processes. For example, an organization should have processes that enable:

    - The definition and design of business processes
    - The build and deployment of business processes
    - The monitoring and control of business process execution
    - The continuous improvement of business processes over time, in spite of and in response to internal and external change.

2. Specific roles (people) that are engaged in the management of business processes. These might include, but are not limited to:

    - Process Architects responsible for business process definition and design
    - Process Analysts responsible for build, deployment, monitoring and optimization of business processes
    - Process Owners responsible for the end-to-end execution of business processes against defined performance expectations and ultimately the delivery of value to customer.

3. Specialized technologies deployed to support the management of business processes. These technologies provide functionality to:

    - Define business processes in the context of overarching enterprise architecture
    - Design business processes for deployment
    - Execute business processes in operations
    - Monitor business processes against performance expectations
    - Analyze business processes to identify and validate improvement opportunities
    - Manage and control business process change.

2.2.3 Business Process Management addresses the delivery of value to customer

The premise of Business Process Management is that organizational objectives can be achieved through focused management of business processes. Regardless of whether an organization is for-profit, not-for-profit, or a government entity, an organization's primary purpose is to deliver value to customer in the form of products and services. This purpose is what all organizational objectives should trace to.

Common in MBA programs is the principle that a for-profit organization's primary purpose is to deliver a return on shareholder investment. This simply will not happen (at least not for long) if customers do not perceive value from the organization's product and/or service offerings. So again, the primary purpose of an organization is to deliver value to customer in the form of products and services; shareholder value is driven from there.

Simply defined, a business process is a set of activities that transform one or more inputs into a specific output (product or service) of value to a customer; and so it follows that organizational objectives can be achieved through focused management of business processes.

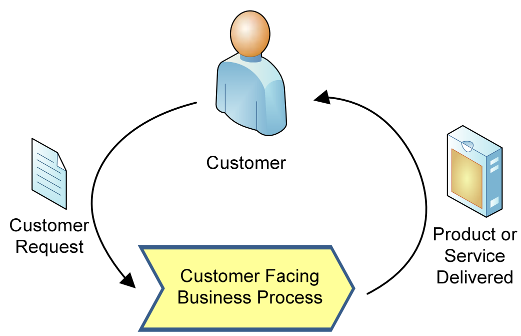


Figure 3.

To some who are first introduced to Business Process Management, or to those who may not have a complete understanding of it, the statement "organizational objectives can be achieved through focused management of business processes" can seem bold. But when the statement is thoroughly decomposed and analyzed, the logic tracks:

- Organizations exist to deliver value to customers in terms of products or services
- All organizational objectives should therefore trace to delivery of value to customer
- Business processes are the vehicles by which products and services are created and delivered to customer
- Business Process Management establishes the means by which business processes are managed
- Therefore Business Process Management is a means for achieving organizational objectives.

Important in this discussion of customer is an understanding that "Customer" is entirely dependent upon the business context under analysis. Clearly, the concept of customer external to the enterprise is well recognized. For example,

- The customers of a tire manufacturer are car manufacturers and people who drive cars.
- The customers of a financial services provider are individuals and business entities who save and invest money.

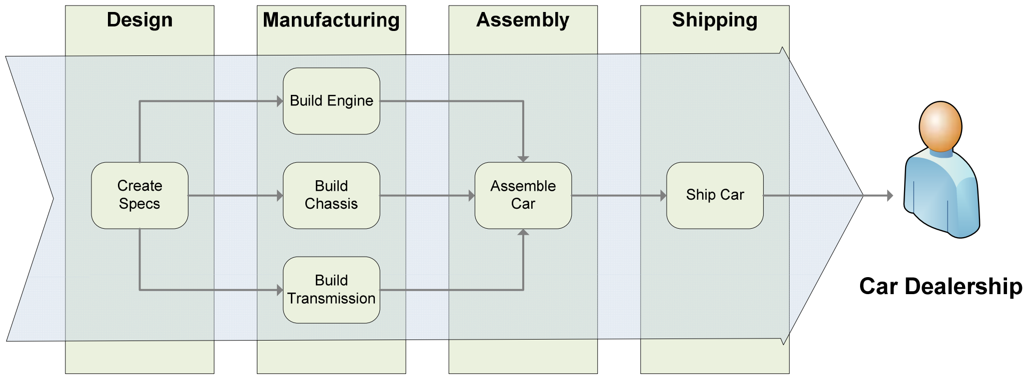


Figure 4.

Less obvious is the concept of customer between functions within an enterprise. In Figure 4, engines, transmissions, and chassis are engineered in Design, made by Manufacturing and put together by Assembly.

If a context boundary were drawn around the manufacturing organization, and, for the sake of analysis, if the manufacturing organization were imagined as an independent organizational entity, the customer of the Manufacturing Organization is Assembly and the products delivered are Engines, Chassis, and Transmissions. The Supplier of the Manufacturing Organization is Design, and the value provided is in the form of Design Specifications.

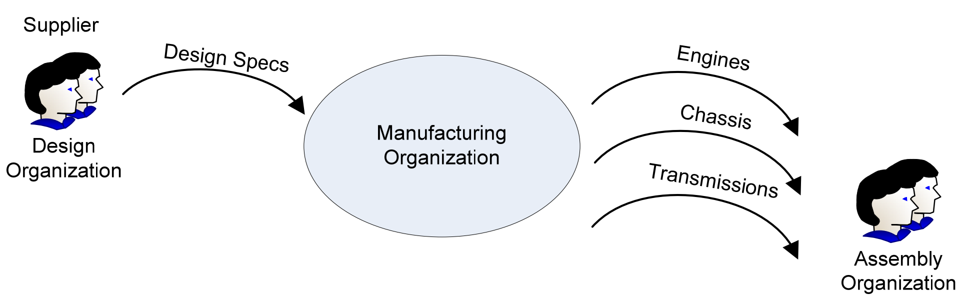


Figure 5

In another example, the Information Systems organization within a Pharmaceutical company provides services to the other lines of business. Each of these services is delivered to the lines of business through business processes executed by Information Technology. This Service Provider / Customer relationship is illustrated below.

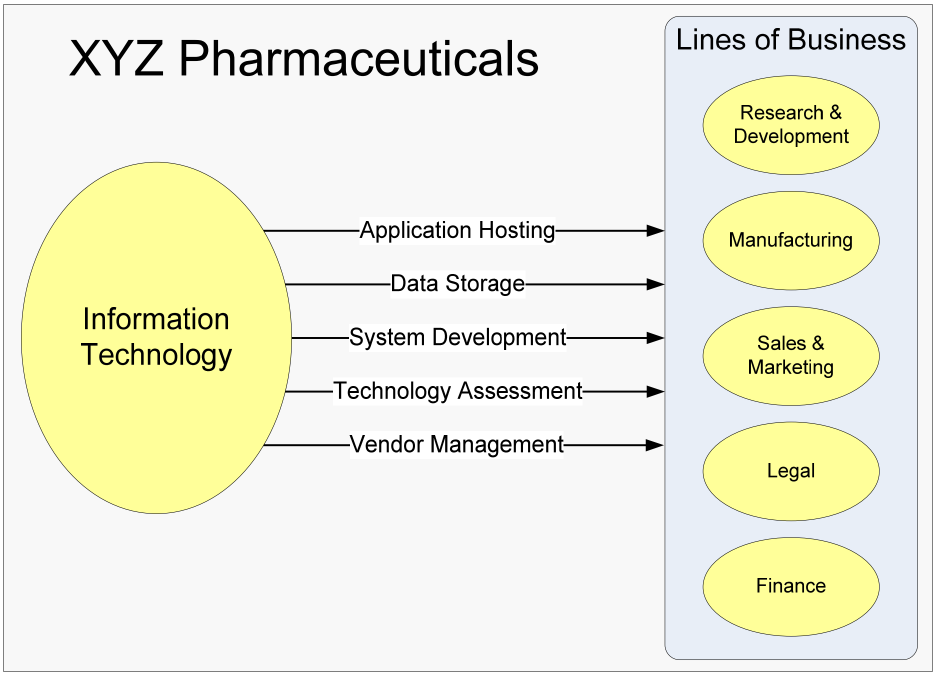


Figure 6. Service provider/Customer relationship

The key takeaway in these examples and a key concept in Business Process Management is that business processes deliver value to customer in the form of products and services. Business Process Management is about optimizing the means by which this value is delivered.

Organizations successful in business process management instill and foster a culture of customer focus at the enterprise level, the functional level, and down through the role level.

2.2.4 Business Process Management addresses end-to-end work and the orchestration of activities across business functions

A Business Function is a classification of work that is done by an organization based upon a particular skill or professional expertise. For example, sales, finance, manufacturing, supply chain, and customer relationship management are all classic business functions. In this context, a business function can be thought of as a "center of excellence"—a grouping of people and tools specialized in a specific profession, discipline, or area of expertise.

Considering that a Business Process is a set of activities that transform one or more inputs into an output (product or service) of value to a customer, it stands to reason that most complex products and services will require contribution from multiple business functions.

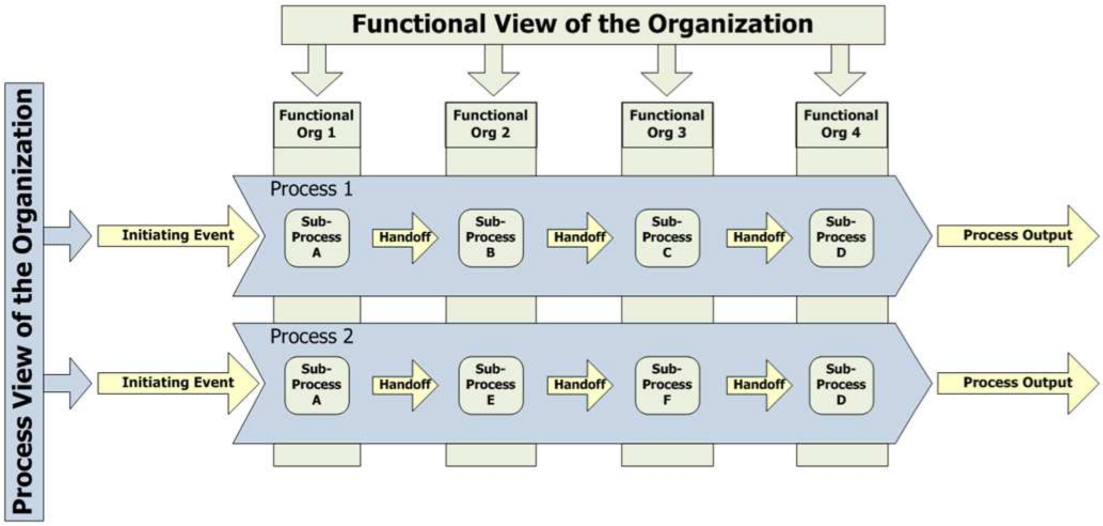


Figure 7.

The diagram above illustrates

- Activities performed by Business Functions containing specialized expertise
- Sequences of activities orchestrated across multiple Business Functions and constituting a Business Process.

The end-to-end management of Business Processes and the controlled orchestration of activities across multiple Business Functions is the essence of Business Process Management and what differentiates it from traditional Functional Management. In today's complex organizations, Business Process Management and Functional Management disciplines must cohabit and work together for the organization to remain competitively viable.

- Functional Management ensures execution of the myriad functional disciplines required to produce the organization's products and services.
- Business Process Management ensures work is coordinated across these myriad functions in order to deliver products and services in the most effective and efficient manner possible.

2.2.5 Business Process Management addresses What, Where, When, Why and How work is done, and Who is responsible for performing it

In many organizations, business processes visibility and understanding are often facilitated by graphical representations of activities in boxes strung together in swim lanes, as in the diagram below.

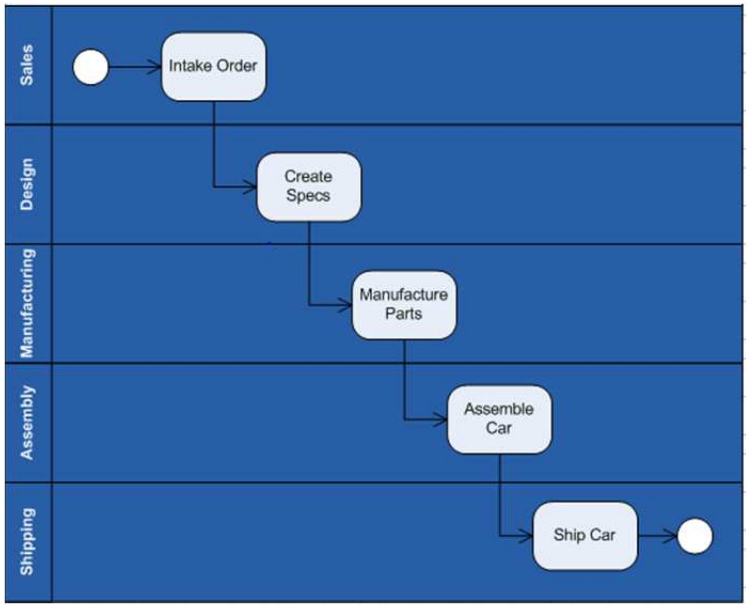


Figure 8.

Stepping back to examine what information is communicated in this diagram, we discover it simply represents "Who does What work." While this information might be extremely helpful, it also might leave a number of unanswered questions, such as:

- When is the work done?
- What material or informational inputs are required?
- What deliverables and artifacts are produced?
- Where is the work done?
- Where are the work deliverables and artifacts stored?
- Why is the work done?
- Who benefits from the final output?

A comprehensively defined business process will address What, Where, When, Why and How work is done, and Who is responsible for performing it. A well-structured process definition will provide the right amount of visibility and detail to the various consumers of this information, potentially across all levels of the organization. While swim lane diagrams like the one above are often critical components of a complete business process definition, numerous other representations need to be included in the full package.

A small sample of artifacts often created and maintained includes those that represent

- Business context, including the internal capabilities the process supports and how the business process contributes to the delivery of products or services to an external customer

- Process context, including suppliers and inputs, output and customers, triggering and resulting events, process controls, enabling resources, and performance targets
- Business transactions detailing the passage of work products between functions and roles within an organization and between the organization and suppliers and customers
- State transitions detailing the various stages of work product development as they progress and are transformed through the process
- Business events created both internal and external to the process, and how these events trigger the various activities and gateways that make up the process
- Process decomposition, illustrating how a business process is broken down into smaller and smaller units of work from the highest-level identification to the lowest-level procedural task
- Performance expectations detailing the commitment to the customer with respect to product or service delivery and the various performance indicators established and measured throughout the process to ensure these commitments are met
- Organizational structure and depictions of how the various functions and roles within an organization are assembled to support process execution
- Information system functionality and how that functionality is leveraged to support process execution.

The key takeaway is that comprehensive management of an end-to-end business process requires a comprehensive understanding of the business process. This understanding must extend well beyond How work is done: it must also address What work is done, When, Where, Why, and by Whom. A Business Process Management discipline must accommodate the means by which this comprehensive understanding is facilitated.

2.2.6 The means by which business processes are defined and represented should be Fit for Purpose and Fit for Use

Clearly, the development and maintenance of a business process definition that can answer every conceivable question about Who, What, Where, When, Why, and How work is done for every potential role within an organization would require a significant investment in time and resources. If possible at all, the cost of developing and maintaining such a model would likely far exceed the value derived from this effort.

While every representation described in the section above is generically valid, it is incumbent upon the person(s) responsible for developing and maintaining the process definition to understand which representations are required to meet business need. In other words, it is prudent to understand what purpose the process definition will serve, and focus on building and maintaining only the representations that support this purpose.

For example, consider the following business needs a process definition might support and the different mix of process representations required to support each need:

- The Executive Leadership team relies upon business process definitions to support value chain analysis, culminating in the establishment of new and modified strategic objectives.
- The Business Continuity and Disaster Recovery team relies upon business process definitions to understand the critical capabilities, processes and underlying functions that must be restored to maintain commercial viability after a catastrophic event.
- The Corporate Compliance team relies upon business process definitions to ensure the organization is in compliance with external regulations and to understand what specific processes and procedures would need to be examined in the event of regulation change.
- The Chief Technology Officer relies upon business process definitions to support the development and maintenance of the enterprise technology roadmap.
- A Functional Manager relies upon business process definitions to ensure complete coverage of onboarding, training, and job support material for her operations staff.
- A Business Analysis team relies upon business process definitions to identify instances where technology investment will provide a positive return on investment.
- An Information Technology Development team relies upon business process definition to understand how information systems requirements and design support business function.
- A Workflow Application relies upon a business process definition to automatically orchestrate activities across operations staff and other functional applications in a production environment.

While each of the above business needs is supported by the existence of business process definitions, in each circumstance, the information needs and most suitable representations of this information are different. The key takeaway is that a process definition should be fit for purpose and fit for use:

- Fit for purpose implies that the process definition contains all necessary information to answer the Who, What, Where, When, Why, and How questions it is intended to address.
- Fit for use implies that the process definition is structured to represent this information in the most efficient and effective manner possible, considering the needs of the intended audience.

2.2.7 Business Processes should be managed in a closed-loop cycle to maintain process integrity and enable continuous improvement

Organizations with mature BPM capabilities manage their processes in a closed-loop cycle that addresses the planning, design, implementation, execution, measurement, control, and continuous improvement of business processes.

BPM literature is rife with Business Process Lifecycles that describe this closed-loop management approach. Regardless of the number of phases in a Business Process Lifecycle and regardless of the labels used to describe them, the vast majority can be mapped to the Plan, Do, Check, Act (PDCA) Cycle made popular by Dr. W. Edwards Deming in the 1950s.

Figure 9. Deming's Plan Do Check Act (PDCA) Cycle

Because of its simplicity, celebrity, and lack of bias toward any specific and commercialized methodology or framework, the PDCA Lifecycle will be used here in our discussion of Business Process Lifecycle and Lifecycle Management.

Practical application of a Business Process Lifecycle can vary greatly, depending on the scope of that to which it is applied. On one end of the spectrum, the Lifecycle can be applied separately to Business Processes that are defined, implemented, and managed independently of one another. This practice is often seen in one-off process improvement initiatives and within organizations whose business and process architecture disciplines (and consequently, concepts of architectural component interoperability and reuse) have not fully matured. On the other end of the spectrum, the Lifecycle can be applied to Business Processes in aggregate when it is recognized that the engineering, deployment, and managed coordination of many business processes spanning multiple functional organizations is what ultimately leads to optimized delivery of value to Customer. This level of Lifecycle application is common in organizations that have successfully invested in an enterprise-level Business Process Management implementation with a fully baked business and business process architecture discipline.

For this discussion, the PDCA Business Process Lifecycle is applied to a single Business Process, as is common in one-off process development or improvement efforts.

The Plan Phase

The purpose of the "Plan" phase of the PDCA Lifecycle is to ensure that both business process context and internal process design align with the organization's strategic objectives.

Figure 10.

Defining the business context (Business Context Definition) is the vehicle for ensuring a solid understanding of how the process relates to its external environment. This critical step is performed to ensure an understanding of process scope when the following information, at a minimum, is known:

- The customer of the process
- The process output and a clear understanding of why the process output is considered valuable to the customer
- How the process and process output align to the organizational mission and support strategic objectives (i.e., how, contextually, the process fits into an overarching process architecture)
- The process input(s), the event(s) that can trigger process execution, and the channels through which those triggers can occur
- The existence of controls, such as external regulation or internal policies and rules, which constrain process design and execution
- Baseline performance (effectiveness and efficiency) targets (assuming this is an existing business process)
- Future-state performance (effectiveness and efficiency) targets

Once Business Context is established, the internal workings of the business process can be designed. This step is critical in defining what deliverables are produced, what work is performed, when the work is performed, where, by whom, and under what constraints. A well-designed business process will yield and clearly articulate, at a minimum,

- The activities that make up the business process
- The various deliverables and artifacts that are produced during process execution and the various states through which they progress
- Organizations, functions, and roles that take part in process execution
- Information systems used to support process execution
- The various locations in which activities are performed and in which deliverables and artifacts related to the process are stored
- Specific events that drive process execution

- Business rules that constrain process execution
- Process performance metrics and measurement points.

Additionally, a well-designed business process will detail the relationships between the business process components identified above. For example,

- Which roles are responsible for executing which activities
- Which activities produce which deliverables
- Which events trigger which activities
- Which activities are executed in which locations
- Which deliverables are stored in which locations
- Which information systems support which activities.

Success in the “Plan” phase yields

- A clear understanding of how the business process supports the Organizational Mission. In other words, validation that the process output either indirectly or directly contributes to the customer value proposition.
- Assurance that process design supports the Organizational Vision. In other words, if deployed as designed, the process will meet performance expectations that can be traced to overarching organizational efficiency and effectiveness targets.

In organizations that lack the ability to engage in proper planning, process development is driven instead by assumption and gut feel. These organizations often suffer from misalignment, political infighting, operational firefighting, value chains broken across functional silos, operational staff feeling disconnected from management, and an inability to drive forward progress.

The Do Phase

The purpose of the “Do” phase of the PDCA Lifecycle is to deploy the process per the specifications developed in the “Plan” phase and to commit the process to operations.

Figure 11.

The physical implementation of business process can take many forms, including but not limited to:

- Creation of new roles and role responsibilities or the modification of existing ones
- Development or restructuring of functional organizations
- Build or enhancement of information systems, including functional applications and business process and workflow automation
- Development and deployment of operational support tools such as Standard Operating Procedures, Job Aids, and System User Guides
- Introduction of new customer channels and touch points
- Creation and implementation of process performance monitoring mechanisms, performance dashboards, and escalation mechanisms.

Once the business process is deployed into operations, the "Do" phase of the PDCA Lifecycle also addresses actual process execution. In other words,

- The process is triggered by initiating events
- Process inputs arrive
- Activities are executed
- Sub-deliverables are produced
- Process outputs are generated and delivered.

The Check Phase

The purpose of the "Check" phase of the PDCA Lifecycle is to measure process performance against performance expectations.

Figure 12.

As defined above and illustrated in the diagram below (Figure 13), a business process is a collection of activities that produces a specific output of value (product or service) to a customer. This definition has both an internal aspect (collection of activities) and an external aspect (value to customer), so process performance is best monitored from both perspectives.

Performance measures gathered from outside in, or from the customer perspective, are typically referred to as *effectiveness measures* and are designed to answer the question "Are we doing the right things?" These measures are put in place to ensure customer needs and expectations are consistently met.

Performance measures gathered from inside out, or from the internal operations perspective, are typically referred to as *efficiency measures* and are designed to answer the question "Are we doing things right?" These measures are put in place to monitor process performance with respect to time and cost.

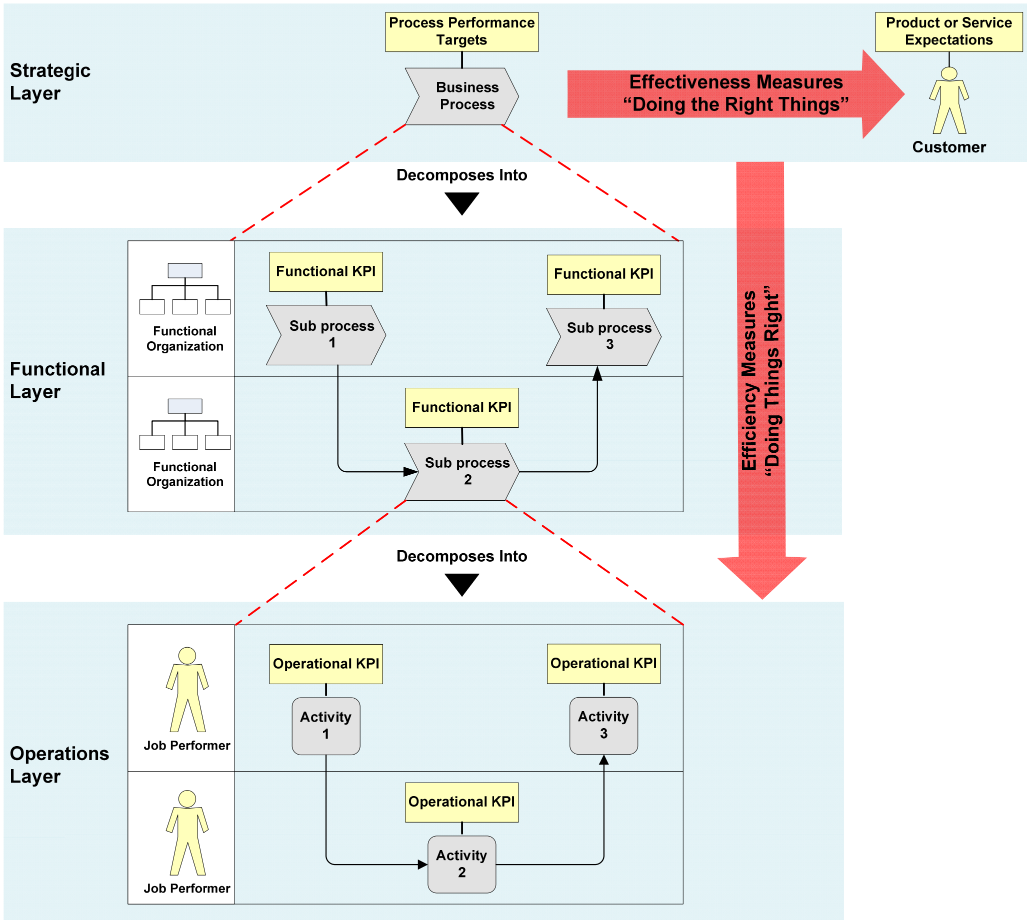


Figure 13.

A well-architected process definition in the "Plan" phase is the key to achieving useful metrics in the "Check" phase. As illustrated in the diagram below (Figure 14), customer expectations around product or service delivery drive process performance targets. These highest-level performance targets are in turn decomposed into underlying performance targets that can be set at the functional and operational level. In theory:

- If all operational targets are met then functional targets are satisfied
- If all functional targets are met then highest level process performance targets are satisfied
- If all process performance targets are satisfied then so is the customer.

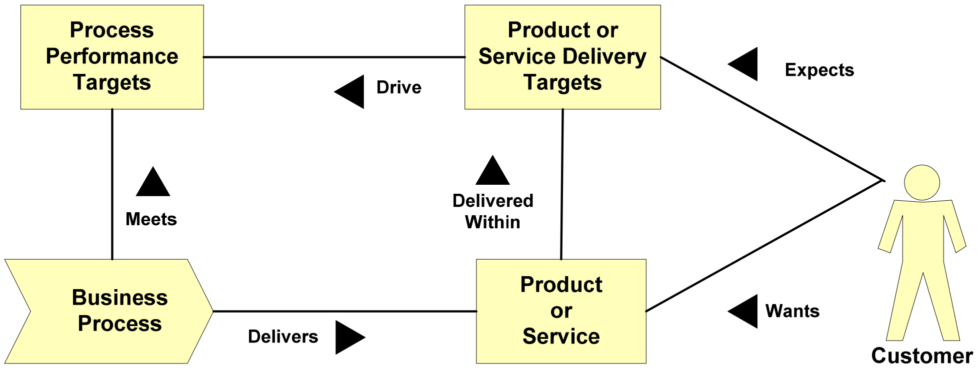


Figure 14.

The “Check” Phase of the PDCA Lifecycle represents the mechanism for measuring against these targets.

A critical factor in understanding the “Check” phase of the PDCA Lifecycle is that process performance measurement can be extremely comprehensive, involving the gathering of a wide variety of data from a number of sources and feeding a range of decisions and actions in the “Do” phase which span a real-time, near-term, and longer-term time horizon.

Traditional categories of performance measures include:

- Timeliness: e.g., throughput, cycle time and delivery on date promised
- Product Quality: e.g., freedom from defects, volume of rework and product reliability
- Service Quality: e.g., responsiveness, trustworthiness and service reliability
- Cost: e.g., labor cost, material cost, overhead and cost of rework
- Customer Satisfaction: e.g., product or service perceptions meet expectations.

The Act Phase

The purpose of the “Act” phase of the PDCA Lifecycle is to make determinations and react accordingly to process performance data collected in the “Check” phase. This phase enables maintenance of process integrity despite environmental instability and through environmental change, and ensures the process can be continually improved to meet new performance goals over time.

Figure 15.

Two categories exist for “Acting” on process performance data collected from the “Check” phase:

- Actions on individual process instances (real-time or near-real-time intervention)
- Identification and planning of change to process definition and deployment (i.e., changing the way all process instances will be executed in the future).

The first category (actions on individual process instances) can only happen where real-time or near-real-time performance monitoring exists. For example, as part of a new hire process, a workspace must be set up by Space Management two days prior to start date. Process monitoring is performed to ensure this occurs. If it does not, the issue is escalated along a defined escalation path for resolution.

The second category (identification and planning of change to process definition and deployment) is the feedback loop, which ensures the continuity of a process through environmental change and enables the continuous improvement of a process over time. For example, from monitoring activities in the check phase, the following is determined about the new hire process:

- 45% of all workspace setups are not completed within the two-days-prior-to start-date time requirement and must be escalated, which increases the cost to fulfill by $2000 per incident
- 95% of Human Resource Specialists indicate "Dissatisfied" or "Extremely Dissatisfied" with technologies to support pre-employment screening and tracking activities
- A new union requirement dictates that all newly hired full-time employees must be provided an ergonomic assessment of their workspace and reasonable accommodation within one month of start date
- Executive leadership establishes a new objective: Reduce time to fill a vacant position by 22 business days.

All of the above examples represent potential changes to the current-state process definition and deployment. The "data" to support these observations is collected during the "Check" phase of the PDCA Lifecycle. Future-state process definition stemming from these observations will occur in the "Plan" phase. Therefore, the "Act" phase must accommodate:

- The collection and aggregation of data and observations from the "Check" phase
- An analysis of this data and list of observations for criticality and impact
- The development of recommendations to address the each item in the list (i.e., future-state design requirements)
- A ranking and prioritization of all future-state design requirements to be accommodated during the next "Plan" phase of the PDCA Lifecycle.

2.2.8 Coordinated and Proactive Management of Business Processes requires significant investment in internal business capability development

In our discussion above, the PDCA Lifecycle was applied to the management of a single business process in isolation. In reality, on an enterprise-wide or even on an organization-wide level, value to customer cannot be wholly delivered through the execution of a single business process, but rather through the coordinated management of many intertwined business processes.

For this discussion, business processes can be categorized into three types:

1. **Primary Processes** are end-to-end, typically cross-functional processes that directly deliver value to customer. Primary processes are often referred to as "core" processes because they represent the essential activities an organization performs to fulfill its mission. These processes make up the value chain where each step adds value to the preceding step, measured by its contribution to the creation or delivery of a product or service and ultimately delivering value to a customer.

2. **Support Processes** are designed to support primary processes, often by managing resources and/or infrastructure required by primary processes. The main difference between primary and support processes is that support processes do not directly deliver value to customers, while primary processes do. Common examples of support processes include those found in information technology, facilities, finance and human resource management. While support processes are often tightly associated with functional areas (for example a process that grants and revokes network access), support processes can and often do cross functional boundaries.
3. **Management Processes** are designed to measure, monitor, and control business activities. They ensure that primary and support processes are designed and executed in a manner that meets operational, financial, regulatory, and legal goals. Management processes, like support processes, do not directly add value to customers but are necessary to ensure the organization operates according to effectiveness and efficiency targets.

   As explained earlier in this chapter, the Business Process Management discipline, if implemented successfully and comprehensively, constitutes a set of internal business capabilities that include the ability to design, deploy, monitor, control, and continuously improve business processes. These capabilities are themselves realized through the execution of business processes that exist solely for the purpose of designing, deploying, monitoring, controlling, and continuously improving other primary and support business processes. These constitute a Business Process Management Discipline and are prime examples of Management Processes.

Understanding how these three different types of business processes (Primary, Support, and Management) interact and interface with each other in a complex organization is absolutely essential to understanding the Business Process Management discipline. Consider, for example, a car dealership and the total value delivered to car dealership customers. This might include:

- The ability to purchase a car
- The ability to finance a car (if necessary)
- The ability to have a car serviced (if elected).

From an outside-in[1] perspective, all the customer really sees is the output of three business processes:

- Sell a car (the customer drives off in a new set of wheels)
- Finance a car sale (the customer receives a payment coupon in the mail)
- Service a car (the customer brings the car in periodically for an oil change and tune-up)

These are examples of Primary Business Processes because they directly deliver value to a customer.

A look inside the car dealership at what it takes to deliver this value to customer reveals a much more complex picture. To deliver this value consistently and to remain competitive in the marketplace, the car dealership must possess a number of internal capabilities perhaps not recognizable to the customer. For example, the ability to

- Access capital to purchase inventory from manufacturer
- Assess the marketplace to optimize the mix of used and new cars and car models in inventory
- Order cars from manufacturers and wholesalers
- Keep the showroom floor and inventory of vehicles clean and presentable
- Manage customer and supplier data
- Hire and onboard sales people, finance specialists, and service technicians
- Manage payroll and benefits
- Monitor interest rates and assess finance packages and options from competing suppliers
- Stock the service center with parts and tools.

Each of these "abilities" is realized through the execution of one or more Support Business Processes. None of them directly adds value to car dealership customers, but a failure in any one of them could result in degradation of value delivered.

Additionally, if the dealership is truly practicing comprehensive management of business processes, it must also possess the ability to do things like

- Measure customer satisfaction
- Measure efficiency (time and cost) of service delivery
- Identify opportunities for process change and improvement
- Align process improvement opportunities to strategic objectives and prioritize them accordingly
- Build process improvement opportunities into future-state design and deploy these designs effectively and efficiently into operations
- Measure the return on investment of all the above.

[1] Business Process Management (BPM) is a Team Sport: Play it to Win!, Andrew Spanyi, 2003

Each of these "abilities" is realized through the execution of one or more Management Business Processes that constitute a Business Process Management discipline. Like the Support Business Processes, none of them directly add value to car dealership customers, but they are put in place to optimize the efficiency and effectiveness of this value delivery.

In enterprise-wide or even in large organization-wide Business Process Management implementations where dozens to hundreds or thousands of intertwined business processes must be managed in concert, it is typical to see investment in the development of specialized capabilities to support this effort. In our discussion of Business Process Lifecycle Management, the PDCA Lifecycle was applied to the management of a single business process. To apply it to the comprehensive management of all Primary, Support, and Management processes deployed within an enterprise requires understanding the various specialized capabilities that must exist. These capabilities may be housed within a single business function (i.e., a "Center of Excellence") or spread through specialized roles across several business functions.

Managing business processes in aggregate through the "Plan" Phase of the PDCA Lifecycle usually involves the development of capabilities to support **Process Planning and Definition**. For example,

- Strategic Planning to ensure strategic objectives are aligned to market need and resulting strategies are tied to underlying capabilities, processes, functions, and technologies
- Enterprise Architecture (incorporating at the very least Business, Information, Application, and Technology Architecture disciplines) to ensure that critical organizational components are identified and relationships between components are optimized
- Transformation Planning to drive organizational strategies through architecture, culminating in optimal and achievable Future-State Operating Models and the Roadmaps for achieving them.

Managing business processes in aggregate through the "Do" Phase of the PDCA Lifecycle usually involves the development of capabilities to support **Detailed Process Design, Build, and Deployment**. For example,

- Portfolio Management to sequence, initiate, and manage the execution of large portfolios of business-centric and technology-centric initiatives driven from Transformation Planning
- Project Management to manage individual business-centric and technology-centric initiatives underneath project portfolios
- Organizational Change Management to both prepare for and support the organization through change, and to continuously monitor and assess an organization's capacity for change.

Managing business processes in aggregate through the "Check" Phase of the PDCA Lifecycle usually involves the development of capabilities to support **Performance Monitoring and Reporting**. For example,

- Performance Monitoring to assess real-time and near-real-time process performance and its impact on delivery of value to customer, and also to collect data to support future business change and continuous improvement initiatives
- Performance Reporting to ensure that appropriate process performance- and decision-support information is available at the right time and at the right level of detail to roles at all levels of the organization, from executives to operations staff.

Managing business processes in aggregate through the "Act" Phase of the PDCA Lifecycle usually involves the development of capabilities to support **Response to Change and Continuous Improvement**. For example,

- Business Process Analysis to assess whether process performance and ultimate delivery of value to customer is truly meeting performance expectations, and where potential problems or opportunities for improvement might exist
- Change Response and Continuous Improvement to intake, assess, prioritize, and act upon both short-term and long-term performance breaches and opportunities for process improvement.

2.2.9 Internal capabilities required to support enterprise-wide Business Process Management are developed along a Process Maturity Curve.

As introduced above, myriad internal business capabilities must be matured to fully support a large-scale Business Process Management implementation. Many organizations launching into Business Process Management find that these capabilities already exist in various states of maturity within the enterprise. In this circumstance, moving forward with Business Process Management implementation is an exercise in tying together these already-existent capabilities under a process-oriented organizational focus and mindset.

Other organizations in which these capabilities do not exist, especially those that commit to Business Process Management because they are in such a state of decay and chaos that they must do so in order to remain commercially viable, are faced with the daunting task of figuring out how and when to introduce these capabilities into the organization. Understanding and tracking the organization's relative placement on a Process Maturity Curve, and also understanding which capabilities need to be matured over time as the organization progresses along the Maturity Curve, are considered helpful and worthwhile exercises by many organizations in the implementation of Business Process Management.

As with Business Process Lifecycles, BPM literature has an abundance of Business Process Maturity Curves, ranging from the very simple to the very complex. A very simple maturity curve is presented here to facilitate understanding of the way many organizations sequence the development of internal business capabilities to support the maturation of the Business Process Management discipline.

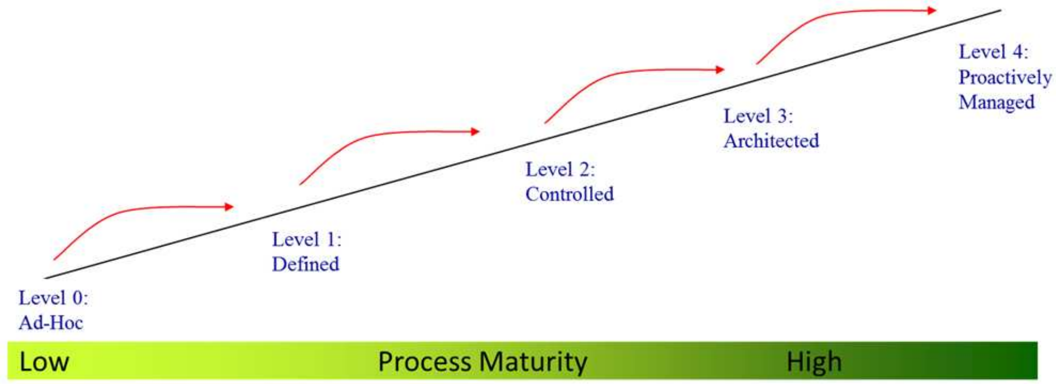


Figure 16.

By analyzing the state of its business processes within the context of the Process Maturity Curve above (Figure 16), an organization can determine whether the state of its processes (either individually or in aggregate) is Ad Hoc, Defined, Controlled, Architected or Proactively Managed, and determine accordingly where to focus resources in developing internal business capabilities.

Business Processes in the Ad-Hoc State

Organizations in the Ad-Hoc state have very little if any understanding and definition of end-to-end, cross-functional business process and little visibility into the true means by which value is delivered to customer. While pockets of functional activity definition may exist (e.g., via existence of Standard Operating Procedure or embedded in onboarding and training material), these pockets are typically found within disparate functional units; the method of representation is inconsistent and often can't be understood without deep domain knowledge, and the functional activity definition rarely ties in a meaningful way to overarching business process. Table 2 below summarizes the problems often perceived by organizations with a low (Ad-Hoc) state of Process Maturity and many of the primary drivers that compel organizations to invest in Business Process Management, with the myriad internal capabilities required to support it.

Customers / Suppliers / Partners	• Low customer satisfaction with products or services and loss of customers • Increased penalties for product quality issues and/or service breaches • Unmanageable complexity due to increased numbers of customers / suppliers / partners • Long lead times to meet requests and persistent delivery failures • Supplier and partner complaints, price increases or refusal to do business
Management	• Lack of reliable or conflicting management information • Lack of visibility into operations to understand and predict problems • Lack of decision-support infrastructure to react appropriately when problems occur • Difficulty attracting and retaining talent • High cost of onboarding and training staff • Inability to expand capacity, despite increased headcount • Massive disruptions stemming from organizational change such as reorganization and information system deployments
Employees	• Lack of employee empowerment and satisfaction • Employee apathy, lack of engagement, and lack of accountability • Employee perception of not knowing what value they provide and what is expected • Employees having difficulty keeping up with continual change and growing complexity
Process	• Unclear roles and responsibilities from a process perspective • Poor product and/or service quality and substantial volume of rework • Large numbers of hand-offs between roles and lack of standard protocol between handoffs • High volume of time addressing, discussing and debating exceptions and error handling • Gross variations in the way work is done by people in the same role who are responsible for producing the same outcome • A culture of heroics and a reward system that praises

	heroes and minimizes the importance of team collaborators • Lack of end-to-end understanding of the process and lack of understanding the downstream impact of variations in upstream activities • Roles and functions that make process-related decisions with little or no regard for the customer perspective and impact on customer
Information Technology	• Perception that IT is disconnected from the business and does not understand its needs • Technology projects that fail to deliver expected value • Soaring IT costs and a lack of understanding why • Disproportionate amount of time needed by IT project teams to gain an understanding of the business domain, business context of the project, and the business requirements • Projects that are thrown over the wall to IT with few or unclear business requirements • IT projects that are thrown back over the wall to the business with very little focus on business readiness and organizational change management • A high proportion of IT solutions that are delivered to the business but are not fully adopted or are summarily rejected

Table 2.

Moving from an Ad-Hoc to a Defined state of Process Maturity

Organization-driving progression from an Ad-Hoc to a Defined state of process maturity will often make investments in those capabilities supporting **Process Planning and Definition** and **Detailed Process Design, Build, and Deployment**.

Within **Process Planning and Definition** (the "Plan" phase of the Process Lifecycle) it is common to see

- An increased awareness and understanding of what business process is, how it relates to the delivery of value to customer, and how it ties to operations-level procedure
- An increased awareness of how business process improvement initiatives, along with technology improvement initiatives tied directly and visibly to facilitate business process improvement, support the organization's strategic direction
- An increased understanding of how organizational structure and information technology support business process execution, and therefore the

development of better-quality business requirements to drive organization and technology changes

- The emergence of Business Architect, Business Analyst, and Process Analyst roles as distinct from technology-focused Systems Analyst roles
- Investment in the development of a standard and repeatable business and business process analysis methodology and toolset
- A progression from rudimentary two-dimensional drawing and documentation tools toward the use of more sophisticated, multi-dimensional enterprise architecture and business process modeling tools.

Within **Detailed Process Design, Build, and Deployment** (the "Do" phase of the Process Lifecycle) it is common to see

- The development and maturity of project portfolio management and a resulting decrease in initiative redundancies, overlaps, and project-team collisions (i.e. multiple disjointed project teams driving competing changes within the same business process and/or business domain)
- An improved connection between business and information technology. Specifically, an evolution from myopic focus on software development that appears disjointed from sound business requirements, toward an expanded understanding of business-systems development that may or may not be supported by software development
- Technology deployment efforts that are more tightly coupled with business stakeholders and better deliver on business need; an evolution that places more emphasis on business readiness, organizational change management, and development of business process and procedure definition throughout, in conjunction with the Software Development Lifecycle rather than as an afterthought, as is common with may technology-driven efforts
- Organizational focus on the development and deployment of business process and procedure for the sake of business process stability and repeatability, leveraging a more structured (architecture-driven) framework and method for doing so.

As indicated in Table 2 above, organizations that fail to invest in business process definition capabilities suffer from an inability to

- Keep promises to customers regarding product and service delivery
- Communicate performance expectations to operational staff
- Promote an understanding of what constitutes "in compliance" and operate within it
- Achieve consistency and repeatability in process execution
- Control operational costs, especially in light of increased organizational and environmental complexity.

Moving from a Defined to a Controlled state of Process Maturity

Organizations driving progression from a Defined to a Controlled state of Process Maturity have truly begun to recognize business processes as assets and have discovered that the care and maintenance of them is typically worth the investment. These organizations have seen the value of reaching the Defined state, at least in localized instances within the organization, and want to protect the investment. By analogy, this is similar to the recognition that regular oil changes and servicing on a new vehicle are what keep it out of the repair shop and running reliably.

An organizational commitment to progressing from the Defined to Controlled state of Process Maturity requires an investment in those capabilities supporting **Performance Monitoring and Reporting** and **Response to Change and Continuous Improvement** (the "Check" and "Act" phases of the Process Lifecycle). Specifically, it is common to see

- An increased awareness and understanding of what Process Performance Management is and why it is important
- Investment in the tools and techniques to establish effectiveness and efficiency targets across end-to-end business processes and an organizational commitment to measure and report on them consistently and regularly
- Increased visibility across multiple organizational dimensions through the measure and reporting of process performance data. For example, enhanced executive management visibility into daily operations, better operations staff understanding of management intent and direction, a better understanding of end-to-end, cross-functional process execution and its relation to the delivery of value to customer, and a better understanding of customer needs and expectations
- The emergence of specialized roles such as Process Owners and Process Stewards. These roles are engaged in the management of end-to-end process execution across functional organizations and are held accountable for the ultimate delivery of value to customer through clearly defined product- and service-delivery targets
- The development of formal internal mechanisms to analyze process performance data, intake suggestions for process change, assess unplanned changes in the environment, and to aggregate this information into response and improvement strategies
- The development of formal internal structures and methods to facilitate cross-functional collaboration and to standardize protocols for cross-functional communication and dispute resolution.

Organizations that fail to invest in business process control capabilities suffer from

- The inability to definitively prove (i.e. through data) whether investment in business process maturation has produced any real results toward the bottom line. Without the ability to prove return on investment, funding quickly disappears and the organization is left to assume that the focus on business processes is "not what is needed to move forward"

- The unfortunate (but very common) phenomenon in which significant investment is made toward business process definition and deployment, but the artifacts become stale as quickly as they are developed because there is no mechanism to keep them up to date through business and environmental change. Here, too, it is common for organizations to reach the conclusion that they "tried that business process management thing and it didn't work out."

For these reasons, organizations investing heavily in the "Defined" state of process maturity are often advised by consultants and practitioners to invest in the development of "Control" capabilities simultaneously. Because of the incredible change-management challenges often encountered, especially in organizations that are extremely fractured across functional siloes, starting small and in a non-critical area of the business is often the chosen strategy.

Moving from a Controlled to an Architected state of Process Maturity

As suggested above, organizations that invest in Business Process Management implementations are well advised to start small, on narrowly focused pilot projects in areas of the business that are not mission critical. This advice has become widely acknowledged amongst Business Process Management professionals and practitioners and is evidenced throughout Business Process Management literature. As Business Process Management concepts and best practices begin to take hold within the organization, and as successes are realized, the footprint of Business Process Management implementation will begin to grow and expand across the enterprise.

Organizations that experience success in Business Process Management implementation and begin to expand the footprint of implementation must address the reality that large-scale practice of Business Process Management is incredibly information- and data-intensive. Developing a true understanding of and ability to manage the "What," "When," "Where," "Why," "How" and "Who" of large Business Processes portfolios cannot be done without a dedication to information- and knowledge-management and an investment in Architecture.

A progression from the Controlled to the Architected state of Process Maturity, therefore, is a natural and mandatory one as the footprint of Business Process Management implementation expands and the volume of business processes defined and brought under control increases.

The concept of architecture and the value it provides to the business is often misunderstood. Simply defined, architecture is the identification and definition of components and the relationship between components. For example, with respect to houses and other types of buildings, architecture is used to identify and define at various levels of detail the foundation, framing, roofing, plumbing, electrical, and interior-finish components and how they are assembled. Similarly, with respect to the business (and in the context of Business Process Management), architecture is used to identify and define the components that make up the business and the relationships between these components—i.e., products and services, capabilities, processes, procedures, customers, organizations, roles, work products, locations, events, business rules, information systems, goals, performance indicators, and so on.

An organizational commitment to progressing into the Architected state of Process Maturity requires an investment in those capabilities supporting **Planning and Definition** (the "Plan" phase of the Process Lifecycle), specifically in the development of the various Enterprise Architecture disciplines. For example, it is common to see investment in

- Strategic Planning: a discipline that deals with business motivation and the customer value proposition. Specifically, Strategic Planning identifies and relates components like vision and mission, objectives and strategies, products and services, and internal and external health indicators to optimize and improve market position.
- Business Architecture: a discipline that identifies and relates key business components such as products and services, internal capabilities, business processes, business functions and roles, performance goals, key performance indicators, and information systems. Business Architecture ensures critical business components are tied together in a manner that best supports business strategy.
- Information Architecture: a discipline that identifies and relates data and information components relevant to customers, partners, suppliers, and internal business entities. Information Architecture addresses the content and structure of data and information components that are created and transformed through the various business processes that make up the enterprise.
- Application Architecture: a discipline that identifies and relates the enterprise suite of applications and all sub-components that make up individual applications to ensure they are scalable, reliable, available, and manageable. Application Architecture ensures that the various functional application, workflow automation, and business process management systems are optimized to support business process execution.
- Core Services (Service Oriented) Architecture: a discipline that identifies and relates the information and technology components assembled to create core business services that are implemented through technology. Specifically, Core Services or Service Oriented Architecture ensures that the components comprising Web Services, web-based applications, databases, and technology infrastructure are optimized to make data available and appropriately packaged for use (consumption) by business processes.

Organizations that invest in Business Process Management but fail to invest in the development of capabilities related to Architecture suffer from the inability to

- Assess the true impact of change across all of the various components that affect the "What," "When," "Where," "Why," "How" and "Who" of business process execution and delivery of value to customer. For example, the ability to answer questions such as "What are all the business processes and operations-level procedures impacted by an external regulation change? Reorganization? An information-system deployment?"
- Efficiently identify and fix problems stemming from unplanned change, which impacts process performance and product- and service-delivery targets
- Identify component (both business and technology) interoperability requirements and opportunities for reuse, or ability to build these factors into initial design in order to increase operational efficiencies and prevent costly rework.

Moving from an Architected to a Proactively Managed state of Process Maturity

Proactive Business Process Management refers to the ability to predict and plan for change in order to take advantage of it or to prevent it from compromising the delivery of value to customer. Proactive management of business processes is the Holy Grail of Business Process Management. Organizations that consistently practice proactive Business Process Management are able to control change at all levels of the organization rather than be victims of change. For example, in organizations practicing proactive Business Process Management,

- Reorganizations are driven from strategic planning and architecture as a means to optimize how functions are structured to support business process execution and the delivery of value to customer. During planning it is understood which products, services, processes, procedures, functions, roles, job aids and information systems will be impacted by the reorganization. These components are all assessed for impact: plans to retrofit and update them are established and can be controlled in conjunction with the reorganization, rather than as a post-reorganization firefight.
- The organization can quickly, easily, and appropriately respond to regulation changes and other external pressures and threats. For example, by many estimates, total costs to impacted organizations of addressing the combined Y2K threat and the Sarbanes-Oxley Act in the lead-up to the year 2000 and beyond was over a trillion US dollars. Much of this cost was incurred because of inadequate means to discover the impact on operations and inefficient means of driving the appropriate change into operations.

Organizations practicing proactive Business Process Management have matured and broadly deployed internal business capabilities to support all phases of the Process Lifecycle in a closed-loop system of management:

Figure 17.

- The capabilities supporting Process Definition and Planning (the "Plan" phase of the PDCA Lifecycle) ensure that the context and high-level architecture of all Primary, Support, and Management processes across the enterprise are optimized to meet the organization's strategic direction.
- The capabilities supporting Detailed Process, Design, Build, and Deployment (the "Do" phase of the PDCA Lifecycle) ensure that all business processes are placed in operations according to the specifications developed in the "Plan" phase.
- The capabilities supporting Performance Monitoring and Reporting (the "Check" phase of the PDCA Lifecycle) ensure that process performance is consistently and holistically measured against performance expectations established in the "Plan" phase and that performance information is readily available and consumable by all roles that rely upon it.
- The capabilities supporting Response to Change and Continuous Improvement (the "Act" phase of the PDCA Lifecycle) ensure that the organization can best determine, and react appropriately to, information collected in the "Check" phase. These capabilities ensure that process integrity is maintained despite environmental instability and change, and are the catalyst for continued improvement of processes over time.
- From the "Act" phase of the PDCA Lifecycle, new strategic, functional, and operational directives are pushed into the "Plan" phase for definition and planning, thereby continuing the cycle of this closed-loop management system.

2.2.10 A Business Process Management implementation requires the introduction of new roles into the organization

As defined, Business Process Management is a management discipline. It represents a body of knowledge that addresses the principles and practices of business administration and specifies a code of conduct and methods that direct the management of business resources.

Inherent in the concept of management and management discipline is the concept of governance. Generically defined, governance is a structured approach to decision making and the means by which decisions are implemented (or not implemented). Applied to business processes, governance implies

- Structured decision making regarding how an organization functions with respect to the delivery of value to customer
- A structured approach to implementing changes in the way an organization functions with respect to the delivery of value to customer.

The end-to-end and therefore cross-functional nature of managing business processes creates a need for specialized roles to support governance. In traditional, functionally managed organizations, strategic intent is pushed into business functions at a very high level, and structured decision making is constrained within organizational boundaries. As a result, and as depicted in the diagram below (Figure 18), inefficiencies and breakdowns most often occur in the handoffs between functional organizations because there exists a management vacuum. Because functional managers are measured and evaluated for their performance in optimizing their functions, there exists a void in responsibility for optimizing the handoffs between functions.

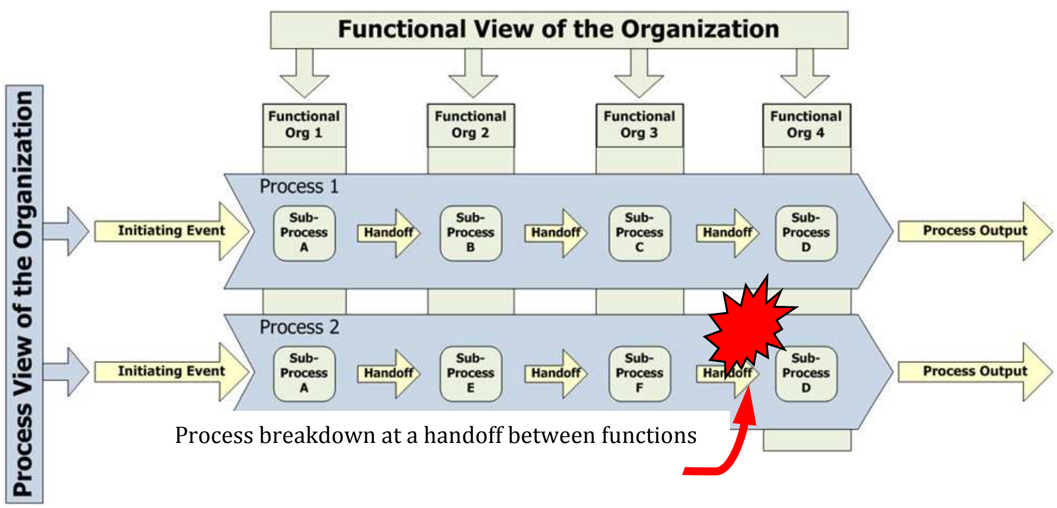


Figure 18

To address the issue of process inefficiencies, breakdowns, and communication gaps between functions, a Business Process Management implementation typically introduces new roles into the organization with responsibilities for managing processes end-to-end across functional boundaries.

Note that the intent of this discussion is to not be prescriptive, but rather to introduce concepts and provide a framework for conceptual understanding. The labels attached to process-centric roles and the exact role responsibilities associated with them will vary from organization to organization. The key takeaway is a conceptual understanding of why these types of roles and role responsibilities exist and why they are important.

Also important to note in this discussion is that a single individual representing a single position in the organizational hierarchy can play multiple roles. In this context, we will see where it might make sense for one individual to have a role with responsibilities in the management of a business function, and another role with responsibilities in the management of overarching business processes, which his or her function supports.

While the labels may vary from implementation to implementation, for the purpose of this discussion we will look at the roles and role responsibilities of the

- Process Owner
- Process Leader
- Process Steward
- Process Analyst
- Process Governor.

2.2.10.1 Process Owner

The Process Owner is a centerpiece role in a Business Process Management implementation and is assigned overall responsibility for the end-to-end management of one or more business processes. Specifically, this means that the Process Owner is responsible for ensuring the process meets established performance (effectiveness and efficiency) expectations. For example, in Figure 19 below, a performance target of 100 days' cycle time has been set for a specific business process. The Process Owner is responsible for ensuring that the process is designed, deployed, monitored, and controlled in a manner that meets this target for every process instance.

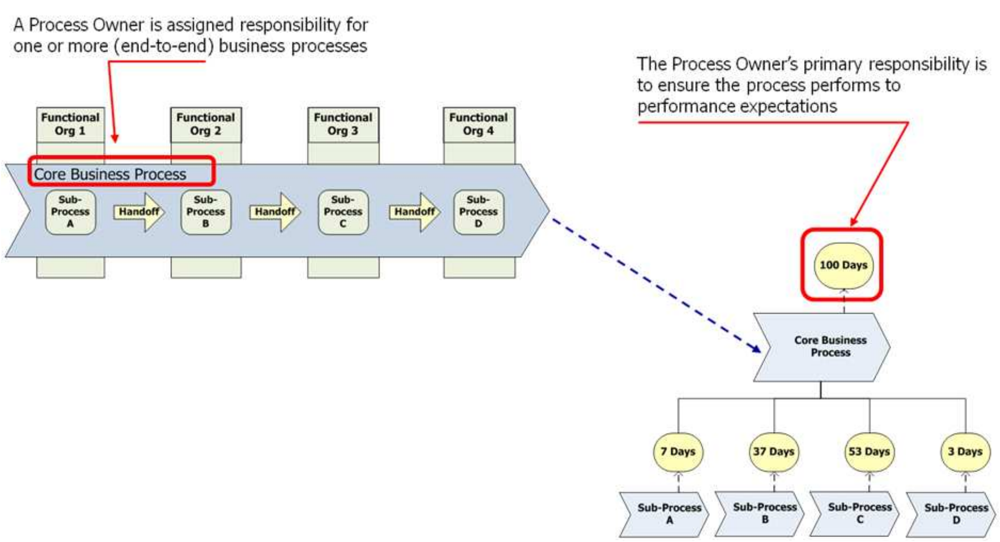


Figure 19

In order to meet these responsibilities, a process owner typically

- Engages a team of stakeholders to define business process context and ensure alignment with strategic objectives
- Engages a team of stakeholders and SMEs to ensure business process design meets expectations within its defined organizational context
- Serves as point of contact for process-related questions
- Ensures understanding of how people and systems are engaged to support process execution
- Plays active stakeholder role in business and technology initiatives that impact the process
- Facilitates business process adoption
- Monitors and reports process performance data
- Proposes a corrective course of action if process performance is not as expected
- Escalates instances of significant process performance breaches requiring attention
- Leads a team to assess, prioritize, and implement requests for process change
- Collaborates with other Process Owners to ensure alignment.

With respect to organizational positioning of the Process Owner role, there are fundamentally two approaches to implementation, Functionally Aligned and Non-Functionally Aligned Process Ownership.

Functionally Aligned Process Ownership

In the Functionally Aligned implementation approach, Process Owners report to heads of functional organizations. In cases where a business process transcends organizational boundaries (which they most often do), there are two options for the responsibilities (and therefore the accountability) of Process Ownership:

- A single Process Owner is assigned even though some process participants report to other functional organizations
- The responsibility for process ownership is assigned to multiple Process Owners

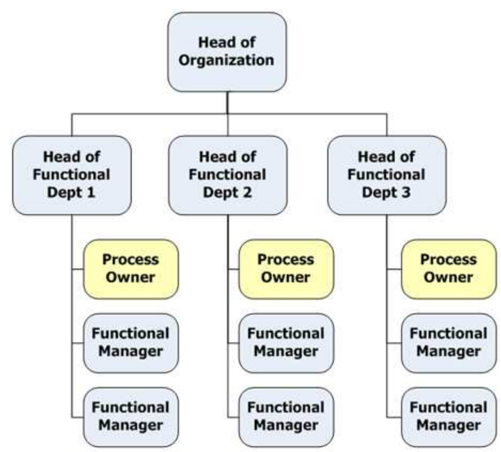


Figure 20

There are inherent weaknesses in both of these models. In the first, there is a danger that process participants from other functional organizations may not recognize

Process Owner authority and scope of management, and similarly that Process Owners are less likely to take responsibility for issues stemming from other functions. The weakness in the second model is that Process Ownership is shared across functions. This is really no different than traditional functional management structures and introduces the same host of problems, specifically a lack of clarity with respect to management of the handoffs between functions.

The pros of adopting a functionally aligned Process Ownership approach are that it is less threatening to the existing power structure and more familiar to operations staff. Therefore, functionally aligned process ownership has much less chance of being summarily rejected at introduction by the organization. For these reasons, many organizations choose to accept in the short term that this approach is less effective, and view functionally-aligned process ownership as a baby-step to the more effective—but harder to implement—approach of non-functionally-aligned Process Ownership.

Non-Functionally-Aligned Process Ownership

In the Non-Functionally Aligned implementation approach, Process Owners report directly to the head of the organization (or to an organizational structure directly under the head). In this case, Process Owners are peers of the to the heads of functional organizations in the organizational hierarchy.

The pros of this approach are that the Process Owner is in an appropriate position in the organizational hierarchy to address cross-functional handoff issues, and there is a clear distinction between the responsibilities of a Process Owner and those of functional management.

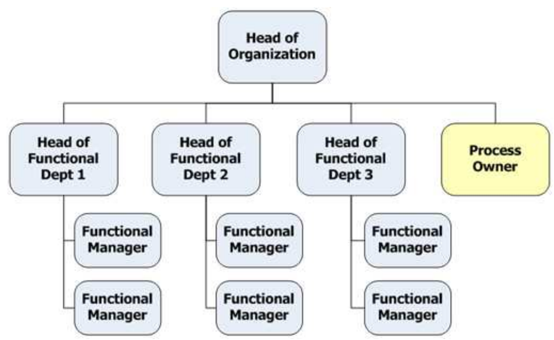


Figure 21

The con of this approach is that it significantly changes the traditional power structure within an organization. There is a high potential for initial resistance (typically from functional managers) sometimes requiring extreme intervention from executive leadership to get the governance model off the ground.

2.2.10.2 Process Leader

The role of the Process Leader is played by members of the organization's executive leadership team and may or may not involve representatives of the process ownership function.

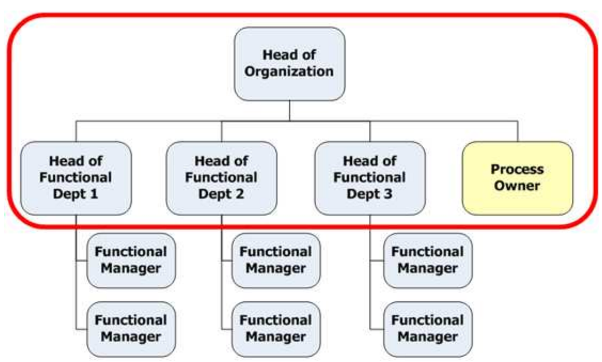


Figure 22

In organizations where a Business Process Management discipline exists, the typical responsibilities of the Executive Leadership Team members (e.g., developing organizational Vision, Mission, and Core Values and establishing strategic direction) remain intact.

Additional responsibilities associated with the role of Process Leader might include

- Defining the vision and strategy for Business Process Management and sponsoring its implementation
- Ensuring that process performance objectives are established in alignment with strategic direction
- Confirming that process change recommendations and prioritizations are in alignment with strategic intent.

2.2.10.3 Process Steward

The role of Process Steward is played by members of the organization's functional management—that is, the managers of operations staff who execute activities within an end-to-end business process.

In organizations where a Business Process Management discipline exists, typical responsibilities of the Functional Management Team members include

- Developing knowledge and expertise within the functional discipline
- Attracting and retaining top talent within the functional discipline
- Structuring and developing functional team role descriptions and responsibilities
- Defining and maintaining operational-level procedures.

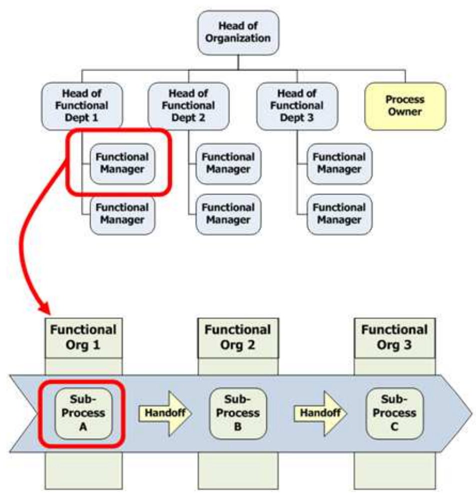


Figure 23

These traditional Functional Manager responsibilities remain intact within organizations where a Business Process Management discipline exists. Additional responsibilities associated with the role of Process Steward might include

- Ensuring that operational-level procedure aligns with requirements of overarching business processes that the function supports
- Ensuring that operations staff are aware of expectations with respect to supporting overarching business processes (e.g. performance expectations, expected quality of the output(s) produced by the function, escalation paths and circumstances under which escalation is desired, etc.)
- Gathering and submitting feedback and suggestions for process improvement to the Process Owner
- Membership on the team (led by Process Owner) which assesses and prioritizes process change requests

- Sharing information with the process owner regarding functional-level performance that is relevant to the overarching business process.

2.2.10.4 Process Analyst

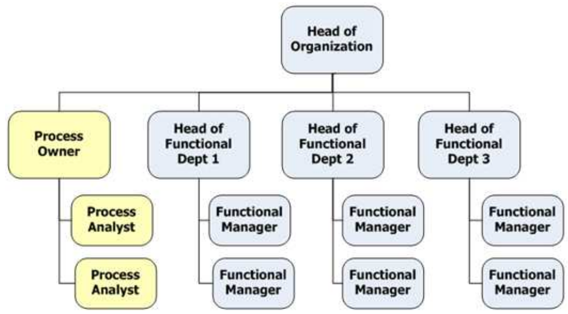


Figure 24

In small Business Process Management implementations, the Process Analyst can have responsibilities across all phases of the Business Process Lifecycle. In larger implementations, Process Analysts might specialize in one or two key aspects of the discipline. A sampling of typical responsibilities includes

- End-to-end design of the organization's business processes (under direction of Process Owner and with input from functional SMEs)
- Maintenance of the process model repository
- Collaboration with Process Owner and Stewards to diagnose problems and propose solutions
- Performing analyses (e.g. performance analysis, impact analysis and process simulation) as requested by Process Owner and/or Process Stewards
- Typically, membership on the team that assesses and prioritizes requests for process change
- Typically, membership on process change implementation teams.

2.2.10.5 Process Governor

The role of the Process Governor is critical in driving process maturation through standardization in the practice and use of BPM methodologies and tools. This role is less focused on the content of the organization's processes than on how that content is documented and managed.

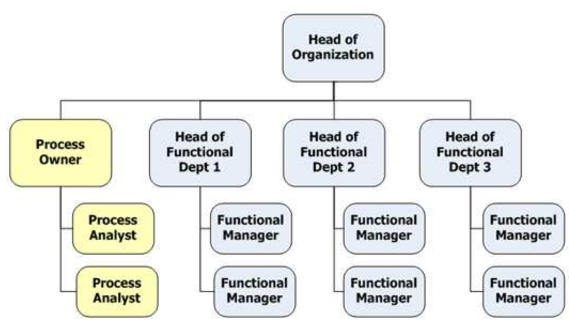


Figure 25

The role of Process Governor can be played by the same person who is the Process Owner in small BPM implementations and when the Process Owner is *functionally neutral*. However, in implementations where the Process Owner is *functionally aligned*, it is usually desirable to have a separate role of Process Governor (reporting to the Head of the Organization).

Typical responsibilities of a Process Governor might include

- Defining Business Process Management principles, practices, and standards
- Ensuring that Business Process Management principles, practices, and standards are scalable across the current and expected future scope of the Business Process Management implementation
- Providing guidance, mentorship, and training on best practices and standards, and enforcing compliance with them.

2.2.11 Business Process Management is not a prescribed framework, methodology, or set of tools

The business landscape is replete with frameworks, methodologies, and tools that can be applied to the definition, design, execution, monitoring, analysis, and control of business processes. For example,

- Enterprise Architecture frameworks and methodologies such as Zachman, TOGAF, DODAF, and FEAF are often used to define the organizational context of business processes and, specifically, their link to strategic objectives.
- Frameworks and methodologies such as Rummler-Brache and Lean are often used to optimize business process design with respect to activities performed, deliverables produced, and the human and information system resources employed.
- Business processes can be deployed and executed by various means, including work performed by humans, work performed by machines such as drill presses and conveyor belts, and work performed by information systems such as functional applications and workflow engines.
- Various methods and tools can be employed to perform real-time, near-real-time, and aggregate business process monitoring. Examples include Activity Based Timing, Activity Based Costing, SERVQUAL, and Balanced Scorecard.
- Similarly, countless approaches exist to aid in business process analysis, including Six Sigma, Monte Carlo and Discreet Event Simulation.

The Business Process Management discipline aids an organization in establishing those principles and practices that will enable it to be most efficient and effective in the execution of its business processes. While a Business Process Management implementation can employ any of the above-mentioned frameworks, methodologies, and tools, the exact mix will be different for each organization. For example,

- A mature business architecture function for a large and complex multinational company to remain competitive might not make sense for a 50-person startup.
- A manufacturing operation can achieve process efficiencies by replacing human labor with a material handling system, but a mortgage broker can

achieve the same by investing in workflow and business process automation systems.

- A manufacturing operation might invest heavily in the ability to monitor the cost of production at the activity and task level (Activity Based Costing), but a financial services company might choose to invest in the ability to monitor customer perceptions of service quality against customer expectations (SERVQUAL).
- An IT organization with highly detailed process specifications and the ability to collect detailed process performance measures might employ Six Sigma to drive variation from process execution, but the R&D organization might choose a less sophisticated process analysis approach because of the dynamic and purposefully unstable nature of its environment.

Business Process Management is a management discipline. It assumes that organizational objectives can be achieved through the focused management of business processes. Under this assumption, it guides organizations in developing principles and practices to manage resources, but it does not prescribe a specific set of frameworks, methodologies, or tools. These decisions are left to each individual organization and each will employ a different mix. This principle can apply even to different functional organizations within the same enterprise.

2.2.12 Technology plays a supporting role, not a leading role, in a Business Process Management implementation

The past decade has seen incredible advancement in the development of sophisticated software applications designed to support the Business Process Management discipline. Among these applications are tools to enable

- Business Process Architecture and the ability to model business processes within the context of an overarching Enterprise Architecture
- Business Process Design, including the ability to effectively communicate design to varied stakeholder groups and also promote design into process execution engines
- Business Process Execution and the ability to automate the orchestration of activities between humans and information systems engaged in process execution
- Business Process Analysis and the ability to automate analysis practices such as Activity Based Timing, Activity Based Costing, and Scenario Based Simulation
- Business Rules Management and the ability to manage business rules independently of the business processes they constrain, thereby promoting operational agility and flexibility
- Web Service Development, Service Oriented Architecture, and the ability to readily produce enterprise data required in the execution of business processes
- Round Trip Feedback and the ability to leverage process-execution performance data for analysis, and ultimately to influence future process design and implementation.

As a management discipline that results in improved business performance, Business Process Management is practiced through a set of interconnected methodologies that together promote the sound engineering and continuous optimization of business processes. People in specialized roles, who may or may not employ specialized tools to assist them in their practice, execute business Process Management methodologies.

The key takeaway is that Business Process Management is a management discipline practiced by people. While it is entirely possible for BPM practitioners to engage BPM methodologies without supporting technologies, investment in BPM technologies without an overarching set of methodologies does not make sense. In short,

- Information technologies can be employed to support BPM practitioners in the execution of BPM methodologies.
- The IT function is an enabler of BPM efforts, not a leader.
- BPM implementation is not an IT project but a coordinated modification of business management practices that may be enhanced by technology.

While the practice of BPM with a sound methodology and no supporting technologies can be very successful, a BPM effort leading with technology and no methodology is doomed to fail. The decision to invest in technology should be driven from strong business requirements and a disciplined approach to determining a return on investment. Many organizations will decide to invest in BPM technologies to further enhance already-successful BPM implementations.

Of course, if BPM technologies are employed, IT will play an important role in technical assessment, architectural design, physical deployment, and operational maintenance of BPM technologies. Still, investment of technology and the role of IT should always follow sound business need.

2.2.13 Implementation of Business Process Management is a Strategic Decision and requires strong executive sponsorship.

As presented thus far, a full scale (enterprise-wide or large organization-wide) Business Process Management implementation often requires the introduction and development of

- New disciplines such as Enterprise Architecture, Transformation Planning, Portfolio Management, Performance Management, and Process Change Management
- New capabilities that leverage these disciplines, such as the ability to optimize business process design in alignment with strategic objectives, deploy business processes and process improvements into operations, monitor process performance, address performance breaches, respond to environmental change, and capitalize on opportunities for process improvement

- New business processes, roles, and technologies deployed specifically to engage underneath these capabilities in the coordinated end-to-end management of process.

The end-to-end management of large numbers of business processes in aggregate and across organizational boundaries introduces a new paradigm. New roles focused on the end-to-end management of business processes across functional organizations must interact with traditional functionally-based managers under new governance structures. These introductions fundamentally change the way organizations make decisions and the way in which resources are allocated.

To effect this type of change in an organization can take years and requires a tremendous amount of planning, discipline, and perseverance. For these reasons, the decision to implement a full-scale Business Process Management discipline must be a strategic decision: it requires a top-to-bottom commitment from the organization, from executive leadership which defines and supports the practice of BPM, through line and functional managers who must collaborate with process owners on the design and execution of business processes, to operations staff who must often work in extended and virtual teams to ensure value delivery to the end customer.

It is very common for organizations to attempt a Business Process Management implementation from a grassroots operational or functional level, but experience has shown that without full organizational commitment, the practice and benefits of BPM are unlikely to mature. While individual contributors may develop BPM skills in a grassroots model, without supporting leadership, values, beliefs, and culture, BPM as a comprehensive management discipline is unlikely to take hold in a successful, meaningful way. Strong leadership is perhaps most critical, since it is the organization's leaders who most influence culture, set structures, goals, and incentives for the organization, and have the necessary authority to make changes that create an environment primed for success.

Chapter 3

Process Modeling

Foreword by Craig Le Clair, VP, Principal Analyst, Forrester Research

Some very large forces today will push process modeling in new directions. Process modeling, for example, must support emerging consumer-technology-driven "outside in" design approaches and take a stronger role in communicating to the business, in very different ways than before: that is, with less emphasis on process maps and more on business services and capabilities.

In addition, data from the outside world—from social media, sensors, and mobile capture, referred to as big data—is now growing at an exponential pace in volume and importance. Combined with emerging analytics, it will transform processes and the tools that support them.

Process modeling must also evolve, quickly, to accommodate the growing importance of big data and analytics in driving processes and at the same time provide innovative ways to reduce the skills gap for process analysts, which grows daily. For example, although companies use various approaches to tackle process-improvement projects, they often end up with departmental processes that do the same thing as before—just better or faster. As a result, there is a need to shift from isolated BPM improvement-focused projects to sustainable business transformation programs, where—yes—process modeling can help. Within this context, a few trends stand out:

Process modeling will better connect strategy to real-time execution for improved responsiveness. For years, BPM held out the promise of "round tripping"—the ability to continuously model, design, execute, and improve business processes. Unfortunately, most BPM solutions have focused heavily on the execution side of the equation, giving minimal attention to the strategic side. Over the next few years, process modeling will shift the focus of BPM suites from development and execution to a more integrated balance between monitoring and executing process strategy. To help create this integrated balance, the next generation of BPM suites will connect business architecture—capability models, value streams, and strategy maps—with real-time process execution to highlight and recommend improvements for critical process performance gaps.

Model-based design must improve communication with business stakeholders. Although most enterprises have some tool to model business processes, business stakeholders are limited to using Visio or a simplified modeling tool to define and document business processes. At the other extreme, more sophisticated organizations deploy business process analysis tools that provide extensive firepower for modeling and analyzing business processes. In both scenarios, business stakeholders currently rely heavily on technical developers to turn process models into executable solutions. Looking forward, model-to-execution environments will improve usability and allow business stakeholders to integrate with internal applications and services, with minimal support from traditional application development teams.

Process modeling will treat data as a first-class citizen of business processes. Today, most business process professionals view data as a given and pay little attention to owning or maintaining data quality. However, in the future, master data's role will become the linchpin to delivering integrated customer experiences across different channels, as the disconnect between process and data becomes a thorn in the side of business process professionals driving customer transformation initiatives. The explosion of big data and analytics will create a new "lighter" form of modeling as organizations seek value from a growing number of digital and analog sensors, social media, financial systems, emails, surveys, and customer call centers—to name a few. New data-centered-tool tidal waves swell on the horizon. These new productivity tools will begin to model "metadata" and bypass traditional process models.

Teams will increasingly use collaboration to tap business strategists, customer experience experts, process transformation gurus, and technologists. Like the siloed processes in organizations, groups working on transformation are often organized in small silos and scattered across the enterprise. We routinely see process excellence teams working in business operations using Lean and Six Sigma to improve or transform processes, while marketing teams work on transforming the customer experience and IT professionals are busy putting in BPM suites. Each of these groups has much to offer, but their efforts often proceed in isolation. By 2015, companies that embrace collaborative process modeling will combine the best of these efforts into one strategic initiative, and put experts into centers of excellence throughout the organization. These integrated, holistic teams will also include business strategists and change-management experts to increase the chance of profound, lasting change.

Business-ready process modeling will abstract configuration from technical complexity. Technologies supporting the business, including enterprise apps, business process management suites, dynamic case management, collaboration and mobile apps, are becoming inherently easier to use and manage. This is driven by improvements in end-user interfaces, as well as by configuration improvements that present more intuitive (and increasingly graphical) set-up tools that abstract technical complexity. As more software vendors deliver business-ready technology, business process stakeholders will become less dependent on IT to configure processes and unlock new features of the applications.

This is a great time to be a process specialist, whether you are part of a business architecture team in IT or an analyst supporting the business directly. The demand for your skills is growing, and the tools to support you will make your efforts more rewarding.

Contents

3.0 Introduction

Process Modeling requires a critical set of skills and techniques that enable people to understand, communicate, measure, and manage the primary components of business processes. For enterprises aware of the high value of their business processes, process modeling is the foundational activity for managing the enterprise.

3.1 Business Process Modeling

Business Process Modeling is the set of activities involved in creating representations of an existing or proposed business process. It can provide an end-to-end perspective or a portion of an organization's primary, supporting, or management processes.

3.1.1 Use of models

A model refers to a simplified representation of a thing, concept, or activity. Models can be mathematical, graphical, physical, narrative, or a combination of these. Models have a wide range of applications in business environments, including

- Organizing (structuring)
- Discovery (learning)
- Forecasting (predicting)
- Measuring (quantifying)
- Explaining (teaching, demonstration)
- Verification (validation)
- Control (constraints, objectives).

Business processes can be expressed through modeling at many levels of detail, ranging from highly abstract to highly detailed. A fully-developed business process model will typically represent several perspectives serving different purposes.

3.1.1.1 Process model contents

A process model includes icons that represent workflow, data flow, events, decisions, gateways, and other elements of the process itself. A process model can contain illustrations and information about

- The icons (representing the process elements) used in the illustrations
- The relationships among the icons
- The relationships of the icons to their environment
- How the icons represented behave or perform.

3.1.1.2 Identifying a process model

When looking at a business "illustration," use the following table to decide whether you are looking at a process model or a process diagram or process map.

Is it a Model?	
A process model	**A process diagram or process map**
▪ Standardized notation convention ▪ As precise as needed ▪ More detailed ▪ Icons are objectively defined and standardized ▪ Icon relationships definite and explained in annotations, process model glossary, and process narratives ▪ Can depict appropriate complexity ▪ Can grow, evolve, mature ▪ Should be created with tool appropriate to the project ▪ May provide manual or automated process simulation ▪ Vertical and horizontal linking, showing relationships among processes and different process levels ▪ Uses a repository of related models within a BPM system ▪ Appropriate for any level of process capture, analysis, and design ▪ Can import into a BPMS (business process management system)	▪ Notation ambiguous ▪ Precision lacking ▪ Less detailed ▪ Icons (representing process components) "made up" or loosely defined ▪ Relationships of icons portrayed visually ▪ Limited to portrayal of simple ideas ▪ One-time "snapshot" ▪ May be created with simple drawing tools ▪ Difficult to use for even the most simple manual simulation ▪ Difficult to link with related products ▪ Uses ordinary file management structures ▪ Appropriate for certain quick capture of ideas ▪ Not suitable for import into a BPMS

Table 3

3.1.1.3 Static vs. Dynamic Models

Using static models

Static models represent a single state of a business process or certain elements of a business process. Static representations

- Establish baselines
- Document configuration stages
- Depict certain future states based on assumptions of goals or risks of the process
- Manage change

- Drive the process toward a more advanced level of maturity.

3.1.1.4 Dynamic models

Models or some elements of a model can be constructed with dynamic features. Examples of dynamic models include those that are designed to allow interaction with a user or those that show the development of a trend over time.

3.1.1.5 Dynamic modeling tools

Most top-tier modeling tools provide dynamic interaction capabilities. In some cases, the most basic version of a modeling tool will have simulation capabilities appropriate for most modeling projects. As a modeling project progresses and requires more detailed analysis, you may need more advanced and even automated simulation capabilities. If so, consider obtaining the capabilities you need from the vendor of the tool you are using, or as an add-on from a partner of the original vendor.

3.1.1.6 Combining static and dynamic models

Often a modeling effort benefits from a mixture of static and dynamic models. For example, when considering a future process configuration (the "To-Be" process), by feeding sample data through a dynamic process model you can see how the actual process will perform. Conversely, cycling of a dynamic model can produce a desirable set of static "snapshots" to aid in further analysis.

3.1.2 Process Components and Tools

3.1.2.1 Process modeling tools capture process components

Process components specify the properties, behavior, purpose, and other elements of the business process. You can use some modeling tools to capture and catalogue process components and the information associated with each component to organize, analyze, and manage an organization's portfolio (i.e., collection) of processes.

3.1.2.2 Modeling tools capabilities

Modeling tools vary in the number and types of components (and information) they can capture, which affects the type and level of process performance analysis you can perform. Process modeling projects frequently grow in scope and complexity. Because of this, selecting a more powerful tool than required at the beginning of a modeling project often makes the most sense.

Examples of process components

Table 4 presents some process components (and related information) you can capture in process models.

Examples of Process Components and Data in Process Models	
Inputs/Outputs	Arrival Patterns/Distributions
Events/Results	Costs (indirect and direct)
Value Add	Entry Rules
Roles/Organizations	Exit Rules
Data/Information	Branching Rules
Probabilities	Join Rules
Queuing	Work/Handling Time
Transmission Time	Batching
Wait Time	Servers (number of performers available to perform tasks)

Table 4. Examples of Process Components and Data in Process Models

3.2 Purpose of Process Modeling

3.2.1 Task at hand drives process modeling

As a work activity, the purpose of process modeling is to create a representation of the process that describes it accurately and sufficiently for the task at hand. For this reason, the level of detail to model and the specific type of model is based on what is expected from the modeling project. A simple diagram may suffice for one project, while a fully developed model may be required for another.

3.2.2 Process modeling is a means to business ends

Process models are the means to

- Manage organization processes
- Analyze process performance
- Define changes.

Process models can express a target business state or specify the requirements for resources to enable effective business operations, such as people, information, facilities, automation, finance, and energy.

The following table outlines, from different points of view, some reasons for process modeling.

Point of View	Reasons for Process Modeling
Business community	• Save money —cut costs • Improve quality —reduce waste • Reduce time to production • Increase productivity • Reduce time for order to delivery —customer satisfaction • Target problems to fix those problems • Capture performer knowledge —avoid process breakdown • Standardize employee performance

Business process professional	• Solves a business problem by
	  o Describing the process as accurately and sufficiently as necessary for the task at hand
	  o Communicating the process clearly to the intended audience
	  o Selecting the level of detail and the specific type of model depending upon what is expected of the modeling project and the business problem that needs fixing

Organizational	• Process models are the means to
	  o Manage the organization's processes
	  o Analyze process performance
	  o Define changes
	• Process models can
	  o Express a target business state
	  o Specify requirements for resources to enable effective operations (e.g., people, information, facilities, automation, finance, or energy)

Analysis and performance improvement	• Increase clarity or understanding of a process • Aid in training • Assess performance against standards and compliance requirements • Understand process performance under varying loads or other changes • Analyze potential opportunities for improvement • Design a new process or a new approach to existing process • Facilitate communication and discussion • Document a requirements determination effort
Process-managed business	• Central starting point to drive collective understanding and consensus among process stakeholders • Save costs, time and effort over guesswork and experimentation with the actual processes • Help process performers from a department see how their inputs and outputs affect the development of value across functional lines • May result in local decision making that maximizes value in the process rather than producing local optimization

Table 5. Reasons for Process Modeling

3.3 Commonly Used Process Modeling Notations

> *A **notation** is -- A standardized set of symbols and rules that govern how the symbols represent something else.*

For example, musical notation includes universally recognized symbols for notes and clefs. Similarly, a business process modeling notation includes icons (pictures) and connectors that help show relationships among the various real-life components of a business process.

There are a number of modeling and notational standards and techniques in use today. Selecting the best approach from the available options can be difficult; however, selecting an approach that follows standards and well-known conventions provides far-reaching advantages, as listed in Table 6.

Benefits to Using a Standard Modeling Notation
• Members of the business community, business process professionals, and IT professionals have a common symbol set, language, and technique through which to communicate. • Resulting process models are consistent in form and meaning which simplifies design, analysis, and measurement while enabling model re-use. • Staff can import and export process models among various tools. • With some tools, staff can transform the modeling notation into an execution language. • There is a significant growth trend in some of these features, notably the import facility and compatibility with execution engines.

Table 6. Benefits to Using a Standard Modeling Notation

Guidelines for selecting a modeling notation

This section provides a brief description of some of the most commonly encountered modeling notations. Note that the examples provided are just the graphical veneer of the notational systems presented. In modern modeling environments, there may be many levels and detailed attributes that help to more fully describe a business process.

When choosing a modeling notation, consider the unique combination of circumstances in your organization. Review the modeling notations in Table 7 to help make the selection. And keep in mind it is sometimes appropriate to use different notations for different stages of a modeling project or for different levels or types of models.

Commonly Used Process Modeling Notations	
Modeling Notation	**Description**
Business Process Model and Notation (BPMN) 2.0	Standard created by the Object Management Group; 103 icons, useful for presenting a model to multiple audiences
Swim Lanes	Not a distinct notation, but an addition to most other notation systems; helps identify hand-offs in a process
Flow Charting	Originally approved as an ANSI standard, includes a very simple and small set of symbols that are not standardized; facilitates "quick capture" of process flow
Event Process Chain (EPC)	Developed within the framework of ARIS, considers events as triggers to or results from a process step; useful for modeling complex sets of processes
Unified Modeling Language (UML)	Maintained by the Object Management Group, a standard set of diagramming techniques, notations primarily for describing information systems requirements
Integrated Definition Language (IDEF)	A Federal Information Processing Standard that highlights the inputs, outputs, mechanisms, and controls of a process, and clearly links processes up and down levels of detail; good starting place for an enterprise-wide view of an organization
Value Stream Mapping	From Lean Manufacturing, a very simple set of symbols; used to add process resource costs and time elements to a process model to clearly depict process efficiency

Table 7. Commonly Used Process Modeling Notations

3.3.1 Business Process Model and Notation (BPMN) 2.0

Business Process Model and Notation 2.0 is a standard created by the Business Process Management Initiative, now merged with the Object Management Group (OMG), an information systems standards-setting group. BPMN has growing acceptance as a standard from many perspectives, which has resulted in its inclusion in several of the most widely used modeling tools. It provides a robust symbol set for modeling different aspects of business processes. Like most modern notations, the symbols describe definite relationships such as workflow and order of precedence.

Key features

- Version 2 (BPMN 2.0) represents significant maturing and solidification of the notation
- Over 100 total icons, organized into descriptive and analytic sets to meet different user needs
- Very precise notation indicating: beginning, intermediate, and end events; activities, and message flows; intra-business communications and inter-business collaboration; and activity and data flows.

When to use

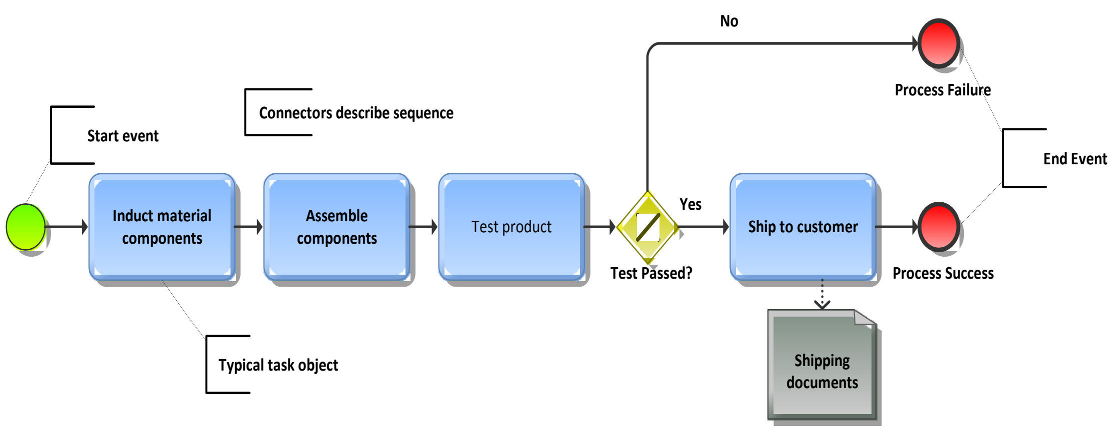
- To present a model of a process to multiple sets of audiences
- To simulate a business process with a process engine
- To execute a process.

Advantages

- Widespread use and understanding; considered by many to be the de facto standard in the U.S.
- Significant use in the U.S. Department of Defense and other government entities
- One of the most powerful and versatile notations for identifying process constraints.

Disadvantages

- Requires training and experience to use full set of symbols correctly
- Difficult to see relationships among multiple levels of a process
- Different modeling tools may support different sub-sets of the notation
- Information Technology origins inhibit use with some organizations' members of the business community.



Example

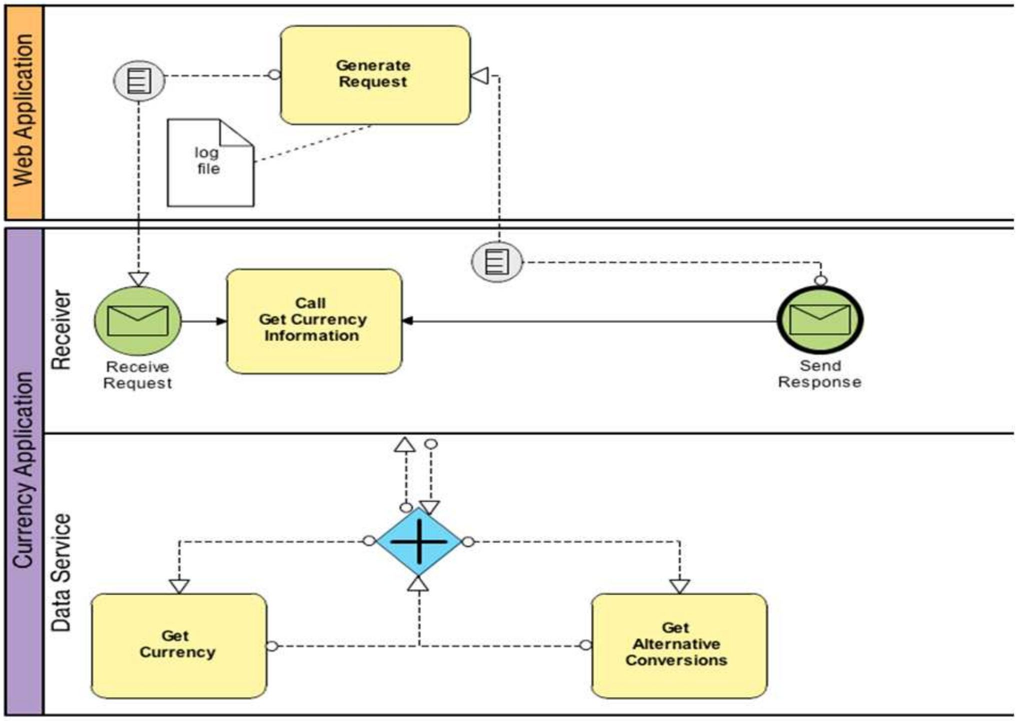


Figure 26. Simple BPMN Process Diagram

For more information:

- The Object Management group's dedicated website at http://www.bpmn.org/
- Help files and sample models in most major modeling tools.

3.3.2 Swim Lanes

Swim lanes are not a distinct notation but rather a useful notational addition to most other notation systems. They are often incorporated into BPMN, EPC, UML, or simple flowcharting as a means of defining the performer responsible for performing an activity. The lanes (rows) are generally represented as long vertical or horizontal rectangles or sometimes as simple lines or bars, resembling the channel or lane markings in swimming competitions. Arranging the flow of activities and tasks across these rows makes it easy to visualize handoffs in the work.

Key features

- The lanes represent performers or combinations of performers
- Lanes could indicate roles, organizations, systems, or any other performer entity or combination.

When to use

- To clearly distinguish at what point the responsibility for performance changes
- To increase understanding among process stakeholders.

Advantages

- Aids collaboration as process performers are able to distinguish their roles in relation to others
- Clearly defines hand-off points in a process
- Can describe flows of operational precedence, material, and messages.

Disadvantages

- Becomes complex in areas where performance responsibility is jointly held
- In certain cases, can preserve a silo process mindset.

Example (used in BPMN) of one "pool" and three lanes

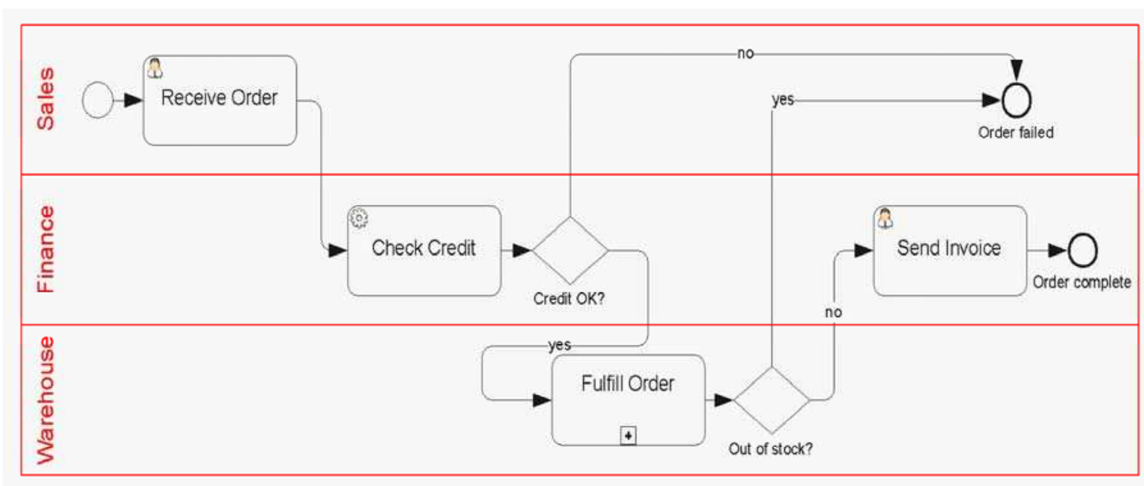


Figure 27. Traditional swim lane diagram. (Provided by Bruce Silver, with permission from the author.)

For more information:

- http://www.agilemodeling.com/style/activityDiagram.htm#Swimlanes
- Help files for most major modeling environments

3.3.3 Flow Charting

Flow charting is widely used; it is based upon a simple set of symbols for operations, decisions, and other primary process elements. The notation for the most common flow charting was approved as an ANSI standard in 1970 for representing systems flows. Other flow-charting notations have been used by industrial engineers for decades and utilize different symbols and layouts for specific industrial mappings.

For example, flow charting is used to describe the flow of materials, roles and work, or placement of machinery, analysis of egress and ingress in dispatch centers.

Key features

- Used with or without swim lanes
- Many variations for different purposes
- Simple core set of easily recognized symbols
- Forerunner of many more modern notations.

When to use

- To quickly capture process flow for sharing where details do not require documenting
- To begin a modeling project where funding is not available for full-featured tools
- To develop highly detailed diagrams for use in traditional system coding.

Advantages

- Well understood by software engineers and systems engineers
- At high levels, helps build consensus
- Adequate for "happy path" illustrations
- Inexpensive to use
- Supported by lower-order tools including general-purpose graphics and visualization tools.

Disadvantages

- Despite influence from ANSI standards, there are many variations
- May be imprecise when used to depict complex business processes
- Objects do not have robust set of descriptive attributes
- Models constructed are "flat," requiring the use of connector symbols to show where process segments continue
- Not generally considered robust enough for complex process capture.

Examples (showing a few of the most commonly used symbols)

Two examples are provided below to illustrate how much flow-charting symbols can vary in appearance from one organization to another.

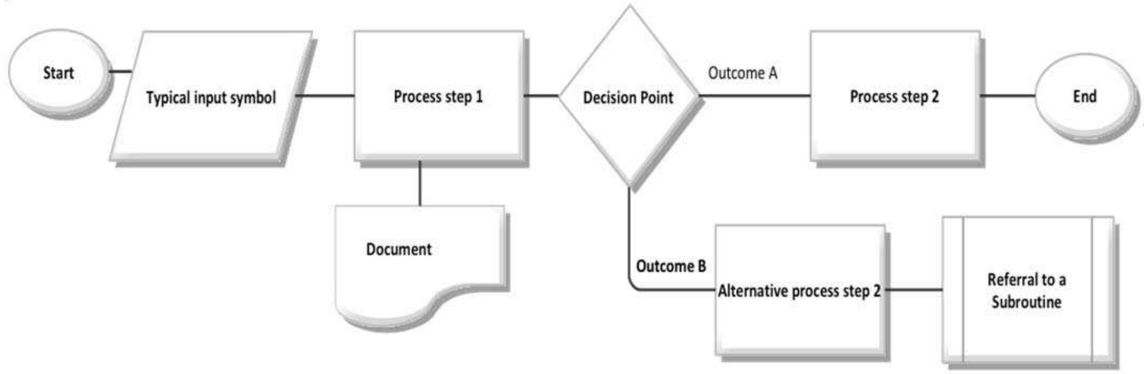


Figure 28

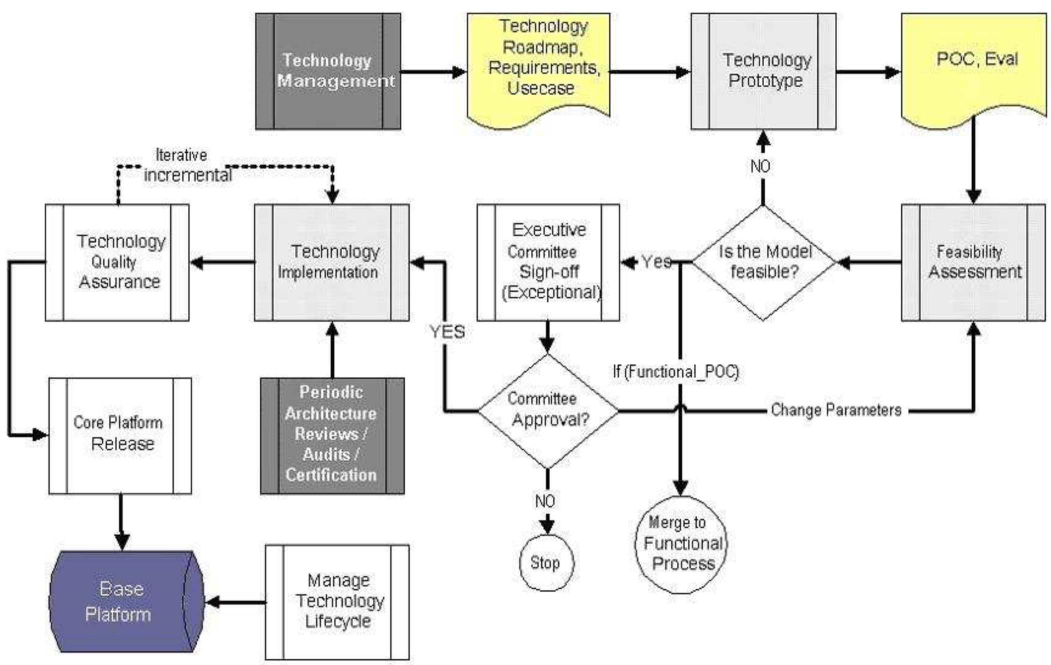


Figure 29

For more information:

- Applicable ANSI standards
- Introductory computer programming course texts

3.3.4 Event Process Chain (EPC)

Event Process Chains range from very simple to very complex. EPC describes events as either triggering or resulting from a process step, called a "function." Thus, the flow is normally event-function-event. EPC relies heavily upon logical operators called "rules." The basic rule objects are "AND," "OR," and "Exclusive OR." These rule objects express decisions, tests, parallelism, and convergence in the process flow. A simple EPC consists of just these objects plus arrows that define relationships between them.

Key features

- The EPC method was developed within the framework of ARIS by Prof. Wilhelm-August Scheer at the Universität des Saarlandes in the early 1990s
- It can be used for modeling, analyzing, and re-designing business processes
- May be enhanced with vertical or horizontal swim lanes
- Simple core set of easily-recognized symbols, augmented with a large number of optional or special-purpose objects
- Some tools employ a system of filters to limit or control the subset of the notation to be used.

When to use

- Modeling complex sets of processes with many process interfaces and sub-models
- To fill in details of processes below the levels normally addressed by some enterprise architecture frameworks

Advantages

- Widely used and understood in Germany and other European countries, especially in multinational enterprises
- Substantial presence in the U.S. Department of Defense and other large enterprises
- A properly constructed EPC may be read like a set of sentences
- May be used as a means of collaboration among groups of functional experts who have little experience with models
- Possible to enhance the models through the use of many optional object types that describe performers, supporting systems, information, or swim lanes of related activity
- Some tools may translate between EPC and BPMN notations with growing reliability
- One of the most powerful and versatile for identification of process constraints.

Disadvantages

- Less prevalent than BPMN and Flow Charting in U.S. modeling projects
- Modeling teams must be disciplined in the use of the notation to avoid possible logic gaps
- Strongest implementation is limited to the ARIS family of process modeling tools.

Example

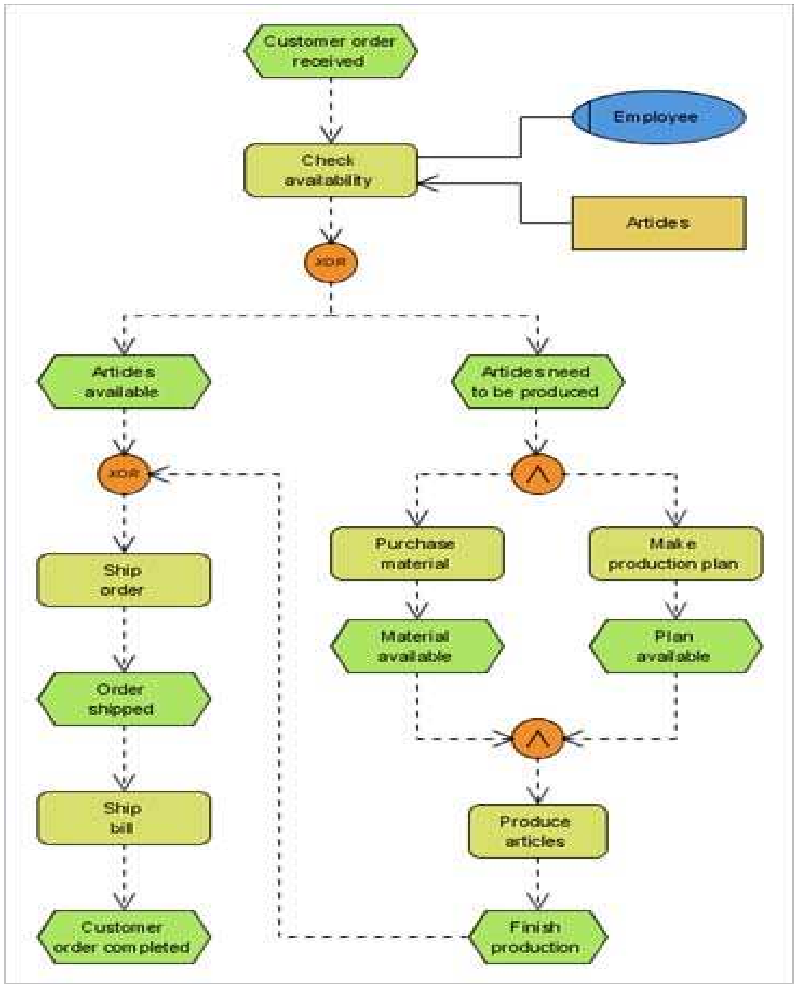


Figure 30. Event Process Chain (1)

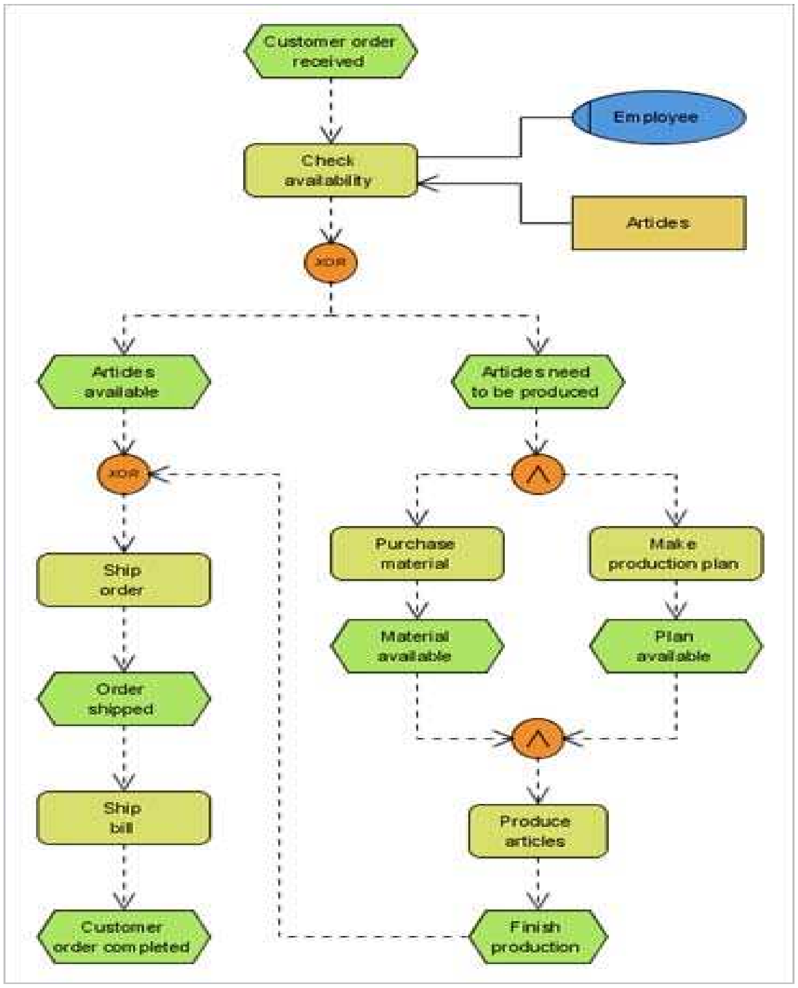


Figure 31. Event Process Chain (2)

For more information:

- http://www.ariscommunity.com/
- http://www.softwareag.com/corporate/products/aris_platform/modeling/default.asp

3.3.5 Unified Modeling Language (UML)

UML provides a standard set of diagramming techniques and notations primarily for describing information systems requirements. While UML is primarily used for systems analysis and design, a few organizations also use UML activity diagrams for business process modeling. UML is maintained by the Object Management Group (OMG), a standards-setting body for the information systems field.

Key features

- Actually a set of nine or more related diagramming techniques and notations
- Describes very complex lateral and parent-child relationships
- Symbol set varies somewhat depending on model type

- An important subset, SysML, often used to describe systems and systems of systems.

When to use

- To develop use cases
- To describe information systems requirements
- To design system interactions below the level of the process flows depicted in other tools
- To capture or design data structures
- May also be used to depict business process flows at a lower level
- Often used to present 'use' cases.

Advantages

- Well-established community of users
- Implemented in most major modeling environments
- Many references available from books and online sources.

Disadvantages

- Designed for modeling software applications; business process modeling is a secondary use
- Notational representation may vary from tool to tool

Example

(See Figure 32 below)

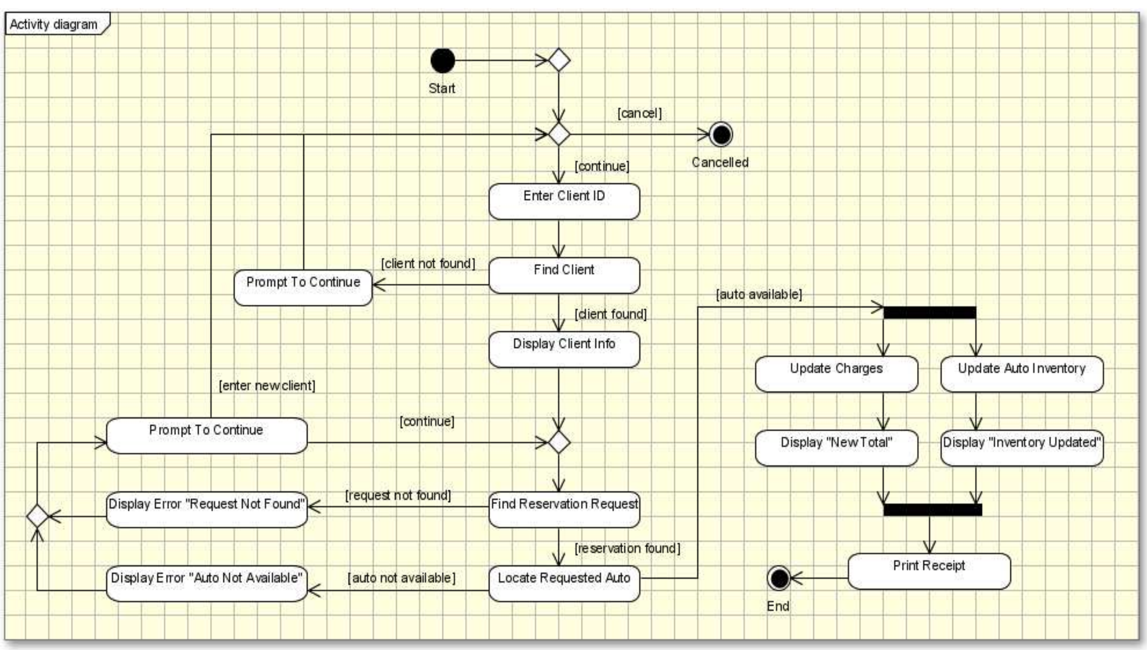


Figure 32. Source: http://www.gentleware.com/fileadmin/media/archives/userguides/poseidon_users_guide/activitydiagram.html

For more information:

- Object Management Group maintains a complete specification for this notation at http://www.uml.org as well as links to other useful information
- Help file structure in IBM Rational software.

3.3.6 IDEF

IDEF is a family of modeling notation concepts that are described in a Federal Information Processing Standard (FIPS) that was developed by the US Air Force. It is a notation and technique that is one part of a methodology for defining the work processes and information systems in manufacturing environments. It was widely used and available in many modeling tools for many years and is now in the public domain.

The notation employs a very simple set of symbols consisting of process boxes with arrows showing inputs, outputs, controls, and mechanisms. Although each level of the model is read left to right and top to bottom, the numbering system used for the major steps are represented in a way that allows for easy association between parent and child levels of decomposition in the process. Thus, a child process box named A1.3 is interpreted to be a child process of the parent diagram A1. Each successive level of decomposition uses another decimal point to continue this easy traceability of lineage.

Key features

- Top level defines the topic to be modeled
- Subsequent levels display decomposition of the level above with a series of boxes
- Steps in the process have inputs, outputs, controls and mechanisms depicted by labeled arrows
- System of labeling indicates exact relationship with next level above (B32 is the second process sub-step of the B3 process step).

When to use

- May be used for any level of activity modeling
- Integrated Computer Aided Manufacturing (ICAM).

Advantages

- Precise expression
- Easy-to-follow logical decomposition of model levels
- Exhaustive documentation available from U.S. Federal government or commercial sources.

Disadvantages

- Implementations are often visually unappealing
- Notation consisting mainly of boxes and arrows can appear cluttered and busy.

Example

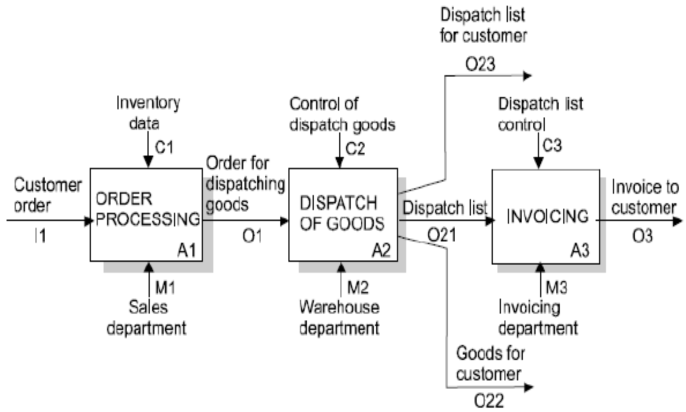


Figure 33. IDEF Sample Diagram

For more information

- Draft Federal Information Processing Standards Publication 183
- Computer Associates BPWin product description.

3.3.7 Value Stream Mapping

Value Stream Mapping is a technique used in Lean Manufacturing. Not to be confused with Value Chain notation, Value Stream Mapping expresses the physical environment and flow of materials and products in a manufacturing environment. At Toyota, where the technique originated, it is known as "Material and Information Flow Mapping." Value Stream Mapping is used to add process resource costs and time elements to a process model, to incorporate the view of the process efficiency.

Key features

- Very simple set of symbols
- May incorporate diagramming from other notations.

When to use

- To increase involvement of process performers in process analysis
- To help guide performers in self-identifying opportunities to lean a process
- In any project that does not require the use of full-featured modeling environments
- In environments where process costs and time requirements are easily identified.

Advantages

- Simple, easy to use

Disadvantages

- Flat models
- No repository

- Unable to use for very complex issues

Example

(See Figure 34 below)

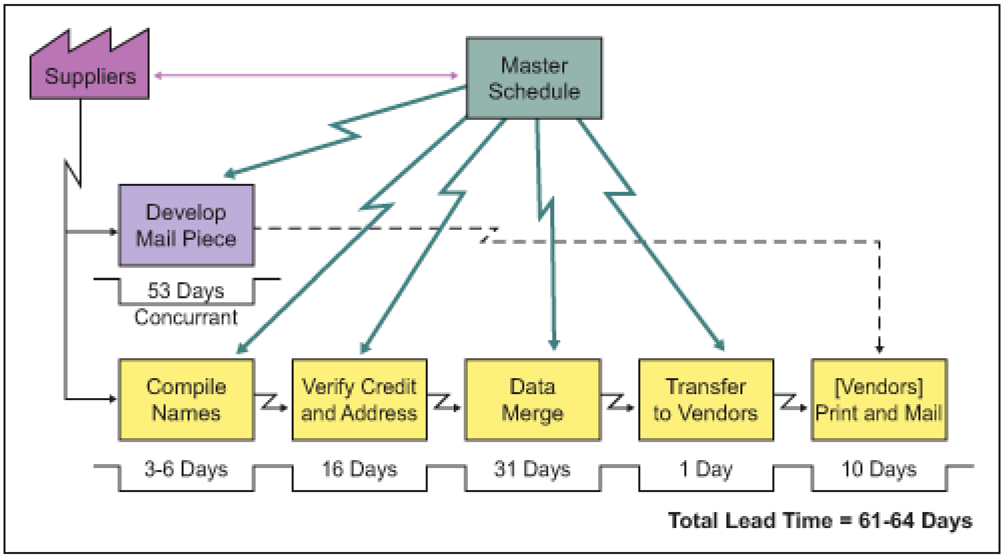


Figure 34. Value Stream Mapping Sample Diagram (Reprinted from LSixSigma publication)

For more information

- Most Lean and Six Sigma texts

3.4 Specialized Approaches in Process Modeling

The following three approaches can be used in process modeling or process improvement initiatives. They are considered specialized approaches, each providing an enterprise perspective analysis. Further detail and sample materials are available from the websites for each approach, listed below.

Specialized Approaches in Process Modeling	
Modeling Notation	**Description**
Value Chain	Introduced by Michael Porter, this notation emphasizes capturing those processes and activities that "add value" to the service or product provided to a customer. Provides an overview but not detailed view of business processes.
Supplier, Input, Process, Output, and Customer (SIPOC)	A style of process documentation used in Six Sigma, useful to emphasize the sources of inputs (suppliers) and the targets of the outputs (customer).
System Dynamics	Systems Dynamic models present a dynamic view of a business system's performance.

Table 8. Specialized Approaches in Process Modeling

3.4.1 Value Chain

Value chain notations are a category of symbol sets used to visualize the accumulation of value or steps toward achievement of a goal. Various approaches to value chains employ their own sets of symbols, but these are generally easily interpreted and often employ an arrow or horizontal chevron to express each step in the chain. Relationships are also generally easy to understand, with the chief one describing a predecessor-successor relationship.

Sometimes groups of steps are summarized under a "process superior" object. These models generally flow from left to right, describing the sub-processes that directly contribute to producing value for the organization's customers (clients or constituents). The concept of the value chain was introduced by Michael Porter in his works on corporate strategy and is typically applied at the enterprise modeling and planning level.

Key features

Features vary among tools:

- Sometimes implemented as Value-Added Chain Diagram
- Overlays representing performers, finance, time, systems, or specific data clusters may be added
- Swim lanes may be used to enhance effectiveness

When to use

- To create a decomposition of those process segments that relate most directly to adding customer value
- To depict overview levels of processes

Advantages

- Easy to read and interpret
- Little ambiguity because of simple relationships
- May be augmented with optional input and output identification, or other overlays such as financial or organizational involvement

Disadvantages

- Decision points unclear
- Usefulness breaks down with increased complexity, requiring use of more detailed notations for further decomposition

Example

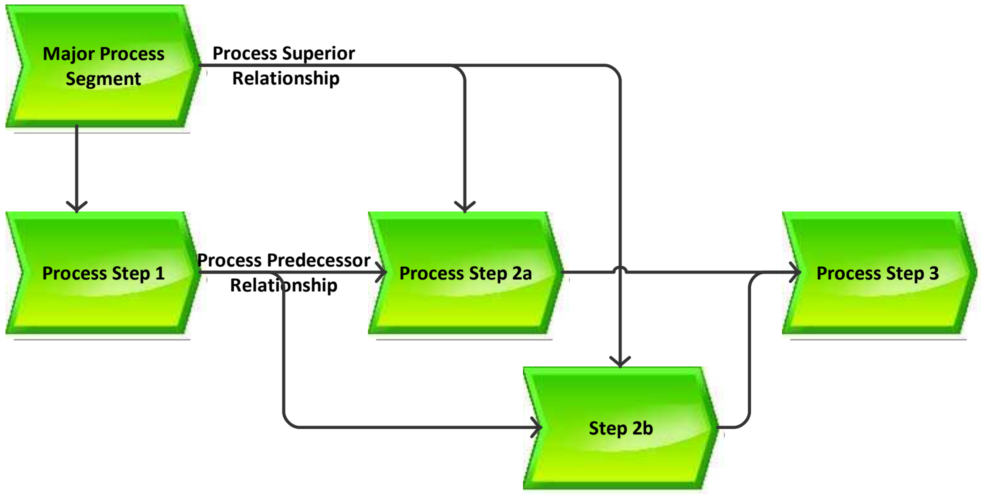


Figure 35. A Value Chain diagram

For more information

- A Value Chain Reference Model has been proposed by The Value Chain Group, Inc. at http://www.value-chain.org/en/rel/19/
- A strong Value-Added Chain Diagram implementation is included in modeling tools from Software AG (ARIS).

3.4.2 SIPOC

SIPOC stands for Supplier, Input, Process, Output, and Customer. It is a style of process documentation used in Six Sigma. There is no standard or preferred notation set and this technique may be satisfied by completing a table with those headings. The SIPOC model is often used to gain an initial consensus on what areas of a process are under study.

Key features

- Simple columnar arrangement (not swim lanes)
- Text entries or well-understood notational elements may be used to populate the columns

When to use

- Used extensively at the onset of Lean and Six Sigma projects
- The exercise of naming the entities in each column can accelerate detailed modeling in another tool
- Use for initial consensus-building of process modeling project scope.

Advantages

- Fast
- Simple
- Requires only a template in a spreadsheet or word processing document

Disadvantages

- Little potential for in-depth capture, design, or analysis
- May delay the adoption of a more powerful method

Example

SIPOC Worksheet

For Process: ____________________

Supplier	Inputs	Process	Outputs	Customer
Record entities that provide the inputs that trigger the process	Record each of the inputs	Steps to respond to inputs (may be a list or simple graphics)	List outputs	Record the entities that receive the result of the process

Figure 36. SIPOC Worksheet

For more information

- http://www.isixsigma.com

3.4.3 System Dynamics

More than just a different notation, System Dynamics models are "activity on arrow" diagrams rather than "activity on node" diagrams like most of the other notations. System Dynamics models are especially useful in developing dynamic lifecycle-type models that focus on the overall business system's performance and the impact of changing the key variables that affect overall performance. These are more often used to model an entire enterprise or line of business rather than lower-level workflow type models. System Dynamics models are often used to describe the enterprise business "architecture" from a dynamic behavioral perspective, rather than a static structural perspective.

Key features

- Causal and feedback loop diagrams
- Dynamic —via controlled animation demonstrates how process performs

When to use

- To provide a "macro view," simulating an organization's overall performance
- To compare impacts of changing multiple variables on a process or an organization.

Advantages

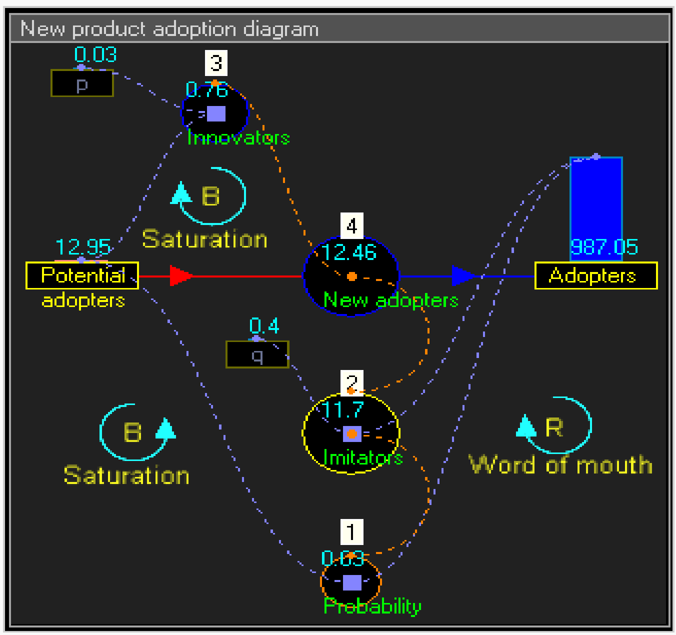
- Presents active, moving, fluctuating representation of a high-level process
- Easier to understand than a static representation or text description.

Disadvantages

- Not useful for discerning problems at the worker level or with supporting computer applications
- Not useful for discerning influences external to a process upon that process

Example

- The following is only a "snapshot" from a System Dynamics model. An actual System Dynamics model is not static, but shows with movement how changing variables affect a process.



Dynamic stock and flow diagram of model *New product adoption* (model from article by John Sterman 2001)

Figure 37

For more information

- System Dynamics Society: http://www.systemdynamics.org/

- System Dynamics—MIT Sloan PhD Program: http://mitsloan.mit.edu/phd/system-dynamics.php
- *The System Dynamics Review*, the journal of the System Dynamics Society: http://www.systemdynamics.org/publications.htm

3.5 Process Model Levels

Assigning process information

Process information discovery uncovers information at various levels of detail. These levels of detail need to be sorted out and the information assigned to the different levels of processes within a process model hierarchy. The top level of the hierarchy shows the end-to-end process. From there it is broken down (decomposed) into lower levels of detail until the activities where the "work" of the process is performed are identified.

Aligning process information

When collecting process information, consider assigning process information to the appropriate process level as the information is collected. As the team learns more about the process, the process information can be re-assigned. Be sure to align the information at any level in the hierarchy to information at a higher level in the hierarchy. By doing this, the information at each level provides additional detail to the information at the next higher level. Additionally, aligning process information across process levels allows the team to identify missing information or information that needs to be questioned.

The diagram below is an example of a process hierarchy, starting at the highest, least detailed level, the Enterprise Process level, and "drilling down" to the Business Process level and Workflow level.

Levels vary in number and name

The number of levels and their names will vary according to the methods and naming conventions in different companies. Key points to remember:

- The process must be broken into a low enough level to understand the activities that are taking place and how they fit together to produce the business unit's end products.
- If there is to be any hope of controlling the process information and its quality, the team needs a way to organize the information that is collected and the models that are built.

The levels in the figure below are an example of how a company can look at defining levels of detail in their process modeling standards.

Best practice: business modeling standards

Formal business modeling standards should direct the number and name of the levels in both the current "As Is" and the future "To Be" models. In the past, these standards could be independent of any external modeling standard or tool, but that is changing. Consider aligning internal modeling standards with the tools that are used and their capabilities and limitations. For example, while it is not the only modeling standard, BPMN 2.0 is becoming a major standard for BPMS (business process management suite) vendors. Consequently, an organization's internal modeling standards may need to conform to BPMN. A good rule of thumb in looking at modeling standards is to have them address in some way at least the levels shown in the example diagram.

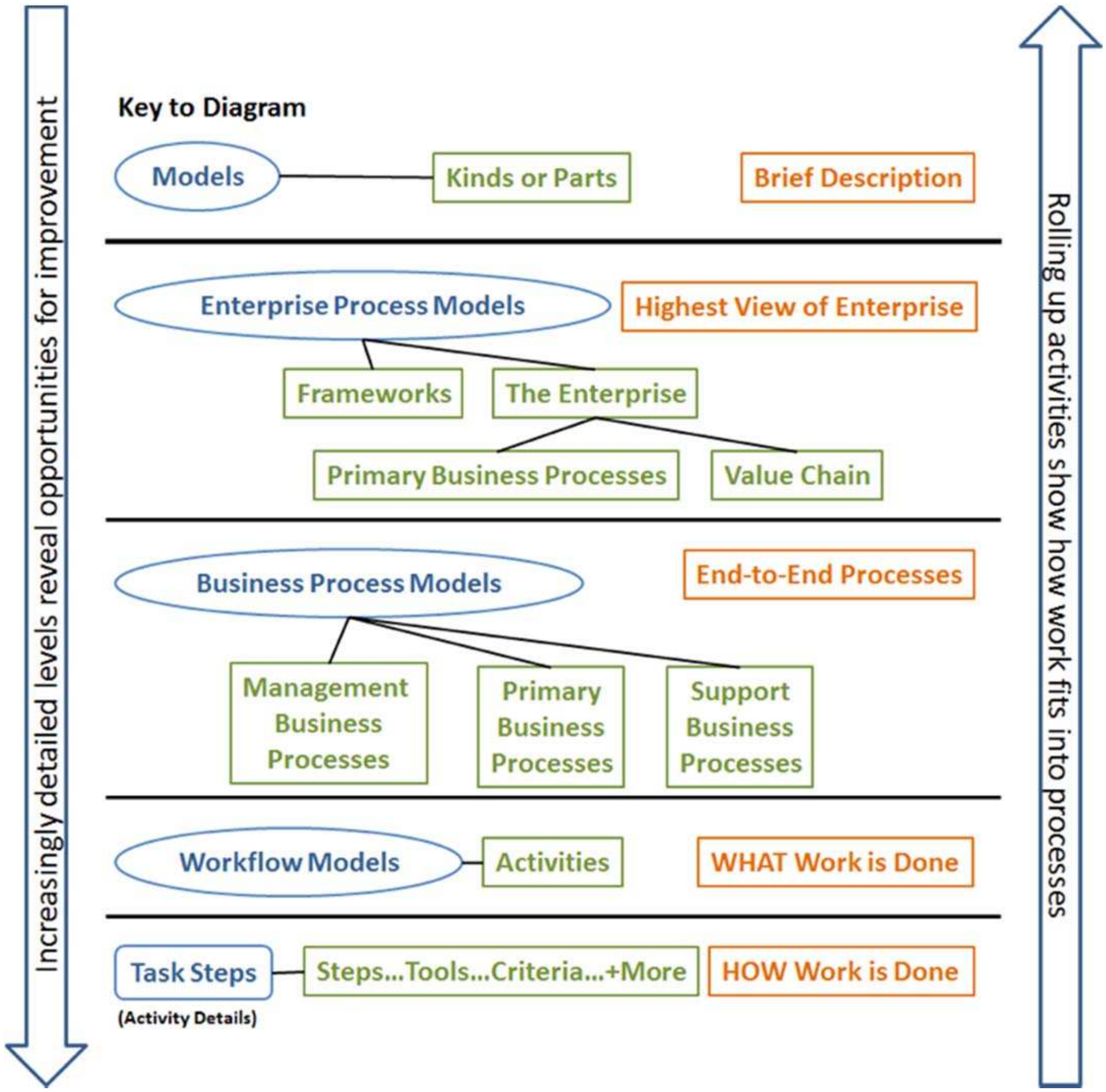


Figure 38. An Example of Process Model Levels

3.5.1 An Example Set of Model Levels

Processes can be modeled from many perspectives, or points of view, according to the needs of the organization. Process modeling has been used for strategic planning, improving operations, and specifying data and applications system requirements for many years.

Integrating process models

The advent of process-focused management disciplines created the need to develop models that integrate these different perspectives. In a BPM environment, an organization's strategy is enacted through process performance. Process performance links the enterprise and business process models to the workflow (or operations) model, which presents WHAT must be done to provide the internal or external customer with a product or service. The workflow model in turn links to the task steps—which describe HOW the work is done. And the task steps, in turn, must be supported by the information technology systems.

Process repository maintains alignment

To keep these types of models aligned, a line of visibility is needed from one type of model and perspective to the next in a coherent framework, typically maintained in a process repository. Table 9 lists the different perspectives that a process repository can maintain.

This Position	Is Accountable for	Takes this Point of View	Uses this Level of Model	Made up of
Executive Management	Aligning Strategy with Enterprise Process Performance	Enterprise Perspective	Enterprise Process Model	Processes and sub-processes
Process Owner	Business Process Performance	Business Perspective	Business Process Model	Sub-processes and activities
Operations Manager & Staff	Overseeing and Doing the Work	Operational Perspective	Workflow Model	Activities

Table 9

3.5.1.1 Enterprise Process Models

Enterprise perspective

The members of an organization who need to see how the enterprise operates overall, and align overall enterprise strategy with aggregated process performance take an "enterprise perspective" or point of view. The enterprise perspective arranges the primary processes to provide a sense of their interaction and integration. The enterprise point of view is captured, for each organization, in an Enterprise Process Model.

Enterprise Models

An Enterprise Process Model provides a full end-to-end, high-level view of the process. The model can show sub-processes as well as high-level problems and application systems. An Enterprise Process Model is typically a very general model that describes the focus of an organization and arranges the major processes of the entire organization.

Enterprise Process Model components

Generally, each high-level business process is described in more detail by its major components (sub-processes). An enterprise model typically has two or more levels of detail and serves as a high-level organizational "blueprint." The Enterprise Process Model may or may not include support and management processes.

Additional Use for Enterprise Process Models

These models have uses other than as a general classification and communications tool. The processes can be

- Mapped to Key Performance Indicators (KPIs) and strategic goals in a process portfolio
- Used to prioritize resources and project efforts, and
- Mapped into a System Dynamics-type model to formulate strategies for alternate future scenarios or to develop high-level estimates and forecasts.

Use of process model frameworks

Some enterprise process modeling projects start by using one or more process model frameworks to create a "straw enterprise model." The "straw enterprise process model" provides a springboard for vetting or changing by executive management. Conversely, some enterprise process modeling projects begin with the executive and functional management's point of view and then benchmark the enterprise process model against the process model frameworks.

Process model framework examples

Examples of process model frameworks include

- Simple multi-level or pyramid framework
- The APQC Process Classification Framework
- Porter's value chain
- Industry-specific frameworks such as those in the energy distribution, oil and gas production, telecommunications, and insurance industries.

Frameworks categorize and group processes

These frameworks typically categorize processes as primary, support, and management. Each of these categories may be used to group the major processes of the business. Examples of frameworks grouping primary processes include:

- In Porter's value chain, the primary processes are Inbound Logistics, Operations, Outbound Logistics, Marketing and Sales, and After-Sales Service.
- In the APQC Process Classification Framework, the primary (Operations) processes are Develop Vision and Strategy (1.0), Design & Develop Products and Services (2.0), Market and Sell Products and Services (3.0), Deliver Products & Services (4.0), and Manage Customer Service (5.0).
- In a more customer-oriented services model, the primary business processes can be Engage Customers, Transact Business, Fulfill Customer Expectations, and Service Customers.

Process model frameworks and architecture are further presented in chapter 9, "Enterprise Process Management."

3.5.1.2 Business Process Models

The "process owner's" point of view

Each business process has a process 'owner' who is accountable for the process's performance and has the authority to add or remove resources that affect the performance of the process. The business perspective, used by the process owner

- Provides the business context,
- Describes the business process, and
- Defines the scope of the business process for analysis and implementing changes.

The business perspective is captured in business process models.

End-to-end primary, support, and management processes

Business process models built from the business perspective

- Depict the major events, activities, and results for each of the major end-to-end processes, their sub-processes, and their interactions with their environment.
- Typically also describe the support and management processes and how they interact with or support the primary processes.

3.5.1.3 Workflow Models

Operations Manager's point of view

Managers who are responsible for monitoring performance and who look for ways to continuously improve operational performance take an operations perspective, or operations point of view. Workflow Models capture the operations point of view.

Describe WHAT must be done

Workflow Models typically describe WHAT must be done for the processes to be completed. These models are more detailed than enterprise or business process models. Workflow models are mapped down to the activities (also called tasks, or procedures) that make up the processes. Workflow Models include the activities that "functions" —positions, departments, and systems —perform and the relationship of the activities to other functions and processes.

Rolling up activities

At this third level of detail it is easy to understand the activities that are performed in a functional business unit. By rolling the activities up to the Business Process level, it is easy to see how all work fits into processes and how the activities play roles in producing the end product of the process.

Details "below" the Workflow Model

The Workflow provides only a basic understanding of the detail in the business operation. It is often not a sufficient level of detail to resolve problems, reduce cost, or support automation. For these actions, it is necessary to take the workflow level to a greater level of detail.

3.5.1.4 Task Steps

And, yes, there are still lower levels of detail that may be needed. The key is to map the processes to the level that you need to support

- What you are doing, *and*
- What someone in the next phase of the process project needs to do.

Lowest level identifies worker tasks and data requirements

At the fourth level, the Task Steps level, the business and BPMS designers usually have enough detail to tie rules to specific worker or systems actions. The use of data is now at a low enough level of detail to design application screens and reports, and define edits and low level decisions. As a business process professional you may participate in a project where the next phase involves developing software applications. To support what the software developers need to do,

- Confer with the software developers to determine the information that will most help them in coding and testing, and
- Consider the use of forward-looking and backward-looking traceability matrices to document functional requirements. Traceability matrices ensure that the software will be coded and tested to support the people who execute the process.

Additionally, this level is used to generate BPMS (business process management system) applications that manage work and automate manual "transaction" level data entry and use.

Remember to consider the requirements for any of these follow-on development activities and the detail needed to drive their completion, reached in the models.

"Worker" point of view

Those who actually "do" the work commonly focus on their tasks (also called responsibilities, activities or procedures) and the steps that make up the tasks. Task Steps identify HOW work gets done.

Task Steps describe in detail HOW work is done

This is the level of detail where the analyst can identify the steps that are performed to deliver the output or outcome of a single activity. Task Steps includes for each task the task trigger, steps, criteria of performance, principles to follow, materials and tools to use (including software), results, indicators of correct performance, and people who need to be consulted during or informed after the procedure is performed.

Example of service Task Steps

For example, an insurance company's policy sales staff needs to enter a new policyholder into the system. The Task Steps level names the activity (also called a procedure, and here called a task) and lists the steps that the sales staff must perform to enter the new policyholder.

Example of manufacturing Task Steps

Another example at this level in manufacturing is "build-to-order" (BTO). Here a customer places an order with a sales person. The project process analyst collects the requirements for the "customized" product. Assuming a build from common parts, the analyst identifies the parts, defines the options, cuts the build order, gets the parts and then constructs it.

3.6 Bottom-Up and Top-Down Modeling Approaches

There are a number of approaches to process modeling: top-down, middle-out, or bottom-up. Some process model development methods call for an iterative process approach that requires several successive passes to developing the model. The approach used varies depending on the purpose and the scope of the effort.

Bottom-up modeling projects

Traditionally, process models were generally created for the purpose of improving narrowly focused functions within a single department or operation. Often the process has not been documented and the first step is to attempt to discover what is actually occurring. Bottom-up approaches, centered on very detailed activity and task-oriented workflows, work best for these kinds of projects.

Top-down modeling projects

It is now becoming more common to find process modeling applied to

- Improving and innovating large scale, end-to-end, cross-functional business processes and
- Managing performance of these business processes.

Some process transformation efforts begin with developing a new business model first and then determining what needs to be done in the business to implement the business model. A more holistic business process management approach, using enterprise-wide process models ("architectures") to align business processes with business strategies, is also becoming more common. These types of modeling efforts are best developed with top-down methods.

Modeling approach rule of thumb

The key is to determine the purpose of the modeling effort and then apply the best approach for that purpose. Once an approach is selected, consider using an alternate approach on a limited basis to cross-check results. For example, do some bottom-up analysis to ensure that the top-down model is complete. Where service-oriented system architectures (SOA) are being engineered, the bottom-up analysis may also be necessary for developing specific system interfaces to link into the larger SOA network.

3.7 Capturing Process Information, and Modeling Participants

There are several different ways to capture information for process modeling. Consider using one or a combination of these techniques to gather descriptions of a process:

- Direct observation
- One-on-one interviews
- Written feedback
- Structured workshops
- Web conferencing.

3.7.1 Direct Observation

Advantages and constraints

Direct observation is a good way to document current procedural detail. It may uncover activities and tasks that otherwise might not be recognized, and it can be effective in identifying variations and deviations that occur in day-to-day work.

However, because it is necessarily limited to a relatively small sample size, direct observation may not capture the range of variations across groups and locations. Direct observation also entails the risk of the performers doing what they think you want to see, rather than what they normally do.

3.7.2 Interviews

Advantages and constraints

Interviews can create a sense of ownership and participation in the process of modeling and documenting business processes. This approach requires minimal disruption of participants' time and normal duties.

However, to schedule and conduct the interviews may take more overall elapsed time than other methods. It may be difficult afterward to build a cohesive process flow and to map the different views into a single view. This technique generally requires follow-up and sometimes doesn't uncover all of the activities to completely describe the process.

3.7.3 Survey/Written Feedback

Advantages and constraints

Written feedback also requires minimal time and disruption of duties. Generally, data may be collected in this fashion.

However, written feedback is often prone to the same problems encountered with one-on-one interviews, such as taking more time, missing some information, time spent reconciling differences of opinion or different descriptions of the same work by different people, requiring follow up.

3.7.4 Structured workshops

Advantages and constraints

Structured workshops are focused, facilitated meetings where enough subject-matter experts and stakeholders are brought together to create the model interactively. They offer the advantage of shortening the elapsed calendar time required to develop the models and give a stronger sense of ownership to the workshop participants than other techniques. Structured workshops can also have the advantage of a facilitator who may be skilled in modeling techniques not commonly known by process participants.

However, due to the potential travel and expense that may be required, workshops may be more costly than other methods. Generally, models produced in workshops require less follow-up and generate a commonly agreed-upon description of a process more quickly and with higher quality than other techniques.

3.7.5 Web-Based Conferencing

Advantages and constraints

Web-based conferencing can be employed to gain much the same benefits as face-to-face workshops, but they work best with smaller groups. Web-based conferencing can be more convenient and less expensive when the participants are widely distributed.

However, using this kind of technology effectively depends on having facilitators who are skilled in the use of these techniques. In workshops done this way, it can be more difficult to monitor and manage individual participation in the group work.

3.7.6 Modeling Participants

Developing process models involves a number of roles because of process models' wide range of uses. Many people may be involved in creating a set of models that fully represents the processes. Business strategists, business managers, financial analysts, auditors and compliance analysts, process performance analysts, requirements analysts, systems analysts, or others may create different process models for their particular purposes. Models can be created by individuals expressing their personal knowledge or by groups outlining the scope and depth of the business they are addressing. In a more structured approach, typically there will be a facilitator, a modeler, and several subject matter experts involved.

The subject matter experts may be

- Executives expressing high-level business dynamics,
- Mid-level managers defining monitoring and control mechanisms, or
- Workers who actually perform the work being modeled.

For re-design efforts, information systems personnel who develop the requirements for IT support must collaborate with organizational design personnel who determine roles, responsibilities, and reporting structures, or financial personnel who measure cost and value options.

3.8 Frameworks and Reference Models

A modeling project may require many individual models. These models have value both individually, as stand-alone representations, and as components of the whole project's complex picture. Frameworks and reference models maximize the value and usefulness of the set of models within the context of the whole. There are a number of framework and reference model examples.

3.8.1 Modeling Within a Framework

A framework may range from a simple conceptual pyramid to a complex set of modeling products with rules governing what will be represented where. In the pyramid, each level of model summarizes the level beneath it and decomposes the level above. The pyramid may have a simple value chain at the top level that provides an instant overall summary of what the set of models will explain. The lower levels generally introduce key events, performers, operational activities, and more detailed process flow. Sometimes a level is included below the detailed process levels to show data structure and details of system or organizational components.

Complex frameworks enable complex process model development

The more complex frameworks may prescribe a standard set of products to depict the details of the processes under study. Very large, complex institutions often adopt frameworks intended to apply throughout all modeling efforts of the enterprise. Examples of these include

- Federal Enterprise Architecture Framework (FEAF),
- Ministry of Defense Architecture Framework (MODAF),
- Department of Defense Architecture Framework (DoDAF), and
- The Open Group Architectural Framework (TOGAF).

These frameworks serve the dual purposes of helping users address extreme complexity within their environments and of enabling apple-to-apple comparisons among the different projects within the institution. The last framework listed, TOGAF, is a general-purpose version of a complex framework supported by The Open Group. Most of these seemingly different frameworks are derivatives of or heavily influenced by the Zachman framework, proposed by John Zachman in 1987.

Framework management and compliance

Management of these massive frameworks is often the role of the Enterprise Architect, but all Business Process Management practitioners must comply with the structure of the framework to avoid gaps and inconsistencies.

3.8.2 Using a Reference Model

Reference models ease analysis

A reference model can serve some of the same purposes as an architectural framework. A reference model provides a common way of viewing some aspect of a process and a common way of describing it for easy analysis and comparison. Reference models are developed and supported by organizations and consortia for these purposes.

SCOR® and DCOR℠ from the Supply Chain Council

The Supply Chain Council is a consortium that markets a reference model called SCOR® (Supply Chain Operations Reference). Organizations seeking a means of understanding their supply chains for the purpose of process analysis, comparison with competitors, and assessment of improvements may subscribe to this reference model. It provides common vocabulary and structuring of supply chain modeling projects while allowing great latitude in the way lower-level processes are described.

Another reference model, DCOR℠ (Design Chain Operations Reference) is also published by the Supply Chain Council. In addition to these, companies that market high-level process modeling environments often include sets of reference models to help guide effective modeling within the environment.

3.9 Modeling Techniques and Tools

There are many modeling tools and techniques available, ranging from use of simple white boards, butcher paper, or sticky-notes to sophisticated and specialized BPM tools that include modeling and data stores for those models and processes. Process analysis can be done effectively and efficiently using any type of tool. The focus of the analysis or design, however, should be on the process itself, and not on the tool.

None of these techniques is necessarily exclusive of the others; all can be employed in a process redesign or improvement project with different groups or in differing circumstances.

3.9.1 Drawing Tools and Reports

During or after interviews and workshops, participants can capture the process flows and notes using inexpensive drawing tools. Often, these drawings are inserted into Word documents or PowerPoint presentations as a means of reporting findings and sharing the results. This is a common means of process modeling used in organizations today.

3.9.2 Electronic Modeling and Projection

Using electronic drawing or modeling tools and projecting the images to large screens in order to capture and view the developing models has become a common practice today. This technique has several benefits. The model is visible and can be modified during a workshop. When the session is completed, no transfer to another toolset is required. Many tools allow the resulting models to be quickly and easily shared via email immediately or shortly after the session.

Adding web-based conferencing tools enables remotely located stakeholders to also participate in the modeling sessions. In addition, several current modeling tools are repository-based, which allows the reuse of objects or patterns that have already been defined in previous efforts.

3.10 Process Validation and Simulation

3.10.1 Process Simulation Uses

Process simulations are a form of model that provides valuable insight into process dynamics. Simulations require sufficient data to allow the process to be mathematically simulated under various scenarios, loads, or other conditions. Simulation can be used to achieve the following:

- Validate a model by demonstrating that real transaction sets, when run through the model exhibit, produce the same performance characteristics as those in the actual process.
- Predict the process design's performance under differing scenarios (vary the number of transactions over time, the number of workers, etc.).
- Determine which variables have the greatest effect on process performance.
- Compare performance of different process designs under the same sets of circumstances.

3.10.2 Simulation Tools and Environments

Simulations can be manual or, using process simulation tools, electronic. Process laboratories are often used as part of a process improvement, redesign, or reengineering effort. A process laboratory can perform simulations by developing mock transactions that can be manually executed through an end-to-end business process by a small cross-functional team. Simulations can be run against "as is" processes or designed as "to be" processes.

Process laboratories often identify exceptions and handoffs while providing important insights into existing and required communication between tasks, functional areas, teams, and systems. Some organizations require a successful process demonstration in a laboratory setting before piloting or rolling out new processes or changes to process design.

3.10.3 Technical Simulation/Load Analysis

Some process simulation tools provide the ability to perform load analysis. For example, simulating peak, average, and valley transaction loads predicts impact on cycle time, resource requirements, and bottlenecks. Simulation generates data sets that allow many different types of process analysis. Some of the typical analyses are resource utilization, distribution analysis, cycle-time analysis, and cost analysis.

Some process simulation tools can also present animations of the simulations. Animations may be helpful in visually identifying phenomena during performance that may not be readily apparent in typical analysis of simulation data sets.

3.11 Key Concepts

PROCESS MODELING—KEY CONCEPTS
Process models • Are simplified representations of some business activity. • Serve as a means to communicate several different aspects of a business process. • Are used to document, analyze or design a business process. • Are useful as documentation for communication, training and alignment; design and requirements; or as a means to analyze aspects of the process. • Often express the "As-Is" state of the model and one or more proposals for change, culminating in a "To-Be" model and change management strategy. • May require validation by simulation.
Perspectives • Different levels or perspectives of business processes are expressed by models showing different scopes and levels of detail for different audiences and purposes. • Process models may display several different perspectives: for example,

Enterprise, Business, and Operations (Workflow).
- Each different perspective has specific types of models and composition levels that are best suited for the perspective.

Notations

- There are many different styles of process modeling notations and ways to develop process models.
- Selection of a modeling notation should match the needs of the project —the task at hand and the needs of the project's next phase.
- Some notations are more versatile and apply to a broad range of process modeling needs.
- Sometimes, combinations of notations match project requirements better than a single tool.

Frameworks

- If the project must comply with a specific framework, identify framework requirements early on.
- Reference models are available to help guide the development of models in some fields.

Capturing process information

- When approaching a modeling challenge, the team may choose to model from top-down, bottom-up, or from the middle, depending on preference and project requirements.
- Information capture techniques can vary widely among projects, and can include any combination of observation, interview, survey, and formal workshop; they can be in-person or online.
- Participants in a modeling project include strategist, managers, subject matter experts, and different types and numbers of analysts. Process implementation often requires the skills of change management professionals.

Chapter 4

Process Analysis

Foreword by Elise Olding, Gartner, Inc.

Process analysis encompasses a lot more than just flowcharts. Process analysis lives at various levels, from a one-page view of the organization—a conceptual level analysis—to very detailed and directive steps at an execution level.

At the conceptual level it is a powerful visual technique to identify holistic, systemic disconnects in the organization. It can be used to engage executives to think differently about process, to see it as a way to make decisions about priorities and raise the conversation to a strategic level. At the tactical level, it is useful to drive out costs, standardize work execution, and contribute to more efficient routine work.

In the layers between these two bookends live a myriad of analysis techniques that embrace unstructured and collaborative work to make it more effective, such as social network analysis (SNA), decision matrixes, and shadowing work participants. These are often overlooked, contributing to the view that process analysis is something done at an execution level in an organization. We need to rekindle the conversation and bring process analysis to the executive suite.

Process analysis is a means to an end. It's not the end! The outcome of the work must be to generate value for the organization. One of the common mistakes organizations make is to dwell too long on the "as is" analysis, documenting every detail. I've come across organizations with a room filled from floor to ceiling with process models, charts that the business partner does not want to review or validate. No wonder! They would take weeks to review; even I have felt overwhelmed trying to take it all in.

I ask them a few simple questions: "What problems did you find? What baseline metrics did you document? Were there any trends or themes that became evident from this work? Do you have any recommendations for "quick wins"? Sadly, the answer to all this is "No." Somewhere along the journey, the organization has gotten lost and forgotten what the end game really is: delivering value to the business.

On the flip side, effective process analysis can be an enabler. For instance, a company was challenged with spinning off a new organization in a very short period of time or risked losing a huge investment that would likely mean its demise. The executive management had the foresight to document and understand their existing processes: they used these in their day-to-day work, defining how the functions interact, and defining roles and responsibilities. From this starting point, they were able to quickly perform the process analysis, identify the actions they needed to take, and move forward with the "to be" implementation. They succeeded and got the investment—clearly delivering strategic business value.

Whatever level you choose to analyze, from an enterprise opportunity assessment to a detailed as-is analysis, don't lose sight of delivering business value. Always ask yourself, "If I do more, will I continue to derive benefits?" Be mindful of delivering business value, using the right techniques for the task at hand, and always challenging whether further work and detail are necessary.

Many techniques are mainstream and are likely part of your repertoire. Some, such as social network analysis (SNA) or organizational network analysis, are emerging. Others, like work shadowing and observation, are underutilized. I would encourage you to explore the full spectrum of process analysis techniques, become proficient at using them, and understand when to employ them.

Contents

4.0 Introduction

The first step in defining a new process or updating an existing one is to create a common understanding of the current state of the process and how the process achieves the stated business objectives. This common understanding is gained through process analysis.

In this chapter we explore the topic of process analysis, starting with why a process must be analyzed and who should be involved in the analysis. Then we will explore the specifics of how to analyze a process, followed by discussions about the techniques, tools, methodologies, and frameworks that can be used. Finally, to ensure a complete understanding of what is necessary for successful process analysis, we will look at suggested practices.

4.1 What is Process Analysis?

Process analysis provides an understanding of the process activities and measures the results of those activities in meeting the organization's goals.

A process is a series of interrelated tasks or activities that achieve a particular end. In the context of business process management, a "business process" is defined as end-to-end work that delivers a product or outcome. This end-to-end work can cross functional areas and proceed through multiple organizations.

Whether the assignment is to analyze one process or the processes that connect activities across business units, business partners, or the broader value chain, process analysis can be applied to address the current and future improvement opportunities.

Process analysis is accomplished by various means, including mapping, interviewing, simulations, and other techniques. It often includes a study of the business environment, the organizational context of the process, factors that contribute to the operating environment, industry characteristics, government and industry regulations, market pressures, and competition.

Key factors to consider are:

- Business strategy
- The objectives of the process
- The key challenges in achieving the goals
- The contribution of the process in the overall supply chain
- The organization and business roles supporting the process.

Those who interact with the process should agree upon information gained through the analysis. They need to achieve an objective and unbiased perspective, regardless of any existing inefficiencies. Process analysis forms the foundation for process design, which is the topic addressed in "Process Design" (chapter 5).

4.2 Why do Process Analysis?

Process analysis is an essential tool to evaluate how efficiently the business is working to meet its objectives: it generates the information necessary for the organization to make informed decisions assessing the business's activities. The principal benefit of analyzing the "current state" of the process is a shared understanding of how the work is done today. By creating a foundational assessment based on documented, validated facts, current-state analysis can help those engaged in the redesign of processes to better meet the goals of the business.

For the business to evolve and adapt to change, ongoing process analysis is required to ensure that business needs are met. Changing government regulations, economic conditions, and marketing strategies can quickly result in processes that no longer meet their original design.

A holistic review of the major processes within a scope of business activities begins with an understanding of the organizational strategy. Strategic considerations frame the process objectives and challenges in a broader context. Process analysis goes beyond the short-term tactical problems or the wish-list of the business unit. Process analysis addresses the fundamental process change that will impact achievement of organizational goals and strategies.

Monitoring process efficiency with ongoing dashboard metrics indicates if the process is too costly, or if gaps exist in process performance. The analysis provides the measures and understanding of process effectiveness and efficiency.

The information generated from this analysis includes

- An understanding of the strategy, goals, and objectives of the organization
- The business environment and the context of the process (why the process exists)
- A view of the process within the larger cross-functional process
- Inputs and outputs of the process, including internal and external suppliers and consumers
- The roles and handoffs of each business unit in the process
- An evaluation of scalability and resource utilization
- An understanding of the business rules that control the process
- Performance metrics that can be used to monitor the process
- A summary of opportunities identified to increase quality, efficiency, or capacity.

This information becomes a valuable management resource for understanding how the business is functioning and for making informed decisions on adapting to a changing environment. Aided by this information, management can ensure that process structures are optimal for attaining business objectives.

4.3 When to Perform Analysis

Process analysis can be done in response to signals from continuous monitoring of processes, or it can be triggered by specific events. This section discusses the impact of each.

Continuous Monitoring

Business Process Management (BPM) is a committed part of an overall business strategy, rather than a single activity that is completed in the context of a single project. Managing the business by process requires that performance metrics be in place to monitor the processes so that they meet the identified goals of the organization. BPM implementation should include the capability to continuously evaluate processes as they are performed through the use of real-time monitoring tools. When deviations in process performance arise, ongoing process analysis allows for more decisions regarding corrective actions, or new analysis towards process change.

Event-Triggered Analysis

Events are the most frequently occurring triggers of process analysis. The following are just a few of the events that may trigger a process analysis.

Strategic Planning

Most companies regularly review and update their strategic plans. They survey the market and competitive landscape for new opportunities and establish new goals. Many of these goals impact the organization’s structure, and therefore the processes supporting the organizational goals. Following an update to the strategic plan, processes may need to be updated.

Performance Issues

When performance issues emerge, process analysis can assist in identifying the causes of poor process performance. Performance issues may present in various ways, from (for example) unacceptable product quality or deviations from regulatory requirements to existing sales support processes not keeping pace with new product lines. .

New Technologies

Advances in technology may positively or negatively impact process performance. As part of implementation or upgrade planning, process analysis contributes to the blueprint of how the new technologies will be employed. This blueprint includes an understanding of how and where new technologies should be applied to gain the maximum benefit for the organization, and what the impact will be on other processes. For example, implementing a new applicant tracking system should trigger an analysis of the downstream and parallel processes. This way, increased applicant flow can be managed seamlessly, and applicant experience can be kept uniform across alternative channels.

Merger/Acquisition/Divestiture

Business mergers and acquisitions often result in disjointed production and service processes. In order to achieve value from mergers or acquisitions, process analysis is critical for establishing the capabilities required by the combined entity, while at the same time eliminating gaps and redundancies. In the case of divestitures, process analysis prior to the divestiture can help ensure that critical processes survive in the restructured entities.

Regulatory Requirements

Often regulatory bodies governing businesses will create or change regulations that require the business to modify its processes. By performing process analysis as part of meeting these requirements, a business can ensure that it complies with the regulatory changes in a way that manages risk, controls costs, and minimizes disruption. Organizations that achieve a high level of process management can, in many cases, look for opportunities to integrate regulation-driven processes with internal quality controls, and thus achieve more cost savings and robust compliance than organizations that look upon regulatory compliance as a costly add-on.

4.4 Process Analysis Roles

Successful process analysis will involve a variety of individuals within the organization. Examples of the roles involved in process management are further defined in "Process Organization" (chapter 8).

Several key roles necessary to perform process analysis are defined below. One of the first steps in a process analysis is to establish and assign those roles. The individual or group ultimately responsible for the performance of the process, whether it is the process owner or the executive leadership team, should carefully select those who will lead and manage the team in the various roles. It will be the responsibility of these leaders to ensure successful completion of the project, including a comprehensive and accurate representation of the state of the process.

4.4.1 Optimal Team Attributes

A single individual can perform process analysis, but the best practice is for process analysis to be performed by a cross-functional team. This cross-functional team will provide a variety of experiences and views of the current state of the process, which results in a better understanding of both the process and the organization. This team should include subject matter experts, stakeholders, functional business leaders and process owners, all committed to the best possible process outcomes and having authority to make decisions about the needed changes. Such teams have the added benefit of establishing broad ownership and improved acceptance of the coming change.

It is also important to make sure that enough time has been allocated for these resources to contribute properly to the assignment. As in any project, process improvement projects often fail because of a lack of time and priority placed on the project. On the other hand, taking too long for the analysis phase of a complex project is one of the more common pitfalls. Balancing the inventory of processes and sub-processes involved and ensuring the process team will get the proper time commitment from the business units is the responsibility of the project team leader.

The analyst or a member of the process team should have competencies in the process management frameworks described later in chapter 9. Firms often use outside consultants with expertise in process management to supplement internal knowledge and experience of process management methodologies.

Once the process team is in place, the team lead must communicate the game plan and team-member roles. Each and every member must understand what is expected and agree to commit the time and effort required to make the project a success.

4.4.2 Analysis Roles and Responsibilities

The following describes the responsibilities of each role within process analysis. The organizational competencies required to support a BPM program are further defined in chapter 8, "Process Organization."

Role	Responsibility
Analyst	Decide the depth and scope of the analysis, how it is analyzed, and then proceed to perform the analysis Project manage or facilitate to help project advancement Provide documentation and final reports to the stakeholders and executive leadership
Facilitator	Lead process analysis teams Facilitate with unbiased view to let the group discover the path through the analytical techniques chosen Manage group dynamics
Subject Matter Expert	Provide insight into the business process Provide insight into both the business and technical infrastructure that supports the process

Table 10

4.5 Preparing to Analyze Process

Process practitioners who have been involved in the redesign of large-scale processes know that drilling down inside a single process usually doesn't provide the right level of understanding. Evaluating the activities and workflow within only a single process may not provide an adequate basis for improving the process. One needs to consider how change to a single process impacts other related processes in the end-to-end process. For example, a new order entry system implemented for client entry may initiate a transaction, yet returns are reconciled from another system. This process may perform well from a customer perspective and yet fail because it does not provide adequate information from a financial perspective.

To determine the scope of the project and the tools to be used, the analyst should consider the full context of the process activities and the value provided to other users and other processes. The following subsections will explore these factors.

4.5.1 Choose the Process

Although the processes to be analyzed often have already been determined in the context of an enterprise BPM engagement, there may be instances of competing priorities across the processes that need to be analyzed. For this reason, large-scale or cross-functional analysis should include governance that establishes criteria for prioritizing and ordering the processes to be analyzed. For example, an organization may identify these criteria for high-impact processes:

- Customer-facing processes
- High impact on revenue
- Aligned to other processes that are high value to the business
- Critical to coordinate with cross-functional impact

Scoring metrics can be used to assign point values for these factors, and prioritization can be recommended based on the processes with the highest scores.

Whatever method is chosen to rank them, the processes chosen should directly meet the goals of the organization and have a positive impact on the critical business result.

4.5.2 Scope of the Analysis

Establishing the scope of the processes included in the analysis is one of the first actions of the process team. Scoping is critical to decide how far the project will reach, how much of the broader business function will be involved, and the impact of any changes on upstream and downstream processes and users.

For example, to analyze an HR recruiting process, the scope of the analysis may include applicant screening through the candidate selection process. A second possibility would be to analyze applicant screening through the employee on-boarding process. This latter scope would extend beyond the traditional HR recruiting processes to include new hire orientation, employee benefit enrollment, and provisioning processes. Scope selection should consider the objectives and desired outcomes of the analysis. If the objective were related to systems supporting the end-to-end process, the full scope is essential. If only the applicant screening process is to be analyzed, the impact on related upstream and downstream processes should still be considered even if those processes are not in scope.

Once the scope of the analysis is determined, the analyst should also consider the depth of the analysis. Will the activity-level be adequate or should all inputs and outputs be considered as part of the analysis? Too much analysis can hinder process creation or redesign. Avoiding analysis paralysis is critical, and will be explored later in this chapter.

It may be necessary to interview a variety of individuals in various business functions before making scope decisions. An important consideration is that the more business functions and activities included in the analysis project, the more complicated the analysis and the longer it is likely to take. To show progress and manage complexity, the analyst or team may wish to break down larger processes and analyze sub-processes.

4.5.3 Choose Analytical Frameworks

There is no single right way to analyze a business process. Topics to be studied, methods for studying them, tools to be used, etc., are all dependent on the nature of the process and the information available at the time the analysis begins. Some projects may start with a completed and verified model that can be used for analysis, while others may require the development of a model (or at least validation of the model design.)

The analyst, along with the process team, should review and select the analytical approach, methodology, and framework. Formal process improvement methods such as Six Sigma, Lean, or other quality methods provide tools and templates to assist in the review process. These methods are further discussed in chapter 6, "Process Performance Management." Once the analysis team selects the framework or methodology, it can decide what techniques and tools to use as part of that framework.

If a formal method is selected, the team should have training or an experienced facilitator guiding the use of the analytical frameworks. It is also important to consider the industry and the technology related to the process. If the process is driven by quality measures, such as a manufacturing product line, formal methods supported by data and quality measures are an appropriate approach in that environment. If the data is not available or if the process is not structured, a pragmatic review may be the best approach.

Pragmatic process analysis can be based on a standard "Plan-Do-Check-Act" sequence of steps. Review the process against internally developed quality standards and best practices. These may include minimizing handoffs, ensuring that each action adds value to the process, and managing data or product inputs close to the source. To deliver significant improvement to the organization with very low risk, the team should review the process to ensure that all participants accurately execute the same best practice. The team can drive process efficiency and effectiveness through a pragmatic review of the current best practice from all process variations currently in use. Then it can design process controls and guidance to ensure execution of the best practice and reduce or eliminate variations, exceptions, and errors.

4.5.4 Performing the Analysis

There are several well-recognized and published methodologies for process analysis. Some of these topics are covered in related chapters on Process Modeling and Process Measurement. The common activities during a process analysis are described below. These activities apply whether the process is an established or a new process and should be considered in the context of the process review.

4.5.5 Business Context

Achieve a general understanding of the reason for the process to exist within the business environment by answering questions such as these:

- What is the process trying to accomplish?
- Why has it been created?
- What triggered the analysis?
- What are the systems required to support or enable the process, and how sustainable are those systems?
- Where does the process fit into the value chain of the organization?
- Is the process in alignment with the strategic objectives of the organization?
- Does it provide value to the organization, and how critical is it?
- How well does it function in the current business environment and how well could it adapt if the environment were to change?
- What are the risks to the process (external, environmental, or internal) and can the process adapt to survive those risks?

4.5.6 Organizational Culture/Context

Every organization has a culture that influences the internal and external processes of that organization. That culture includes how work is performed and what motivates the members of the organization to do the work. Cultural factors may lead to unintended consequences as new processes are put into place. Part of the analysis process is to understand the culture of the organization and those unwritten rules that determine how and by whom work is really accomplished. This understanding is critical for managing the organization through change. Note that attitudes will change as analysis and execution progresses. The interaction among culture, processes, and the change program requires continuous monitoring:

- Who are the leaders in the organization responsible for the successful delivery of the process outcomes? How committed are they to the changes, and how confident are they that the improvements will be successful?
- How are the proposed changes and improvements viewed by powerful service functions, such as HR, Quality Control, Compliance, Finance, etc.?
- What is the motivating factor for quality process outcomes? How is process execution incorporated in the incentives that reward work output? Has the success of a process been measured on quality outcomes?

- How will the change-management training be delivered in the organization? Will the goals for measuring success include successful implementation of change?
- How will individuals affected by or responsible for the process interpret the reason for the process change? Is process excellence a key competency in the organization or strategy? Are there attitudes, practices, or performance goals that provide incentives against cooperation or change?

4.5.7 Performance Metrics

Performance issues can be defined as gaps between how a process is currently performing in relation to how it should be performing to meet the organization's objectives. A methodical analysis can illuminate the nature of the gaps, why they exist, and how the situation can be rectified. A key element of the analysis is to identify actionable and auditable metrics that accurately indicate process performance. These metrics will provide indicators as to where and how a process should be adjusted. Key questions to ask during this discussion include the following:

- Is the process meeting its performance goals?
- What is the accepted service level for the process? Are turnaround times lagging behind the current acceptable targets?
- How would we know if the process has improved? For instance, if time is the measurement of the process, can cost be ignored? Or if cost is the measurement of the process, can time be ignored?
- How is business process monitoring managed? What are the key metrics and how are deviations addressed?
- Are performance metrics or dashboards reviewed continually, so the process is accurately measured and monitored?

4.5.8 Customer Interactions

Understanding the customer interactions with the process is critical to knowing whether the process is a positive factor in the success of the organization's value chain. Generally, the fewer required interactions between the customer and a given service, the more satisfied the customer. This topic should address the following questions:

- Who is the customer? Why do customers choose to participate in the process rather than go elsewhere?
- What suggestions do customers have for improving the process?
- How many times does a customer interact with the process? Are there redundancies in the interactions?
- How coherent is the process and the utilization of customer information, from the customer's perspective?
- What are the client satisfaction metrics? Are they within the desired norm?
- What is the customer's expectation or objective with the process?

- If the process supports internal activities, what are the impacts or indirect effects to the customer?

4.5.9 Handoffs

Any point in a process where work or information passes from one system, person, or group to another is a "handoff" for that process. Handoffs are very vulnerable to process disconnects and should be analyzed closely. The following questions might be used as guidance:

- Which of the handoffs are most likely to delay the process?
- Are there any bottlenecks of information or services as a result of handoffs happening too quickly, or creating downstream delays?
- Can any handoff be eliminated?
- Where do streams of information come together, and are timing and sequencing accurate?
- What means are in place to manage sequencing, timing, and dependencies across handoffs?

4.5.10 Business Rules

Business rules impose constraints and drive decisions that impact the nature and performance of the process. Often, business rules are created without sufficient understanding of the scenarios the organization may encounter, or have become disconnected due to changing conditions or unmanaged change. When analyzing the business rules of the process, consider the following:

- Do the existing rules comprehensively cover all the scenarios and decision drivers that may be encountered during the execution of the process?
- Are there logical gaps, ambiguities, or contradictions in the rules governing a process area?
- Are dependent or interrelated processes governed by consistent (or contradictory) rules?
- Are the business rules in alignment with the objectives of the organization?
- Do the current business rules cause obstacles by requiring unnecessary approvals, steps, or other constraints that should be eliminated?
- When and why were the business rules created, and how were they defined?
- What would be the result of eliminating certain rules?
- What process is in place for managing change to business rules?

4.5.11 Capacity

Capacity analysis probes upper and lower limits and determines whether production factors can appropriately scale to meet the demands. When analyzing the capacity of a process, consider the following:

- Can the process scale upward? If volumes are increased, at what point will the process break down?

- How well does the process scale downward? What is the cost of the process when idle?
- What happens to the process when supplies and materials are delayed or unavailable?
- When the process accelerates or slows, what happens to downstream processes?

4.5.12 Bottlenecks

A bottleneck is a capacity constraint that creates a backlog. The following questions may help the team understand the nature of the bottlenecks:

- What are the factors contributing to the bottleneck, and are these factors people, systems, or organizational?
- Does the bottleneck occur around handoffs among multiple groups?
- Is the bottleneck the result of an internal or external constraint? What is the nature of the constraint—resource availability? Rules? Process dependencies?
- Are there unnecessary role specializations or organizational silos?

4.5.13 Variation

Although especially true in the manufacturing industry, variation in any mass production industry is not good. Variation inevitably slows down the process and requires more resources to properly scale. If the nature of the business requires variation as its core business strategy, then look for places where some of the variation can be reduced, which could save on the overall cycle-time of the process. Discussion topics could include the following:

- How much variation is tolerable for the process?
- Is variation necessary or desirable?
- Where are the points where variation is most likely to occur? Can they be eliminated, and if so, what are some recommendations?
- Can automation help eliminate variation?

4.5.14 Cost

Understanding the cost of executing the process helps the team prioritize which processes deserve early attention. Some of the discussions might revolve around the following:

- What is the total cost of the process, taking into account frequency and circumstances of its execution?
- Is the cost in line with industry best practices?
- Can the cost be reduced through automation or technology improvements? If so, how and to what extent?
- What would be the impact on realized value and operating margins of each option, in order to make this process more cost efficient?

4.5.15 Human Involvement

Processes involve either automated activities or activities performed by real people. Automated activities generally run consistently, and when they don't it is possible to find and correct the situation that is causing the problem. Activities performed by real people are more complex because they involve judgment and skill that cannot be automated. People do not always do the same task in the same way. Where processes or process management is not mature, people may compensate by individually executing functions or methods that are not documented or readily visible.

The following questions can help guide the discussion around this important analysis:

- How much variability is introduced by the human element? Is the variability desirable? Is it tolerable? Can the action be automated? What would be the result to the process? What would be the result to the human element and to the culture of the organization?
- How complex is the task? What are the skill sets required? How are performers trained for the task?
- How do the performers of the task respond to external events during the task?
- How does the performer know when the task is done well? What feedback systems are in place to guide the performer? What can the performer do with this feedback—what can he or she change with this knowledge?
- Does the performer know where the task lies in the process and what the results of the actions are downstream? Does s/he know what happens before the task? What does the performer do with variations in the inputs for the task?
- How much knowledge is available to the performer to accomplish this task? Is it sufficient?
- Are there signs that processes are ad-hoc rather than visible, understood, and repeatable? For example, do people frequently have to resort to heroic acts or interventions in order to get critical work done? Are people in ostensibly similar roles performing different work, or performing similar work differently?

4.5.16 Process Controls

Process controls are put in place to ensure adherence to legal, regulatory, or financial constraints or obligations. Process controls are different from control processes in that the former define the control while the latter define the steps to achieve that control. For example, the requirement to obtain a signature is a process control, while the step that must be performed to obtain that signature is a control process. The following questions may assist in understanding what process controls are in place:

- Are there any legal controls or regulatory risks that must be considered in relation to the process?
- What are the environmental impacts of the process, and do those impacts need to be controlled?
- Who are the regulatory or governing agencies that will regulate the process and do they need to be informed of the process change?
- What competencies and roles already exist to execute and oversee process controls?
- Are process control structures and procedures well documented and understood? Is there training and certification support to ensure understanding and execution?
- Do reporting relationships ensure independence of quality or process control functions and the execution of the control processes?

4.5.17 Other Factors

The purpose of the topics above is to spark discussion about the process. Other discussion topics not mentioned above will naturally arise during the process analysis and should equally be explored. Conversely, some of the topics noted above might not apply to the process being analyzed. The key point to remember is that the analysis must encompass a variety of techniques and topics to achieve a complete and well-rounded understanding of the process.

4.6 Gathering Information

The next step in the analysis is for the analyst or team to gather as much relevant information as possible about the process and business environment. The types of information gathered depend on the business and process being analyzed. They can include any or all of the following:

- Strategic information about the company, such as long-term strategy, markets, threats, opportunities, etc.
- A company's performance in comparison to its peers, or benchmarked to other related industries
- The rationale for the process analysis and at who's request
- The fit of the process into the organization
- The people who should be involved in the process analysis project
- This information may be found using methods such as:
- Interviews with individuals involved in the process.
- Performance records/transaction reviews on the process (although this data may or may not substantiate the information learned in the stakeholder interviews)
- Walkthroughs of the process, or observation of actual execution.
- Audit reports that identify control points in the organization.

Interviewing

An important method of gathering information and preparing for the process analysis is to interview those who have activities in or are somehow associated with the process. Those interviewed may include process owners, internal or external stakeholders (vendors, customers, or partners), those who work the process and those who pass inputs to, or receive outputs from, the process. These interviews can be in a formal face-to-face setting or can be conducted via phone or e-mail. Typically, the formal face-to-face setting is more productive, as it allows for greater dialog and discussion about what is (or was) actually happening. A group interview performed by a facilitator can also be effective in generating discussion about processes.

Observing

Another important method of gathering information, and similar to interviewing, is direct observation of the process. Either through reports or system transaction logs, or by observing the human interactions with the process, directly observing the process will help create an understanding of what the process is actually doing.

Often, analysts find that during an analytical observation of a process, further questions and interviews need to be conducted to fully understand the process. Interviews and fact-finding should take place throughout the analysis, and it is quite appropriate to hold interviews during any part of the analysis process.

Researching

Begin by researching any documentation or notes about the existing process. This can include any written documentation created when the process was created, transaction or audit logs, process diagrams, etc. Should this information not be available, the analyst may wish to request written descriptions of the process from the key stakeholders and actors in the process.

4.6.1 Analyzing the Business Environment

To fully understand a business process, the analyst must also understand how the business and the business environment interact. A business environment analysis includes understanding the organization's market and external factors affecting it, the customers' demographics and needs, business strategy, the suppliers, and how work transforms to meet the needs of the customers.

As the business environment changes over time, so must the organization's processes. The business analysis informs the analyst of the environmental changes that have taken place since the process was first created and can help explain the reasons for poor performance of a process. Understanding these relationships is important for discerning how processes might need to change.

There are as many methods to analyze the business environment as there are researchers and consultants within the field of business management. The following are a few common techniques used in analyzing the business environment:

Benchmarking

During the analysis it is good practice to compare the performance of a process to similar processes in the industry. These processes also can be compared to similar processes in different industries. This information can be gained through industry surveys and other industry roundtable or exchange groups.

Another type of benchmarking technique is comparison of the subject organization with its direct competitors—that is, to analyze how processes compare to competitor processes and consider competitive advantages. A “S.W.O.T.” (strengths, weaknesses, opportunities, threats) analysis is part of this investigation. Competitive analysis techniques include obtaining information from public sources, industry trade associations, web sites, customers, or consulting firm surveys. Essential process characteristics from the organization are then benchmarked against those of competitors.

The final type of benchmarking analysis identifies processes that are similar to the process being analyzed but that exist as best practices in other industries. For example, online retail companies adopt ‘best practices’ in order processing; as online order-entry for a retail firm is redesigned, an analysis of broader industry best practices can be reviewed for other types of ordering processes. The retail firm is apt to discover new processing ideas since they are researching companies outside their industry. This analysis allows the process designers to escape the “group think” syndrome that often exists when organizations look only within their own company or industry. This type of analysis can help promote transformational change in an organization.

Understanding and analyzing these benchmarks in relation to the processes being analyzed will help the analysis team understand the performance potential of the process and its weaknesses in achieving that performance.

4.6.2 Analyzing Information Systems

Often, automated process discovery will find that the major causes of inefficiency include significant process variability across different users, process restarts and rework, exceptions and errors.

A few common analytical techniques are described below:

Data Flow Analysis

Data flow analysis seeks to understand how data flows through a system and how data items interact at points through the process. Data on transactions processed through the system will give insight into the volume and complexity of many types of transactions. Data flow analysis provides a unique view of what happens to the data during the process and enables better understanding of the volume of standard and exception processes.

This type of analysis helps the analyst uncover bottlenecks, unneeded queues or batches, and interactions that do not add value. Data Flow Analysis also helps uncover business rules that should or should not be applied, based on the data. Such business rules might add insight into the routine rules that could be automated and applied as standard transactions, as well as those representing exception processes.

Business Rules

Business rules were discussed as one of the elements in understanding the organizational culture. They are covered in chapter 10 in greater detail.

Many automated systems explicitly or implicitly incorporate business rules into their configurations or hard-coded algorithms. These rules often are essential to smooth business operations, yet are poorly understood by the people whose work depends on them. This is especially true in organizations that have not achieved disciplined process documentation and change control. In such organizations, institution knowledge is lost as staff turns over, and the only evidence of these important rules is how they are coded on-system.

The challenge is to work with technical analysts and application support to uncover these often hidden troves of rules information. The next step is to reverse-engineer the rules from the configurations. This has to be done in close consultation with staff that have functional expertise related to the rules.

Systems Documentation and Suitability for Use

How software systems are used—whether custom, configurable, or off-the-shelf —is an important source for finding processes. Often, systems and how they are used is not documented. The discovery process should thus include identifying systems-dependent processes and then reverse-engineering those processes and rules based on how the system is actually coded, configured, and used.

Do not assume, however, that the systems currently in use are the best solution for the job. There can be many clues that this is not the case. People may view the system as an impediment rather than a job support; or you may find that people implement workarounds and manual steps to compensate for the inadequacies of the system. The analyst must strive to understand how staff members relate to their automated tools. This can be essential to understanding what the processes really are, and where any disconnects occur.

4.6.3 Analyzing the Process

The following analytical instruments are often used to extract information about a process, such as how long the process takes, the quantity of product through the process, the cost of the process, etc. The process analysis team should look for those instruments that will best explain the type of data desired for the process being analyzed.

Creating Models

Process models are often used to show processes and the various interactions with one or more of them. Chapter 3, “Process Modeling,” is devoted to various techniques that can be used to create process models.

Cost Analysis

Also known as activity-based costing; this analysis is a simple list of the cost per activity, totaled to comprise the cost of the process. This analytical technique is used frequently by businesses to gain an understanding and appreciation of the true cost associated with a product or service. This type of analysis is often used in conjunction with other analytical tools and techniques discussed in this section.

This analysis is important to the process analyst in order to understand the real dollar-cost spent on the process so it can be compared to the dollar value in the new process. The goal may be decreased costs, or—if increased efficiency—the value of the increase in production compared against the cost.

This type of analysis can quickly uncover bottlenecks in business processes as they interact with the system. As most processes are dependent on some sort of automated system, the interaction and cost per transaction of the system is critical to understanding the system.

Root-cause Analysis

A root-cause analysis is a 'post-mortem' technique used to discover what truly caused a given outcome. The intent of the analysis is to prevent undesirable outcomes from happening again.

Finding the root cause for an outcome is not always as easy as it may seem, because there may be many contributing factors. The process of finding the root cause includes data gathering, investigation, and cause-and-effect relationship diagramming to eliminate outcomes. This process is much easier when the outcome is isolated and can be easily reproduced.

Sensitivity Analysis

A sensitivity analysis (also known as a “what if” analysis) tries to determine the outcome of changes to the parameters or to the activities in a process. This type of analysis will help the process analyst understand the following characteristics of the process:

- **The responsiveness of the process**. This is a measurement of how well the process will handle changes to the various parameters of the process. Such parameters would include an increase or decrease of certain inputs, and increasing or decreasing the arrival time of certain inputs. This will enable the analyst to know how quickly the process will flow, how much work the process can handle, and where the bottlenecks will occur, given any set of parameters.
- **The variability in the process**. This is a measurement of how the output of the process changes with the varying of parameters in the process. Often, one of the goals in performance improvement is to eliminate variability in the outcome. Knowing how variability in the parameters affects the outcome is an important step to understanding the process.

The sensitivity analysis is instrumental in understanding the optimal performance and scalability of the process and the effects of any variations in its parameters.

Risk Analysis

Similar to the sensitivity analysis, the risk analysis examines the effectiveness of process control points. Examples of these control points include validating client identity or, for purchases, client credit ratings. These steps and the business rules surrounding them establish limits before the process can proceed. These activities and business rules must be in place as the process is designed. The risk analysis aims to consider what would happen to the process should any of these scenarios happen, and ultimately what the outcome would be to the organization.

4.6.4 Analyzing Human Interactions

Many processes require some type of direct human involvement to ensure their progression. These are the processes that usually require the most analysis in order to understand. The following are techniques that can be used to assist the analyst in creating that understanding:

Direct Observation

One technique is to directly observe those performing the process. Much can be learned by just watching process performers in action. They are the experts and generally have found efficient ways to do what they have been asked to do within the constraints that have been imposed on them. After the analyst feels s/he understands the basics of what the performer is doing, it may be helpful to ask a few questions about actions that are not understood.

The primary advantage of direct observation is that the analyst can see the current process firsthand. An analyst's presence, however, can be an influence causing slightly altered behavior by the performer. Sufficient observation time should be allowed for the performer to become comfortable with the observer who is watching and taking notes on the action being performed. Care should be taken to ensure that the work observed represents the routine nature of the job, rather than a carefully selected sample of transactions. The processor selected for the analysis should also represent the typical performance level for the processor-group and not (for example) the highest level of performance in the group. Performance is also modified when the subject is being observed; this is called the Hawthorne impact. These conditions should be considered as the observations are performed.

Specific things to learn from this kind of analysis are:

- Does the performer know how the thing s/he does impacts the results of the overall process and customer of that process?
- Does the performer know what happens in the overall process, or is s/he simply working within the known procedures of the specific role?
- What criteria does s/he use to know whether, at the end of each performance cycle, the work performed is satisfactory?

The analyst should also demonstrate how the actions performed by the human interaction impact the outcome of the process.

As a worker may work seamlessly from transactional-based to knowledge-based work, more questions may be needed to uncover and document the "knowledge-based" observations required for the human interaction. In addition, knowledge-based tasks should be evaluated as potential business rules to be captured and potentially automated.

Apprentice Learning

Learning what is being done, rather than merely watching, offers deeper levels of comprehension of a performed action. When possible and useful, the performer should teach the analyst the job. This can yield additional detail about the process. Teaching causes the performer to think about aspects of the process that might occur subconsciously.

This method is usually performed on repetitive tasks such as order fulfillment. By performing the process, the analyst has a greater appreciation for the physical aspects of the activity and can better assess the details of the operation.

During the apprentice-learning period, it is useful to have a second analyst observe the learning process and the initial actions of the apprentice.

Activity Simulation

One method of analyzing human performance is to simulate the activities involved in a process. The activity walk-through can be accomplished in a variety of ways:

During the interview, an analyst may carefully step through each activity, observing its inputs, outputs, and the business rules that govern its behavior.

In a process workshop, members engaged in the process meet and talk through the process. In sequence, the person representing the process-step discusses in detail what is done, how actions are governed, what steps are performed, and how long it will take. Handoffs from one performer to the next can be detailed to ensure that all required inputs are available for the next activity, and from what source. It is advantageous to have the process model available in a format that all can see, so those who are not directly involved in an activity can follow the process in the model and note any deviations. A facilitator engaged to conduct the workshop can help the participants engage in productive sessions and process discovery.

A bonus variation is to record on video the group walk-through for later analysis and discussion to ensure that all important elements have been captured.

The latter two variations involve participants in the real process who are the real experts, offer the best advice and means for improvement.

Workplace Layout Analysis

A workplace layout analysis is mostly a physical analysis of a work place, assembly line, or manufacturing floor space. The activities used to analyze workflow and the movement of materials and resources as the work is completed are further detailed in the concepts of Lean. The focus on reducing extra motion, waiting time, and transportation steps can add value as the work is redesigned. This type of analysis can uncover unnecessary motion for material-related bottlenecks, disconnections, and duplicated efforts as work items are transferred from one physical location to another.

This analysis can also be useful for any process that involves a physical space where activities are performed and handed off between individuals, groups, workstations, etc.

Resource Allocation Analysis

This analysis is focused on the resourcing required to complete the process. It takes into perspective the skills of the resources and abilities of tools or other automated systems in meeting the needs that a process demands. It generally seeks to determine why, from the following perspectives, an activity takes a given amount of time:

- **Capabilities of the resource**. This analysis considers what the resource is capable of accomplishing and asks whether the skills and training are sufficient to perform the activity adequately. Comparisons can be made to similar resources doing similar tasks to validate whether the resource in question will accomplish what could be accomplished in the same amount of time.
- **Quantity of resources**. This analysis examines whether the resource is constrained. For resources engaged, such as a piece of equipment, the analysis examines the specifications of the equipment to ensure that it is being used within the tolerances given by the manufacturer. For human resources, the analysis examines whether the resources are fully engaged and mastering the key elements of the job, or are underutilized, in some way becoming a bottleneck.

Often, companies working through a process improvement initiative undergo a resource allocation analysis only to discover it is not the processes that are inefficient, but the resources as currently utilized. By performing this type of analysis, the analyst can often uncover several bottlenecks that can be improved with little cost or change in infrastructure. If the bottlenecks are related to staffing or organizational structure, changes will depend on the organization's ability to manage human resource issues.

Motivation and Reward Analysis

One commonly overlooked analytical component is the examination of the human motivational and reward systems in place for the process. The reward system could include any number of rewards such as a job structure and promotional opportunities for mastering additional skill sets and competencies, bonuses, emotional satisfaction, etc. Understanding those motivations and rewards when a process is analyzed will help uncover unseen disconnects and bottlenecks in the process.

Further, the motivation and reward analysis should also consider what rewards should be in place to positively affect any new process or activity that is introduced.

4.7 Document the Analysis

The final step in an analysis is the generation of reports and other documentation regarding the findings. The documentation of the analysis serves several purposes. It acts as a formal agreement among those that participated as to the accuracy of the analysis. Next, it is the basis for presenting the results of the analysis to management.

This documentation could include any of the following items, as appropriate for the process that was analyzed:

- Overview of the current business environment
- Purpose of the process (why it exists)
- Process model (what it does, and how it is done) including inputs to and outputs from the process
- Gaps in performance of the process
- Reasons and causes for the gaps in the process performance
- Redundancies in the process that could be eliminated, and the expected savings as a result
- Recommended solutions or other considerations.

The documentation should clearly present an understanding of the current state and include deliverables that provide the information necessary to consider process change.

4.8 Considerations

The following section outlines several of the critical success factors, suggested practices, and pitfalls to avoid during a process analysis.

Executive Leadership

One of the most important factors to ensure success during any stage in a process improvement project is the support and direct encouragement of the executive leadership team. Ideally, executive leadership should be the primary sponsor behind the process improvement project. At the very least, the executive leadership team must commit to providing full support to the process redesign or improvement project.

To convince the leadership team of a process improvement project's benefits, it may be necessary to demonstrate gains through a few small projects. Once these small gains have been proven and sustained over time, it is easier to obtain support for larger process improvement projects and, eventually, managing the entire business through process management.

Organizational Process Maturity

If the process analysis is part of a broader review of all processes within the business function, it is important to understand the maturity of the organization in relation to the Business Process Maturity scale defined in "Enterprise Process

Management," chapter 9. Understanding the maturity of the organization in process management will help define the level of analysis in preparation for broader process transformation.

The following example illustrates a five-level process maturity model. Using common factors such as process alignment, process automation, and integration with other processes, ratings can be assigned to develop a rating for each process. Once these ratings are known across a broader business function, the model can serve as the guide for future transformation planning.

Figure 39. Process Maturity Model

Evaluating process maturity is important for any holistic review of the complete business function. Process maturity is an essential input into the roadmap for executing change initiatives such as major technology investments or enterprise process planning. Process maturity considerations will also factor into opportunities for process transformation and serve as a basis for future strategic initiatives.

Avoid Designing Solutions during Analysis

Although mentioned previously in this document, it deserves repeating. Often during the analysis process, solutions to process problems will arise. Members of the process team will want to explore these solutions and sometimes begin work immediately on designing a solution. This practice is analogous to beginning construction on a building with only part of the blueprint.

At the same time, it is important not to discourage suggestions for solving process problems that are uncovered during the analysis. One practice is to create a 'parking lot' of suggestions based on the items discovered. When it is time to design the new process, address those items on the list as part of the larger true process design.

Paralysis from Analysis

Experience has shown that it is possible to do too much analysis. Some members of the analysis team will want to document each trifling detail about each activity that happens in a process. Such detail can quickly become tedious and those involved in the process improvement team can lose interest. Process analysis participants and management may become impatient with the lack of progress. If the analysis is prolonged, members assigned to the project may not be available for the remainder of the project due to other commitments.

In order to be effective, the progress of the analysis should be quick and readily visible to all members of the team, as well as to the leadership team supporting the project. A good consultant or facilitator can also assist in moving the team forward and, if progress is slow, should be considered.

It is also critical to ensure that the scope of analysis is small enough to be manageable. Be sure to factor process areas into chunks small enough to allow each team to readily comprehend the processes within their scope and make rapid progress.

Proper Time and Resource Allocation

Often, resources assigned to improvement projects have other mission-critical responsibilities within the organization. Although it is wise to get the most knowledgeable individuals on the process analysis team, these individuals may not be able to dedicate themselves sufficiently to keep the project moving forward.

Fortunately, company leaders are often aware of this problem and decide to retain consultants or contractors to assist in the process improvement so the management team can continue running the business. However, while consultants can help in the execution of the process improvement project itself, consultants are not a good substitute for those who actually own or execute the processes themselves. Advice: work with management to gain access to critical practitioners and to mitigate any work impacts. It is critical that those who are assigning the resources allow those resources appropriate time away from daily responsibilities to complete the project.

Customer Focus

One of the biggest factors leading to a successful analysis is consideration of the customer within the process. Even if a process appears to work within the context of the organization, it may not necessarily work for the customer. Inevitably, if the customer is neglected in the process, customer satisfaction will be sacrificed and the process will not lead to the increased performance expected.

There is a growing trend toward considering inter-departmental relationships as service-oriented relationships. Although the same 'customer service'-oriented interactions should take place within departments of the organization as in the interactions with customers, it is important to realize that transactions between departments are not customer transactions unless the departments are separate business units that also serve customers external to the business in the same way. However, processes between departments should still be examined for improvement, with the 'true' customer as the focus of those improvements and how they will indirectly impact the customer.

This concept can be difficult to understand when, for example, the organization is trying to improve an internal function such as payroll processing. When considering how payroll processing affects the customer, the analyst will examine how the reduction of overhead expenses can be used to decrease costs for the customer. This analysis result illustrates the relationship between everything in the organization's operations and its direct or indirect effect(s) on the customer.

Understanding Organization Culture

As stated previously in this chapter, understanding the culture of an organization is critical to the success of the analysis and ultimately to the design and implementation of the new process. Following are two of the key elements that should be addressed when considering the culture of the organization. Consideration of these topics during the analysis stage will help ensure that the analysis presented not only represents the true organization, but that it is accepted by the organization.

Fact-Based Analysis

If any change to a new process is to be successful, it is vital that the analysis avoids directing any accusation of problems that exist in processes toward any individual or group. Stating facts without placing blame is critical. By eliminating blame and simply stating the facts, the analysis will more likely be accepted as a correct understanding of the current state and will avoid any assignment of blame that can result.

Potential Resistance

Process analysis could be considered by members of the business unit as a potential disruption carrying unknown elements of change. The process owner may also view the analysis as a criticism about the way the process has been managed.

Business units and process owners may therefore avoid opportunities to participate in the analysis. In instances such as these, it is vital for the leadership team to negotiate the situation, communicate the need for the analysis, and support the outcomes as an essential element of keeping the business competitive within the industry.

Involving the process owner in the analysis process is a key factor in overcoming this issue.

4.9 Conclusion

Process analysis creates a common understanding of the current and/or future state of the process to show its alignment with the business environment. It is accomplished by the employment of a professional analyst or a team of individuals to perform the analysis. Using several different techniques, frameworks, methodologies, and suggested practices, the analysis team documents the business environment and creates models and other documentation to illustrate the workflow of the various activities involved with the process and their relationship to the environment in which the process operates. The team then uses this information to identify opportunities for process improvement or redesign.

Process analysis is a commitment that allows organizations to continuously improve their processes by monitoring process performance and thereby improving the performance of the organization.

4.10 Key Concepts

Process Analysis—Key Concepts
Process analysis serves to create a common understanding of the current state of a process and whether it is meeting the goals of the organization within the current business environment. Process analysis can occur at any time the organization considers it necessary but the organization should have a goal to continuously monitor processes as opposed to waiting for single events to trigger a process analysis. The various individuals that assist with process analysis include executive leadership and a cross-functional team comprised of stakeholders, subject matter experts and process analysis professionals. Process analysis should first focus on the high value or high impact processes. These are defined as: • Customer facing processes • High impact on revenue • Aligned to other processes that are high value to the business • Critical to coordinate with cross functional impact The analysis should find an explanation of the interaction of the process within the business and find any of the following disconnections: • Performance goals not being reached • Failing customer interactions • Handoffs that create disconnections • Process variations • Bottlenecks Many analysis techniques can be used during the process analysis to obtain the type of information necessary for the process being analyzed. The techniques used

should consider human performance, systems, technology, modeling tools, business environment, and strategy assessments.

Process methodologies and frameworks ensure the process analysis follows a commonly accepted path to achieve best results. Process analysis can follow formal analytical methodologies or a pragmatic review of the standards for best practice execution.

Critical success factors for a successful process analysis include: executive leadership, considering metrics, benchmarks, customer interactions, and cultural considerations.

Chapter 5

Process Design

Foreword by Jim Sinur, VP, Gartner, Inc.

As organizations move forward with business processes management (BPM), they will be faced with the prospect of designing processes. It makes no difference whether the process can be modeled ahead of time or not; the basics of process design and the resulting models will play heavily in the representation of the processes. There are three basic process design approaches: the Pre-modeled Business Process, the User Interface (UI) Influenced Process approach, and finally the Automated Business Process Discovery (ABPD). These approaches range from planned to actual behavior, but they represent the resulting process in a model (complete process or process snippets).

A process representation, planned or actual, gives the context for work performed, the policies in effect, the process context at the time of execution, the data or information leveraged, the analytics leveraged, the patterns responded to, the resources leveraged to completion, and the goals and key performance indicators (KPIs) in effect. A process design, as indicated above, is much more than a simple model of work flowing, but process design does represent the flow of intelligence applied to work in either a static or dynamic model.

A process design can be simple and static, but it tends to evolve, taking on an intelligent and dynamic nature as the business context gets more complex and differentiating.

Pre-modeled Business Process

The first and most popular form of process model, as of this writing, is pre-modeled business process. While this chapter focuses mostly on this approach, it is important to understand there are other alternatives that can be used as well, as indicated below. This chapter details a better practice for pre-modeled business processes, so good reading is ahead for organizations that are taking a planning approach. In this approach, process models are created ahead of execution, and changes occur as new paths, exceptions, and new steps are discovered, added, changed, or deleted.

User Interface Influenced

While designing process models in a collaborative fashion is helpful, some organizations prefer to "test drive" a user interface and incorporate the process flow into the UI. This is helpful for those who are tactile and prefer to see something operate, rather than visualize steps, paths and decisions. This is a great way to prototype a process model, or build reality into a pre-modeled approach that closely follows the UI experiential approach.

Automated Business Process Discovery

This approach can vary in tactics, but it is based on actual activity. It could be as simple as watching workers using existing open-ended (i.e., menu-driven) applications to create a full process model. It could be as complex as watching knowledge workers (employees and or stringers) collaborating on a case and presenting alternative process snippets, thus generating multiple success patterns. A common use is creating a process model from multiple log records and sources to create a complete process. We see this approach augmenting adaptive case management, where a process or portion of the process is quite unstructured except for the desired milestones and outcomes.

There are multiple ways of accomplishing process design. It is imperative to understand what ways work in your culture and situation.

Contents

5.0 Introduction

This chapter focuses on the design or redesign of current processes to improve efficiency, effectiveness, quality and consistency. It discusses the key aspects of information discovery, process design preparation, key activities in process design, and key success factors for the initiative.

The discussion is not intended to present or promote a specific methodology or to support any standards; "how to" discussions are provided to help the reader understand an approach or a technique.

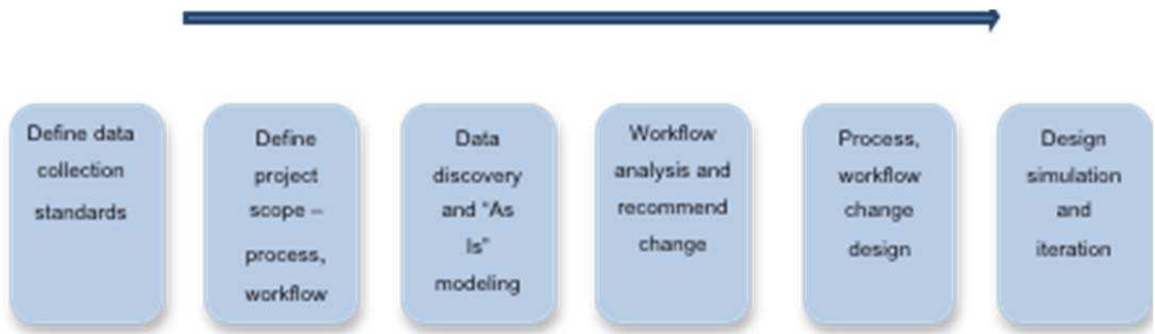


Figure 40. Process Design Activities

As with all projects, formal project management is critical to success. This vital part of delivering a successful change is itself a specialized skill and is not addressed in this chapter. However, formal, focused project planning and management is important for the successful execution of a process redesign or initial design, and we urge that management controls be used to help promote success. For project management hints and assistance, readers are advised to contact the Project Management Institute.

The discussion in this chapter will touch on the six activities in Figure 40, but it is not limited to these activities nor is the chapter organized around them.

5.1 What is Process Design?

> ***Process****: A combination of all the activities and support needed to produce and deliver an objective, outcome, product or service—regardless of where the activity is performed. Activities are shown in the context of their relationship with one another, to provide a picture of sequence and flow.*

Processes are made of groups of activities or behaviors performed by humans and/or machines to achieve one or more goals. They are triggered by specific events and have one or more outcomes that may result in the termination of the process or a handoff to another process. In the context of business process management, a business process may cross any functional boundary necessary to completely deliver a product or service.

Processes are comprised of subprocesses, each of which produces a specific part of the end product, service, or deliverable. These subprocesses also have a flow relationship. But, because processes are generally cross-functional and wind their way through several business units, any process design must look at both the process-level work (high-level view) and the process activities that are performed within different business units. Because any single business unit can be expected to perform similar work from a variety of processes, the work in any business unit will support a range of processes; thus, —any change to the business unit's activity will have a far-reaching effect. Because activity in the business unit is organized for efficiency, not by subprocess or business function, the direct link of any activity back to the process or processes it supports has become blurred. Consequently, changes are not easily related to process, and impact may be hard to define. At this level in the business, the work's efficiency, rather than the process, becomes the focus. This is the workflow level.

> ***Workflow**: The aggregation of activity within a single Business Unit. Activity will be a combination of work from one or more processes. Organization of this work will be around efficiency. Modeling will show this work as a flow that describes each activity's relationship with all the others performed in the Business Unit.*

To be effective, any process design must consider activity at both the process and workflow levels. The reason is that it is possible to maximize the efficiency of the process and seriously impair the efficiency of the workflow level. Of course, the reverse is also true, so care must be taken to consider the impact of change at both levels to avoid creating problems.

5.1.1 Process Design

As we have seen, process design is the formal definition of the goals, deliverables, and organization of the activity and rules needed to produce a product, service, or outcome. This definition includes the ordering of all activity into flow based on activities' relationships to one another, and the identification and association of skills, equipment, and support needed to perform the activity.

Also, as noted above, because it is cross-functional, a process's activities are performed in multiple business units and by many different people. Each business unit thus performs activities from several different processes. These activities are usually grouped by the type of work needed to perform them and they are executed in an order that promotes efficiency. This work and its ordering in a business unit is workflow. It is important that the process design team recognize this difference between process and workflow.

In approaching a process design (or redesign), the team will need to understand the end-to-end process, the business units that are involved in its performance and the way its activities are executed in the various business units (see Figure 41). This is important because teams that focus on any one level to create designs may impact or damage activity at other levels. For example, it is possible to eliminate seemingly unneeded work in a given business unit that will have a significant impact on another business unit downstream. It is also possible to make process-level changes that compromise quality or the ability to deliver a product in a given business unit. However, with an understanding of how the process functions and how its activities are grouped with those of other processes within the various business units, a new design can be evaluated at all levels to ensure that improvement actually is beneficial for everyone.

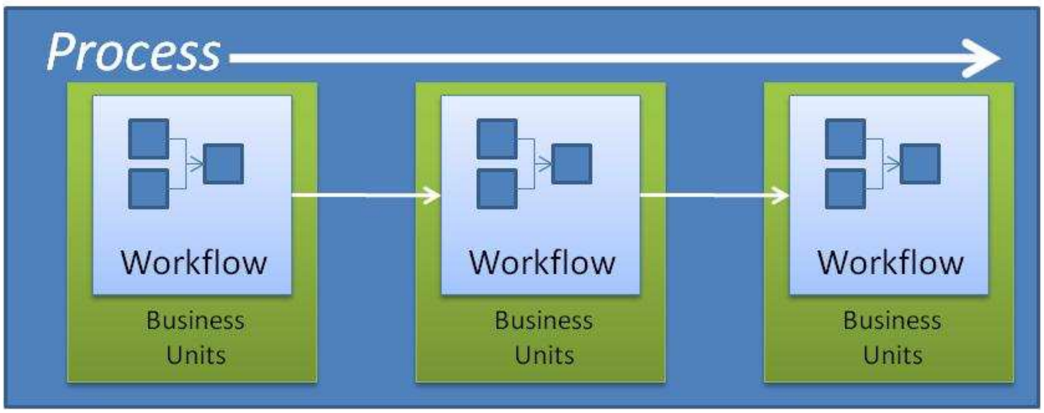


Figure 41

In this discussion, we will assume that this process–business unit–workflow perspective is a given, and for simplicity's sake we will refer to this multi-level grouping of activity as "process." When referring to work within a business unit, we will refer to it as "workflow." This relationship is indicated in Figure 41.

This distinction represents a realization that the work "process" is often used to describe any work or any activity. We have found that this use of the term compromises the fundamental belief that process is cross-functional and represents an end-to-end aggregation of work that produces a product or service that is consumable by a customer.

Process design thus involves the identification and ordering of the functions and activities in a business operation, along with all supporting mechanisms, product production technology, and computer application systems. The outcome of this design is the creation of specifications for new and modified business processes within the context of business goals, process performance objectives, business applications, technology platforms, data resources, financial and operational controls, and integration with other internal and external processes. Both a logical design (what activities are performed) and a physical design (how the activities are performed) are included as deliverables.

In most cases process design involves creating and understanding the current process and its subprocesses, and examining how the operation of can be improved or fundamentally changed to provide a desired result. This result can be anything from cost reduction to an improved ability to change rapidly—as in a move to a continuous improvement program. Importantly, however, the designed result should be measurable—i.e., something that can be measured. It is this measurement that will ultimately determine the quality and success of the new process design.

5.1.2 Why do Process Design?

Processes define the flow of activity and the blueprint of how activities in the work operations come together to produce a product or service. As such they define what will be done and how it will be done.

But few processes in operation today in most companies have been formally designed. Most have simply evolved over time to deliver specific products or services. This evolution has normally been based on a need to "get the job done." And, because every business is dynamic, the need "to get the job done" has required constant changes in the work and the way it is performed. Therefore, in spite of being operationally successful, most processes are thought to be less efficient than they could be, and in most companies this efficiency concern has both cost and quality implications.

This is generally acknowledged to be true even in companies that have been involved in business modeling in the past. The simple fact is that few companies understand work at a level higher than a business-unit level in other than conceptual terms. Although there are exceptions, few companies understand their processes at a detail level—even those that use Business Process Management Suites (BPMS) to formalize their business modeling. The reason is that BPM and Business Analysis projects in most companies have tended to be focused at the tactical level. However, this is starting to change and we have seen some firms actually tying business architecture to process architecture and redesign in order to better understand the operation of the business and how work ties to strategy.

The result of this generally recognized need for improvement is a move to understand the actual business operation and not just a theoretical concept of how the business should be operating. This need is driving a growing belief that effective change must be based on a process view of activity and an understanding of how the processes in the company really operate. To support this understanding of the operation, most improvement teams begin with the creation of "As Is" or "Current State" models of the business. Changes are based on these models and a new design called a "To Be" or "Future State" model. In this chapter, the "To Be" redesign is discussed in the section titled "Process and Workflow Design."

Most BPM practitioners understand the need for these models to illustrate how the business works today, to identify improvements, and to design how the business will work in the future. However, while most people have been exposed to business models, many in business and IT have not been exposed to the models or techniques in this chapter. Many others will also not have been exposed to the need for problem definition, rule definition, performance measurement, simulation modeling and more that will be discussed below.

Unfortunately, some will have been taught the approach of starting with a blank sheet of paper and designing from theory, an ideal operation. The problem is that, without understanding the current operation and its problems, rules, and challenges, the team will often forget critical business activities, fail to understand the causes of problems, and will tend to create designs that are not cost- or operationally effective. The saying “those who ignore history are doomed to repeat it” applies to business redesign, just as it does to the larger society. ABPMP believes strongly in the need to understand the past and the current business, production, and technical capabilities and environment in the company. We also believe strongly in the need to understand the culture of the company and the ability of the company to absorb change. These factors are important in any new design.

5.2 Process Design Foundation

In this chapter we will look at 1) process definition, 2) how it breaks into sub-processes, 3) business functions, 4) Business Unit workflows and 5) operational scenarios. The actual design of a new process, by definition, must consider activity without regard to the business units that perform the work. This is due to the cross-functional nature of process. The high-level process considerations must also be viewed at the subprocess level where the work is aggregated into business functions and then aligned to the business units that perform them through the activities that define them. Within the business units, the business function’s activities will be combined with activities from other business subprocess functions to form workflows. The actual redesign must consider change at all these levels. If all are not looked at, change may be created that is damaging in a broader sense and can actually hurt downstream work.

The business design and redesign activities are the same: the end point must be an optimal new operating design that is built to change iteratively and rapidly to keep up with future change needs. The five basic steps above will need to be performed for any level of business design and for each iteration in a design that supports continuous improvement.

Different tools and approaches can be used to help focus iterative designs and improve specific problems or quality, but they need to be matched to the need and the goal to ensure that the right tool is used in the right way. These approaches include Lean, Six Sigma, Lean Six Sigma, Activity Based Costing, SIPOC, Value Stream Mapping, Kaizen Events, FMEA, Service Level Agreements (SLA), and so on. Tools described as Business Process Management Suites (BPMS) range considerably in capability, complexity, and ease of use. When a BPMS is used, we will refer to the joint business–BPMS–IT environment as a BPMS-supported BPM environment or operation.

In approaching process design, it is important to know whether you will be dealing with a cross-functional end-to-end process or a more specific problem-resolution effort that is really focused on workflow. This distinction will be discussed in several places in this chapter, as it is critical in determining scope, approach, level of effort, governance, and benefit.

These topics and other considerations that should be part of a process design are provided in the discussion below.

5.2.1 Process models are not "Business Architecture" models of the business

A common misunderstanding among people involved in business modeling is the difference between Process Models and Business Architecture models. Business Architects do create models of the business, but the Business Architect's models are at a high level of abstraction and deal with Business Capabilities—the ability to perform or deliver a very high-level business function. An example is the ability to bring a new product to market. The capability is stated as "the ability of the company to bring a new product to market within a one-year time frame." Another example, for a pharmaceutical company, is the ability to conduct clinical trials for new drugs, following all legal requirements.

Capability models are thus conceptual and deal with the "whats" in the business. Process models, on the other hand, deal with the "hows" of the business and define how a deliverable, product, or service is built and delivered. In this way the Capability models, when decomposed to low levels of detail, define all the activities that a business will need to be capable of doing. Since every activity relates directly to a given business capability, these capability models define all the activity needed to be effective. They do not however, address effectiveness. Process models focus on physical activity and its management. These models look at the way work is actually performed. They are thus concerned with efficiency.

When combined, they allow the designer to crossfoot the design activities to ensure that no work is performed that does not relate to the delivery of a needed business capability. This ensures effectiveness. These components can then be flowed and their management improved. By adding automation, the designer can ensure that the design does not include unnecessary work and that the work performed is as efficient as possible.

Part of the reason for the confusion regarding these two model types is that in many companies, process models are built by business analysts instead of process analysts. The two disciplines look for different things in the business operation.

Few people except practitioners who are schooled in both Process Architecture and Business Architecture understand the relationship noted above, and most people wrestle with both the meaning of business capabilities and the definition of process. This has caused a blurring of "process" and "capabilities," such that many people believe process models are the next level of detail under a business capability model. As noted above, this is simply not true.

Both disciplines try to deliver business improvement, and both have their place in doing so. The fact is that these disciplines complement one another: they are not the same and they do not compete. Both are needed in any process- or enterprise-level change. But in many companies, this emerging distinction is not yet made and the roles of these positions are somewhat muddled, as are the tools that each group uses.

5.2.2 The Starting Point

The scope of the change or improvement project will determine the nature of the BPM project. If it is to be cross-functional and address the entire process, the change will be more strategic in nature and require a long-term commitment, as the team will need to address work in many different business units. A project at this level is both invasive and disruptive, as is characteristic of any large project. Planning and control are also very different in a project of this scope. Here, it is worth suggesting that once the high-level "As Is" model is created, the project be broken into components and redesigned in parts that will be meant to fit back together. This will require design and management at two levels to ensure that all components do in fact fit together and that they combine to provide a fundamentally new approach to performing the process. With change at this level, associated significant benefit must be realized in order to undertake this level of effort.

The second level of BPM change project is related to solving a specific problem or accomplishing a specific goal. The scope in these efforts is generally narrow and certainly much narrower than a process redesign project. In these projects, change is usually focused on workflow. This distinction is critical, and it is a key difference in use of terms "process" and "workflow" in this chapter.

Process design begins by creating an understanding of the way the business works today—what is done, where, why and how. This fact-finding is an investigation into the documented and undocumented activity of the business operation. While it is important to understand the way the business works, it is also important to understand the way the business should work—in the opinion of senior management. What is wrong and why? Where are the hand-off problems? Where are the decision problems? Where are the rules undefined and subject to interpretation? In performing this fact-finding, the team will collect and review all relevant existing documentation from the business unit, Business Architecture (if this group exists in your company), and IT. After review, the team will be in a position to list their documentation-related questions and prepare for their interviews and workshops with business operations staff.

Note: Most documentation will be out of date, or at best partially up-to-date. Often no one will know for certain what is accurate, and many will fail to relate the dynamic nature of the business to the need to keep business and systems documentation up to date. Example: We were redesigning a business area in a large company and asked for the latest business models. The models we received were dated "2000." When we questioned their currency, we were told that they were up to date because the business was still doing the same thing. We then interviewed the business area staff and updated the models. These were then returned to the group that had given us the ten-year-old models.

This information provides the foundation for the first look at what may be wrong, missing, under-supported or functioning incorrectly. But most importantly, it provides the change team, management, and business staff with a clear and agreed-upon understanding of how the business really works. It also provides an understanding of how management envisions the business unit to function. The analysis of the "delta" between the actual and the expected business operation provides guidance for the high-level requirements of the change and the new design. It also points out where the new design may want to start and what should be given a high priority.

Of course bridging these gaps is fertile ground for finding "low-hanging fruit" changes. These are actions, rules, approaches, work, etc., that do not need to be performed, are redundant, or are in opposition to management expectations or the way management sees the business.

5.2.3 Defining Data Collection Standards

In any enterprise or full process level effort, the company will need a significant staff of BPM practitioners, along with other disciplines. For the purpose of the CBOK, we will focus on BPM and BPM practitioners. Here there will likely be multiple teams, and within the teams, multiple pairs of people who perform the interviews or workshops. Different people will look at activity, rules, problems, and more. Experience has taught us that it is imperative that the information collected be consistent across the effort. If it is not, quality will be suspect, important information may be missing, and it will be impossible to provide an accurate picture of the business.

Clearly on a smaller scale, but still important, is the need to standardize the collection of information at the workflow level or, lower, to the task level. The same driver applies at this level as at the process or enterprise level—the need to create a clear understanding of the real business operation.

To do this, formal information-collection standards must be put in place. These deal with what information will be collected from whom, the way the information will be vetted, the way the information will be stored and organized, the way it will be changed, and the way it will be used.

If the company has process-related modeling, data collection, and other standards, they will need to be found and followed. However, few companies have BPM information-discovery, modeling, data collection, interviewing and other standards to control the approach taken in controlling information about the company's operation (other than financial regulatory standards) and even fewer have standards dealing with the delivery of basic modeling and information consistency. Without these standards, each group of interviewers and each project team will collect different information, and each model will follow different modeling conventions. Such inconsistency has proven to cause problems in creating an enterprise business model and in driving analysis, costing, benefit analysis, performance measurement, and design simulation.

For teams using a BPMS tool, the models will force the creation of standards—if anyone is to ever make sense of the models at any level of detail and be able to access the data that is stored in the tool. However, if the use of these tools is not governed by standards, the teams may still fail to collect all the needed information or to vet it. Even with standards, compliance reviews are important to enforce their use and ensure quality. Defining standards for BPMS-supported BPM projects begins with the acceptance of use standards provided by many of the vendors. These standards are a starting point. They will still need to be modified to support the internal business operating standards, the IT standards needed for the BPMS to run in the company's IT technology environment, and for the models to conform to company protocols. While these standards are needed to ensure security, access, consistency and more, they become critical in a collaborative environment with team members and business units located around the globe.

Where a BPMS is not used, it is important to determine what information will be needed for all projects and to make this standard. Here the team will likely use a modeling tool, a spreadsheet, a presentation tool, and a word processor. This will serve as a core set of information to ensure that a minimum understanding of the operation can be constructed. Individual projects will be expected to add project-specific information to this standard. This is true for both a BPMS-supported effort and a manual effort.

From an information-collection and storage perspective, the real problem where a BPMS is not used involves information organization and change control. Finding anything becomes difficult when the project is large enough to require several people or multiple teams. The people simply collect too much information to organize for easy access. Controlling change over the life of the project is almost impossible in these projects and requires the commitment of project resources serving as librarians. Of course, this is a luxury that few projects have.

In defining information-collection standards, it is also important to define the use that the models and information will be put to. For example, if the models will be used to simulate the current operation and the operations assuming certain changes, it is necessary to define the data that will be needed to drive the simulation. This is important because it will make certain all needed information to define a baseline is collected during the analysis activity. By defining and then obtaining this information during the analysis activity, the team will be able improve the quality of the analysis while limiting the number of times they will need to interview the users.

For this reason, it is strongly recommended that any BPM project begin with the identification of standards that must be used and the creation of project-specific standards that are needed to provide consistency among the products produced by different team members.

In addition, many projects suffer from terminology disconnects. BPM and BPMS acronyms and terminology differ from company to company and from project team to project team within a company. Part of the reason is that there are few commonly accepted definitions for most things related to BPM and business transformation. But, as much trouble as this situation causes, the use of internal terms between business units and differing definitions of these terms causes much larger problems. Experience has proven that even simple "everyone knows that" terminology must be defined so it can be used consistently between departments and between the business and BPM teams. These definitions must be agreed upon by the business managers, IT, and collaborative partners so that everyone can stay in sync. But, this also represents a significant cultural and political problem. Whose definition will be considered right and thus generally used? The fact is, creating this dictionary is not a simple task.

However, until all terminology and acronym usage has been agreed upon, information-collection standards will provide limited success in allowing everyone to understand how the company operates and how it can be improved.

5.2.4 Managing Process Design

This section of the discussion is not concerned with project management. With consideration for the unique BPM and BPMS tasks, project planning and management is basically the same in BPM projects as it is in projects using other disciplines. Although the tasks in a Business Process Management Suite (automated modeling and application generation tool)-supported BPM project are somewhat unique, the normal project management discipline will provide adequate control and management.

Because there are few formal BPM approaches today in most companies, project teams are largely allowed to define the approach that will be used in their project. The result is that in most companies, each BPM project is approached and performed somewhat differently than any others. As expected, each of these approaches will have strengths and weaknesses when viewed in the context of the company, its culture, and its IT support. To benefit from this experience, companies should review past BPM projects and define their approaches for use as lessons learned. This will help create a best practices approach within the company and define a company-specific methodology that will ensure accuracy, quality and success. For those who wish to take a more strategic approach, this also helps ensure that all relevant information has been collected not only for the project, but also to meld with information from other projects to form enterprise, or end-to-end, process models.

Any approach taken should thus be standardized and presented to the team as the company standard that will be used and audited in moving forward, first into the data-collection and analysis activity and then throughout the remaining effort. As noted, any approach and method, especially when new to the company and/or team, should be monitored to ensure that it is being followed. This control may be provided by a project management office/group or by a BPM Center of Excellence. If this is done, everyone's work will "fit" together and everyone will be able to understand any of the models or information.

Further, to avoid overhead, the method followed should be customizable to each project and reflect the complexity, scope, importance, and benefit of the project. This method will then be used to guide project planning and be merged with the company's approach to project management, in order to provide a focused project plan.

Clearly, the need for consistency of approach and information-collection requires some form of management action in advance of activity. This is the foundation for managing the activity that will be needed to build the "As Is" and "To Be" process designs and maximize the impact and value of each activity performed in this development.

5.3 Process Discovery –The "As Is" or "current state"

As mentioned, any change must start with an understanding of the current situation, operation, constraints, politics, and more. This cannot be omitted. You cannot simply start over as if the company and its operation have no history. It is also important to note that no company operates in a vacuum. Any company is a complex network of customers, suppliers, collaborative partners, workers, rules, financial history, market reputation and more. Together, these form the company. Any change cannot ignore them. This is critical in designing an implementable change or change roadmap that will guide the evolution of the company.

5.3.1 Creating a firm foundation for change

Understanding this history and the current operation is the foundation for any new design—regardless of its scope of impact. The new design itself must solve existing problems and allow the business to take advantage of known and discovered opportunities. Attempts to skip the initial analysis and business redesign activity deliver mixed results—from solutions that just don't work the way people thought they would, to solutions that actually make things worse. So, at this point, we will accept that this information is needed and understand that it is critical.

To help organize this information and make it relevant (provide a context for understanding its meaning and impact), it is recommended that any improvement adopt a process perspective. This perspective includes the potential processes that are in scope, the business units the process (or processes) flows through, the impact of its (or their) activities on each business unit it flows through, the problems associated with the process(es), and the potential impact of given solution options.

Experience has proven that any new operational design must consider the history of the company, the problems and limitations that box any improvement, the budgetary realities, the culture and its ability to absorb change, the interactions between business units and processes, the relationship between the company and its business partners and its approach to collaboration and partnering with suppliers and customers. These factors and more are vital in designing any improvement solution.

The identification and definition of these factors, when added to the models of the process and the workflows in the business units, forms a knowledge foundation for change and work optimization. The result of this knowledge foundation is the creation of a very different perspective on the business's operation. The end-to-end perspective that a process view provides allows management to understand the scope and impact of problems and where they start. This is key in redesigning problems out of existence or, if they are related to things that cannot be changed (a whole new computer infrastructure or legislative mandate), building a type of operational shell around the problems, which effectively controls them.

With this foundation, it will be possible to move to an operation model that is based on learning and continuous improvement. The framework that the process and workflow models provide allows performance engineers to utilize disciplines like Six Sigma and Lean to define improvement opportunities, and techniques like performance measurement and monitoring to identify improvement objectives.

This process-centric perspective is equally important when addressing problem resolution projects using BPM. The needs and benefits are similar and essentially are the same as the workflow view in the process-centric decomposition hierarchy.

5.3.2 Managing Process Information

As the information is collected and analyzed, the team will need to organize and consolidate a vast amount of data. Today, popular modeling tools that include Visio, or more advanced modelers like Casewise and the tools included in Business Process Modeling Suites, are used to provide a common repository for this information. While supporting its translation into a flow-model format, these tools offer a graphical representation of the information at various levels of detail (process decomposition)—showing subprocesses and, at lower levels of detail, activities and even tasks. While these modeling tools allow the modeler to show the work and workflow in an easily understood manner, they are limited in their ability to help design the new business.

More advanced full Business Process Modeling Suites (BPMS) provide modeling, rules management, workflow management, performance measurement, application generation and data handling (through Services Oriented Architecture tools). These tools are extremely flexible and offer a significant group of advanced features that pure modeling tools cannot provide. The team, the data that is collected, the way the data is handled and the level of detail that is captured will, to a large degree, be dependent on the tool that is used to support the team. This will also determine the amount of data that can be dealt with and the way the information can be stored, retrieved, and consumed.

But regardless of the tool used to support modeling and information collection and analysis, the design team will need to organize the information into easily understood groups of related documents and models—starting with the way the business works today. This is the "As Is" model and its supporting information. A BPM project team should consider the tools that will be available and their capabilities when they formulate their project strategy and plan. As the information is being collected and the models are being built, the team will need to consider the way the models will be structured. It is very easy to look at virtually the entire business as a single large process. It is also easy make models so complex that no one can possibly understand them. While modeling standards will help, as will the use of a standard set of modeling symbols such as BPMN (business process modeling notation), the structure and architecture of the model hierarchy and the models themselves are critical to their use, the ability of the team to confirm them with the business users, and then to leverage them in defining a new design.

Example: Many companies and departments within companies have used Visio to build process and workflow models in the past. Because past versions of this tool were not based on BPMN, any symbols could be used—people, machine, and other graphic symbols were commonly used. The result is that the symbols were used inconsistently, and without significant notation on the diagram, they are difficult to interpret. When the team that created the model is no longer part of the company, using the models becomes a problem.

The same need for consistency is seen in the information that is collected to describe the model and its activities in detail. This information may include timing, volume, decision probability, error rates, staffing level, rules, and more.

5.3.3 Model levels

Process information discovery, as discussed above, will have discovered information at various levels of detail. These levels of detail will need to be sorted out and the information assigned to different levels in a process model hierarchy. This hierarchy will begin at a high level with the entire process, and then be broken down or decomposed into lower levels of detail until the activities in a process are defined. In this decomposition of the process models, the process is divided into subprocesses and then functions. The functions are then related to the business operation where they are performed, and combined with other subprocess work to form the activities in the business unit. These are then flowed to represent the way work is performed in the business unit.

It is suggested that the information be assigned to a given level of detail as it is collected. This assignment can be changed as the team learns more. The information at any level in the hierarchy should be clearly aligned to information at a higher level in the hierarchy, and thus represent additional detail as one goes lower in the hierarchy. This will allow the team to identify missing information or information that needs to be questioned.

The following diagram (Figure 42) is an example of a process hierarchy. Different firms may use fewer or more levels and may label them differently than in this example. The important fact is that the team will need a way to organize the information collected and the models that are built, if there is to be any hope of controlling the information and its quality.

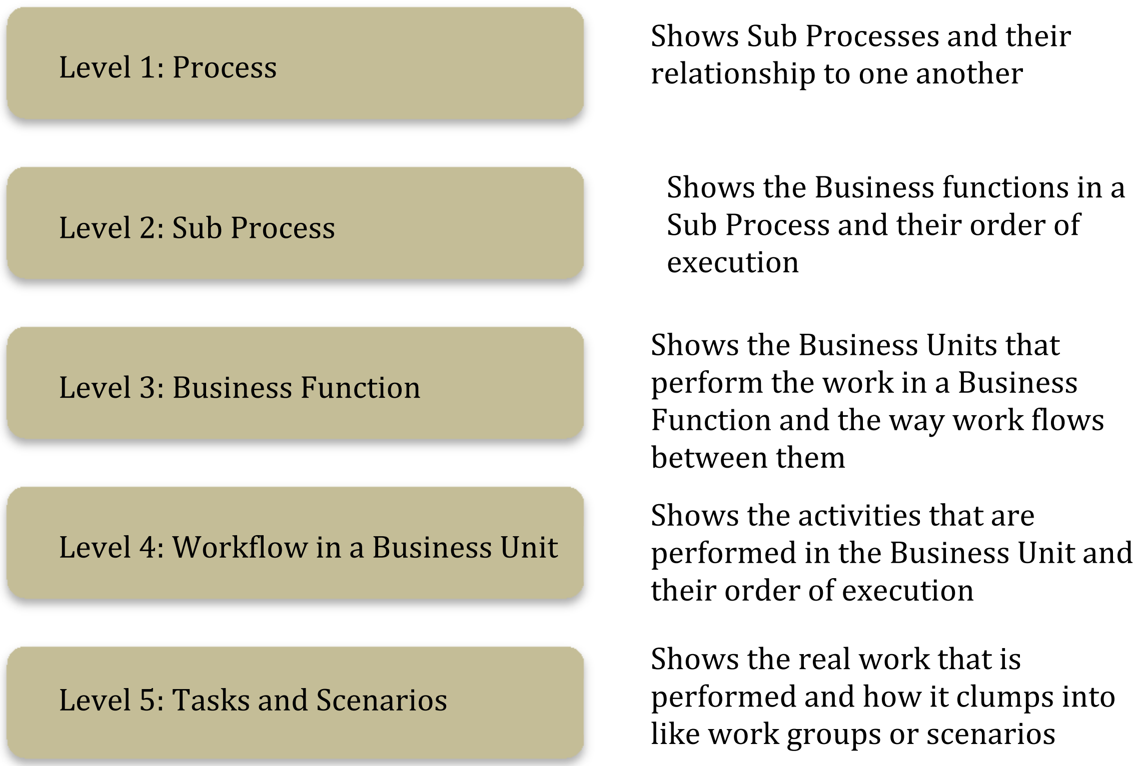


Figure 42. Process Hierarchy: Levels of Detail in Process Modeling

Note: The number of levels and their names will vary by the methods and naming conventions used in different companies. The important fact is that the process must be broken into a low enough level to understand the activities that are taking place and how they fit together to produce the business unit's end products. The levels in the diagram above are thus a sample of how a company might look at defining levels of detail in the process modeling standards.

The number and name of the levels in both the current "As Is" and the future "To Be" models should be directed by formal business modeling standards. In the past, these standards could be independent of any external modeling standard or tool, but that is changing. Care must now be taken to align internal modeling standards with the tools that are used and their capabilities and limitation. For example, while it is not the only modeling standard, BPMN2.0 is becoming a major standard for BPMS vendors, and internal modeling standards may well need to conform to BPMN. However, a good rule of thumb in looking at modeling standards is that they address at least the following levels in some form:

1. The highest level model is a process model that provides a full end-to-end, high-level view of the process. This model can show subprocesses and may show high-level problems and application systems.
2. Subprocess models are the next level and divide the work into business functions and then align the business functions by business unit.
3. Workflow within a business unit is a third level, and it identifies the activities that are performed. This level model can also be used to show the

relationship between activities, with activities from other functions and subprocesses that are also being performed in the business unit.

4. At the fourth level of detail (scenarios) it will be easy to understand how work that is performed in the business unit is driven by events or timing or data values. By rolling the task up to activities, then up to workflow and then to subprocesses, it is easy to see how all work fits into processes and how it plays a role in producing the end product of the process.

But this fourth level of detail provides only a basic understanding of the detail in the business operation. It is often not a sufficient level of detail to resolve problems, reduce cost, or support automation. For these actions, it is necessary to take the workflow to a greater level of detail, the task level.

At this (fifth) level, the business and BPMS designers will usually have enough detail to tie rules to specific actions. The use of data will now be at a low enough level of detail to design application screens and reports, and define edits and low-level decisions. This level is used to generate BPMS applications that manage work and automate manual "transaction"-level data entry and use.

This is the level where the analyst identifies the tasks that are performed to deliver the output or outcome of a single activity. For example, when an insurance company's policyholder into the system, this level of the model will define the tasks that must be performed to enter the new policyholder. Another example at this level, in manufacturing, would be build-to-order, after a customer places an order with a sales person. The process analyst must define all the tasks needed to identify the "customized" product, and—assuming a build from common parts—to identify the parts, define the options, cut the build order, get the parts, and then construct it.

And yes, there are still lower levels of detail that may be needed. The key is to take the map to the level that you need to support what you are doing AND what someone in the next phase will need to do. This may be to build an application using traditional languages, generate a BPMS application, build interfaces to legacy applications, build web applications to interact with customers, and more. The key is that the requirements for any of these follow-on activities will need to be considered and the detail needed to drive their completion must be reached in the models.

This presumes that (at least) at the project level, the project manager will begin the project by defining the deliverables and then setting internal standards for data collection, interviews, models, etc. Of course, if company standards exist to address this issue of consistency, they will need to be followed.

See chapter 3, Process Modeling, for a more detailed look at the way process models are constructed.

5.3.4 Process and Workflow Discovery

Any change must start with a firm understanding of the way the business operates today and its problems and challenges. This foundation, however, is a constantly changing picture as the company adjusts to business reality and competitive pressures. For this reason, the way the business operated six months ago is probably not exactly the way it works today. Old models and old information from IT, Business Architecture, or Process Architecture are almost always out of date and can cause harm to the new design if used. For this reason it is necessary to always begin with a revalidation of existing information and where needed, an extension of the information and models to show the operation as it functions today.

5.3.5 The way the operation really works

The question many ask is "why do I need to be concerned with "As Is" models? I am changing the company, why not just focus on the future state?" The simple answer is that you must understand the operation before you can change it. You cannot just produce a new conceptual future-state model and expect to implement it without building an ability to move from the present to the future.

Part of the reason for this need to understand the current business operation comes from the fact that few businesses offer true "greenfield" design opportunities. Most of the time, the design team will not have the luxury of dealing with either the entire business or a totally new department and must consider the current business, its limitations, its problems, costs, and its culture. To limit the design options even further, the team often faces the requirement to consider changes to the business without the benefit of being able to affect the business operation components preceding or following the part of the business being changed, in the larger process context.

However, when a project does provide an opportunity to work on a totally new business operation or an entire end-to-end process, the team may proceed without many of the concerns that limit the teams changing a business operation. Here, the team must still consider how the new operation will fit into the business and how it will be supported by Information technology (IT). So, even in greenfield design opportunities, the design cannot be totally without constraints.

For these reasons, it is not possible to simply view the change as if you were able to start over, with no corporate history, no culture to deal with, no legacy IT limitations, no cost limitations and no consideration for the parts of the business that simply are not part of the design project's scope. Given this reality, it is critical that the design team understand the current operation—at both high and low levels of detail.

In addition, few people really know how the work in a whole process or business unit is actually performed. Managers obviously have a good idea, but given that many rules are created as needed to address unautomated "whitespace" work and that most rules are interpretive, no one can guarantee that any activity will be performed the same way twice. This is a reason outcome consistency is a problem in many companies.

Note: Creating a complete understanding of the business can have an immediate benefit from standardizing rules and parts of the workflow. It can also help *management make immediate decisions that can improve the operation before the workflow analysis begins.*

Thus, the design of any new ("To Be") business model must take into account the realities of the current business operation and the problems and opportunities that exist. It must also consider the current business rules, timing requirements, the need to balance the workload among the staff, the realities of corporate policies and standards, reporting requirements, audit requirements, and more. These factors are identified and defined in the analysis of the current ("As Is") business operation through the collection and review of operational information.

This analysis of the "As Is" business models and information is the first point where creativity and business acumen come into play. As the analysts are reviewing the information, they will have an opportunity to notice inconsistencies, activities that just don't make sense, and opportunities for improvement. This is the basis for recommended change and design improvements. These improvements will generally fall into two categories—candidates for fast, inexpensive, immediate improvements ("low-hanging fruit") and longer-term, more invasive, more disruptive, and more costly improvements.

Existing "current state" or "As Is" Process Models should have been updated, if they exist in the company, for the business area(s) that are in scope during the information discovery and modeling activity. If they don't exist, they will have been created during this discovery activity. These models thus provide a foundation for the analysis of the current operation. But that is the beginning of its use.

See chapter 3, Process Modeling, for details on creating process models at any level of detail in the modeling hierarchy.

It is recommended that the project team also view this current information from a strategic perspective. The reason is that information collection is generally project-focused; it is often not meant to have a life beyond the project, or it simply cannot be maintained and becomes out of date. Using a BPM approach and supporting Business Process Management Suite (BPMS) tools, this situation changes. The information from each project can be added to a common Enterprise Database with the eventual goal of providing a complete process-centric view of the company and its operations—the way it really works, not simply the way some think it works.

Project-level content should be used to support the eventual creation of the Enterprise Business Model. Doing so removes the overhead of creating this whole model as a project in itself. To support the evolving enterprise modeling effort, it is recommended that the business process models include the following supporting information:

- Processes showing sub-processes and their interaction
- Subprocess operations showing business functions/scenarios and the business units that perform them

- Workflow within a business unit showing activities that are performed—this may be broken into lower-level models to show the tasks that are performed within activities.

Note: these levels of model decomposition form the process modeling hierarchy.

- Problems and their impact aligned to the one or more sub-processes, business functions, activities or tasks they affect
- Opportunities for improvement and the expected benefits aligned to the part of the business they affect
- Metrics (staff, volumes, error rates) aligned to the point in the business they measure
- IT applications that are used and where they are used in the business
- Basic functionality that each application system provides
- Data that is collected, where it is stored, how it is edited, and how it is used
- Rules that control the work—both documented and undocumented
- Decision processes with the probability of each exit from a decision
- Standards for quality/cycle time/efficiency etc.,
- Internal audit policy and any requirements
- Performance measurement requirements

Note: this is a partial list of the information that should be collected as part of creating the "As Is" process and workflow business models. It is also the core information that should be considered in building an Enterprise Business Model.

The key point here is that with forethought as to the eventual use of this information, it will be possible to use it both in creating the solution that is the target of the project and in the incremental construction of a process-centric enterprise business model.

5.4 Strategic Business Change

Changes in business strategy and in the Business and IT capabilities that will need to change to support the new strategy are key drivers of broad-based business operation changes. These changes require the same type of discovery activity, but working together with the Business Architects and Process Architects to determine what processes and what parts of processes need to change, and how. This procedure will then be followed from subprocesses to business function to business unit to help define the scope of the project.

Once the Business and Process Architects have isolated the broad areas that will change, they will need to work with the Enterprise Architects to determine the impact on the IT infrastructure, the supporting applications, the company data and technology governance. Together, these perspectives will form a complete picture of the needed changes. This in turn, allows these architects to identify the initiatives and projects needed to deliver the strategy and support its goals. These initiatives and projects can now be related to specific business units through process changes and the requirements that each change must support.

In strategy-driven change, it is critical that all changes can be traced to directly supporting the delivery of a given part of the business strategy. The analysis of any response to a strategic change must thus include alignment to strategic goals at all levels of detail (decomposition model levels). This is supported through the relationships between strategy and initiatives, and between initiatives and projects. At the project level, the work becomes focused on the changes needed in a business unit and its workflows.

Formally defining the relationships between change projects allows executive management to look at project funding differently and facilitates a type of program management that coordinates the activity between projects and between initiatives to ensure that the goals of any strategy are met.

5.5 Process Analysis—Gaining an understanding of the business

Question everything. Nothing can be exempt in the quest for improvement.

The truth should not be hidden in this analysis—although politics will play its part. Where there are political boundaries, the project will need to be adjusted to work with the restrictions.

The purpose of the analysis is to identify how the business can change, the restrictions on it, and focus points in the change. The design team will use this information to focus on initial improvement considerations or on strategic changes.

Once the "As Is" information collection and process/workflow modeling is underway, analysis activity can begin. Although there is no one best way to analyze this information, it is suggested that a review of incoming information be used to create a type of framework that allows the team to align information and business activity. Care should be taken in this alignment to look for obvious opportunities to improve the operation, such as redundant activity, activity that is uncontrolled, activity that just doesn't make sense, activity that provides little or no real value to the process or to the customer, and unnecessary hand-offs to other departments or holds for approval. These should be analyzed and evaluated. It is also suggested that the team meet daily to discuss what it is discovering. This will allow the teams to more easily recognize patterns and redundant activity.

It is also appropriate to look at the deliverables of a business unit, business function, or subprocess. All work must contribute to one or more of these deliverables. If it doesn't, it must be reviewed and analyzed for value.

All problems must also be clearly identified and defined. They must then be linked to the business activities and business functions they affect: the impact should be noted and the impact assessment signed off on by a business manager. A "Problem Matrix" should be created to show the results of problem analysis (see Figure 43). This matrix should show the problem and the places it impacts. The place on the matrix where the problem and the place impacted come together should show the specific impact. This will have a wide variety of uses in the new design.

Discovery Data Analysis Problem Matrix	Business Unit X Workflow Activity	Claims Claim entry Cust.—Call with claim	Claims Claim Adjudication—Find policy	Claims Medical Review—Evaluate claim
Problem Name / ID				
1.1 Cannot find the right customer easily		Cannot comply with time standard		
1.2 Cannot see claim history without waiting for doc retrieval			Make decisions without needed information to hit time standards	
1.3 Outdated Medical policy				Overload examiners with policy questions

Figure 43. Problem Matrix

In addition to problems, all business improvement opportunities identified during interviews, documentation review, or model review should be noted along with the probable impact of their implementation. This relationship should be shown in an Opportunity Matrix with the opportunities along one axis and the business unit or group that will be affected along the other axis (see Figure 44). The intersection will show the impact of the change on the business.

	Business Unit	Sales Field Sales Staff	Sales Order Entry	Sales Order Processing
Improvement Opportunity				
5.1 Online access to discount information		Improved competitiveness est. 10% sales increase		Improved ability to hold quoted price—est. increase of $50M in revenue from existing sales—smaller $ loss due to incorrect discounts
5.2 Online access to meeting planning from the field		20% productivity increase due to the ability to reschedule quickly		

Figure 44. Opportunity Matrix

The team should also look at the flow and the way it is managed. Consideration should be given to such improvements as work listing, workflow monitoring and management, standard tracking with time-based warnings, automated work assignment, and workload-shifting to better control workload balancing.

While these and other business operation analyses are under way, it is also appropriate to look into IT support and determine the limitations of IT's capacity to support the current and possible future business operation. The realities of this review will either limit the new business design or open it to a wide range of support possibilities.

In this analysis, two key questions must be foremost in the team's minds. First, how can work be made more efficient and cost-reduced? Second, how can the operation be made more flexible and ready to change quickly? Together these support the delivery of sustained optimization through continuous improvement.

See chapter 4, "Process Analysis," for a more detailed discussion of the concepts used in BPM-based process analysis.

5.6 Process and Work Flow Design—Creating the "To Be" Design

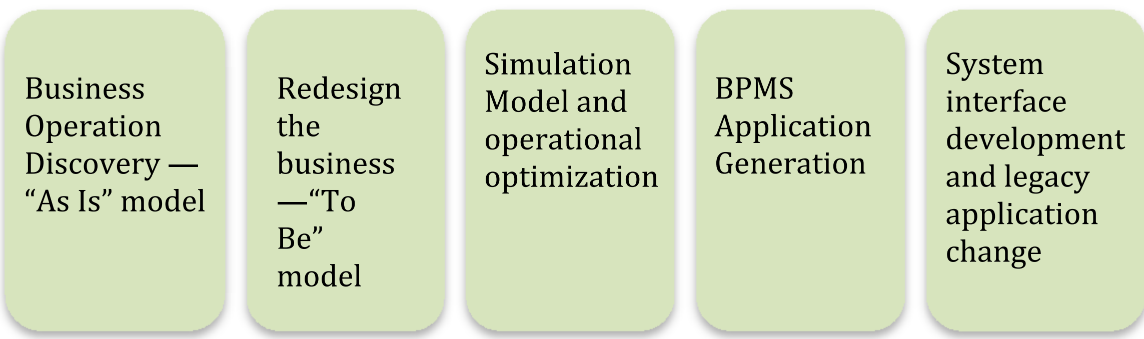


Figure 45. Workflow Design and Application Generation

At this point, the discovery activity will have created the "As Is" business models and they will have been analyzed for ideas on how to improve the operation. Limitations and requirements will also have been formally defined for use in any change. Following a roadmap similar to that in Figure 45, activity now moves to the redesign of the business operation. This redesign is where creativity is critical—people must think "outside the box."

Process modeling tools that best fit the organization and best support the desired goal in the process design should have been selected either before project start or during the project's discovery and analysis activities. However, a modeling tool may have been used in the discovery and analysis activities that will not allow solution design, simulation, or application generation. In this case, the company may choose to license a full BPMS tool to support application generation and facilitate the interfacing with legacy applications and data. It may also decide to build the application support and interfaces in a more traditional language and use the current modeling tool to design the "To Be" business model.

During the analysis stage, possible changes to the processes, subprocesses, business functions, and (within business units) activities in the part of the organization that is within scope are listed, weighted, and prioritized. This reveals a clear picture of the weaknesses of the current process or processes and helps decide what will be redesigned and in what order. Once the business areas to be changed are selected, the degree of the change can be assessed to make either incremental or large-scale systemic changes. Sometimes, making frequent small changes can have an equally significant effect on process performance as large radical changes, provided there is a clear and accepted vision of the future state.

In looking at redesigning the operation, the team should understand that the "As Is" model imposes a type of modularity on the operation. Each activity operates independently with links to other activities through inputs and outputs. Within the activity, the work is controlled by both management oversight and business rules. Support is provided by IT in the form of applications and data delivery, manipulation, and storage. All can be viewed as a single integrated module or, in SOA terms, as a business service. In this view, the operation is a flexible framework of interconnected services, each producing some outcome or deliverable component of a larger product. This is important because this modularity allows the team to identify the parts of the operation that provide the greatest immediate and then long-term benefit, and to address them separately.

In this approach, a business workflow can be considered to be a module that is made of separate, smaller, component modules. The key is that at any level, each module is a completely functioning part of the business. It produces something that is consumed by another module. These modules are building blocks that can be combined in any order needed to produce a bigger product or service. In this way all are interchangeable and all are reusable.

This is made possible by the way the work activity module is handled. The integrity of the module is maintained by ensuring that the input and output of the module remain constant—hopefully with improved output. So, given that the input and output requirements do not change, the team can do whatever is needed within this module. However, if an output is changed, the change will ripple and the extent of both obvious and more hidden impacts must be considered.

Note: Any change to an output at any level in the Process Hierarchy can have hidden impacts. It is possible to have no impact on the next activity in the workflow, yet seriously impair an activity two or three modules downstream in the workflow—including activities outside the scope of the project. It is also very possible to improve a given activity or business operation and harm quality downstream of the change. For this reason, the team should both understand the downstream modules and work with business and IT managers to make certain that no harm is done in a change.

By taking this approach, it is possible to address the business modules or services in the order of their greatest impact on achieving the goals of the project. By using the business models for context, the team can look at the benefit associated with any module. It is thus possible for the team to focus on the most significant improvements first. This is possible because of the relationship between the business modules. As modules are improved, they are linked to those they touch in the same way they were before they were changed. As far as the impacted modules are concerned, nothing has changed—they still see the same output and they still deliver the same input to the next module. In this way, change is isolated to individual building blocks and all building blocks remain linked to produce the outcome. This approach must, however, make allowances for the complete elimination of modules or groups of modules when they become automated or unnecessary. In these cases the output/input links will be broken and will have to be rebuilt.

The technical approach to support the design, construction, and implementation of the business improvement will need to be understood by the business design team. Likewise, the business transformation approach will need to be understood by the technology team. If the process design will be supported by application generation through a BPMS, the constraints and options will be very different from a change that is supported by .net or even legacy COBOL-based application systems. Because these options and constraints will have an impact on the new business and IT support design, they must be identified and defined at the beginning of the design process.

Actual design will take place at all levels of the Process Hierarchy. All must be aligned in any change and all must be used when downstream activity is considered.

Although a team's methodology when designing a new process will vary, certain key activities should take place during the design stage of process management. Most commonly, these key activities are

- Designing the new process at all appropriate levels of detail (see Process Hierarchy)
- Defining activities within the new process and identifying workflow and dependencies
- Defining business operating scenarios and modularizing around these scenarios
- Defining all data needs
- Defining rules that control the activities
- Defining handoffs of process between functional groups
- Defining customer value from the change and tying it to success measurement
- Defining desired metrics in the new process
- Defining and designing business and performance reporting
- Gap(s) in and comparisons to existing analysis
- Creating business and technical system change specifications/requirements

- Creating the physical design
- IT infrastructure analysis and design
- Model simulation, testing, and acceptance
- Generating or building supporting applications
- Designing and building interfaces to legacy applications and data
- Testing all business activities with application support, legacy interfaces, and rules
- Creating and executing an implementation plan.

It is important to note that although these key activities listed above appear in a logical order, they do not necessarily occur in that order and many of the activities will occur simultaneously. In addition, this is a partial list that is not intended to represent a method or to conflict with any internal company method, steps, or activities. Rather, it is meant to serve as a list of activities that should be considered within the context of the project, the company methodology, company standards, and the needs of the project for control and management.

5.6.1 Evolutive Management: Using Change to Control Evolution in the Business

Two basic approaches can be taken in creating the new design. The first is to create a specific improvement that is expected to be implemented in its entirety at one time. The second approach is to create a future state that is optimal, but not (yet) practical. Maybe it will cost too much, be too disruptive, or require an infeasible change to technology, and the list of reasons goes on and on. But, the bottom line is that the design is a good eventual target, and it will define a direction for change.

In this case, one or several interim "phase" designs moving in the direction of the "optimal" state will be made. Each of these designs will solve a major issue or deliver a significant improvement. And each phase will build on the foundation of the ones that have been built and deployed before it. In this way the company will evolve along a planned path.

However, it should be realized that the "eventual" end-state target design will never be reached. The reason is that this evolution approach, called "Evolutive Management" (created by Dan Morris, Joel Brandon and Stephano Sommadosi, and introduced in Brandon and Morris's **JUST DON'T DO IT: CHALLENGING ASSUMPTIONS IN BUSINESS** (McGraw-Hill, 1988) continually looks to the future, and the end state design is adjusted to take advantage of emerging concepts, technology improvements, production tooling innovation, and so on. It is also adjusted to consider competitive requirements, business opportunities, the changing impact of globalization, and more. Given the constant changing of the end-state target, the path and the "phases" along that path constantly evolve. This allows the company to constantly control the direction of its change while understanding both the direction and why it has been chosen. It also requires a corporate commitment to controlling the way the business evolves and adopting the Evolutive Management Approach—or some version of it.

Each of the phases along the path of this evolution will be approached in the same way—as a specific improvement type of change.

5.6.2 Designing the New Process

Companies function through their processes. Processes operate as directed by business rules. Any company's ability to operate effectively is thus a direct result of good processes and rules. But, today an additional element must be thrown into this mix. That is the ability to absorb and adjust to change quickly. Top competing companies have control over this mix and are able to leverage all elements in a type of fluid constantly changing approach to their operations.

Many companies have parts of this mix in place and under control. Few, however, really understand their end-to-end processes or how to optimize both at the process level (cross-organization) and at the workflow level (within an organization unit). Fewer still have an ability to support rapid change or to control the majority of change taking place in the company. Part of the reason for this is that mid-size and large companies must formally move at the pace that their legacy IT applications and their IT environment can change. And, most IT Departments are inundated by requests for application changes and cannot keep up.

That is the formal reality, but not the operational reality. Only a small part of the change in any company is large-scale enough to be noticed or planned. This level of change is not funded and it is not tied to formal projects. It cannot be put off and it cannot be tracked. The fact is that all companies change constantly: most change occurs at a low level and is not well controlled. This is "under the radar" change, whose pace in business operations far outstrips the ability of IT to support it or the company to manage it, because it is constant and just happens as people find ways to get their work done. Rules also change in this underground of constant turmoil in companies, and much of this change is needed to interpret the intent or application of the rule. This is the cause of business-operational "white space" work—manual work that is needed because of automation limitations and speed of change in most operations.

But many of these traditional problems limiting companies' ability to optimize their operations can now be reduced or eliminated by the use of a Business Process Management Suite of enabling tools. Key among them are process modeling, rules management, application generation, data access control (SOA) and advanced performance monitoring and measurement tools. The greatest benefit of using a BPMS is to support very rapid change. As discussed in chapter 10, "BPM Technology," a BPMS forms a new, integrated business- and technology-operating environment. The management of activity is supported, and in some ways controlled, by the BPMS and the applications it generates from models, rules, and data definitions. A change to any of the models, rules, or data definitions regenerates the applications. This allows very rapid prototyping in simulation to ensure that the new version operates as needed, and then supports the movement of the application into production by setting a software switch. The bottom line is that in a BPMS-supported BPM environment, change can now keep pace with need—at any level in the process hierarchy (see Figure 42).

As a result of the availability of these tools, there are now many ways to approach designing the new process. These range from using simple white boards (or brown paper) in a manual design, to simple tool-supported modeling, through sophisticated software modeling tools that allow the storage and retrieval of process information. The use of these tools, whether they are sophisticated or simple, manually-created paper models, is supported by a variety of information-gathering activities (brain-storming, story creation, etc.) that facilitate the creation of the business model.

A complete discussion of the tools, activities, and methodologies used to model processes is beyond the scope of the CBOK®. All of the tools or methods used have their various strengths and weaknesses. The correct tool, methodology, and activity to define the process depends on the project goal, the culture of the organization, the possible need to generate applications, and the current technology infrastructure.

The importance of process-modeling support through an automated tool, however, can be found in the discipline it enforces on the project team and in the organization of information. Today, vast amounts of information will be collected in any improvement project. Organizing this information is a challenge. Forcing the teams to collect the right information has been a problem. Remembering the information and then using it has been an even bigger problem. BPM modeling tools usually have a solid database underlying the modeler and offer both model/information organization and advanced information access.

5.6.2.1 "To Be" Process Design

Process-level change should be considered as the first step in change design. Will any of the high-level process components (subprocesses) be eliminated or new ones added? This level of change is critical in either adding or deleting large areas of work.

The same is true at each level in the Process Hierarchy (Figure 42) because any change at a higher level affects all the levels below it by defining the type of change and thus the impact. But all change will eventually be designed and implemented at the business unit workflow level and through the tasks scenarios within the workflows. It is thus important that all levels in the Process Hierarchy be considered in any new design.

The actual process redesign will be based on the idea that the status quo should be challenged and that processes should be improved. As noted, this actually applies to all levels in the process hierarchy. In this approach, no part of the operation should be above question. Everything must be looked at and reviewed for opportunities to reduce effort, improve quality, reduce cost and eliminate problems. Problems identified during the discovery activity will now be used to focus activity onto the work, decisions, handoff, and flow changes that contribute to the problem—and to eliminate problems by designing the root causes out of existence. Issues with quality, staffing levels, training, and more must also be factored into the new design and removed or mitigated, but the first consideration should be problem elimination. This alone will provide significant benefits, but it is only the start of a redesign.

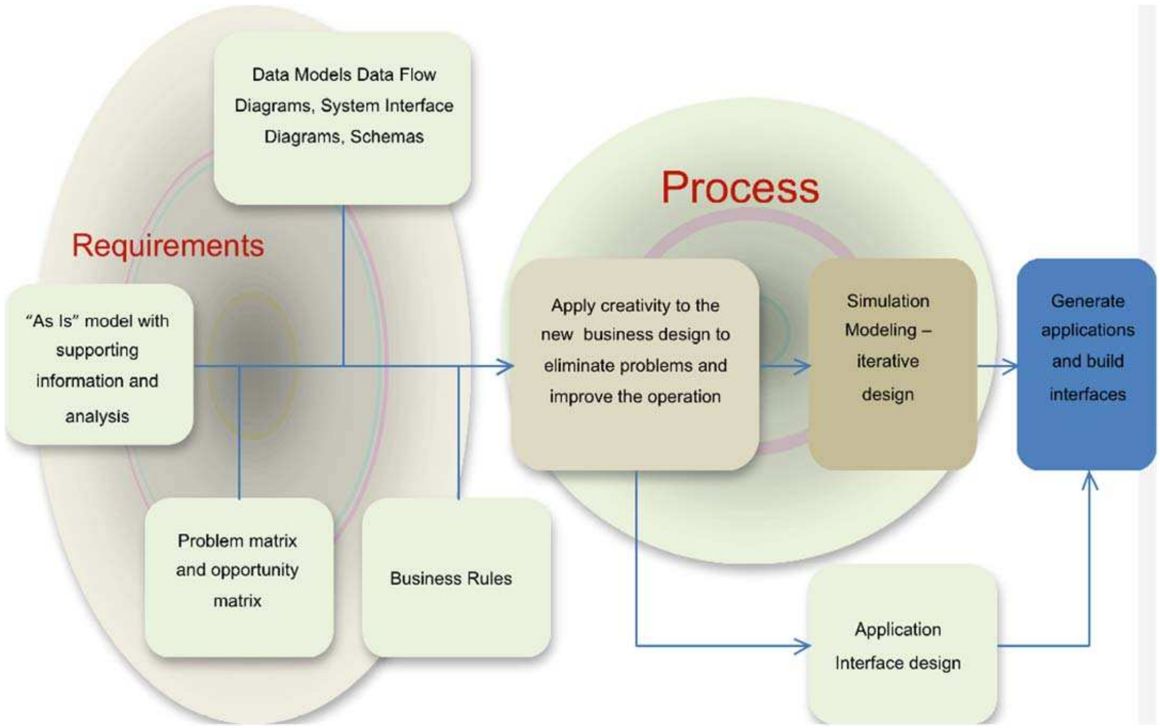


Figure 46. Where Process Design Fits In

As the new design is considered, it is critical to involve as many people as possible from the different functions that interact with the process, thus utilizing the breadth of experience and knowledge of those closest to the process. This ensures that the process truly reflects what the organization can accomplish. It also drives out fear and engages the staff to promote acceptance of the change.

Starting with the "As Is" design (see Figure 47), the team should ask at least the following questions of every activity. These questions support the basic set of analysis and design questions of Who, What, When, Why, Where and How. The basic requirement here however, is to look at these questions from the perspective of how each of the answers to these questions can be used to improve the business operation and the value it provides to the customer.

- What is the purpose of this process, subprocess, workflow or activity?
- Is it redundant or similar to another one that is being performed?
- What are the problems, quality and governance issues, and why are they occurring?
- Why is this step necessary?
- What is its purpose?

- Where should it be done?
- When should it be done?
- Who is best qualified to do it?
- Is it properly supported by automation?
- What are its major problems?
- How can the problems be eliminated?
- How can the operation be made as effective as possible (only do what needs to be done)?
- How can the operation be made as efficient as possible (eliminate unneeded activity)?
- How can noted waste be removed?
- Are there standards that must be hit?
- How can we monitor the activity and ensure that performance targets are hit?
- What are the factors limiting change(s) to the process, subprocess, workflow, activity, or scenario?

Note: This is a partial list of the questions that need to be asked. These questions serve only as an example of the types of things that the team must consider in designing a new operational change.

In the approach taken to redesign the business, the team must be open to creative ideas and they must be visionary in their thinking about how the business could operate. Every activity that is performed must have a specific business reason and it must contribute directly to the delivery of a service, outcome, or product. If it does not, its value must be critically questioned and it should be either changed or eliminated. Activities must provide measureable or definable value to remain as a part of the operation. However, in defining value, the team should not limit themselves to looking at direct customer value. Financial value to the company, staff retention, improved ability to compete and a variety of other value categories are also valid in this questioning and in the new design. Value categories, however, should be definable (and defined), validated, rated, and approved. All work should then fit into one of these value categories.

Once work has been determined to provide value, it will be considered to contribute to the effective operation of the business—doing the right things. This should eliminate all work that is no longer necessary, but it will not address efficiency in any way.

This initial adjustment is needed to provide a new foundation model of the business. If a BPMS tool is being used, this will now start a new design model.

This activity evaluation and deletion should be done using the Business Modeling or BPMS tool that the "As Is" model is in. Here, the team should start by making a copy of the original "As Is" model and then deleting all unneeded work. Of course this elimination of unnecessary work will cause holes in the "As Is" model of the work, but this revision can now be considered the starting point for the new model design. Several copies of this new "As Is" model should be made and assigned to sub-teams.

Each team and sub-team will thus have their own unique version, and can then be asked to creatively look for and model activity, and thus workflow-level improvements. This will allow them to think outside the box. The goal here is problem elimination and operational efficiency. Through trial and error, the new designs can be created and tested. A new composite model can be created by identifying and using the best-of-breed components of the various team versions. This model will then be optimized by running it through the simulation tool and comparing it against the baseline or "As Is" model.

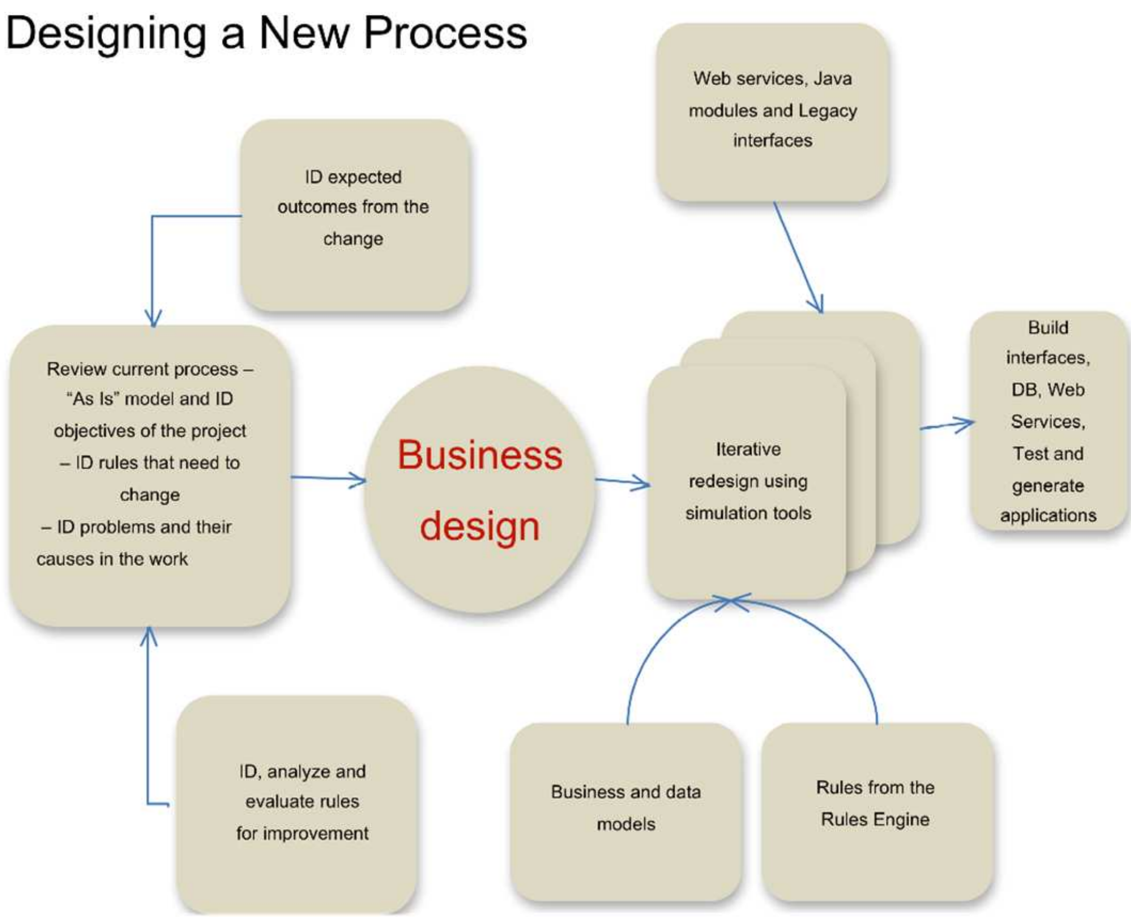


Figure 47. Designing a New Process

Once this model is created, the improvement must still be viewed from the perspective of upstream work and downstream work in the business unit's workflow. It must also be tested to determine its impact on the process and on downstream work that is outside the business unit. When the improvement can be determined to cause no harm, and maybe even improve other operational components, the change will be ready to be taken to a detail level needed for BPMS application generation. In cases where a BPMS is not used, the team will now need to define the lowest-level tasks and then create both business change specifications and IT application and legacy applications interface specs. Here the design and responsibility for the completion of the supporting applications will move to the IT department. If this non-BPMS approach is used, the project will need to coordinate resource needs with the IT department and have all work pre-approved and properly prioritized to save time.

5.6.2.2 Defining Activities within the New Process

As noted above, it is necessary to look at a business design from multiple levels of detail to ensure no harm is done to downstream work or work that is handed back and forth with external groups.

The activity-level "To Be" process models created earlier and their levels of related detail through subprocess, business function, activity in an organization unit, workflow, and scenarios, will be used to support this multi-layered view of the business.

At this point, the activity level "To Be" business model will reflect the elimination of non-value added work. The analysis of the "As Is" models and information will also have produced a set of functional and non-functional business requirements, a list of business rules that must be considered (and where possible reused in the new design), a list of data requirements, and a list of current and needed IT applications support functions. The new design team will also have a list of business problems, change constraints, performance needs, operational standards and more from the "As Is" analysis. As a result, the design team will have an understanding of how the business really works, what the people performing the activity must really do, and what it takes to do it.

5.6.2.3 Designing Task and Scenario-Level Change

Clearly, all levels of the Process Hierarchy must fulfill all requirements identified in the analysis of the "As Is" models and information collected during the discovery activity. But this is only the start of the new design. The unneeded work at all levels in the Process Hierarchy will have been eliminated from the design that the team will use as a starting point in the task- and scenario-level design. The problems shown in the Problem Matrix and the opportunities in the Opportunity Matrix must now be aligned to the tasks/activities/processes at the appropriate levels in the Process Hierarchy. This alignment will eventually affect the lowest level of work, where operational work and automation design will take place.

This design will thus involve the workflows in business units and the scenarios and tasks that comprise them. All problems must be analyzed in terms of the root causes and all underlying factors addressed and eliminated. At "Break Point" (the places in workflows where errors and problems are noticed) the team must look at how the problems are detected (what is looked for in an initial identification) and define the characteristics that determine an error or problem. These characteristics are then used to analyze the upstream activity at the needed level of detail to determine how the problems start and then build. With this understanding, many problems can be designed out of existence and performance measurement put in place to make certain that any remaining problems are detected early and mitigated. However, in some cases where the cause is outside the scope of the project, it will be necessary to note the cause and then design a way to mitigate the problem—deal with it, encapsulate it, improve the quality, etc., as soon as the information, document, product (etc.) crosses the boundary into the area of the business that is in scope. This will require work and thus cost, but it will be far less expensive to correct the problem at the boundary where it comes into the organization than later, at the end of the workflow.

Business improvement opportunities identified in the Opportunity Matrix should also be addressed in the new design at this point. All changes needed to realize the opportunity should be defined and the design should be modified to deliver the opportunities. Here, however, performance measurement should be built into the workflow to measure benefit and report actual benefit against expected benefit.

The new design should not have any non-essential work, the problems in the operation should have been designed out or mitigated, the business improvement opportunities should have been used in the redesign, and a specific improvement or evolutive approach to the change should have been selected.

The team should now define the characteristics that would make the new design optimal and present them to participating managers for approval. These characteristics will be the foundation for performance measurement and the basis for determining project success. They are therefore important and the team should be careful not to overpromise on this characteristic list. This list should now be the main list of requirements.

This list of success requirements should now be used as a checklist, and one by one, the team should make certain that all requirements are met in the new design. At this time it is also possible to identify groups of activities that will always be executed in given events, at given times, or as a result of some value in a decision. These can be grouped to form scenarios. A scenario is initiated and then each decision or grouping of data that is collected determines the next set of activity. That activity, in turn determines the next group of activity as the decisions or values determine the path that is taken through the scenario's groups of activity. At each branch, however, the activity for the next group of work will always be the same and the result of a decision or value will always have a finite list of alternatives that are always chosen from in the same way.

By looking at this work as related clumps of activities that provide a given decision or value, the work can be redesigned to direct activity through standard questions and answer-selection options. This can be used to embed decision logic and remove unneeded layers of human decision-making, unneeded layers of authorization, etc. Automated support can also be viewed in terms of its overall support for the scenario and its support for each work group within the overall scenario. All rules and logic can also be easily checked and measurement points can be clearly reviewed.

But, the changes that have been made up to and including this stage of the redesign still may not make the design efficient. For efficiency, all business rules must be evaluated and normalized—because in many companies, the evolution of formal and informal rules has resulted in redundancies, conflicts, definition problems, processing inconsistencies and quality problems. All rules must therefore be reviewed and proven to be both needed and effective.

The design might still be disjointed, so the team will need to look at the flow and the way it branches. If possible the flow should be simplified. In this part of the design approach, the team should also highlight all manual work and eliminate as much of it as possible. If a BPMS is being used, the “white space” activity may be replaced with BPMS-generated applications. If a traditional draw tool is being used to support the design, it will be necessary to work with IT to determine what might realistically be automated, and when that could be completed.

It should be noted, however, that shifting work to another organization or outsourcing it is not the same as eliminating it. The costs of the work may be shifted, but they are not eliminated and the company must still deal with them.

As the team moves through this “To Be” design process, it is suggested that multiple concurrent versions of the new design be used as testing platforms for everything from wild ideas on fundamental change to more modest focused improvement. Results of these experiments should be closely reviewed and the best improvements added to the new business model.

At this point, the changes should provide a streamlined business operation. If a BPMS is used, the team should run the changed workflow through the tool’s simulation capability to test for real operating improvement—run the “As Is” version and then the new version and compare the results. This will show probable benefit. Where inefficiencies remain, the team may want to perform a second design and optimize the overall workflow.

The next thing for the team to evaluate is the need to manage the workflow and all activity. This will include identifying where work lists, ability to reassign work, and places to embed rules dealing with timing, volume, and other company standards exist.

This is the point where management control is improved. If a BPMS is being used, the requirements for automated work listing, work assignment, work shifting (etc.) and reporting can be built into the new models and used to generate the BPMS applications needed to improve, control, and monitor performance. See chapter 10, “BPMS Technology,” for more details. If a BPMS is NOT being used, the team will need to meet with the IT representative to determine what can be done in this area. The design will need to reflect this technology reality.

As the new business design is in the later stages of its evolution toward an implementable business-operating solution, it will be necessary to design all system requirements and all screens that will be used. If a BPMS is used, this design is fairly straightforward as it is embedded in the models of the new design. If this design will be supported by more traditional IT services, the design may initially be fairly high level, but it will need to align directly to the business operating design. All documents that will be used and their flow must also be mapped to the business activity and accounted for in the new design. This may require the inclusion of document management technology in the new design and in the requirements for interfacing.

All data on every screen must be identified and, working with the IT data analysts, defined. All sources for this data, including new documents, customer calls, legacy applications, collaboration partners, etc., must be identified and aligned to the data capture points. All quality-related data edits must also be defined and aligned to the data capture and use points. This sets the foundation for the identification of legacy application use, change requirements, and consolidation. It also sets the requirement for data interfacing and new data transformation. The result of this part of the design is a set of data use and interface requirements.

- The design should now be complete
- All non-value-added work will have been eliminated
- All problems will have been addressed
- All business improvement opportunities will have been addressed
- Rules will have been justified and normalized
- White space (manual, under- automated work) activity will have been eliminated
- Business scenarios will have been streamlined
- All changes will have been reviewed for impact at all levels in the process hierarchy
- All data use, transformations, and sources will have been identified, and interfaces with legacy applications will have been defined
- All new automation will have been defined and designed
- The design will have been compared against the original “As Is” design and evaluated for improvement
- The project and the new business design governance will have been designed
- Management performance, warning, and other reporting will have been designed.

As with any design or requirement definition, the level of detail will be related to the difficulty of the change and the scope of the operation involved in the change. This level should be determined by the method and standards that are followed and by the need to support either a BPMS-application generation or a traditional IT application’s business and technical specification.

Whatever level of detail is needed, will now have been reached in the design. It will now be possible to make immediate improvements and begin to build and implement the changes identified in the first of the phases (assuming an Evolutive Management approach) of the operation’s evolution toward optimization and rapid change.

5.6.2.4 Business Rules—an Ongoing Quest for Improvement

Data is the life-blood of any business operation. If flows through it and keeps everything alive. Business Rules, in a similar analogy, are the “brains of the outfit.” Rules define what will be done, when it will be done, where it will be done, why it will be done, how it will be done, and how it will all be managed or governed. The need for quality in the rules that run the business cannot be overstated. If the rules are ineffective, the business operation will be ineffective and quality will suffer while costs increase.

To add to this problem, most of the rules that are written in many companies are out of date and often conflict with one another. Rules are often added through memos and email, which people may or may not keep, or (at best) be added to the growing stack of paper in the front or back of the policy manual. Few business operations have paid close attention to this problem, and their current rules may not support policy or even legislation (the law).

For this reason, any BPM project must be concerned about finding, listing, defining, and normalizing business rules. The team must also concern itself with how the rules are used and, if a BPMS or separate rules-engine will be used in the project, how the rules are "coded" into the tool.

When defining business rules, the tendency in many organizations is to make them complex. Part of this tendency is a desire to reduce the number of rules. But the main cause is that many people tend to put entire decision trees in single rules instead of breaking the rules into single decisions and then linking the rules in sets. Aside from making the rules harder to test and use, this complexity in a set of business rules creates complexity in the process. The more complex the process is, the more opportunities for the process to fail. So, it is important to create company rules-definition and coding standards that keep rules as simple as possible.

Each rule must be separately tested—both in written form and then, once coded, into a rules engine. The rules must then be tested in groups as they are used. The results should be reviewed by the Legal Department or Finance to ensure that they support legal and financial requirements. The rules should also be tested for efficient execution: if not properly coded, the rule can cause the application systems and thus the business to slow down.

It is thus important that the team find all rules, ensure their applicability and quality, and verify that they are coded for maximum execution efficiency and effectiveness.

Because rules change constantly and are (arguably) more volatile than any other component of the business operation, it is important that all rules be reviewed and confirmed for applicability at least semi-annually. The review should uncover changes, new rules, and new opportunities to eliminate any rule-related "white space" activity that has been created. While this represents ongoing work, it is a vital part of any attempt to sustain an optimal business operation.

5.7 Change Management

A great many good projects fail because the teams do not pay enough attention to managing the change and its acceptability to the business user. The simple fact is that the people who need to perform a new business task, use a new application system, measure performance and more, will resist the change if they have not accepted it or if they feel uncomfortable in performing it.

A great many books have been written on corporate culture and change control. Some companies have responded to this need to win staff acceptance of change by forming formal change-management groups and standards for dealing with change in both business and IT projects. In some companies, this desire to control the reaction to change makes certain that teams include the human perspective and ways of communicating intent, design, and reason to the business staff.

Change is viewed in one of two ways. You are either doing something to someone, or you are doing something with him or her. The second of these views is obviously the one the team needs to build. The old-technology approach of a dedicated business subject-matter expert (SME) who decides what will be done and how things will work has proven to be inadequate in BPM. The changes are simply too invasive when a new way of doing business is the goal. A business SME was fine when delivering a tool (an application system) that was laid on top of the business operation, but the integrated business activity/tool design and use of BPM has created a different level of involvement from both the business- and IT-technician sides of the operation.

The business staff will either embrace the change or find ways to prove it is a failure. If the majority feel threatened by the change, they will find ways to make it fail. That is reality. The purpose of this section in the chapter is to make readers aware that in BPM, a new level of change-control is needed, and any business design should include techniques that reassure business staff and engage them in the improvement.

5.8 IT Infrastructure Analysis and Design

New business operating designs may cause changes in both IT support needs and in the way the business operation is located in the company's office and plant space. This may, in turn, have an impact on the IT infrastructure and the need for communication support.

In addition, the data- and functional-support needs of the new business design will likely cause interface needs with legacy applications and requirements for data movement that may have a profound impact on IT strategy and infrastructure—including document use and retention, and data storage and delivery.

If a longer-term business change design is used, following an approach like Evolutive Management, the IT infrastructure will need to be analyzed and aligned to the phases in the evolving business operation. This will allow the business change to be included in the IT infrastructure and in other plans and budgets. It will also allow the Enterprise Architects in the IT group to look at emerging technologies and application systems and leverage their understanding of this technology to continually look for the best solution at a given point in time, as defined in the business evolution plan.

Some of the issues the IT organization will need to look at are:

- What software or systems best match the needs of the process?

- Are there limitations in the current infrastructure that limit the design?
- Can the design be implemented quickly?
- How will a technology change impact the organization?
- Can a staged approach be employed?
- What will the new implementation cost (including training, technology, etc.)?
- Are there vendors that can assist in the implementation?

These and related questions should be looked at collaboratively between the BPM Architects, Enterprise Architects, and Business Architects to ensure understanding of business and IT alignment and requirements. This will also allow the BPM Architect to understand limitations faced by the IT group and the company's IT infrastructure as it evolves.

5.9 Simulation Modeling

As noted above in the discussion on design, the new design should be tested before changes are built and IT applications are generated. The test will look at the likely result of the changes proposed in the design. This testing is a simulation of the new business operation and its IT support, either on paper or using the simulation capabilities of many BPMS tools.

In this simulation, the "As Is" workflow will be used to define the baseline—the current activities and their relationships to one another. All decisions in the workflow will be used to simulate possible workflow branches. The probability of each decision outcome will need to be estimated as a percent. This will define how many times a given exit will be used—i.e. 10% of the time the decision is yes, 50% it will be no, and 40% of the time additional information will be needed. The simulation will also need to understand volumes, timings, and how many of a given transaction a person can process in a given period of time. This will now allow the team to test for break points, bottlenecks, and management needs (such as work shifting and rule changes). Simulating the current operation in the BPMS allows the team to modify the information until the simulation reflects the actual operation.

The new process design will now be compared to the existing state in a gap analysis that shows the impact of the changes. This analysis provides important information that can allow the team to demonstrate the savings that can be generated by the new process, once the process is implemented. This helps confirm the improvement estimates in the business case for the new design, or provides an opportunity to adjust estimates and reset expectations.

Once the "As Is" model and information provide the baseline for comparison, the team can test any number of possible design options. This testing is risk-free, since it is in a simulated operation. By comparing the operating and cost results of these simulations, the team can look for the best solutions and provide an estimate of the benefit. This ability to test designs and then quickly deploy the best simulation supports both rapid iteration and fast implementation of the change. This is critical in reaching optimization and sustaining that level of performance.

5.10 Conclusions

The process design stage in a process improvement initiative attempts to define the new process state and outlines the steps necessary to achieve that state. Throughout this chapter the key activities, critical success factors, and suggested practices for achieving a successful process design have been discussed. The next step, addressed in the following chapter, is to implement the new design.

5.11 Key Concepts

Process design is the creation of a new process that aligns the business around the business strategy.

Process design involves the executive leadership, process owners, and stakeholders in the creation of the new process.

The process design team should include subject matter experts, stakeholders, participants, and customers.

While designing a new process, consideration should be given to the following best practices:

- Design around value-added activities.
- Perform work where it makes the most sense.
- Create a single point of contact for the customer.
- Combine processes around clusters.
- Reduce handoffs.
- Reduce batch sizes.
- Put access to information where it is needed the most.
- Capture information once and share it with everyone.
- Redesign the process before considering automation.
- Design for desired performance metrics.
- Standardize processes.
- Consider co-located networked teams and outsourcing.
- The activities associated with process design include the following:
- Design the process with modeling and other tools.
- Define the activities of the new process.
- Define the rules of the new process.
- Define the handoffs between activities.
- Define the metrics.
- Perform comparisons and benchmarking.
- Perform simulation and testing.
- Create the implementation plan.

Critical success factors include ensuring the involvement of executive leadership, process owners, and cross-functional teams.

Chapter 6

Process Performance Management

Foreword by David McCoy, Managing Vice President and Gartner Fellow Emeritus

In the 2000 to 2001 timeframe, Roy Schulte and I were leading a team introducing his concept of Business Activity Monitoring (BAM) to the world, and we were finding resounding interest in the idea of monitoring "business activities" in real time through the use of event capture, filtering, and analytics. I remember one particular BAM presentation we did—the first full-blown BAM presentation ever delivered anywhere. It was a joint effort at one of our conferences and the audience was heavily technology-focused, to the point that several attendees came from the real-time automation world of manufacturing. We were proving the point that what works on the shop floor could also work in the business. Now, well over 10 years later, we find BAM to be a commonplace topic among BPM experts, and the notion of real-time process performance monitoring is hardly a tricky sale to the organization. But despite the established foothold that BAM has taken, the overall concept of process performance management is still a mystery to many, and the execution of this activity in most companies leaves a lot to be desired.

To put it bluntly, it's easy to measure and manage process performance—in the abstract; but when you actually have to deliver tangible value from the effort, we often fall short. This shortfall is sometimes related to the underlying technology: poorly connected systems, outdated infrastructure, rigid applications, and weak event-processing capabilities all lead to failure. But I think the biggest challenge is a three-pronged one of scope, value, and perspective. In other words, when we look at process performance management, we often find that we can measure and manage anything, and most often, that's exactly what we do: we measure anything that moves, overlooking the more difficult opportunities that lie beneath the surface of our process world.

A Problem of Scope: Consider an example that I wrote about in my Gartner blog at http://blogs.gartner.com/dave_mccoy/2010/06/07/75-miles-per-gallon-down-blood-mountain-the-fallacy-of-metrics/. I travel up and down Blood Mountain in Georgia many times a year. As I ascend the mountain, my gas mileage plummets; but as I descend—basically allowing the steep grade and gravity to "do their thing"—my instantaneous gas mileage shoots through the roof. On a recent trip, I was able to peg the miles-per-gallon reading at 99, effectively hitting limits the programmers never considered realistic for a car that averages 25 mpg. I use this to illustrate a classic failure in process performance management: limited focus.

If I were to divide the process of driving Blood Mountain into two sub-processes, Ascend and Descend, then a limited focus would say, "Just do the downhill part! The uphill part is too expensive." Well, that's patently ludicrous, but what happens when we look at our business processes with a limited focus? We make the exact same mistakes. We don't see the end-to-end process as the unit of measure; instead, we see the parts of the process as atomic and isolated, worthy of individual metrics, measurement, and performance assessment. While there's nothing wrong with analyzing processes with focused measures, if the measures are not part of a holistic framework—an end-to-end view—then you will make suboptimal decisions—decisions just as insipid as the idea that you can traverse Blood Mountain by only going downhill. This is the mistake of scope; it's one that can be overcome with a proper understanding of the end-to-end perspective, the process major as opposed to the process atomic.

A Problem of Value: Let's assume we are looking at the end-to-end process and we're not atomizing the holistic to unreasonable levels of scrutiny. Well, we're still not out of the woods on process performance management because we can make mistakes in assessing the real value of the end-to-end process. Depending on the metrics we align to the process, we might be performing well on an end-to-end basis—according to our metrics—but totally blowing the mission.

Misguided employee productivity measurements fall into this effort. What if your end-to-end process is called "desire-to-desk" and it's a hiring process that takes an applicant from job opening to that first day at work. Is "cycle time" a reasonable measure? It is reasonable to want to measure the time it takes to recruit. There is an assumption that faster recruiting is an asset, so much so that it's called "agility." But if that's the measure, then how is the process performance managed? Well, it's managed by a clock and calendar mentality. But in the end, the proper value proposition for our theoretical desire-to-desk process is "quality hires in a reasonable time." Does the clock and calendar mentality worry about quality? Perhaps it does; but more often, it's a discussion of speeds and feeds and not one of such nebulous concepts as quality. We've fixed the scope problem here; we are now looking at the end-to-end process from initial application to office assignment. But even though we are not atomizing the process, we are atomizing the value by selecting only a surrogate for what the true value should be.

This is the mistake of value; to overcome this, you must fully examine the process in light of its proper contribution and extract the most salient outcomes that the process is seeking to deliver. In the end, a desire-to-desk process should not be about agility; it should be about pristine resourcing of your most critical resources: your employees. However, when firms treat the hiring process as a speed dating service, you get what you measure. To a bachelor, perhaps a speedy date is desirable; but to a hiring organization, the real value comes from a more comprehensive understanding of the true value of the process. For only then can you manage the performance in light of a proper outcome.

A Problem of Perspective: Perhaps you're convinced by my ideas so far: "I have to examine the end-to-end scope, not just a convenient atomization of the process. I must seek the real value inherent in the process, and manage it on that basis." Well, the final challenge is the most insidious: it's the problem of perspective. This challenge is insidious because you can meet the first two expectations—scope and value—and still fail in the main.

Hear me out. All processes are based on perspectives. These perspectives come from the designer, the line of business, the IT shop, the consultant, the customer, the vendor, and so on. The idea of a perspective is typified by one of my favorite big words, Weltanschauung. Back in graduate school, I was privileged to study methodology design with some of the world's experts, and we always seemed to come back to this term. Weltanschauung means "worldview," and I've blogged on it a bit if you want more information. The bottom line is that your worldview—Weltanschauung—colors your perspective. It might even be said that it is your perspective. So, how you view reality colors how you design your processes.

Now, let's move from the theoretical to the practical. If your process perspective is that customers are cattle, it will be reflected in your processes. Your end-to-end processes can be measured in their entirety, and you can convince yourself that you're measuring the proper value inherent in the process, but your customers will see through you and revolt. I've seen a few businesses that use a common tactic to increase sales. They want their employees to promote a certain account feature, food item, maintenance plan, etc., and the process states, "If, during the course of our transaction, we fail to offer you X, we'll give you Y." The "Y" in question could be a discount, or a free token item, or a rebuke to the sales person. The process perspective is clear: "You, the customer, are a walking-talking pocketbook and we're going to try to up-sell you at every chance we get." This is easy to measure on an end-to-end basis: were you offered the item being promoted, as part of the overall process? And the process value to the organization is pretty clear—increased sales. But, how do you feel about being told that you're a pigeon in a cross-sale opportunity? How do you feel being warned that you're going to be pestered with add-on sales?

The process perspective here is insidious because the process itself is broken. The Weltanschauung of this process says, "My worldview is that you are a source of revenue that I am to maximize." In the end, does this process really work? If you manage it well, have you really managed to deliver success? On one hand, you deliver cash to the bottom line; on the other, you infuriate some customers who object to your blatant high-pressure sales tactics, all candy-coated with the offer of a freebie if you actually escape the sales tactic whole. In the end, process perspective becomes a close partner with real value. But it's unique enough to call out. Weltanschauung is a fancy German word, but it's one worth examining. How you view your process stakeholders is determined by Weltanschauung—yours and others'—and it will frame the way in which you assess overall process value and resultant performance management actions.

Overcoming these three pitfalls to process performance management will not assure you of success, but these are traps that you want to avoid. Often, these traps are easy to spot in retrospect, but who wants to live life in a series of apologies for having weak process skills? Also, these traps are combinatorial: they pile on you like a bad game of Rugby where you've got the ball, and scope, value, and perspective kick you with their cleats. They really are an ugly trio, so you must spot them and exorcise them from your practices. Whether your process performance management efforts are BAM-driven or just old-fashioned MBWA (management by walking around), do your best to define processes, metrics, and measures that are properly scoped, based on the real value being delivered, and designed from the proper perspective of the real stakeholders. To do anything less is just asking to be labeled as irrelevant to process performance management.

Contents

6.0 Introduction

***Process Performance Management involves both an understanding of what to measure and how to measure it. This chapter is thus divided into two basic sections—what to measure and (basically) how to measure performance*.**

Performance measurement is the foundation for performance management, and if the organization does not have the performance management maturity to support often-complex performance measurement, the results of the measurement can be misinterpreted and cause harm instead of good.

This chapter thus devotes considerable space in Section 1 to discussing performance management maturity in order to help company managers understand where their company stands in terms of its ability to support performance monitoring and measurement and to interpret the outcome of measurement activity.

The second section of the chapter is more mathematical and more concerned with how you measure performance. Successful performance management requires a mastery of both aspects of this issue and the design of an evolving, customized approach to determining the company's true performance as related to individual processes.

This focus on process will be new to many, since the usual focus is on financial or business unit measures. While these are certainly valid, we are proposing a different group of measures—related to process. These provide a comprehensive understanding of how the overall process is performing and help focus process optimization.

Process Performance Management Section I

6.1 What is Process Performance Management?

The term Process Performance Management is normally used to indicate the management of the business operation at both a process level (cross-organizational) and a workflow level within a given business unit. In a BPM context, it further indicates that some degree of flow management is taking place to (1) identify backlogs and shift or redistribute work, and (2) to identify quality problems in time to correct them. This implies control over the way work moves, consistent response to events, quality measurement (real-time) and control over the rules that direct work.

This definition is applied differently at the process and workflow levels: the scope and level of monitoring change as one moves to process from workflow.

The biggest issue with the process-level use of performance management is that many companies lack a good understanding of what their processes are or how they work. In earlier chapters we define process as being cross-organizational. While there are different ways of identifying and grouping processes, they can basically be identified by working backward from an end-product or service. That implies that they produce a higher-level view of all the work needed to deliver the product or service.

For purposes of this chapter, we will not go into process definition or classification. However, a discussion of process management must begin with a look at process 'today.'

It is easy to assume, when looking at performance in a process, that the process is doing the right things and that management should focus on efficiency instead of effectiveness. This is not a good assumption. The place to start any management activity is with a look at the current effectiveness of what will be managed. If it is accomplishing the wrong things, efficiency doesn't really matter—there is no benefit in doing the wrong things faster and more efficiently. So, we suggest that process performance management begins with examining the process or processes that will be monitored for performance.

Assuming that the processes have been identified and defined correctly, we need to ask if a process is effective—does it deliver what it is supposed to? At that point we can ask if unnecessary subprocesses or activities are being performed. In this review we also need to break with the past and ask if the process includes everything needed to produce the desired outcome. Everything should be justified based on its contribution to the delivery of the end-product or service. Lean techniques are good in this evaluation. The goal is to ultimately improve what we need to do, not simply what we are doing today.

You should not assume that everything was okay or right to start with—everything should be reviewed and justified. Consider asking:

- Why are we in the businesses we are in? Are they exclusive of one another?
- What markets are we in, and what are the challenges of these markets?
- What does the competition do better than we do?
- Who is our target customer and what are they looking for?
- Are we giving them what they want? What do they think of us?
- What do we need to do to support our business?
- Does the current business process support a strategic goal?
- What are the biggest problems or challenges we face?
- What problems do we need to solve first?
- What do we need to do solve them?

It should be noted here that cheaper is not always better. Some people buy a Ferrari and others a Ford Focus: along with other factors, understanding the customer's motivation for buying your product or service is critical to the business. It is the foundation for any review of a process and its evolution to optimization. Without this understanding, you might limit performance measurement to the usual time and motion issues, or fail to understand "quality" and quality requirements as anything more than abstract targets. While traditional measurements are important to operational optimization and a good starting point, they do not really help ensure that the company is evolving to a model that better serves the customer. Both efficiency and effectiveness are needed to ensure company health.

Once process(es) are identified, defined, and understood from both an internal and customer point of view, management can create an approach to performance definition and then measurement that will allow the measurement to evolve as the business and process(es) evolve. This is the only way to avoid a program where you start measuring the right things, but drift away from the business as it changes.

6.1.1 Tying Process to the Organization

In this review, all subprocesses and their links to business units and thus organization must be tracked. All process-level and subprocess-level changes will affect the business units that support them and any change at these levels will need to be reflected there. This linking allows management to understand the big picture and deal with change from a process perspective; it also fosters thinking about, and understanding of, the dynamic interaction between processes in any process redesign.

From this perspective, managers can also understand who is involved in each part of the process and what their role is in making it function. In this context, "role" means responsibilities; here, individual responsibilities can be combined into specific roles.

This will help everyone understand who should be involved in any performance measurement and in any corrective action that may be needed. Of course, this should all be modeled, using the supporting information associated with each subprocess and at lower levels of activity in business units.

One of the major problems with moving into process-level performance management is that the reviewer can be too close to the process or so accustomed to it that its failings aren't apparent. For many, the current processes seem to look right, but when objectively analyzed using BPM techniques, weaknesses and unneeded work can often be found.

At this point, a new set of concerns becomes relevant in finding what to measure. Apart from the usual operational performance issues (as discussed later in this chapter), optimization requires more than measuring the physical movement of widgets and optimizing their time through the build-process. Every activity has a customer. Every customer has a need and can be harmed by unexpected outcomes from the previous worker. Measuring movement and expected outcome is a necessary good start. Measuring exceptions is also a good baseline measurement. But how much more would you get if you measured customer experience in their work and in the end-activity of the process—someone buying something and interacting with the company?

Each worker makes decisions every minute of the day. Some follow rules, and some don't. It is impossible to have rules that govern every situation: the legal system has tried that and so has the IRS. Both created such a complex mess that professionals have had to be used in both cases and they still deal with gray areas and interpretations.

Also, support quality must be considered. Are the IT applications comprehensive—do they really support the work? Are they hard to use? Do workers need to log in and out of applications to do simple tasks? How are issues resolved? Are they resolved in a timely manner?

These and other base issues need to be understood in looking at performance and in measuring it. Such understanding is also necessary in looking at performance results and in requesting improvement projects.

It is important to note that performance measurement can be hierarchical and measure process, subprocess, workflow and activities separately to create a drill down capability as the information is linked.

In looking at process, the team will likely run into both organizational and political silos. These silos build brick walls around work and limit how BPM and process management can be performed. This is the tough part. It is also the part that will vary by company and person, so must be dealt with differently in every situation.

6.1.2 Process Maturity Determines What is Reasonably Measured

When considering process performance management, companies need to look at what is realistic through the lens of their process maturity level.

> ***Process Maturity**: The characteristics and capabilities that define the current state of the company's move to understanding and managing processes.*

Process Maturity Models represent a journey from a strictly organization view of work to an integrated process focus. At different points in this journey, the company will generally fit into a given maturity level or stage based on characteristics that can be defined and aggregated to form a description of the company's ability to understand and manage their processes. The company's ability to measure work performance at any level (from individual task quality to workflow to process) is related to their level of process maturity, because at every level of maturity the company will understand process a little differently and will have built the infrastructure to support it at that level of maturity. For example, if a company is at the beginning of its journey to process management, it will not have an understanding of process or the interaction among its processes. It will also lack the ability to understand how work aggregates and how it should be measured. At this level, Process Performance Measurement is simply not possible. The same is true for data. If the company doesn't have the ability to easily access data from all the applications involved in supporting a process, it cannot become involved in certain types of performance measurement or in comprehensive business intelligence reporting. So the position of a company in a process journey (shown in the Process Maturity Model) can help properly set performance measurement capability expectations and show a clear road to improved monitoring, measurement, and reporting.

Note: The ABPMP definition of process is assumed in this discussion. In summary, this is the identification of all the activities needed to produce a complete product or service and the aggregation of the cross-organization work that is involved.

Often the desire for performance management and reporting is not supportable because a disconnect exists between what a company can reasonably measure and management's need for control and measurement. So, in starting to look at Process Performance Measurement, it is necessary to assess your level of process maturity, which is not an easy task given that many companies misunderstand what process is, what their processes may include, or how they interact.

A further problem is that few people want to hear that they need to change the way they look at their organization or that they must rethink what they consider to be standard terms or definitions. Convincing people to change themselves and their perspectives is even harder than convincing a company to change. Companies resist change—no news there. But people hate change and sometimes go beyond resistance to actively fight it. The fight can be insidious and take a variety of forms: have you ever had people make commitments and then just not live up to them? That is where a Process Maturity Model becomes helpful, as it creates a framework that people can understand and relate to. It also helps them accept the journey or decide to reject it and stay where they are. In either case, it helps define the future strategy and approach to process and thus to Process Performance Measurement.

If accepted, the Process Maturity Model will provide the guidance needed to define and build a process evolution plan. This plan will show where the company believes it is in the maturity journey and what it needs to do to move to the next level. This then determines the projects and tools that are needed and helps set process measurement expectations.

To help management understand this journey, we strongly suggest the use of an accepted, formal Process Maturity Model. Internally developed ones are customized, but may not be as well thought out as the industry-accepted models. They are certainly not as defensible.

It is important to note that companies may have different business groups, divisions, lines of business, subsidiaries, etc. in different maturity levels. This is also true for individual processes. Some may be defined and others not yet identified. The use of the model must therefore be part of a defined/formal process management strategy with a roadmap showing the current state of process understanding and management, and the roadmap to implementing it broadly in the business.

There are many formal models to choose from, and the trick is to find one that is acceptable to the majority of managers in the company. Adopting one then allows you to build a process management maturity-improvement roadmap and process measurement capability around it. However, care will need to be taken to find and accept a model and approach that is business-based and not IT-based. Technology helps support processes and process measurement. It does not define them unless you have a mature BPMS-supported BPM operating environment with models of the entire company and its rules entered into the BPMS. See chapter 9, "Enterprise Process Management," for additional information.

For this chapter we chose the framework from the Forrester Research Process Maturity Model. However, as noted, Gartner and many others have good Process Maturity Models that you should review for best fit in your company.

Forrester Research divides Process Maturity into five stages or levels, as shown in the table below.

Process Maturity Level	Process Understanding and Characteristics
0—nonexistent	Not understood, not formalized, need is not recognized
1—ad hoc	Occasional, not consistent, not planned, disorganized
2—repeatable	Intuitive, documented, understood, occurs as needed
3—defined	Documented, predictable, evaluated occasionally, understood
4—measured	Well-managed, formal, often automated, evaluated frequently

5—optimized	Continuous and effective, integrated, proactive, usually automated
For more information, please see the corresponding Forrester report, "Find Your Transformation Edge."	

Table 11. Forrester Process Maturity Model, September 2011

Discussions show that most companies are in the 0, 1, or 2 range of maturity in the Process Performance Measurement model. Although many are trying to move to a process orientation and thus to higher levels of process maturity, few have made the transition. Carrying this model further to focus on process performance management, we see that performance measurement capabilities can be tied to the levels in the Process Maturity Model.

Part of the reason for this alignment is that even in the most sophisticated IT and business operation, measurement is tied to understanding. If a company doesn't understand process, it cannot look at it cross-functionally, and it can only measure performance in the separate business units. It cannot tie this information together to look at broadly-related aggregations of work—real process. This has an impact on performance measurement, quality monitoring, costing, problem resolution and more.

Using the Forrester Process Maturity Model, we see that performance measurement takes on different forms for different levels of maturity. These forms build from level to level as new monitoring, measurement, and reporting capabilities are added. They also assume an IT and business environment that can support automated monitoring, measurement, and reporting. In the early stages of process maturity, it is also assumed that many companies may want to manually check activity through manual work reviews to confirm measurement against KPIs and product audits for quality.

Process Maturity Level	Performance Monitoring, Measurement and Reporting by Maturity Level
0—nonexistent	Isolated Six Sigma, Lean, activity-based costing etc. performance measurement—mostly workflow oriented with some attempts at process identification and monitoring
1—ad hoc	Isolated performance measurement with special quality and operational problem performance measurement—mostly workflow oriented with a growing understanding of process
2—repeatable	Ongoing programs of performance measurement—different ways of measuring performance are used for different groups in the company (often workflow oriented)
3—defined	Process is separated from workflow and the distinction is clear in the company—performance is generally measured at the

Process Maturity Level	Performance Monitoring, Measurement and Reporting by Maturity Level
	end of the process and workflow; performance management is formalized and a consistent approach is taken
4—measured	Performance measurement is now added at key break points in the processes and workflows; operational performance management is guided by real-time or near-real-time dashboards; Business intelligence reporting for trend analysis; business rules, process and workflow designs and their technology support are now reviewed based on performance measurement and optimized
5—optimized	Performance measurement guides continuous improvement; changes are measured as they are implemented and on a regular cycle to determine benefit; Six Sigma and other techniques are used to help guide focused improvement; strategic changes are supported

Table 12. Process Levels

Following the levels shown above, a company can organize a journey through performance measurement that ties its ability to understand its processes to measurement and its ability to support solid automated measurement programs. The discussion below also refers to the maturity levels of the Forrester model. A detailed list of things that may be considered in building a performance monitoring and measurement capability is presented later in this chapter.

6.1.3 Evolving Ability to Measure Process Performance

Note: Discussions in the black text boxes are from the Forrester Research Process Maturity model. Discussions in the blue text boxes are on Performance Measurement for the maturity level in the linked black text boxes. The blue text boxes are discussions from the ABPMP author.

0—nonexistent (Process Maturity level from Forrester)	Not understood, not formalized, need is not recognized
0—nonexistent (Performance Measurement from ABPMP)	Isolated Six Sigma, Lean, activity-based costing etc. performance measurement—mostly workflow oriented with some attempts at process identification and monitoring

Table 13. Process maturity description for level 0

A great many companies are strictly organizationally oriented and have not yet been concerned with process (as described above). Others are aware that there must be processes in their companies but look at them as a few steps within business units. These companies are at the beginning of their BPM journey.

At this stage in its evolution, management can expect many differing opinions on what process is and how it should be measured. Some groups will try Six Sigma at this point, but it will not have a broad (process) application and will have limited impact.

Performance monitoring will be virtually unknown and the company will have very limited ability to monitor work, measure improvement or success in meeting standards or KPIs, and evaluate performance. Measurement at this stage in the company's process evolution will be rudimentary, and special-purpose, after-the-fact reporting will dominate performance reporting.

As mentioned above, because companies at this level of process maturity don't know their processes or the work that makes them up, they don't have the ability to measure process performance. Performance measurement at this process-maturity level is focused to help drive event, workflow, or problem-specific measurement. Reporting is generally limited and the ability to combine data sources for business intelligence reporting is generally still in the future (see Table 14).

1—ad hoc (Process Maturity level from Forrester)	Occasional, not consistent, not planned, disorganized
1—ad hoc (Performance Measurement from ABPMP)	Isolated performance measurement with special quality and operational problem performance measurement—mostly workflow oriented with a growing understanding of process

Table 14. Process maturity description for level 1

As companies recognize a need to view process, many become aware that they are inhibited by their lack of process understanding. As they begin to understand what process is, they often recognize that their processes are inconsistent and produce various results. At this point many turn to using Six Sigma, Lean, or other improvement approaches at a broader level and do gain some benefit. But these efforts are usually reserved for more progressive business areas and core processes.

Performance measurement is generally focused on given quality issues or business unit cost reduction—usually through staff reduction. Performance measurement now becomes a goal for many managers—but not all. Some managers also try to move toward identifying cross-functional processes and build process models. The models are generally simple and do not have monitoring or performance-reporting capabilities.

However, without process identification backed at the executive level, concern for Process Performance Measurement is often uncoordinated and limited to the portions or process within a business unit—in effect, workflow. Reporting still cannot consider true processes; only some parts of processes are recognized as being related, and performance measurement cannot be embedded in what is still not generally known (process). Measurement capabilities are still focused on a few tasks in a workflow and broader performance measurement cannot be accomplished. Broad-based performance measurement is generally not available because only some of the business unit managers in any process will have accepted attempts to measure their work (see Table 15).

2—repeatable (Process Maturity level from Forrester)	Intuitive, not documented, occurs only when necessary
2—repeatable (Performance Measurement from ABPMP)	Ongoing programs of performance measurement—different ways of measuring performance are used for different groups in the company (often workflow oriented)

Table 15. Process maturity description for level 2

A growing awareness of process becomes manifest in attempts to gain an end-to-end view of the activities of some localized process. Some managers now attempt to improve the way processes work by identifying KPIs. Understanding business rules now becomes important. However, processes are still not identified completely and few, if any, are accurately documented. Simple modeling tools may be in place, but models vary in content and quality, and few are kept up to date. There is also no tie between daily work and these early process models.

Measurement of any kind is still relegated to focused Six Sigma studies, manual audits of workflow for quality, and manual “piece work” counting. Systems data is still separate and there is little ability to combine information from multiple systems and databases without custom programming. Reporting is improving, however, as managers start to understand process and their roles in the processes they support.

Because process awareness is taking place, management may force a manual combination of information for performance measurement. For those processes that have been defined, Process Performance Measurement is still fundamental and inflexible. It also requires a great deal of custom programming.

3—defined (Process Maturity	Documented, predictable, evaluated occasionally, understood

level from Forrester)	
3—defined (Performance Measurement from ABPMP)	Process is separated from workflow and the distinction is clear in the company—performance is generally measured at the end of the process and workflow; performance management is formalized and a consistent approach is taken

Table 16. Process maturity description for level 3

However, at this time, most processes are not identified and defined. BPMS tools are in place and significant parts of the business are now run using BPMS-supported BPM operating environments. Process is now fully visible, along with all its interactions with other processes and external partners. Management understands what they are and has visibility through formal cross-organization process models. Processes are now decomposed to subprocesses, then linked to business organization units and, within them, activity and workflow. Application use is now visible and problems are defined.

Legacy and purchased/leased applications are now linked to the BPMS-supported business operations and defined for those business operations that are not using a BPMS to support change and operations. Data is now generally available for reporting from the BPMS and legacy applications. Formalized performance measurement is not widely available, but must still be defined and evolved to provide a growing need for operational information (see Table 17).

4—measured (Process Maturity level from Forrester)	Well-managed, formal, often automated, evaluated frequently
4—measured (Performance Measurement from ABPMP)	Performance measurement is now added at key break points in the processes and workflows; operational performance management is guided by real-time or near-real-time dashboards; Business intelligence reporting for trend analysis; business rules, process and workflow designs and their technology support are now reviewed based on performance measurement, and optimized

Table 17. Process maturity description for level 4

This level is characterized by the full implementation of a BPMS-supported BPM operating environment. Processes are well defined in these companies and are formally managed. This management is usually a type of secondary structure that works with the organization. Here both process performance and workflow are measured (1) in near-real-time for operational intervention to resolve problems and

(2) for business intelligence and improvement reporting. Six Sigma and normal operational metrics are measured and used to guide the business.

Performance measurement is now integrated into the business operations and near real-time-dashboards report backups, problems, and often offer action recommendations through the use of inference engines related to event or situational business rules. Performance measurement now begins to make a transition from after-the-fact reporting to real-time performance management.

5—optimized (Process Maturity level from Forrester)	Continuous and effective, integrated, proactive, usually automated
5—optimized (Performance Measurement from ABPMP)	Performance measurement guides continuous improvement; changes are measured as they are implemented and on a regular cycle to determine benefit; Six Sigma and other techniques are used to help guide focused improvement; strategic changes are supported

Table 18. Process maturity description for level 5

Continuous improvement can now be implemented (see Table 18). The organization's operating changes can now be quickly reflected in the processes and their supporting applications and data. Legal mandate can now be implemented quickly, and changes directed by performance measurement tools/techniques such as Six Sigma can now be designed/tested/implemented within weeks. This environment allows change to happen quickly enough to continuously react to improvement opportunities, first optimizing the business operation and then continuing to optimize it as issues are identified or required changes are defined.

Performance measurement is now built into the processes through the use of BPMS and external reporting tools. Both traditional performance management and business intelligence reporting are now used to identify problems and quickly make the changes needed to resolve them.

6.1.4 Setting the stage

This state is the final point in the evolution of process management and performance measurement. Here the two are melded into one, where measurement drives management. This journey will have taken years for most companies and represents a long-term strategic commitment on the part of executive management.

Before performance measurement is seriously attempted, however, it is recommended that a company honestly evaluate where it stands on its journey to process management and its capabilities in supporting any measurement or approach.

6.1.5 Solving the wrong problem

Care must be taken in building any performance measurement system to ensure that it focuses on the right issues and the right parts of the process. To help identify the things you will measure, consideration must be given to legal reporting requirements, financial reporting requirements, performance against KPIs and milestones in the work, backlogs and volumes against standards, quality against standard, scrap, error, and more.

But beyond these normal performance measurements, consideration should be given to inference, trends, and satisfaction of various internal and external customers as the outcomes of work move from subprocess (and business unit) to subprocess.

These will not all be applicable to every company. There is no one list that fits all situations.

6.2 What is process performance?

Simple question, but not a simple answer: "It depends." That is the problem.

Because companies operate with different levels of performance understanding and with very different technical reporting capabilities, this can actually have a few definitions.

> ***Process Performance****: The measurement of specific operational characteristics as defined by Key Performance Indicators (KPIs), standards, labor contracts, the finance department, industry best practices, ISO, and others. In this measurement, the company will be looking at one or more processes and their interactions to determine their performance against these measurement criteria.*

Some of the questions to ask in figuring out what process performance means are:

- What type of performance are you talking about? —For example, cost? Against what measure? —Quality? Quality of what? And how is it defined? —Cycle time per widget?
- Against what measure, and what are the components? Here, for example, is it just speed, or is it speed with quality?

So the answer is not really straightforward. It relies first on your definition and what you are trying to measure, against what measure or standard. And to make things a little more complex, the definitions of any measure will vary by industry, line of business, department, and manager. That is why any performance measurement must begin with the identification of what you will measure, why you will measure it, and against what values you will evaluate it. Without this you may very well measure the wrong thing, in the wrong way, and against arbitrary limits.

To deal with this, it is recommended that you start with a workshop and look at the object of measuring performance, which is not very straightforward. It is definitional and thus open to interpretation. Without control, no one can win anything that is measured by interpretation.

So, first comes the list of what to measure and why. Here it is important that all the right managers attend the workshop. If they don't attend the workshop, they will not buy into this. That means that any measurement will be subject to debate and the results will not be accepted by some. The fact is that if managers do not attend this workshop, the movement to performance measurement is destined for failure. If this is the case, it is suggested that higher authority be brought into the movement and participation mandated. If this is resisted by higher authority, failure is inevitable and measurement will be relegated to small parts of the business—workflow or lower yet, task operation. Here a single manager will still need to back the effort.

Workshop measurement list:

Goal of measurement	Thing to measure	Measure against

Once everyone has agreed on the list of things to measure, it will be necessary to look at how they will be measured. Here process, subprocess, or workflow will be added to the list's measurement definitions.

Goal of measurement	Thing to measure	Measure against	Where to measure

Next the workshop managers will need to identify what will need to be measured to produce valid results.

Goal of measurement	Thing to measure	Measure against	Where to measure	What to measure

Finally, the workshop managers will need to identify each measurement to be made (the formula, count, etc. and what they will be measured against—standard, KPI, etc.).

Goal of measurement	Thing to measure	Measure against	Where to measure	What to measure	How it will be measured

If a person or group will be responsible for the measurement and its quality/accuracy, they will be added to the measurement information.

Goal of measurement	Thing to measure	Measure against	Where to measure	What to measure	How it will be measured	Responsible for measurement

If needed, more supporting definitional or other information can be added. As with all of these suggestions, the list in these charts can be modified to support company needs. Accordingly, what is measured is a secondary concern here, because it can change over time as the managers become more sophisticated in their use of this information and the company moves to more mature levels in its journey through process performance management. The important thing is that the managers who will be held accountable for the results of the measurement need to participate in the creation of both the measurement approach and the measurement formula.

6.2.1 Reality

Although this endeavor is great in theory, it is different in practice. First, in most companies, it is informal. Companies like UPS, which has well-defined processes and measures everything, should be considered exceptions because they represent fairly mature process-focused management. Other companies, like Sloan Valve and Raymond James Financial, are on their way to changing their focus to include a process view. Once that is completed, process performance management is not far behind.

In the move toward process performance management, it is important to realize that what management initially considers an important indicator of performance will be temporary: it will change as more information becomes available and they are able to manipulate it in increasingly flexible ways. This change will likely be tied to the level of process management maturity in the company. While the exact reporting needs cannot be predicted, it is a good bet that use of the information will become more sophisticated over time as the ability to access and query the data improves.

For most companies today, a process perspective will be fairly new, and measuring its performance will be newer. Managing expectations at this time is thus very important. It will be easy to overpromise and fail to meet expectations, which will cause serious confidence damage. For this reason, ensure delivery of support based on a realistic evaluation of the company's ability to support measurement—before making promises.

6.2.2 How does Process Performance Measurement differ from workflow performance measurement?

As noted earlier in the CBOK and in this chapter, we find that a great many companies define process and process management as the work that happens within a given business unit. ABPMP officially disagrees with this definition, but for many companies it reflects reality and needs to be addressed.

In practice, workflow can be measured in much the same way as process except that it refers to the activities in a business unit and their application systems, rules, databases, data, web services, web portal applications, interfaces and legacy applications. These are part of a process, and this information will need to be aggregated with that from related work in different business units to form a process.

However, depending on where a business is in its process maturity journey, workflow performance measurement may be all that is either appropriate or available. Apart from process maturity level, too, it is very possible that an improvement effort will focus on a business unit's workflow activity or the activity's tasks. This is especially true for many customer experience improvement projects. In these projects, performance will be measured in terms of improvement at the project's level. This may require special consideration in designing the solution and retrofitting performance measurement into the workflow.

"Process" as defined by ABPMP is cross-organizational and takes in all work of any type needed to build and deliver a product or service. Here process can be broken into subprocesses and the subprocesses performed by business units as a series of interrelated and sequenced activities—workflow. Once this structure is known, the processes can be monitored by aggregating information from the workflow level and for the handoffs between the business units.

If a BPMS-supported BPM operating environment is in place, this measurement is fairly straightforward and the information can be obtained from the BPMS and associated databases. However, if the business unit is supported by traditional applications systems, the collection of this information will need to drive custom monitoring-and-measurement programming and the modification of existing interfaces to legacy application data (from all the applications that are used in each business unit that is part of the process being measured).

The questions that can be asked and answered vary by the level being queried—process or workflow. At the workflow level, the focus must be on the physical movement of work from one activity to the next and the places where quality or other problems happen. At the process level, the focus is on the movement of work between business units and the quality of what is handed to the next business unit downstream in the work or process flow. At both levels, however, the things being measured will be fairly consistent—cycle time, quality, decision accuracy, etc. The difference is thus context, and how the information can be applied to improve the operation.

6.3 What can Process Performance Measurement tell you?

To a large degree the answer is "that depends." It is related to several factors, including

- Level of flexibility in accessing data from multiple applications
- Process understanding—process maturity level
- Sophistication in asking performance questions and measuring activity, quality, etc.
- Agreement on what to measure and how to measure it
- Ability of IT to build flexible performance measurement applications
- Reporting presentation and data drill down
- Acceptance of performance measurement by those who will be measured.

Note: the order of items on this list does not represent importance, difficulty, etc.

Assuming these issues are addressed and do not limit a company's ability to monitor, measure, and report performance, this information can be the foundation for both immediate and continuous improvement.

Because the ability of any company to measure process performance is directly related to the types of capabilities listed in the Process Maturity Models, it is necessary to tie these models to the company's measurement and reporting capability in order to set information expectations and create a measurement evolution plan. This allows the company to put in place the underlying measurement capabilities it will need for any measurement individually. Management can thus determine what information they need and then understand what it will take to build the ability to get and report on that information.

For many managers, collection of this information is directed to support certain measurement approaches, such as Six Sigma or Activity Based Costing. For others it will be more strategic and support Business Intelligence reporting with drill down and simulation. However, performance measurement can provide a comprehensive look at the business operation at any level of detail—process, workflow (organization), or task. Some of the things that may be measured are shown later in this chapter.

In reality, a company's use of process performance reporting will evolve. Initial uses may lead to some or many of the wrong things being measured, and thus the story that the data tells may be incomplete, partially wrong, or of limited use. As management's understanding of the information and how it can be used improves, the type of information and the way it is presented will change. This creates an evolution. The speed of this evolution is based on actual use of performance information—the more the information is used, the more management will learn about their real reporting needs and the uses the information can be put to. And, as with all good things, the more benefit something provides, the faster demand for it will increase.

Creating this level of use, however, requires time and commitment. Managers will need to go through the lower-value startup of the company's performance measurement program to evolve to the high-value stage. This is noted here to help set expectations.

6.3.1 Process Performance Measurement driving process management

To reiterate, few companies currently take a process view of performance management. Many manage organizationally and look at financial indicators that provide fairly gross level indication of performance or how to improve it. Many others have implemented quality programs and attempt to infer performance based on statistical variance from industry or other standards. Both are good starts and sound approaches to performance improvement, but these and virtually all other approaches lack the framework needed to actually see what the data is telling management and, further, what action to take to leverage the information. Both are good indicators that something is happening, but not of why or how it is happening. Even worse, few organizations can actually analyze the operation, redesign the parts needed to change the performance numbers, and then build or modify the applications needed to implement the changes.

So, although measurement takes place, the framework needed to understand the meaning of the data and then act upon it is missing. As a result, even if the information can be properly interpreted, little can be done with the story it is telling and little can change quickly enough to make a difference.

Recognizing that any move to measure performance and then act on the information is a good start for companies at early levels of process management maturity, the key (again) is to manage expectations according to reality.

As the company moves to higher levels of process management maturity and thus process measurement maturity, it will also move through a different type of BPM-support evolution that will lead to the broad-based or strategic use of BPMS tools and technologies. BPM—especially a BPMS-supported BPM business operation with SOA and web-services-based access to applications and data—changes the picture by allowing management to put the data obtained from performance measurement approaches and reports into a framework (as discussed in chapter 10, "BPM Technology"). This framework is the context for evaluating, at the necessary level of detail, the story of the data.

With this framework in place, it is possible to view the performance information that is available in a different way—a way that is based on context. Here the upstream and downstream activity is shown and the causes of problems can be found. Solutions to improve volume, quality, and customer interaction can be better considered, modeled, simulated to determine results, and then fully built with access to legacy applications, business rules, performance measurement, and more.

Quality measurement vs. performance measurement vs. financial measurement can now be applied to process or workflow, either separately or together. Each approach to applying measurement provides unique information from the perspective of the group requesting the measurement. When combined, this information can tell a powerful story: to quote an old proverb, “the whole is greater than the sum of its parts.” For this reason, it is suggested that the information from measures based on these three perspectives and others, if used, be combined and reviewed quarterly in a workshop with experts from all measurement perspectives. This will provide insights that might otherwise not be available.

6.3.2 How does Process Performance Management fit in with your Business Intelligence Reporting and Management?

> ***Business Intelligence****: Computer-based techniques used to identify and analyze information about how the business is performing. This includes statistical analysis, trend analysis, cost and profitability analysis and more. It also includes more advanced reporting such as inference- and limit-based alerts for both intervention and long-term strategic change.*

The information obtained from performance measurement can be used to augment other Business Intelligence (BI) information from a variety of internal and external sources. Also, using a BPMS rules engine, this information can be run through inference and decision filters to provide both reporting information and recommendations on actions.

For many companies, performance information obtained as part of a BPMS-supported BPM operating environment will provide a new type of data to the BI reporting capability. It will allow management to look at new data sources (process and workflow—cost, volume, quality) and ask new questions on operating performance—both historical and current. To drive this reporting, it is suggested that BI needs be considered when looking at what data will be obtained and where it will come from. (See this chapter’s subsection 6.4.1 for a sample list of information that may be considered.)

When performance information is added to the information available for BI reporting, it also allows management to build a BI performance feedback loop into performance improvement. Management can use the feedback loop to improve their control over responses to information and alerts and to adjust limits placed on measurement as the operation improves. This ties the BI reporting into continuous improvement and allows management to adjust operating variables (staff, volume, IT support, etc.) and measure the change. In this way, BI becomes a driver in the company's continuous improvement program.

6.4 Measurement and Management

Performance measurement is simply data. It tells a story, but the story is interpretive. The interpretation is based on the perspective of the person or group considering the data and its context, and perspective is what results in different interpretations of the same data by different groups. For example, internal and external customers of any work may have very different ideas of performance and very different ways of looking at the data produced from the performance measurement processes that are in place. Among the factors that cause this differing perspective are

- Business objective—differing opinions on why is something being measured
- Value lever/driver—event/outcome; value to the consumer; importance
- KPI—standard value to compare against and what that value is trying to say
- Metric definitions and how something is measured—limits in values and their importance in measuring performance.

While these and many other factors form the basis for opinion and perspective, measurement concerns go beyond issues of opinion to acceptance (or not) of the way something is measured—the formula the measurement program or person uses and the approach taken to ensure quality data and calculations. While the list above provides examples of things that cause disagreement over what is being measured and what it is being compared against, the real problem is in the way things are measured. This is the basis of measurement rejection and dismissal of measurement reports. As such, it is critical that everyone involved agrees to the way things are measured and that this agreement is reviewed on a regular cycle to ensure continued acceptance.

6.4.1 What should be measured?

The following are performance and quality measurement categories that should be considered. The list is not meant to be all-inclusive; it is meant to promote thinking. Specific processes or activities measured will vary by company, process, maturity level, and compliance need.

Operational Performance

- Process level:
  - Transaction volume
  - Event reaction time
  - Backlog by subprocess
  - Cycle time by event reaction
  - Number of errors in processing
  - Number of exceptions to normal processing
  - Waste—time, material
  - Problems with trading partners and collaborative partners

- Workflow level:
    - Transaction volume
    - Backlog by activity—bottlenecks
    - Number of errors by activity and person
    - Number of exceptions to normal processing
    - Number and location of decision and other delays (exits and reentry points)
    - Problems with external workforce—sales (agents), claims adjusters, offshore services

Financial

- Process level:
    - Cost of each subprocess—staff, material, computer chargeback, G/A
    - Cost of goods sold—process with costs of external work—work sent to other processes and returned
    - Scrap
    - Savings from a new solution
- Workflow level:
    - Activity Based Costing
    - Savings from a new solution—stand alone or roll up to the process level

Legal

- Process level:
    - Legal compliance
    - Compliance reporting—on time and complete
- Workflow level:
    - Application of union agreement terms
    - Legal compliance—e.g. SOX, HIPAA, Dodd/Frank
    - Measurement to support compliance reporting at the process level

Problem identification

- Process level:
    - Handoff issues
    - Edit database quality—duplicate records etc.
    - Audit and inspection results—manual of interim components and final products
    - Delays waiting for additional information
- Workflow level:
    - Handoff quality
    - Data entry edit—rejections by reason
    - Identification of rules that do not work correctly

Customer Experience

- Process level:

    - Customer interaction satisfaction—Interaction with company via sales staff, web portal, phone
- Workflow level:
    - Company error in orders, etc.
    - Problem resolution—phone, email, fax, and other interaction with customers to obtain data or correct information

Quality

- Process level:
    - Six Sigma, TQM etc. quality monitoring
    - Audit/inspection of product sub-assemblies or components of services
    - Audit/inspection of final product—error and rejection
- Workflow level

The results of work monitoring and performance measurement will be reports that should either generate an action by management or provide information. The content of these reports will vary based on what they are trying to measure; performance measurement should be unique to the need. However, it may be necessary to look at performance management needs in aggregate and identify all the data that will be needed, along with sources of the data. The collection and storage of this data then becomes an IT issue, but it would be useful to have all the needed data in one place to support drill down and flexible reporting.

6.4.2 Daily monitoring: Dashboards

Data may be reported in a variety of forms. Some are detailed and some are summary. The best form is always related to use. For near-real-time summary reporting, dashboards that continuously change to reflect what is being measured tend to provide management with a constant view of the operation. When these dashboards are supported by intelligence in the form of rules, the reporting can provide an analysis that gives managers alerts to growing problems and provides recommendations on action that should be considered.

Any dashboard should be designed to provide a clear picture of a specific part of the operation. The focus can be on organization, process, workflow, or almost any part of the business. The information shown will evolve as management trades the display of less meaningful information for information that is more meaningful at a given point in time. The definition, data content, display summary, and creation of these dashboards should therefore be made as flexible and easy to change as possible.

Dashboards serve as a starting point for looking at performance and "drilling down" into the detail that supports the summary. This drill down can be scripted to allow a consistent type of information inquiry (limited flexibility) or ad hoc to allow the manager to follow the data in any direction he or she finds appropriate.

As with most performance reporting, management needs will vary with the business operation's level of process management and performance measurement maturity; however, the use of dashboards to support the collection and reporting of near-real-time operational information will become an indispensable tool for measuring activity and managing the business operation at both the workflow and process levels.

6.4.3 Measuring against KPIs and benchmarks: efficiency

Performance is all about meeting or exceeding specific benchmarks, standards, or KPIs. These preset indicators provide a type of framework for determining how a part of the workflow or process is performing, or how the work in a whole business unit or process is being performed. Earlier in this chapter, we presented a list of possible areas that should be considered for measurement. That is the easy part. Figuring out how to measure is the politically challenging part. The hard part, however, is figuring out what to measure against—unless the targets are simply guesses or have been defined through manual measurement over time.

Any measurement must be given context; otherwise it is simply a raw number. The context is the evaluation criteria—the KPI, standard, benchmark, etc. Any meaningful context can be used in this evaluation. It should be company-specific or specific to the process or workflow. The key in defining this context is that it will need to evolve as the company evolves its continuous improvement program. (At least one would hope that things constantly improve.) As this happens, the measurement context should be adjusted to ever tighter specs or limits.

For many companies, who have limited performance measurement experience or who want to take measurement to a new level of meaning, the selection of targets should begin with a study on current manual measurement and its limitations. The study should look at what should be measured and the standards, KPIs, etc., that should be put in place to evaluate against. As with all parts of a valid performance measurement capability, the context limits and targets should be built with the people who will be measured, and all recommended value targets should be agreed upon by both the managers that will be measured and the executive team for the business area.

6.4.4 Inference engines in performance management

Real-time or near-real-time performance can be monitored using a BPMS. This monitoring provides a continuous stream of data from multiple sources. When this data is used to drive measurement, it will produce event-related or scenario-related results. Here the event or scenario associated with the data can be easily linked to the data. This allows the data to be viewed automatically against preset factors that define the situation. With this, the BPMS can associate rules to look at the situation, look at the data values, and then infer action—or recommend what to do.

This can also be used to help determine and direct action in a highly volatile, fast moving, critical situation, or in highly complex situations to look at the data and the situation and recommend action quickly. In some cases, the response can be further refined through management inquiry into the inference engine to add information.

6.4.5 Trend and other analysis

Trend analysis, myriad types of financial analysis, and other analysis can obviously be built once the data is defined and the technical framework to access it is in place. The performance measurement activity should include the needs of executive and other managers to look at performance from their individual perspectives. These perspectives should be identified and defined based on an analysis of the current performance-measurement activities and their overlaps with the analysis and reporting needs of the BPM effort. Eventually, the performance-reporting needs will be addressed, business area by area and process by process, to provide a comprehensive and flexible process-management support environment.

To find these reporting requirements, it is suggested that the BPM Practitioner meet with the IT managers responsible for supporting the business areas and business intelligence reporting. These meetings will provide a list of current reporting needs and backlogged reporting requests. The BPM Practitioner should then meet with the business managers who have responsibility for the work in scope (business and process owners) and any other managers who have requested additional or different reporting. These meetings will look at the current and future business evaluation reporting needs—business operation and strategic improvement. Trend and other types of long-term analytical needs will be defined in these meetings.

As many of these perspectives should be built in as possible, with the perspective's information-analysis defined, data and sources identified, and overlaps with other work-management performance-reporting identified, to produce a list of both management-related performance data and Business Intelligence data needs along with the source databases and systems for each data element.

In this way, the effort will be able to support the greatest range of identified performance reporting needs. This will improve the cost/benefit calculation for the effort and for the company's move to BPM and a BPMS-supported BPM operating environment.

6.4.6 Satisfaction: experience measurement (good and not so good experiences)

Customer satisfaction is hard to measure but critical. In today's age of instant communication, both positive and negative experiences spread quickly all around the world. This does influence customer action, and customers respond with their pocket books—they can simply go elsewhere to purchase a product. As a result, progressive companies are starting to map all customer-interact points and finding ways to anticipate customer interactions and drive customer experiences. This is still fairly new; what started as a new Customer Relationship Management (CRM) concern with a few tools to scan the internet and report on messages for reaction-based reporting is now morphing into a more organized "customer experience," "voice of the customer," "patient management" etc. concern that is looking proactively at defining and measuring the total customer experience.

This concern is taking on a different importance as companies come to understand that the customer is interested in price—but not at a cost of good service and quality. This new understanding or really new appreciation for the customer is causing companies to look holistically at the customer and how to win his or her loyalty. This includes rethinking the use of offshore call centers, web portals, customer service operation (that require the staff to look through multiple applications to handle simple problems—if they in fact are ever really handled), and more. The goal is to remove all obstacles to a good interaction with the customer. But measuring this is hard, since it is opinion-based and requires a more complex and comprehensive look at the customer, their level of technical sophistication, their needs for simple and predictable activities (like returning an item or adjusting an account), and their anxieties, in order to improve the experience.

This reporting is coming and should be considered when looking at performance and how it can be measured.

6.5 Finding out how to measure performance

We have looked at what could be measured and how to determine sources of information. It is now time to look at how performance can be measured. In many companies that do not have a BPMS to help drive performance measurement, the activity will need to be a combination of manual counting and feedback with information that can be obtained from legacy applications. This reporting will not support real-time or near-real-time monitoring or measurement that BPMS offers to drive operational management. In the more traditional business operations with limited reporting capabilities, the move to performance reporting will rely on the IT department's ability to devote the time and resources needed to create a comprehensive performance monitoring and measurement capability. If this is not available, the analysis and design that have been discussed will not provide the ability to create this program.

The remainder of this chapter assumes that a BPMS operation is in place in some, if not all parts of the process, and that the BPM practitioners on any project have timely access to IT programming, data management, and other IT support, as well as the priority to have work performed and delivered in a timely manner. Again, if this is not available, it will be necessary to either build this support or modify the schedule to account for minimal IT support.

In addition to the need for automated support, it will be necessary to look at the reporting needs and tie them back to the workflow in a business unit and/or the points in the process where the performance information can be measured. Individual monitoring/ information collection will take place at these points. The reporting performed at these points will be defined and the formula and data required will be identified. This data collection will drive reports at any level, where the data can be combined to form a broader review of the business.

Monitoring and measurement approaches such as Six Sigma and Activity Based Costing will drive the way activities are measured and the type of information collected. These approaches can be applied at any level of activity measurement—process to workflow to task.

Most important is that the process professional base any monitoring or measurement on approaches that are understood in the company and supported by management.

6.5.1 Designing a performance management process

The performance management process is designed around the information needs of different managers in the process or workflow, depending on the level of reporting. It is also directly related to the company's level of process management maturity. Only those things that are understood and supported with management technique and data availability can be measured.

Realistically assessing these abilities is the foundation for both monitoring and measurement. However, everyone must start someplace. It is important to recognize that companies or managers who are new to performance measurement or advanced measurement will go through an evolution as they learn what is possible and what is most needed. Often this learning curve begins with a lot of unnecessary monitoring and measurement. This is evident over time by what is discarded as management focuses on what is helpful.

This is important in setting expectation and in designing a performance measurement process that is meant to change as management learns more about process and workflow performance measurement and what information and reporting mechanisms are available. In this journey, it is critical that any measurement and reporting capability be flexible and that no one expects it to be either accurate or optimally beneficial to them from the start. Success in this activity is thus based on trial and improvement over time. This is important in both expectation setting and in defining the costs of making this transition to performance measurement and evaluation.

The actual performance measurement/reporting/evaluation/response (performance management) process will thus be fairly unique to each process and each workflow. This is necessary to support the needs of the management at all levels in the business. Following the interview with company managers suggested above, the BPM practitioner will need to create a performance management approach with initial measurement points/formula/KPIs. This will then be built into the business operation using additions to the BPMS-based operating environment or technical links/interfaces/etc. to the legacy and new supporting applications.

Use will show needed changes in the measurement activity and begin the evolution.

The ability of the company to support any performance monitoring/measurement/evaluation will directly depend on its ability to obtain good data (near-real-time) from both the workflow or process flow and the legacy/licensed applications that support the business. In some cases, manual auditing and counting may still be needed—especially if a BPMS is not the base of the business operation. Performance reporting may thus be limited, and it may be a mix of automated and manual reports. Again, this is tied to the company's level of process management maturity and automated application support. It is also directly tied to the ability of the company to obtain and move information from multiple sources and then provide it in a form that can be used for evaluation. The limits IT capability places on performance measurement must thus be identified as early as possible in the creation of the company's journey to performance management. This will help define reality and set the roadmap to improved monitoring/measurement/evaluation as part of a continuous improvement program.

6.5.2 Determining KPIs and Standards to measure against

Standards, KPIs, and other performance targets will first be set based on current targets—if they exist. If these targets do not exist, the business areas, internal audit, legal, etc., should be contacted to look at needs and ways to find the initial targets. This may include union contracts, manual counts over a given statistically relevant time, industry models, associations, and so on.

Assuming the process or workflow managers have performance targets, it will be necessary to identify the reasons for these targets. If the manager cannot define the target and justify why it is the target, the target should be put aside until a manager can determine why it is needed. New targets should be classified as "in trial" and measurement against them should be temporary, until the reporting and its use show the value of the measurement area and its defined limits or target.

It should be noted that as performance improvements are implemented, the target values should be reviewed and made to reflect the improved business operation. If this is done, the target values will become tighter as the operation continues to become closer to optimal.

The measurement areas and their KPIs, standards, etc., should all be part of an evolving program where use and value determine longevity. If an area is not of high value, it should either be changed to make the measurement and targets high value or it should be dropped. This type of monitoring and measurement program forces the continuing review of measurements and targets against value to the company. In this way, measurement areas and their targets remain useful and evolve with the business.

The continued evaluation of the performance measurement "system" (business activity, measurement approach, measurement formula, performance targets) should be formal, and the review of all measurement areas and values should be made in workshops where all managers who use the performance reports will have input into the continued use of the measure and changes to target values. Any changes should be agreed upon by all who use the information. This formal change process will help ensure that the right things are measured and that the performance measurement program delivers the right information, to the right place, at the right time.

6.5.3 Determining measurement approaches and formula

Just as important as determining what to measure, when to measure it, and what to evaluate the measurement against, is the need to determine how it will be measured. The measurement may be simple manual counting driven by a formula that says the count will be divided into groups for X, Y or Z value in a given field. It may be a need to audit the values of every 10th transaction. The list of measurement directions (formula for measuring) is endless and will be unique to every company, department, process and workflow. The formula itself will evolve and is not the important takeaway from this section. What's important is that each measurement area and its measurement(s) be directed by a formal, reviewed, approved formula.

Without this, the results of any measurement are open to question, debate, and rejection. This can only be avoided when the measurement area, measurement targets, the measurement approach and the measurement formula have all been vetted and formally approved by those who will use them.

As with the other areas of performance measurement, the formulas should be considered as temporary and evolve as the business evolves. This evolution should be formal and only take place in the performance measurement management workshops.

6.6. Building a Performance Measurement Capability

The hardest part of building any performance measurement capability is politics. Few managers want to be measured: resistance will be high, and disagreements can be expected over what will be measured and how. Care must be taken with this, because it is easy to find objections, or for managers to lack time for any type of measurement. Executive sponsorship is thus critical. It must be active (participate in meetings, communicate through memos, etc.), it must be constant, and it must be visible. This is the part that drives participation.

The second biggest hurdle is the ability of any company to support process performance measurement. Many companies really do not understand process in the business or production parts of the company. Few companies really understand all their processes, how they interact with one another (the internal and external activities), and how the work that is done is divided among business units. This understanding is important in creating a performance measurement capability that provides useful information.

At times this second hurdle becomes a movement killer. Expectations must not be set too low or too high. They must be realistic—especially in companies with a negative view of IT support. If IT cannot or will not provide the level of support that is needed, the effort will lose credibility and die.

For these and other reasons, it is important to look at performance measurement as a journey and to plan that journey. It should be orchestrated and managed formally by a committee of managers who will be affected in each process. Companies should consider creating a performance management governance group to set the approach and monitor the way performance measurement is managed by the process management groups. The governance group would be responsible for defining how performance measurement will be approached (especially in a BPMS-supported business operation), how it will be controlled for quality, and how it will evolve (e.g., manager workshops and formal approval). The group will need to serve as the central interface between the business and IT, to help with IT planning and avoid conflicting IT interaction, and it can also be part of a BPM Center of Excellence (COE).

6.6.1 The role of BPMS technology

BPMS-based BPM operating business environments will be able to provide a wide variety of performance reporting information for both near-real-time and after-the-fact reporting. However, this reporting will need to be defined in the BPMS and all external but linked applications. This includes applications that look at the flow of information, such as Six Sigma monitors and applications that count.

6.6.2 Legacy application and business reporting

It is unlikely that IT groups will be prepared to support process performance measurement and reporting. Applications will generally stand alone for performance reporting: even though they are interfaced for business support, the reporting needs may require a different interfacing.

6.6.3 Building new reporting is a journey

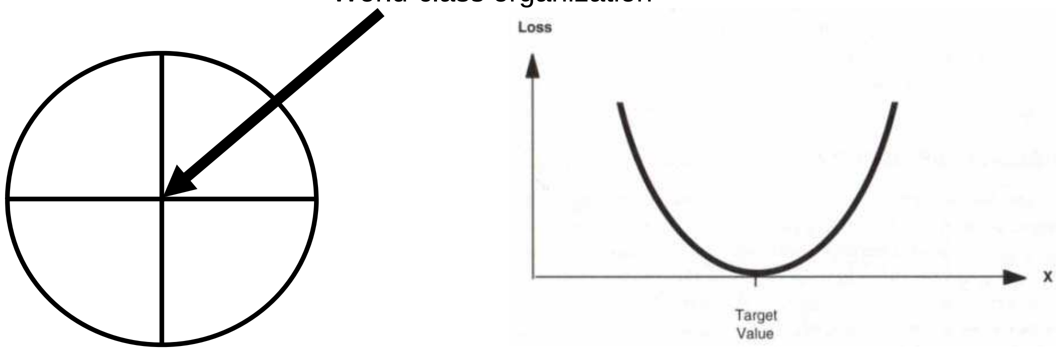
Because it involves working together with IT, legal, finance, executive management, and the managers in the business units that support workflow.

Process Performance Management Section II

Introduction

Process Performance Management involves both an understanding of what to measure and how to measure it. This chapter is thus divided into two basic sections—what to measure and (basically) how to measure performance. In this second part of chapter 6, we will focus on how performance can be measured in a BPM-based operation.

World-class organization



On target with minimum product/service variability

Maximum value generated with minimum use of resources

Process Performance Management plays a critical role in aligning the organizational goals to the voice of the client through stable and predictable processes. Variation in quality, duration, delivery, and cost exists in all processes. Understanding, managing, and gaining control over the variation are keys to providing world-class products and services. A BPM CBOK must bring to light the range of techniques available to support process performance management. This chapter will address a representative collection of such techniques.

6.7 Importance and benefits of performance measurement

The importance of measuring the performance of a process cannot be overstated. Management and quality experts from W. Edwards Deming to Peter Drucker have declared that "if you cannot measure it, you cannot manage it." This statement holds true, and every business should invest time and resources to improve a process if they don't already know what they have to measure in order to improve.

Measurements are the basis for detecting deviations from acceptable process performance and results. Process performance can be measured by the attributes of products or services that the process produces, such as reliability, capacity, exception, response time, and service complexity. Process performance can also be measured by the attributes of the process itself, such as defect-removal effectiveness, effort, and cycle time. These measures can reference the actual performance of the process and predict future behavior and output.

Process performance managers should find the right balance for key process performance indicators, while contributing to the enterprise's long-term strategic business plan. Performance indicators such as client satisfaction, turnover, cost control, and risk management can be monitored through dashboards by showing current values compared to target values.

Let's illustrate the importance of performance measurement with an example.

Assume that an organization is experiencing a loss in market share. Their current market share is 68%, but their goal is to have an 80% share. For simplification, this is a mature industry and the organization and its competitors are not really interested in new products, but rather in taking market share from one another.

Market share is what the organization uses to measure itself in terms of revenue growth, but aside from market share, what is the reason, in process terms, why the organization is having difficulty? If the Order Fulfillment process is reviewed, we see that there has been a drop in client satisfaction, but why? After some process analysis, it is discovered that the current order cycle time is 9 days. In other words, it takes the organization 9 days to accept, commit, order, and then ship to the client. In a competitive global economy and in this kind of industry, that type of performance is not acceptable, especially to those clients who can easily get the same product from a competitor—hence the drop in market share.

The next question is, what is causing such a delay in the order cycle time? After further analysis of the process, it is discovered that the sales staff are entering in the client orders late and there are a lot of errors or incomplete forms for client orders. From 1%to 10% of forms are incomplete and order accuracy is only 83%. Furthermore, sales representatives are entering their orders once a week instead of on a daily basis. The expected results are not being achieved and it is impacting different levels of the process. More importantly, it is impacting the client.

This example also illustrates that not everyone in the organization has a complete picture of what is happening. The Vice President of Marketing views this issue as a market share problem. The Vice President of Supply Chain views this as an order cycle time problem, and finally the Vice President of Sales views this as an issue with the accuracy and timeliness of the sales order forms. None of them understands the other's perspective. The CEO only knows that revenue is not growing, so neither are profits. While each person may have a metric for which they are accountable, it is unlikely they understand the extent of the cross-functional process that links them all together from a process performance perspective. What makes it worse is that they are function-focused, which means that they will attack the symptoms independently.

Figure 48, adapted from Geary Rummler, illustrates the cross-functional "Order to Cash" process from an enterprise perspective:

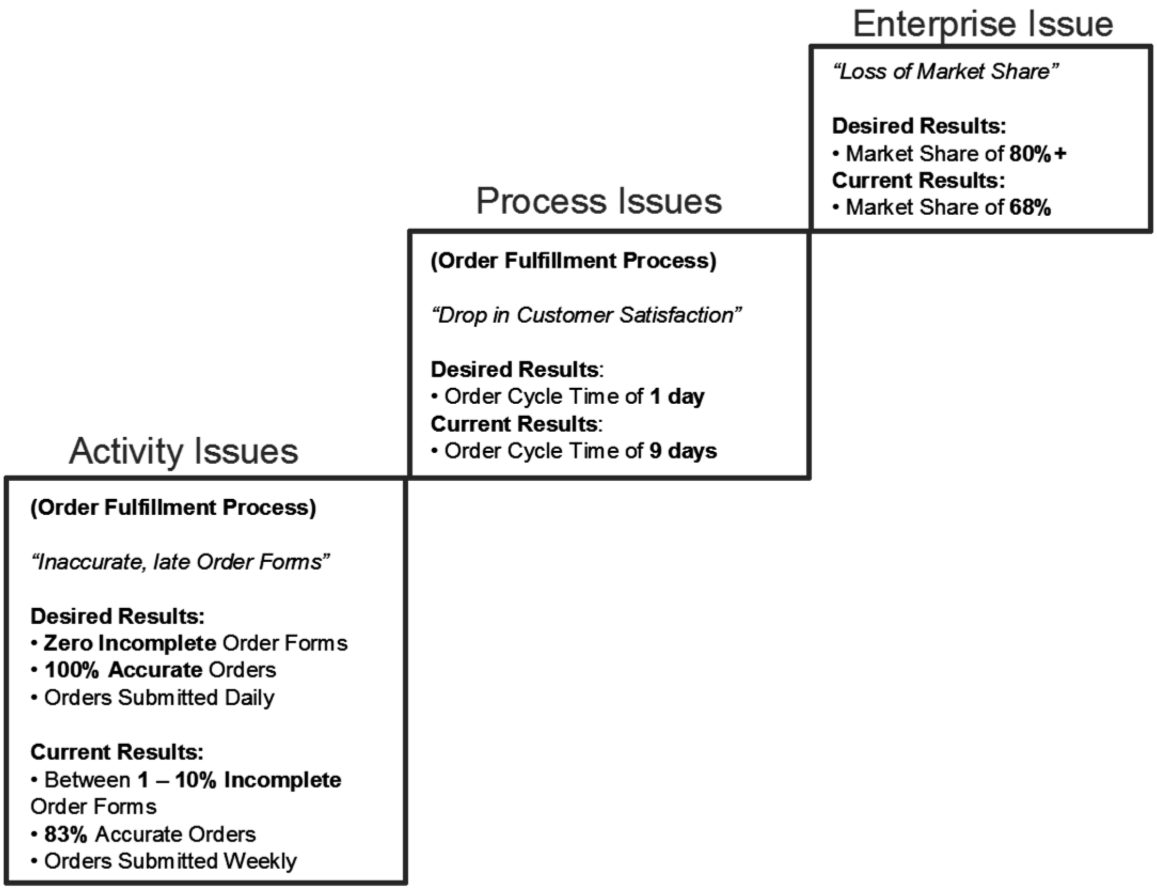


Figure 48. Order-to-cash process (Source: adapted from Geary Rummler)

This happens more often in those organizations that put importance on process and associated process performance metrics rather than financial metrics alone.

6.8 Key process performance definitions

Measurement, metric, and indicator are terms often misinterpreted and mistakenly used interchangeably.

> ***Measurement*** *is directly related to the quantification of data (or data set) in an acceptable standard and quality (accuracy, completeness, consistency, and timeliness)*

To illustrate this, take "ten inches" as an example of measurement. Inches are the standard and "ten" identifies how many multiples or fractions of the standard are being verified.

> ***Metric*** *is a quantitative measure that a system, component, or process has of a given attribute. Metric represents an extrapolation or a mathematical calculation of measurements resulting in a derived value*

For instance, number of defective products by the total number of products produced (defect number / total production) or two errors identified by users in the first eighteen months of activity (number of errors / time). Efficiency and effectiveness, however, are generally a function of one or more of the four fundamental measurements (time, cost, capacity, and quality), so they are more related to metrics than to measures.

> ***Indicator*** *is a representation of a measurement or metric in a simple or intuitive way to facilitate its interpretation against a reference or goal*

An example of indicator would be "green indicator is good, red indicator is bad."

Metrics can be classified into three categories:

1. ***Product metrics***: Describe the product characteristics such as size, complexity, design features, performance, and quality level.
2. ***Process metrics***: Describe process characteristics such as customer satisfaction, Mean Time To Failure (MTTF), effectiveness of defects removal.
3. ***Project Metrics***: Describe project characteristics and execution. Examples include resources allocation, cost, time, and productivity.

Process Performance Indicator (PPI) derives from process goals and allows the process owner to control process performance in terms of time, cost, capacity, and quality. There are twelve characteristics of effective management through PPI:

1. Alignment	A PPI is aligned with corporate strategies and objectives
2. Accountability	Every PPI has a process owner or process manager who is accountable for its definition, monitoring, and control
3. Predictive	PPI could easily provide a way to trace patterns of process performance
4. Actionable	PPIs are populated with timely, actionable data so process owners or process managers can intervene to improve performance effectively
5. Few in number	PPIs should focus on select high-value information or

	on the overall effectiveness of the process
6. Easy to understand	PPIs should be straightforward, not based on complex metrics that managers do not know how to influence directly
7. Balanced and linked	PPIs should balance and reinforce each other, not compete and confuse
8. Transformative	A PPI should change the way the organization evaluates itself
9. Standardized	PPIs are generally more effective when based on standard metrics so they can be integrated across dashboards, throughout the organization, and used for benchmarking within and across industries
10. Context-driven	PPIs put performance in context by applying targets and thresholds so process managers can gauge their progress over time.
11. Reinforced	The impact of PPIs may be enhanced by attaching compensation or incentives to them
12. Relevant	PPIs may gradually lose their impact over time, so they must be reviewed and refreshed when necessary

Table 19. Source: www.techrepublic.com (adapted)

The overall purpose of understanding process performance indicators is to enable managers to contribute to improving or changing a process as part of process performance management.

An application encompassing the definitions of measurement, metric, and indicator is when project schedule estimation is assessed for accuracy. Two important measures to determine the accuracy of project schedule estimation are Actual Project Duration and Estimated Project Duration. Apply measures by getting Actual Project Duration and Estimated Project Duration. Metric is when the Schedule Estimation Accuracy (SEA) is calculated based on the formula SEA = Actual Project Duration / Estimated Project Duration. An Indicator would be a representation of SEA in percentage instead of an absolute number so that interpretation and decision making are made easy. SEA = 1 represents 100% accuracy estimation, so SEA indicator = 100%. If SEA is a number between 0 and 1, then just represent SEA as a percentage to get SEA indicator for overestimation, e.g., for SEA = 0.5, then SEA indicator = 50% (50% accuracy). If SEA is a number greater than 1, then raise SEA to the power −1 (SEA-1) and multiply by -1 to get SEA indicator for underestimation, e.g., for SEA = 2, then SEA indicator = 2-1 * -1 (-50% accuracy). See Table 20 below.

Object	Measure 1	Measure 2	Metric	Indicator
Project	Actual Project Duration	Estimated Project Duration	SEA (Actual / Estimated)	SEA Indicator (±%)
P1	90 days	100 days	0.90	90%
P2	187 days	150 days	1.25	-80%
Pi	450 days	195 days	2.31	-43%
Pn	180 days	180 days	1.00	100%

Table 20. Measurement Sample

All processes can have a measurement associated with the work or output of the process that is performed. These measurements are based on four fundamental dimensions: time, cost, capacity, and quality.

6.8.1 Time

Time is associated with process duration. Cycle Time measures the time it takes from the start of a process to its completion in terms of the output. Examples of time dimension are

- Delivery Performance, Request Date
- Order Fulfillment, Lead Time
- Product Development, Lead Time.

6.8.2 Cost

Cost is a value (normally monetary) associated with a process. Cost can assume different perspectives; for example, resource cost is a measurement of the value associated with the resources (human or non-human) required to complete a process, and opportunity cost is the value that is lost from the process by not getting the resultant output of the process. Examples of cost dimension are

- Sales Cost
- Manufacturing Cost
- Logistics Cost
- Inventory Supply Days

6.8.3 Capacity

Capacity is an amount or volume of a feasible output associated with a process. An example would be the number of transactions associated with a process. Capacity usually has a revenue connotation associated with it. If a manufacturing line could improve the yield (reduce variation) of the line, then in essence the number of good products that could be sold to clients would increase, thereby increasing the revenue to the manufacturer.

Capacity can also have a throughput connotation associated with it. An example of this would be when, in a manual process, sales orders are manually entered into a software application by sales people. The number of sales orders processes per hour would be limited by the number of people and how many orders could be processed during each hour (preferably without errors). If orders could be processed through a browser interface directly by the client into the order management system, then the number or orders processed per hour would be limited by the number of concurrent clients on the website. However, it would be more in quantity than if orders were processed by individual sales people. Examples of capacity dimension are

- Client Dollars per Order (Wallet Share)
- Client Growth Rate
- Market Share

6.8.4 Quality

Quality is usually expressed as a percentage of actual to optimal or maximum; in process terms, however, it can take many forms. For example, variation is a quality metric of the amount, extent, rate, or degree of change and is generally expressed as the difference between the actual and target or expected result. Error or defect rate is an example of variation in the metric of errors associated with the output of a process. Satisfaction, on the other hand, is a quality measurement usually associated with a service level expectation on the part of the customer. Examples of quality dimension are

- Product Launch Variance
- Forecast Accuracy.

6.9 Monitoring and controlling operations

Not only is it important to measure processes, it is even more important to continually measure, monitor, and control them in order to achieve the desired results. In that respect, basic process performance management is more of a journey than a destination. Once the Order Fulfillment process is documented in its entirety and the initial process metrics are identified, collected, and managed, the organization can monitor for changes that will ultimately impact the market share of their product.

> ***"Discovering that a process is out of control is not a terrible event. It should not be hidden from supervisors, managers, auditors, quality control experts, or, most important, customers. In a sense, it is an event that should be celebrated because it gives the process owner an opportunity to improve the process." Robert Hoyer & Wayne Ellis, 1996***

Some aspects of using indicators must be taken into account while monitoring and controlling operations. It is possible to create indicators based on decision-making models:

Step 1

Define the problem to which the indicator applies. Managers very often act without having a thorough understanding of the problem to be solved, leading them not to solve the problem. This is a common problem on BSC indicators adapted to BPM models. Managers frequently make mistakes by (a) defining the problem in terms of a proposed solution, (b) failing to notice a major problem, or (c) diagnosing the problem by its symptoms. The goal of good indicators should be to solve a problem, not to simply eliminate its temporary symptoms.

↓

Step 2

Identify the criteria for indicators; most decisions require the achievement of more than one goal.

↓

Step 3

Assess the criteria for indicators. Different criteria will have different importance.

↓

Step 4

Get to know about relevant alternatives. An indicator should generate possible courses of action.

↓

Step 5 Sort out each course of action based on each criterion. How well each course of action meets each of the defined criteria? Often, this is the most difficult part because it commonly requires a foresight into future events.
⇩
Step 6 Map the alternatives and choose the best one using indicators.

Table 21. Six steps in determining problem response

Following the six steps in the table above can lead decision makers to (1) define the problem, (2) identify all the criteria, (3) assess the criteria according to their preferences, (4) know relevant alternative actions, (5) evaluate each alternative based on each criterion and (6) map the alternatives accurately and choose the highest perceived value.

While determining the best response to a problem, the team should formally define the considerations that should be included in the decision process. This list of considerations should include the obvious and relevant-but-not-so-obvious factors. This list should grow over time, with the addition of new considerations, and form a type of decision consideration standard. See Table 22 as a starting point.

Considerations	How to avoid
The more information, the better	Consider the vital few indicators and avoid the trivial
What really count are money and profit	Consider that profit is a resulting indicator dependent on the overall organizational performance
They rely only on controlling production processes	Establish a tree of indicators so as to consider value-added processes
All relevant indicators should be used to evaluate performance	Check if an indicator, although adequate for a particular process, leads to behavior that undermines organizational strategy

Table 22. Pitfalls in establishing indicators (source: FNQ)

While the importance of understanding the process cannot be emphasized enough, monitoring and controlling performance of the process is what makes the difference in the business environment. As business changes, so will the desired performance of the process. The process itself will have to change in order to achieve the desired performance, but this cannot be achieved unless the process and the performance of the process are monitored and controlled.

6.10 Alignment of business process and enterprise performance

Enterprise performance and corresponding measurements are best expressed with respect to satisfying client needs and expectations. The example discussed in Figure 48 was centered on the Order Fulfillment (Order to Cash) process; however, all examples of enterprise performance metrics are extrapolations of Time, Cost, Capacity and Quality foundations. Some examples of cross-functional processes that drive enterprise-level metrics are:

- Order to Cash
- Procure to Pay
- Campaign to Quote
- Plan to Fulfill
- Manufacture to Distribution
- Incident to Resolution

The traditional approach consists of translating the goals into action plans for each major operational or support department. However, this approach has the disadvantage of producing fragmented and partial (i.e., related to each individual department) plans, leading to difficulty in predicting which action plan will eventually bring about the expected result.

It is important to note that the cross-functional processes will impact more than just one enterprise-level process. For example, Plan to Fulfill will impact Delivery Performance, Request Date, and Order Fulfillment Lead Time.

When different process transformation methods (Lean, Six Sigma, Reengineering) are used, it is important to understand whether the method will address the cross-functional process or just a subprocess within the cross-functional process or even an activity within a subprocess.

In Figure 49 below we can also see that different approaches such as Business Process Reengineering and Business Process Improvement apply differently at different levels in the process-to-task breakout model. The different approaches thus should be aligned to the need. In the model, the Unit title should be analogous to the ABPMP use of subprocess.

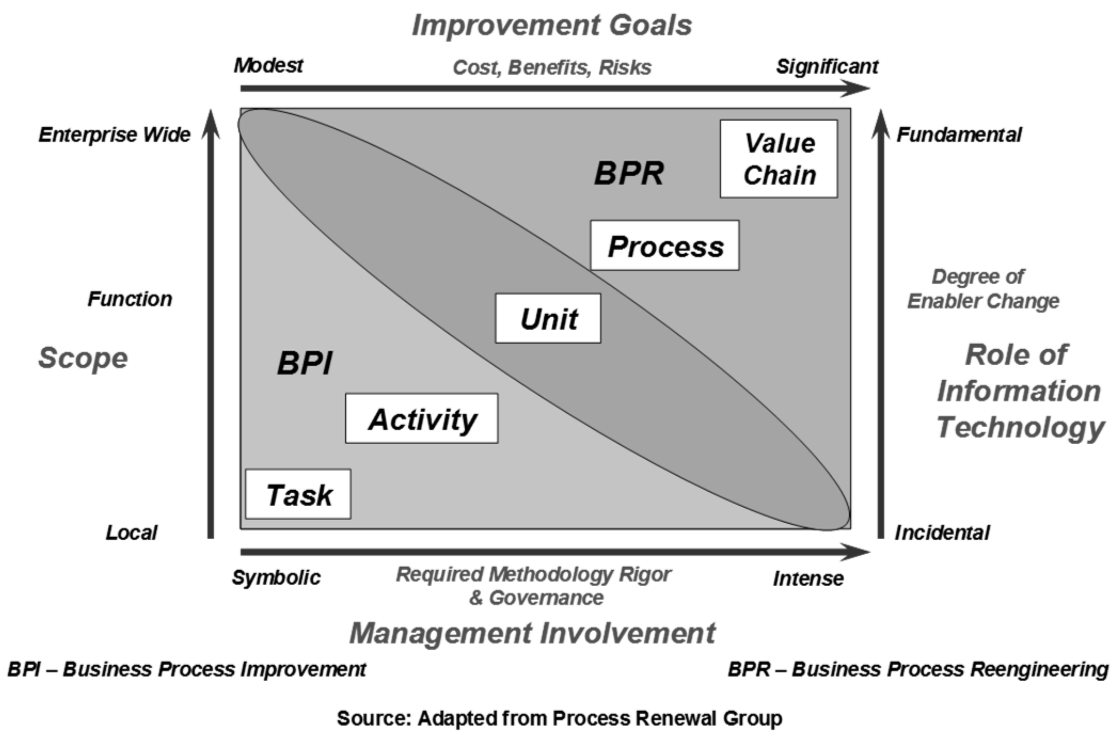


Figure 49

Although there is not yet a hierarchy of metrics that links a process to enterprise-level operational performance, there are enough linkages between the cross-functional processes and enterprise-level metrics to give BPM practitioners a good foundation to improve the right processes within the enterprise.

The Balanced Scorecard's process perspective creates a strategic alignment by linking an organization's performance objectives with the supporting processes. The objectives of reducing costs, improving productivity, developing market share, and maximizing customer satisfaction and profitability can lead to identifying the processes essential to their achievement. Thus, the dimensions of time, cost, capacity, and quality turn into indicators that are fully aligned with financial and customer strategies.

6.11 What to measure

What to measure in process performance management has been a mystery to some and a dilemma for others. The best way to understand what to measure in a process is to first understand the expected result.

The information required for measuring the dimensions of a process can be obtained at both the input and output of the subprocess as well as at the beginning and end of the overall process for service-level satisfaction. Metrics such as error and defect rates are examples of these quality-based metrics.

Information required for measuring the cost dimension is usually based on the resources needed to perform the process itself, although the opportunity cost can also come from the output information. Capacity information comes from the output information of the process. Time-based dimensional metric information is obtained from the entire process.

6.11.1 Process Performance Methods

There are two very common mechanisms for measuring a process. The first is manual: that is, collecting data by hand and either drawing it on paper or entering it into a spreadsheet or modeling tool. The second is automation using leveraging tools such as Business Process Management Suites, enterprise software modeling tools, Business Activity Monitors, or similar tools. All of the various methods used today have software tools associated with them.

There are several common methodologies used by BPM practitioners and only three are mentioned here. Value Stream Mapping, Activity-Based Costing, and Statistical Process Control are three methods for measuring process performance. The purpose of this section is not to recommend one over another, but simply to point out that there are methods that can be used to monitor and control processes, each with their own characteristics and purposes.

6.11.2 Value Stream Mapping

> ***Value Stream Mapping*** *is a Lean mapping technique used to visualize the value stream of a process.*

By locating the value-creating processes next to one another and by processing one unit at a time, work flows smoothly from one step to another and finally to the client. This chain of value-creating processes is called a value stream. A value stream simply consists of all the things done to create value for the client. First, follow a product's production path from beginning to end and draw a visual representation of every process in both material and information flows. Second, draw a future-state map of how value should flow.

Below is a diagram (Figure 50) of the 7 wastes identified in Lean Value Stream Mapping.

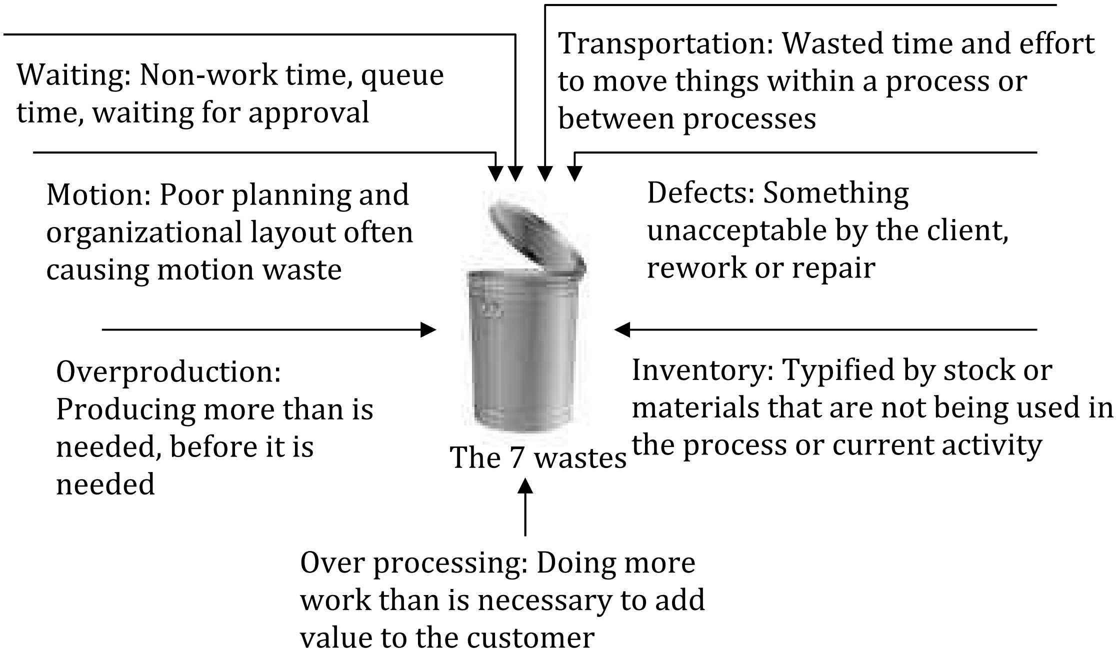


Figure 50. The 7 Wastes, Lean Value Stream Mapping

An important aspect of process performance management is the concept of adding value. This concept has its roots in Deming and Juran. Briefly stated, an activity is value adding when

- It is required to generate the output required by the client.
- The client is willing to pay to generate a process output.
- Quality and consistency of the component resources or output must be maintained.
- Circumstances may impact process continuity.

In services, additional value occurs when it enhances client experience even when it does not contribute directly to the specific service, e.g., the personal greeting and attention provided in a hotel front desk is a value added even though it is not directly related to providing the room. Bottom line is that the activity does something that is perceived as having added value to the client. Understanding whether an activity adds value or not is important when improving a process and deciding whether to keep or eliminate a process or subprocess.

6.11.3 Activity-Based Costing

> ***Activity-Based Costing*** *is a methodology that assigns costs to activities rather than products or services.*

The reasoning behind Activity-Based Costing (ABC) is that there is no accounting distinction between costs and expenses: everything that is consumed in an organization is referred as a “cost object.” The relationships between cost objects and activities and between activities and resources are defined as cost drivers (see Figure 51).

Figure 51. Cost objects and activities

ABC does not eliminate or change costs; it provides data about how costs are actually consumed in a process. Activities consume resources. This consumption drives cost and either efficiency or inefficiency. Understanding this relationship is critical to managing overhead. ABC is used to discover opportunities for cost or efficiency improvement and focuses on overhead. ABC traces, rather than allocates, each expense to a particular cost object.

The ABC method makes indirect expenses direct. It provides activity frequency and cost information for comparing activities before and after process improvement. It reveals what will happen if a project is not carried out (the do-nothing scenario) and which processes provide value (are needed to attract and retain clients or will result in operational savings).

ABC is normally used when overhead is high, cost of errors is high, the process is shown to be inefficient, and the competition is stiff.

6.11.4 SPC—Statistical Process Control

> ***Statistical Process Control*** *deals with the collection, classification, analysis, and interpretation of numerical facts or data. Through the use of mathematical theories of statistics, statistical process controls impose order and regularity on aggregates of disparate elements.*

All work occurs in a system of interconnected processes, and variation exists in all processes. Variation may occur as a natural variation due to the nature of the process or variation due to some business or technical pattern. Statistical Process Control (SPC) is used to understand and reduce or eliminate variability in processes that are unstable due to error rates and/or inefficiency. This reduction in process instability will improve the process. SPC focuses on the X’s (inputs) that drive the Y (output), determining which processes are primarily responsible for driving the Y’s. SPC then focuses on those primarily responsible processes for improvement.

SPC is recommended for use when high rate of error or inconsistency of outputs is verified.

6.12 The voice of the process

> ***"The control chart is the process talking to us." Irving Burr, 1953***

Process performance can be affected by attributes of common entities such as people, training, procedures, tools, facilities, material, energy, money, time, policies, goals, constraints, laws, rules, and regulations.

When an organization commits itself to providing products or services to meet customer requirements and business goals, quality standard, schedule, and cost must be controlled if the process is to be considered capable of providing the desired outcome. By bringing a process under statistical process control for a sufficient period of time to detect the source of deviation, the errors or inefficiencies can be corrected and a capable process can be attained. Therefore, the process must display a reasonable degree of statistical control to be considered capable of achieving the desired outcome.

Various analytical methods exist to understand and control process variation. These include

- Exploratory data analysis
- Bayesian statistics
- Regression analysis
- Discrete event simulations
- Reliability analysis techniques
- Non-parametric analysis
- Analysis of variance
- Control charts

There is plenty of specialized literature to support further reading on each of the above statistical control methods; however, the critical importance of control charts demands emphasis. Control charts, also known as Shewhart charts, represent a powerful and commonly used technique for determining when a business process is in a state of statistical control. There are different types of control charts that can be used to plot process behavior and determine the voice of the process:

- Average (X-bar) and range (R) charts
- Average (X-bar) and standard deviation (S) charts
- Individuals and moving range (XmR) charts
- Individuals and median moving range charts
- Moving average and moving range (MAMR) charts
- c charts
- u charts
- Z charts

Let's show how an XmR chart (see Table 23) for continuous data works and how it could be used for investigating process variability. For example, an oil well produces crude oil year-round (24 hours a day by 7 days a week by 365 days a year). Every day, the Field Supervisor on duty registers the extraction of the day of each well in a table. How can we confirm if the production process has been stable and running continuously? Process performance can be quantified by measuring attributes of products produced by the process, so a Control Chart can plot process attributes values that have been observed during a period of time.

Day	Crude Oil Extraction (B/Dx1000)	mR	UCL	CL	LCL
Day 1	62		81,5	60,7	40,0
Day 2	69	7,0	81,5	60,7	40,0
Day 3	51	18,0	81,5	60,7	40,0
Day 4	57	6,0	81,5	60,7	40,0
Day 5	66	9,0	81,5	60,7	40,0
Day 6	60	6,0	81,5	60,7	40,0
Day 7	59	1,0	81,5	60,7	40,0
Day 8	58	1,0	81,5	60,7	40,0
Day 9	62	4,0	81,5	60,7	40,0
Day 10	51	11,0	81,5	60,7	40,0
Day 11	58	7,0	81,5	60,7	40,0
Day 12	69	11,0	81,5	60,7	40,0
Day 13	61	8,0	81,5	60,7	40,0
Day 14	53	8,0	81,5	60,7	40,0
Day 15	39	14,0	81,5	60,7	40,0
Day 16	70	31,0	81,5	60,7	40,0
Day 17	73	3,0	81,5	60,7	40,0
Day 18	59	14,0	81,5	60,7	40,0
Day 19	52	7,0	81,5	60,7	40,0
Day 20	53	1,0	81,5	60,7	40,0
Day 21	67	14,0	81,5	60,7	40,0
Day 22	63	4,0	81,5	60,7	40,0

Day	Crude Oil Extraction (B/Dx1000)	mR	UCL	CL	LCL
Day 23	70	7,0	81,5	60,7	40,0
Day 24	61	9,0	81,5	60,7	40,0
Day 25	60	1,0	81,5	60,7	40,0
Day 26	65	5,0	81,5	60,7	40,0
Day 27	71	6,0	81,5	60,7	40,0
Day 28	60	11,0	81,5	60,7	40,0
Day 29	61	1,0	81,5	60,7	40,0
Day 30	62	1,0	81,5	60,7	40,0

Table 23. XmR chart

Where:

Item	Description	Formula
mR	Moving range	Difference between data for day X and data for day X-1
UCL	Upper Central Line	$CL + 2{,}66 * \overline{mR}$
CL	Central Line	Average number of the collection of data
LCL	Lower Central Line	$CL - 2{,}66 * \overline{mR}$

Then:

CL = 60,7

$\overline{mR}$ = 7,8

UCL = 81,5

LCL = 40,0

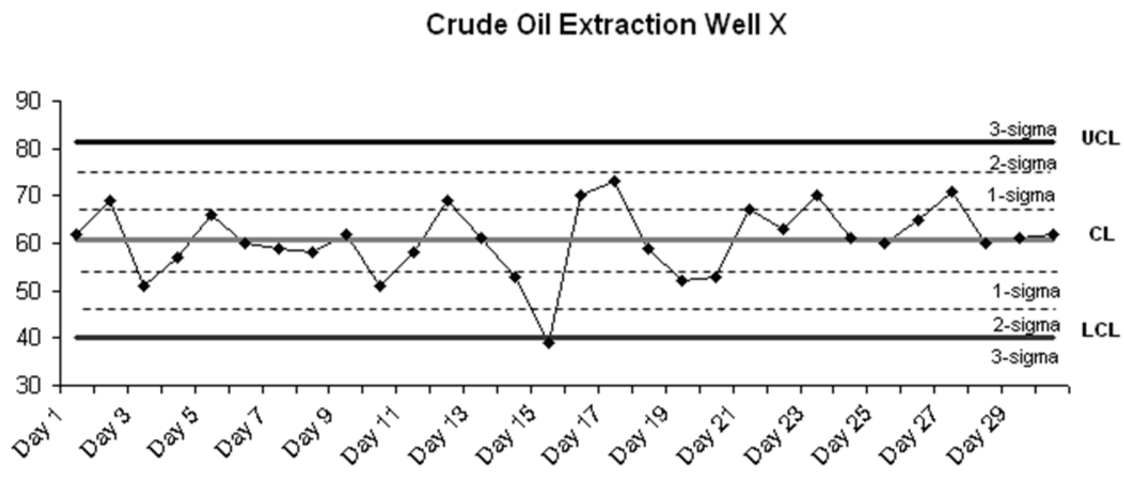


Figure 52. Data summary

When this is charted, it produces Figure 52.

At least 4 effective tests, called run tests, can be used for detecting unusual patterns in the process outcome (see Figure 53):

> **Test 1**: A single point falls outside the 3-sigma control limits (UCL, LCL)
>
> **Test 2**: At least two out of three successive values fall on the same side of, and more than two sigma units away from, the Centerline
>
> **Test 3**: At least four out of five successive values fall on the same side of, and more than one sigma unit away from, the Centerline
>
> **Test 4**: At least eight successive values fall on the same side of the Centerline.

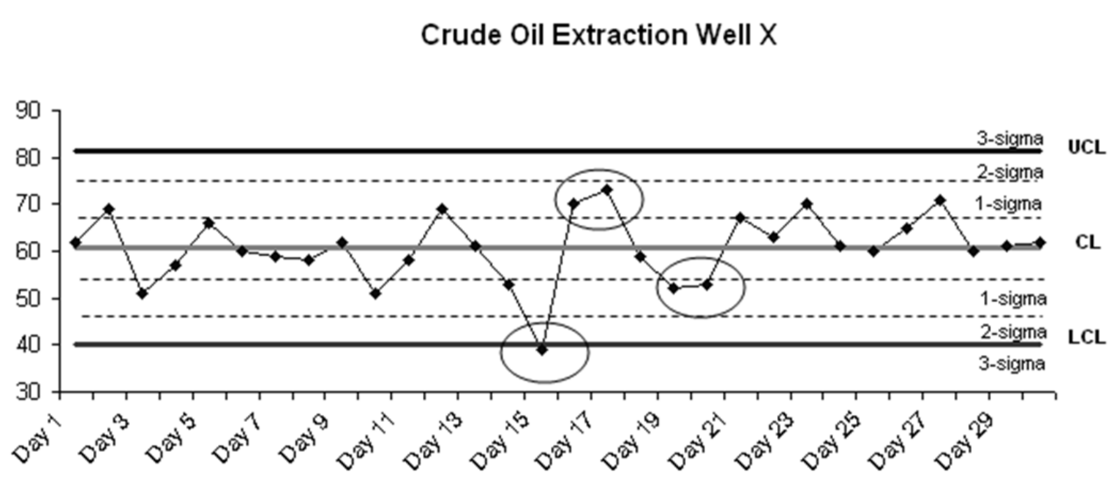


Figure 53. Patterns in the process measurement

These tests assume that successive observed values are statistically independent so natural variation is symmetric about the mean. In our example above, run tests can highlight process variability on Day 15 through Day 17, signaling that something happened to the process that should be investigated.

Walter A. Shewhart (1931) categorized two sources for process variation:

> **Common cause variation**: Due to natural and inherent characteristics of the process, variation occurs randomly around the mean. Synonyms for common cause are non-assignable cause or natural patterns.
>
> **Assignable cause variation**: Due to unexpected factors or occurrences that hinder process performance and affect process outcome. A variation occurs from the mean or persistently on one side of the mean. If it represents a problem, it should be addressed and eliminated. Synonyms for Assignable cause are special cause or unnatural patterns. Examples: operator falls asleep, equipment malfunction, power surges, lack of raw material stopping production lines, workers on strike, or climate conditions preventing workers from carrying on activities.

[Total variation] = [Common cause variations] + [Assignable cause variations]

Assignable causes can be transient or persistent. Transient causes can be treated as a risk to the process, and actions should be taken in order to mitigate the risk (transient causes are rather infrequent and affect the process in an unexpected way). An example of transient cause is the inability to complete an activity due to power outage in an urban zone where power outage is rare. A persistent cause, on the other hand, is something that has not been treated by the process as an inherent part of the process and that becomes a frequent and highly expected problem. Some adjustments might be needed in quantitative predictive models or process capability to account for the effects of persistent assignable causes. The inability to complete the activity due to power outage in a remote and underdeveloped zone where power outages are routine is an example of persistent cause.

Corrective actions can be performed to minimize or eliminate assignable causes of variation. When all assignable causes have been removed and prevented from recurring again, the equation above becomes [Total variation] = [Common cause variations], resulting in a stable and predictable process. Conclusion: Never stop control charting.

6.13 Simulation of future state

The statistical process-control methods listed in the previous section are powerful when used to monitor and control process performance. Simulation is the next step in terms of developing desired future states of process performance and identifying the gaps in current process that prevent transition to the desired future state.

The definition of simulation is the enactment or representation of the behavior or characteristics of one system through the use of another system. In the case of business processes, simulation is enacting the behavior of a process, for instance, by software that has the capability for simulation. In essence, a process is modeled in the software with all the associated parameters.

An example of the cycle-time parameters for each activity:

- In-queue time (before work begins)
- Work delay time (from start of resource involvement until start of work)
- Work time (from beginning of work to production of output)
- Out-queue time (from production of output to release of output)

Examples of the cost parameters are:

- Total staffing costs allocated by headcount (labor) including the resources associated with each activity and the cost of each resource
- Material consumed each time an activity is performed (direct costs)
- Overhead allocated to activities requiring resources incurred over an interval of time, such as administrative costs allocated as a percent of labor (indirect costs)

Other considerations with respect to the parameters are:

- Number of times the process runs per interval time (X times/hour/day)
- Decision points in process (example—60/40 split between path A and path B)

All of the process parameters are finally entered into the modeled process, and simulation is performed first on the current-state process. Once the simulation is completed, an output is generated by the software tool in a type of format easy to interpret. The output shows each activity with the time-metric dimensions summarized per activity along with the cost-metric dimensions summarized by activity. The output of the simulation allows identification of process performance problem areas that are supported by extensive data from the simulation.

Once the current-state performance is completely analyzed, then the modeling of the desired future state process begins. Once the future state process is modeled, then the parameters are adjusted to achieve the desired process performance, and another simulation is run with a corresponding output generated for analysis and interpretation.

The BPM practitioner can then adjust the parameters and continue running simulations until the process performs as desired. During the simulation analysis, the process model may change with the parameters until the final model and parameters are determined. This is all done in the modeling software before the BPM practitioner embarks on the actual process improvement effort with a team. This can save a significant amount of time, cost, and effort because all work is simulated in a software environment before it is implemented in the organization.

Simulation using software tools provides an experimental lab for improving processes before actual implementation. It is not a substitute for the actual field work, nor is it a perfect method for determining the future state process. However, it is a powerful tool to help the BPM practitioner more quickly assess the needed corrections than manually testing the changes. The biggest benefit of simulation through software tools is that it will automatically calculate the benefits of the process improvement across the Time, Cost, Capacity, and Quality dimensions. Simulation builds a data-driven business case for justifying process improvement.

See chapters 3 (section 3.11), 5 (section 5.9), and 6 (section 6.13) for information on simulation.

6.14 Decision support for process owners and managers

Decision support for process owners and managers is essential for continuously monitoring the actual process performance. Limited or inaccurate information about business processes can lead to poor decision making about where to invest in and how to improve organization performance.

Many organizations use a dashboard to monitor process performance based on the Balanced Scorecard (BSC) framework. These dashboards are a form of decision support and have been referred to as Business Intelligence & Analytics. Business intelligence generally deals with addressing process performance management within an enterprise context. When business intelligence is instituted at an enterprise level, it mines information about specific cross-functional processes and the performance of those processes in real-time, displaying the information in a dashboard format.

Organizations that build broad capabilities for enterprise-level business analytics and intelligence understand that the capability goes well beyond data and technology: it includes the capability to address the processes, skills, and cultures of their organizations.[2]

The notion of decision support actually begins with the planning of “when,” “what” and “how” process performance will be monitored and controlled. For example, a maintenance-schedule plan for a machine could include valves cleanup every 3,000 hours, a conveyor belt tune-up every 1,000 hours, replacement of filters every 5,000 hours, and so on. A clear maintenance plan is well thought out for the machine by the manufacturer and put into an owner’s manual. The actual following of the maintenance schedule is left to the owner of the machine.

Process performance management generally begins with a plan for what processes will be measured, how often the processes will be measured, how decisions about process performance will be addressed when encountered, etc. Decision support frameworks, like the ones based on a BSC, are useful in the planning for monitoring of business processes. They enable the process review for the process manager. Once a process performance plan is in place and the organization has identified the cross-functional processes that will be monitored, the business intelligence and

[2] “Competing on Analytics: The New Science of Winning,” by Thomas H. Davenport; Jeanne G. Harris (March 2007)

analytics software tools provide insights into the performance of the business processes. The right information from these tools saves a lot of time detecting process performance issues.

6.15 Process performance management maturity framework

Depending on the maturity of the process management in the organization, process performance management assumes a different depth and perspective. Capability maturity models define maturity in a scale from level 1 to 5, where 1 is the level of immaturity and 5 is the high maturity level. At level 1 nothing is expected from the organization, but “just do it, go and deliver what customer wants.” At level 2, some cost, time, capacity and quality measurements, metrics, and indicators are defined. As the organization becomes more mature, at level 3 the process uses end-to-end process performance measurements, metrics, and indicators, neglects departmental boundaries and derives requirements from internal and/or external customer. At level 4, the process performance measurements, metrics, and indicators as well as cross-process performance management are derived from the company's strategic goals. At high-maturity level 5, process performance management as well as cross-process performance management is derived from inter-enterprise's strategic goals.

The Software Engineering Institute’s (SEI) Capability Maturity Model Integration (CMMI®) is a reference model that provides best practices for improving processes for better products (CMMI for Development [CMMI-DEV]) and for better services (CMMI for Services [CMMI-SVC]). CMMI includes two Process Areas to deal with Process Performance Management. They are (1) Measurement and Analysis (at maturity level 2) and (2) Organizational Process Performance (at maturity level 4).

According to the CMMI, the purpose of the Measurement and Analysis (MA) Process Area is “to develop and sustain a measurement capability used to support management information needs”[3]. MA Specific Goals (SG) are rather elementary, since they represent the first step from immaturity toward high maturity. For the MA Process Area, CMMI suggests specific goals, including: SG1—Align Measurement and Analysis Activities and SG2—Provide Measurement Results. CMMI also suggests the following Specific Practices (SP) to achieve those goals:

SG1—Align Measurement and Analysis Activities

- SP 1.1 Establish Measurement Objectives
- SP 1.2 Specify Measures
- SP 1.3 Specify Data Collection and Storage Procedure
- SP 1.4 Specify Analysis Procedures

SG2—Provide Measurement Results

- SP 2.1 Obtain Measurement Data

[3] CMMI® for Services, Version 1.3, CMU/SEI-2010-TR-034, SEI, Carnegie Mellon, November 2010

SP 2.2 Analyze Measurement Data

SP 2.3 Store Data and Results

SP 2.4 Communicate Results

The purpose of the Organizational Process Performance (OPP) Process Area is "to establish and maintain a quantitative understanding of the performance of the organization's set of standard processes in support of achieving quality and process-performance objectives, and to provide process-performance data, baselines, and models." OPP has only one SG to achieve, namely SG1—Establish Performance Baselines and Models. Nevertheless, the OPP goal is more complex than MA goals. It is located at the higher organizational maturity level 4. OPP demands that certain capabilities are already implemented, including MA practices from level 2. CMMI suggests the following Specific Practices to achieve the OPP goal:

SG1—Establish Performance Baselines and Models

SP 1.1 Establish Quality and Process Performance Objectives

SP 1.2 Select Processes

SP 1.3 Establish Process Performance Measures

SP 1.4 Analyze Process Performance and Establish Process Performance Baselines

SP 1.5 Establish Process Performance Models

Along with Specific Goals for both MA and OPP, there are also Generic Goals (GG) to be achieved through Generic Practices (GP). As a result, to achieve MA and OPP Process Area goals, an organization must also implement the following generic practices:

GG 2 —Institutionalize a Managed Process

GP 2.1 Establish an Organizational Policy

GP 2.2 Plan the Process

GP 2.3 Provide Resources

GP 2.4 Assign Responsibility

GP 2.5 Train People

GP 2.6 Control Work Products

GP 2.7 Identify and Involve Relevant Stakeholders

GP 2.8 Monitor and Control the Process

GP 2.9 Objectively Evaluate Adherence

GP 2.10 Review Status with Higher Level Management

GG 3 —Institutionalize a Defined Process

GP 3.1 Establish a Defined Process

GP 3.2 Collect Process Related Experiences

Organizational Process Performance overlaps Measurement and Analysis but with a different focus. The goal of OPP is to understand the usefulness of the process performance measures in the organization. The goal of MA is to introduce the notion and need for basic process measurement and analytic practices; OPP extends the concept with advanced process performance management practices.

Process performance measures are beneficial when the cost of managing them is reasonable. Therefore, not all processes are measured and managed for performance. Only selected, critical processes are measured and managed for performance.

OPP introduces focus on "quality objectives," not only on "process performance objectives," by covering product/service quality along with process performance. That will require a review of the organization's business objectives for quality as well. Models for process performance are also required by OPP in order to estimate a value of a process performance measure from the values of other process measures. System Dynamics and Reliability Growth are both process performance models. OPP relies heavily on statistical process control to achieve performance and quality goals.

6.16 Considerations for success

An important part of any process performance management is the organizational structure necessary to support it. Some considerations include

- Competency matching: making sure that the people who will perform process performance management actually have the skill sets to achieve the desired outcomes
- Roles and responsibilities: making sure that roles and responsibilities are clearly defined and communicated
- Organizational structure: making sure that the organizational structure is well prepared to accommodate process performance management
- Empowerment with accountability: making sure those who are empowered to transform processes are held accountable for the results of the transformation
- Process performance results: making sure that not only objectives are tied to roles, but also results along with behavior-driving compensation and incentives
- Problem Avoidance: making sure performance measures are used in the right way for the right reason and are designed to avoid what Michael Hammer describes as the "seven deadly sins of measurement" in his book **FASTER, CHEAPER AND BETTER** (2010). In many cases, the behaviors that the sins generate are a reflection of the organization's culture:

- Vanity: using measures solely for the purpose of making the organization, its people, and especially its managers look good. Since bonuses and rewards are usually tied to performance measures, executives tend to expect favorable metrics. A realistic picture of the organization's performance may sound more like a threat than an input for corrective actions
- Provincialism: Functional departments dictating performance metrics under only what its managers can control (departmental process performance superimposing cross-functional process performance)
- Narcissism: measuring from an inside-out point of view, rather than from the customer's perspective (outside-in)
- Laziness: assuming that it is already known what is important to measure without giving it adequate thought or effort
- Pettiness: measuring only a small component of what really matters
- Inanity: implement metrics without giving any thought to the consequences of these metrics for human behavior and consequently for enterprise performance
- Frivolity: Not taking measurement seriously, arguing about metrics, finding excuses for poor performance, and looking for ways to blame others.

Process performance management that focuses on the business goals and fosters transparency can provide a healthy environment in which organizations prosper.

6.17 Key Concepts

PROCESS PERFORMANCE MANAGEMENT—Key Concepts
• Performance measurement is a journey—it must change as the business changes • The ability to support process performance measurement and then evaluate the results is related to the level of a company's process management maturity • Performance measurement starts with performance monitoring and the clear view of what should be monitored and why • Performance measurement must be driven by evaluation targets—standards, KPIs, cost limits, etc. • Any performance measurement "system" must be defined through a formal workshop approach that is managed by the managers who will be measured and use the information • All changes should be managed through this formal workshop approach • Any performance measurement "system" will evolve, or it will become out of sync with the business and have little value • Measurement is directly related to the quantification of data (or data set) in an acceptable standard and quality (accuracy, completeness, consistency and

PROCESS PERFORMANCE MANAGEMENT—Key Concepts
timeliness). o Metric normally represents an extrapolation or mathematical calculation of measurements resulting in a derived value o Indicator is a simple representation of a measurement or metric referencing a stated goal • Measurement associated with the work or output of the process that is performed is based on four fundamental dimensions: Time, Cost, Capacity, Quality • There are twelve characteristics of Process Performance Indicators: Alignment, Accountability, Predictive, Actionable, Few in number, Easy to understand, Balanced and linked, Transformative, Standardized, Context-driven, Reinforced and Relevant • Value Stream Mapping, Activity-based costing, and Statistical Process Control are widely accepted, reliable measurement methods • When a process is stable, the variation in process performance is predictable, so that unexpected results are extremely rare. • [Total variation] = [Common cause variations] + [Assignable cause variations] • World-class quality = on target with minimum variability. • A process performance management framework based on worldwide best practices, such as CMMI, can help process managers structure their process performance management practice to consistently achieve high levels of maturity.

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Chapter 7

Process Transformation

Foreword by Tony Benedict, VP Supply Chain, Abrazo Healthcare; President, ABPMP

Companies in every industry are engaged in business transformation. Some efforts are based on the selection and implementation of new application systems and some are based on the use of new technology or changes in business and in our society. Of all these change drivers, probably the most significant is that our cultures are changing on a global level in response to mobility technology and social applications. These are the foundation for a sweeping change in the way we look at business, success, and customers.

The impacts of these changes are just starting to be felt. But they are causing many progressive managers to ask a totally new set of questions about how the company can function internally and how it can interact with customers and partners in a rapidly changing global marketplace.

Successful process transformation has proven to be both pervasive and invasive. It forces management to look holistically at operations and ask tough questions. It also requires managers to look at the answers to these questions from multiple perspectives: process, people, technology, finance, legal, customer and strategy. This multi-dimensional look requires an ability to mix perspectives and balance the components of a solution, to compromise and yet produce an operationally optimal solution. Not easy, but critical.

It also requires creating transformation teams with mixed skills and the ability to work in an open, collaborative environment where people are encouraged to think outside the box and leverage their backgrounds, disciplines, and creativity. This represents a new approach for many companies that are supported by BPMS technology and the ability to simulate and iterate that it provides.

Using these design and deployment support capabilities, companies can embed performance measurement formulas in the processes as rules or Java modules and then generate applications. These applications can be run in a simulation module and iterated until the KPIs for the action are met. Because iteration can happen quickly, the team can try ideas in solutions and see what happens in the models. When optimal, the solution and the applications that support it (both generated and built in traditional languages outside the BPMS) can be easily moved into production. As always, however, data use and graphical interfaces need to be considered and made part of the "live" simulation tests.

Many of the legacy and other constraints of the past are being removed by advances in collaborative BPMS technology and its adoption in BPM-based approaches to transformation. So, old paradigms need to change and professional process transformation practitioners must also evolve their thinking, skills, methods and approaches.

The approaches, techniques and thought leadership presented in this chapter represent the combined experiences of several practitioners who are in the front lines of the BPM revolution, working in a variety of industries and companies.

When properly applied, the information in this chapter has proven to be effective. But success also requires that care be taken to bring all affected managers into alignment with the transformation's strategy, scope, constraints, finances, outcome objectives, and more. Without this alignment, the transformation is at risk, as success will be based on opinion. Similarly, it is important that care be taken to consider organization development, talent management, and change management. Ultimately, people will make any transformation succeed or fail. They will find ways to get around minor problems and they will make things work if they have bought into the solution.

Today, business transformation, leveraging emerging technologies and BPM methods and techniques, is positioned to change the way business is conducted. As BPM practitioners, we are at the front of this revolution and we are positioned to make a significant difference in the viability of the companies we work for.

Contents

7.0 Introduction

In this discussion, we will follow the ABPMP definition of process:

> ***Processes*** *are a set of functions in a certain sequence that delivers value to a customer. They are started by clearly defined external events.*
>
> *They are formed from a combination of all the activities and support that are needed to produce and deliver an objective, outcome, product or service—regardless of where the activity is performed. These activities are usually a cross-functional, cross organization aggregation of activities that work together to create an end product or service. Activities are shown in the context of their relationship with one another to provide a picture of sequence and flow.*

Process transformation is thus much broader than organization and business unit improvement. It is a look at the end-to-end work of the process and the way that work will change. However, because processes are a combination of work from several business units, their work and workflows will be affected and may be significantly changed. It is thus appropriate for the managers from all business units involved in the work of a process to be engaged in any transformation of the process.

While it is recommended that transformation be process-centric, it can also be applied to organization-related groups of activity, function-based groups of activities, and other groupings of work. So, while the discussion in this chapter will be process-centric, other transformation groupings of work will be mentioned at times.

7.1 Transformation: Beyond Improvement

Process transformation is the fundamental rethinking of a process. The goal is innovation and the creative application of new business approaches, techniques, technology, and more. In this business redesign, no idea is off the table. No option is initially rejected—unless by company policy, law, or financial reality. Improvement is thus not the goal, but the by-product of a radical change to the way the process is approached and performed. This level of change is by nature invasive and will be disruptive.

It should be noted that because process transformation is cross-organizational, the scope will include all the business units that are part of the process. However, for those who look at process as being the work within a business unit, the discussion in this chapter will still be relevant: transformation can be applied at any level in a business as long as it is related to the radical rethinking of how the business area should work—including its markets and products.

In transformation, the objective is to find a better way to do the work of the process. That may mean new production equipment, new applications, new IT infrastructure, new approaches to business, and new staff and staff skills. Transformation, by its very nature, is hard to do and requires significant investigation into what is currently available (ideas, techniques, concepts, tools, etc.) and research into what support/techniques are predicted to be available in the future. It is also a departure from the company's past approaches and thinking, and is often uncomfortable for managers and staff. However, the burden of transformation can be spread out and gradually implemented to control disruption, reflect financial reality, align to the ability of the organization to absorb change, realign labor contracts, and much more. These are limiting factors—there will always be factors limiting creativity and innovation. These limiting factors must be identified at the start of the transformation to avoid rework and wasted resource investment.

Transformation should involve seeking ideas from both inside and outside the company. However, it must be understood that what works in one company may not work in another. This is true for ideas, resource levels, best practices, approaches, etc. All information gathered at the start of the transformation must thus be analyzed for "fit" in your company. A failure to do this analysis has caused a great deal of trouble in many companies as they try to emulate another company with lower cost or some characteristic that management thinks is better than what they have in their company.

The reasons for this caution are varied, but include differing management cultures, different IT infrastructures and capabilities, different production environments, possibly different state-level or international regulations, etc. So we urge caution in determining the targets for the transformation.

In addition, any company will have transformation investment and other restrictions that require a phasing of the new operation's implementation. The "big bang" (all-at-once) approach works in some cases and not in others. So, the implementation approach must be known up front so the design can be broken into phases—each of which has a group of specific deliverables and benefits. This is often tied to the ability to invest in new technology, new production equipment, or the timing of outsourcing.

Once this transformation framework is in place, the project can begin.

Because many companies have only a basic understanding of process, it will be necessary to start a process transformation with the identification and definition of the process that will be transformed. This will start with the modeling of the process (high-level process flow model) and identification of the business units that will be involved in the transformation. If existing business models exist, they should first be reviewed to see if they are current. If not, they will need to be updated or redone. Next, the team will need to determine what data they will need as a foundation and see what is available from the current business models. Together, these models and data form the starting point for the transformation.

In this model review, the transformation team should identify the more visible, immediate improvements and projects in order to take advantage of them, should they be initiated. This will provide immediate but short-term benefit until the transformation is completed.

7.1.1 Why transform? Why isn't improvement enough?

For most companies, transformation represents a costly, risky, and very disruptive option. But depending on the age of the process, its ability to provide consistently high-quality results at a reasonable speed and cost, its production capability, its competitiveness with the competition, and the company's long-term strategy, transformation may be the best option.

The fact is that improvement, while good, can only take any company so far in becoming more cost effective and competitive. In addition, for most companies, operational improvement will not produce a nimble operation or the ability to change quickly with low risk and low cost.

By definition, improvement makes whatever you have better. It does not rethink it—it improves it. So, if you are looking for ways to do the same things faster, for lower cost, or with improved quality, you are doing the same things. At some point, however, the industry will have evolved. Technology will have moved beyond your ability to simply improve what you have. Your competition will have better ways and the market will require new approaches.

For many companies, the response to these evolutionary changes has been to cobble together a solution that allows them to continue to do business. The solution works, but not well and everyone knows it. But it was inexpensive and didn't cause too much disruption because it leveraged what they were doing and added to it. This solution eventually will cause a dysfunctional operation, and, transformation will become inevitable.

For these reasons, transformation should be regarded as a strategic move. It is a long-term commitment to the business and to its ability to compete in the global market. It is also a commitment to modernize, upgrade, and rethink how the business should work in the future.

The goals of the transformation should be carefully considered to ensure that they take a longer-term view. We have found that longer-term views and their goals are very different from the goals of a short-term view. For example, modernization has little to do with staff reduction. But that has often been mixed in with transformation. We have seen that staff reduction and similar goals of near-term thinking often put the transformation project on the road to disaster. People will simply not cooperate if they think their job or their friend's job is at risk. Where these short-term goals are hidden, people will figure them out and trust will be destroyed.

Transformation goals should thus focus on the modernization of the operation, its ability to compete, and the customer. Most operations are old and covered with change bandages. The operation's structures are generally weak and don't function well. “White space” manual work is everywhere and applications don’t support the operation well. Even where large ERP solutions have been used to “modernize” the business, the areas outside the direct interaction with the ERP modules are seldom redesigned, and the ERP transformation becomes an island of improved operation.

That is simply fact and it is found in any operation that has not recently been transformed. Operations that were transformed a few years ago can also be falling into mediocre performance—all operations eventually evolve into mediocre performance unless constantly improved. If they have not had the advantage of true BPMS-supported BPM to allow them to change rapidly following continuous improvement goals, the improvements may have become weakened by constant low-level change and much of the benefit may have been lost.

Modernization uses the knowledge of the current operation as a starting point and then defines the products or services that are produced by the operation. But it must also look to the future and provide the flexibility to support new products in new markets. It then leverages new technology, new manufacturing techniques and concepts, and new management philosophies with a clear understanding of what it will take to win in the market. The goals of the transformation should thus start with a marketplace vision and then look at what it will take to accomplish that vision. These goals supersede all immediate improvement goals. This is why transformation is strategic and not simply improvement-based.

7.1.2 Transformation and Improvement

As noted, transformation involves a much greater change than improvement. As such, improvement becomes part of transformation and is applied to every aspect of the transformation project. The test here is against all problems, limitations, benchmarks, KPIs, etc., of the current process. In any transformation, the primary goals of flexibility and continuous improvement will remain the focus. But in delivering these goals, the team will need to test any solution against the current performance and the future targets.

For this reason, the transformation solution design must begin with a firm understanding of the current operation and its metrics. The redesign will then move to a definition of limitations—that is simply reality. Next come strategy and the vision of the future. At that point, the team will be ready to start over and look at what business capabilities are needed and what activity is needed to support them.

While the debate over the need for BPMS technology in BPM is still going on, transformation-level change requires the organization and analysis of so much information on the business, its rules, its use of IT, its problems, its use of outsourcing, legal requirements and much more, that it simply becomes too great to control manually—even with support from word processors, spreadsheets etc. For this reason, it is recommended that a BPMS be used to support transformation. This will not only allow control over the information and models, it will also provide an automated environment for solution design, simulation, modification, and then operational evolution. In addition, without a BPMS-supported BPM operating environment, it is almost impossible to change the business fast enough to become nimble. This inability to provide fast change would limit future flexibility and options. See chapter 10, BPM Technology.

The BPMS environment will also allow the transformation process solution to be broken into business unit subprocesses and for the subprocesses to be designed for improvement against goals or current benchmarks/KPI/costs/quality. Because the activities that comprise the work in the business unit will flow within the business unit and then outside it to other business units in the process, the design of this workflow will be complex and again require the support of an automated BPMS tool—to save time, improve the solution, and allow continuous improvement.

Although the improvement of activity in each business unit is important in any transformation, management of the movement of work through the process from business unit to business unit is critical to the efficiency of the process and the quality of the process's product or service. This management is a key factor in the transformation redesign and may be new to the company. Implied in it is the cooperation of all business unit managers involved in the process and the need for a process manager.

This process flow is thus comprised of individual business unit workflows and provides a type of framework for their lower-level detail. Most importantly, this flow shows how each of the business unit-level workflows fit together and what flows between them (when, what, why, where). It also provides the requirement for the output of any workflow and shows the information/quality/documents expected by the next business unit downstream in the process. This allows the process manager to anticipate the impact of any change in a business unit's work and to make certain that changes do not actually cause improvement in one place and harm in another.

7.1.3 Strategic use of change: not a short-term gain

As noted, transformation is really a strategic-level activity. It is an action that must take a long-term view of the business and not simply focus on short-term or immediate improvement. As a foundation to this view, transformation must tie not only to organization, but also to both current and anticipated business capabilities as defined by Business Architects.

According to the Business Architects Association, the role of the Business Architect is to align business capabilities and their evolution to strategy. They then define how the business needs to change and the timing of the changes (see Figure 54).

This shows what the business needs to do to deliver strategic vision, and the way the capabilities will evolve over time to support the delivery of strategy. Because business capabilities relate to business function, they tie to process through subprocesses (which combine to form functions).

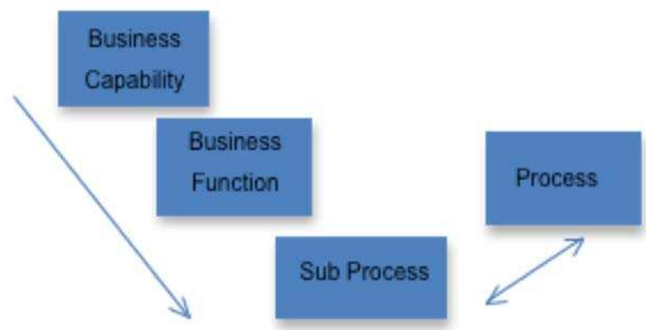


Figure 54. Business Capability decomposition

Business functions are thus made of multiple subprocesses and include parts from multiple processes. A process, therefore, will probably be involved in supporting several business functions. Because of this structure, decomposing business capabilities also provides a way to identify how subprocesses and therefore processes will need to change to support strategy. This linking of process transformation to business capability and strategy is often given too little attention in transformation-project planning and execution. This is reflected in the solution and its ability to support strategy, evolving as the strategy evolves.

Process Architects now take these change requirements and analyze their impact on process to consider the changes on the work in the business units in terms of both performance and quality.

This sets the foundation for the transformation. At this point the project manager will be able to identify high-level goals and how the business needs to change to meet them. He or she will not, however, know what changes will be made or the details.

The scope of the transformation can be anticipated (processes and business units that will be involved) at this point, and removing the major weaknesses in the current operation can be aligned with benefit. This can be used to create a high-level vision or conceptual new design.

The impact of the change on the company's IT and to production or other equipment can now be estimated. This is what determines cost and disruption. Adding culture to the mix, we now have the ability to look at the company and its people's ability to absorb change. This gives us a first draft of the limitation, requirements, timeline, and distribution of change and cost over the timeline.

This is the basis for a roadmap that should tie outcomes to specific time points and identify how those outcomes will be measured. This will provide a clear tie to the impact of a strategy and the rolling benefit of the strategy over time.

7.1.4 Approaching transformation: not for the faint of heart

Business transformation is bold, revolutionary, multi-year and expensive. It requires a long-term commitment to optimize the operation. Given the advantages of a BPMS-supported BPM operating environment (see chapter 10, BPM Technology), it should also be BPMS/BPM-based and move the operation into a state of rapid continuous improvement. This sets the operation on a path of continuous change as it sustains optimization.

Transformation is without doubt much more intense, disruptive, and costly than improvement. Given the risk, cost, disruption, and fear, why go this far? Earlier in the chapter we talked about benefit, and while it is clearly there, benefit is not the only reason. As noted, at some point in the life of any business operation, transformation becomes necessary to deal with the built-up effect of piecemeal changes that have been made over time. When this point is reached, the operation is on its way to becoming a competitive anchor, which simply must become more efficient and effective. The business must change fundamentally to remain competitive and it must provide the platform for rapid change.

To do this, transformation must be invasive and it must be totally supported at all levels in the company. Because it is both costly and disruptive, it is risky and scary. If done right, it goes far beyond improvement to a fundamental rethinking of what business the operation should support, how the support should change, and how the business should really operate (local, national, international). This fundamental rethinking ties to vision and business-capability changes to deliver the capability (must be able to change fast) and operational changes that are needed.

Unlike improvement, which can happen in a focused way to solve a problem, a broader-based use of BPM to support transformation requires the guidance of a person who is experienced in business transformation-level projects. This skill is not industry-specific and not-company specific. It is, rather, transformation experience-specific. This is important in delivering flexibility and improving control over the business operation without serious missteps.

Because of transformation's scope, impact and risk, management should look at creating a target design and then breaking it into parts (components) that can be implemented following a plan that recognizes the constraints of the company. (See section 7.3.1). This creates an approach that can be controlled and deliver benefit on a continuing basis. In this way, the risk is minimized, the design can change as needs change, cost is spread and recovered as new components are added, and people are much more easily trained and likely to accept the new operation. Disruption is also minimized and the operation's culture can evolve slowly instead of having to absorb serious change in a short time.

7.2 Executive Commitment

Because business transformation will change the fundamental way business is approached and performed, it requires a long-term commitment by the executive management team, a commitment of time, resources, funding, and public backing. It must also include time from the executive managers to look at ideas and provide guidance on how the new operation design must work to support their strategy.

In addition, there will be a great many political problems and conflicting priorities as the project is performed. The executive sponsor must have the authority to resolve these conflicts or have access to those who can.

Transformation will also change the culture of the business or the part of the business that is transformed. This level of change must be backed by management at all levels—including the executive level, which will need to define the new culture and determine how to create it.

If this involvement or other types of backing fail, the project will not be more than partially successful.

7.2.1 In it for the long haul: this is not a short-term commitment

To maintain executive interest and commitment, it will be necessary to take an approach that implements the new design in planned phases (components using sub projects) that build on one another to deliver the new operation with visible, tangible benefits and as little operational disruption as possible. In this approach the transformation would create the new design and then coordinate with IT for changes in the IT infrastructure or approaches to applications delivery, interfacing, or web applications use. This will allow the team to create a timeline that ties the reconstruction of the business to IT change and, if needed, to production-equipment change. From this timeline, the team can predetermine deliverables by estimated completion date and make certain they are produced on a frequent enough schedule to ensure rolling delivery of improvement and benefit. This approach is much more palatable to most executive managers because it is based on an increasing benefit.

It also sets the stage for a longer-term transformation roadmap. In this case, the move to continuous improvement is an extension of the roadmap's timeline, showing the implementation of the performance measurement capabilities (business strategic planning, anticipated marketplace change planning, Six Sigma quality measurement, performance measurement, IT infrastructure change, etc.) that will point to improvements that can—or need to—be made to maintain optimization.

7.2.2 What is needed from executive management?

The simple answer is active engagement, with vocal commitment and funding. The harder answer is the "will" to see the transformation through, giving it a high priority and removing obstacles to its success. If possible, this should set the stage for the transformation to continue, even if senior management changes.

Part of this commitment is related to decision-making. The transformation team must expect quick decisions from the executive committee (CEO, COO, CFO, CIO, and VP HR). Indecision will kill the effort by bogging it down. This is true at all levels. But making decisions that have a profound impact on the business is difficult for many managers—especially those in an environment where the key focus is finding someone to blame instead of iterating problem decisions and improving them. For many companies, this represents a move to a learning organization that tries a solution and then, if it doesn't work, iterating it and correcting any problems. This is a significant cultural change for many businesses. It should, however, be a goal of the transformation.

The transformation team should expect the executive committee to remove obstacles to their success. As issues are raised, it is important for continuity and momentum that they be addressed and resolved in a timely manner. The tough issues will be brought to the project's executive sponsor and, if necessary, to the executive committee. The expectation is that the obstacle will be removed—the issue resolved. When this doesn't happen, the estimates and project schedule will become inaccurate and eventually meaningless.

In any fundamental rethinking of a business operation, many may react with fear and protection of the status quo. Dealing with this is difficult, but it is also the main role of the executive sponsor and the executive committee. When faced with major changes, it is a good idea to add a change management team who can deal with the day-to-day and provide proper guidance to the executive team in terms of critical issues to address and how to move the organization along. See section 7.3.

As part of the fundamental rethinking of the business, it is important for the executive committee to consider many things that they seldom address—including the organization structure, compensation system, management evaluation system and other factors that will influence the way managers and staff look at the transformation.

7.2.3 What is needed from business-unit management involved in the process?

Buy-in is needed from mid-level and lower-level managers, but it is often difficult to obtain. Experience has shown that many managers and staff will look at transformation as a declaration that they have failed and their operations are so bad that nothing short of fundamental rethinking can save them. This is partially because everything must be questioned and justified—including what the managers and their staff are doing, why they are doing it, and how they are doing it. This fear is cultural and it is common. But it can be overcome with senior management involvement and, over time, the proof in their responses.

However, even with assurances and proof through examples that senior management is not looking at the need to transform as a failure on anyone's part, some mid-level managers will still resist. Some, in fact, may feign interest and work behind the scenes to kill the project (unfortunately, this is fairly common). This is where the executive project sponsor comes in. Any form of passive-aggressive behavior or sabotage cannot be tolerated and must be stopped.

In most cases these fear-based barriers can be broken by including mid-level and line managers as active participants on the project team—at least as much as they are willing to be involved. The transformation team will be mandated to do the redesign, and the question is will they do it "with" the managers or "to" them. The answer is up to the managers.

Persistence and patience also play a part in converting obstinacy and negativity. Constant good-natured questioning for interpretation and design consideration often brings recalcitrant participants around. The goal is for the company to win, the manager to win, and the people to win. Only when all of them win in the new design will the design be successful.

7.3 Change management: Getting the staff behind transformation

7.3.1 What is Change Management?

Change Management is a term widely used and at times confusing to BPM and almost every other type of team because it could relate to strategy, technology, or organization\people. To help sort this out, below are the 3 most widely accepted forms of change management:

Strategic Change Management: This type of change management addresses the process by which a company can find new opportunities and new ways to define itself to generate more profit. It focuses on analysis of the current performance and environment and usually leads to radical change for a company, such as abandoning a complete line of product, creating new product, or entering new markets.

IT Change Management: This is the most popular and known form of change management. It describes the process by which IT professionals manage the change to IT applications and infrastructure to ensure minimum disruption of business operations and impact on users. The Capability Maturity Model and ITIL are excellent sources of information for those interested in learning more about this form of change management.

Organizational Change Management: This type of change management is needed to ensure that the two previous types are rolled out properly in an organization. In this context, it is used to support large and smaller change efforts as well as incremental process improvement. This kind of Change Management is an iterative process that uses a set of tools to help an organization and its people transition from a current state to a sustainable desired state. It defines the need for change, aligns the organization, provides for the necessary skills & knowledge, focuses on the right objectives, prepares the organization for change and motivates employees to achieve sustainable results.

Because BPM transformation is invasive and pervasive in any business operation being changed, the use of Change Management to truly transform a business or speed up adoption to maximize business benefits on a project initiative becomes critical. People ultimately make any transformation or improvement work or fail by their buy-in to the future state and adjustment of their behaviors in support of the new operational model and processes. Addressing the people-side of change by properly applying Organizational Change Management techniques is thus essential to successful transformation. In BPMS-based BPM projects, the involvement of people from different groups forms an open collaboration that is highly recommended. "Hands on" involvement is also encouraged during at least the design and simulation of the new processes. This provides a chance for everyone to look at the way their jobs will change and to comment on the way they could best do their work—the workflow, the organization of the screens, the screen layouts, the data, the edits, etc. This is a level of interaction that is seldom found with traditional approaches to either applications-development or application change. This level of involvement is also fairly rare in business redesign, which often happens with significant management input, but limited staff input.

This ability to involve those who will actually do the work is a strength of the BPMS-based BPM approach, but it is also a risk. Management and the design team must be serious about involving people. If they are not, they will not pay attention to comments and they will cause more harm than good, as people will lose trust if the issues they are raising or their contribution is not addressed in some way.

Throughout the CBOK, the authors have made reference to BPM maturity and maturity models. Where your company stands in its BPM adoption and evolution is something you will assess, but the majority of companies that the authors are familiar with are currently at the start of their journey. At this level of maturity, the focus is on problem resolution and improvement projects. These tend to be fairly small. But they are critical in developing an understanding of the capabilities of BPM-based change and BPMS-supported BPM operations. This level of involvement is also the place for Organizational Change Management in a company to be aligned to the methods, techniques and activities in BPM and BPMS-supported projects. Moving further along the journey through BPM and BPMS use, the projects will become larger and more complex. Here transformation (not simply improving the operation) starts to become a focus. The assumption now moves from "the business operation is good enough and we only need to improve it by tweaking the work" to "a recognition that the business operation needs to be rethought and redesigned."

At this point the BPM Professional should look into their use of Strategic Change Management techniques to make sure that the objectives of the transformation are being well communicated. Once a new strategy is defined, the BPM Professional can ensure that the 'to-be' process design supports the new direction properly and the Organizational Change Management techniques needed to facilitate the new process definition, implementation, and adoption are defined, communicated, and in place.

To implement proper Change Management, it is essential that the project leader determine how the different forms of Change Management will be relevant in their BPM project—especially if the company is in the early stage moving toward BPM Organizational Change Management. At some point, the transformation will move from the process level and begin to be driven by business strategy. As this happens a shift from Organizational Change Management to Strategic Change Management also needs to happen to ensure the right strategy is picked in the first place.

IT-related Change Management can be needed at all levels of business change. IT can certainly be affected by strategy and it will almost always be affected by both broad-based and focused tactical projects. It thus needs to be considered in all types of business change work, whenever technology changes are needed.

While all these types of Change Management should be considered in transformation, we will focus this section on Organizational Change Management because it provides the tactics, tools, and practices needed to successfully execute any BPM-based change or transformation. Bridges provide great resources around Strategic Change Management (Leading Transformation) and CMM and ITIL have extended resources for IT Change Management, for those interested.

7.3.2 Why is Change Management important to the BPM Professional?

BPM is the harbinger of change. Change is a significant part of BPM and a serious subject to anyone who hopes to limit acceptance-risk in a project. BPM affects people's professional lives by directly changing what they do and how they do it. BPM solutions are almost always based on the introduction of new practices, new rules, new tools, and new roles and responsibilities.

But BPM and BPMS-supported BPM are still in their infancy and are not well understood in most organizations. People frequently have no idea of what to expect or how the BPM project will be performed. In addition, BPM is often associated with cost cutting, downsizing, and reorganization of work—all of which are scary to the staff. So, BPM projects often need to start with "damage control" to position the project in a positive manner This can be a great challenge for some organizations and requires considerable skill in managing change and leading people in a high-stress situation.

Because new BPMS-supported BPM practices might be very different from the traditional ones, resistance may occur—especially if the project was performed with minimal stakeholder involvement (following a traditional approach of including one or two "experts" on the project). Without a solid foundation of Change Management support, the concept of the new business operation and the way the operation will work might be resisted and the completed solution rejected by the organization.

Change Management in BPM can thus be used either to gain adoption of BPM as a new discipline in the organization, or to successfully implement a new process design resulting from a process improvement initiative or radical transformation. Working together, Change Management and BPMS-supported BPM bring the following benefits:

- Low impact iterative change for improvement efforts. BPM is designed to iterate and will allow a team to evolve a solution until it works in the way management and staff think best.
- Improved predictability on large transformation projects. BPM allows management a very different view of the operation and its processes; Change Management helps anticipate and mitigate acceptance issues.
- Reduced productivity-loss through rapid redesign, construction and deployment of the solution. Using a BPMS, teams have reuse of models and

information along with a comprehensive picture of the operation and the generation of applications.
- Reduced operations risk through simulation; improved testing.
- Quicker adoption and reaching expected level of performance sooner. BPM, by providing a platform for ongoing involvement of the team members, makes adoption and learning faster.

Not only does change management help engage staff, thus promoting acceptance and success of both transformation and improvement, it also helps drive the sustainability of improvements. This is a key point! Any change that is not constantly reviewed and updated will evolve to a mediocre state through constant rule interpretation and manual work-arounds as the business operation needs change.

Sustainability using simulation and iteration is among the true benefits of BPM—especially a BPMS-supported BPM operation. Change Management assists in setting the stage for sustained operational change by

- Building a culture of continuous improvement, challenging all levels in the organization to find new ways to improve the workflow and tasks.
- Creating a training program that promotes taking a view of the entire system (policy, process, subprocess, organization, workflow, task, work step, etc.) of the business operation that the managers and team were involved in transforming.
- Creating a culture of change based on a learning environment, where people evaluate what they are doing, what they have tried, what works and what doesn't, learn emerging business techniques and then apply them to improve the workflow.
- Defining the impact of the change and the actions required to successfully manage the risks and issues resulting from the change.
- Communicating the change and determining appropriate means to develop ownership and build stakeholders' buy-in.
- Developing skills and providing coaching to support users and managers as they adapt to the new working environment and become change agents.
- Anticipating and identifying resistances and concerns, intervening in a timely manner to minimize related risks and barriers.
- Providing support and assistance to ensure alignment of culture, organizational structure, people, policy, processes, and systems.
- Monitoring key metrics to implement actions for continual improvements.

In this day and age when change is constant, people have often been negatively tagged as resistant to change. Actually, people are capable of amazing change. The key is the way change is presented. People can welcome change if it is introduced in ways that will be compelling to them individually and fit within their contextual frame of reference—which is often defined by current culture, immediate supervisor influence, and organizational policy and procedures.

Capturing the heart of an individual will not, however, be sufficient to guarantee a successful transition. To win acceptance, it is important to provide a well-aligned environment where the policy, process, procedure, tool, people, and incentive system all work together as a well-coordinated whole. In addition, an understanding of how people respond to change allows for better planning and the prevention of resistance. In general, some people have a higher tolerance to the disruption and uncertainty of change than others, but all of us have some capacity. Our capacity is mostly based on our working memory and existing mental maps, according to neuroscientists. Any new information coming our way is treated as known or unknown. The 'known' feels comfortable and is processed as it arrives. The unknown is pushed to our working memory, to be processed when enough attention is available.

If people are asked to process too much unknown information without time for them to think it through, most will tend to slow things down and almost automatically go into resistance mode—even though they may later, after enough time to think about the information, accept the proposed information and the resulting solution or implication. For this reason, it is important to build in time for most of the people involved in a project to gain an understanding of the information being collected and to become comfortable with its implications, its quality, and its weaknesses.

7.3.3 Expectations

Because of the level of change that accompanies transformation, people must be prepared and their expectations must be managed. The best strategy is therefore to engage people early, communicate often, and in small increments. This is a type of internal sales plan for reaching and energizing the staff.

BPM allows management to take a gradual approach to change and its acceptance as people are introduced to new ideas through involvement in finding solutions. The pace can be controlled to allow the project team and the business managers and staff to be introduced to ideas in an informal setting of team meetings, workshops, design sessions, and "hallway" discussions. This approach allows time for people to become used to concepts and information before they need to formally deal with them. The problem that must be closely controlled in this approach is the ever present "rumor mill." However, if rumor is controlled, this open and informal, gradual introduction helps remove the fear of job loss, status change, being transferred from friends, etc.

In a well-planned and managed BPM change program, the business managers and staff who will be affected (within the project scope) will be engaged in the project and its change management activities at a very early stage in the project's life cycle. This ensures that the participants gain an understanding of the significance of the change and are involved in planning proper communication, training, and other change activities in ways that are culturally acceptable. Through this involvement, the participants can gradually become involved and understand the project and its goals. The sense of acceptance and comfort this provides can be used as the means to drive out fear and resistance. This gives participants an opportunity to embrace the change so they can contribute to the project team and the solution.

7.3.4 Planning Change Management activities

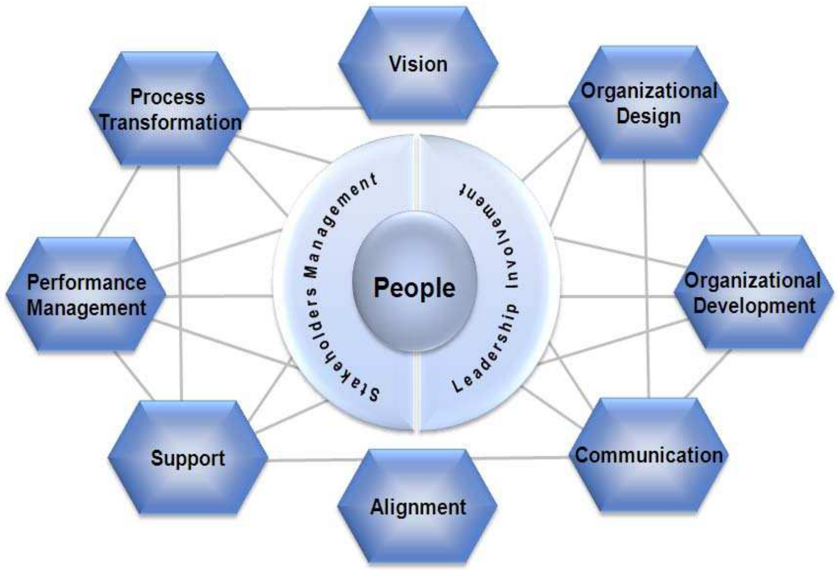


Figure 55. Planning Change Management activities

Identifying the right Change Management activities in support of your transformation or project improvement initiative involves consideration of options in a variety of separate but related business areas. These are shown in Figure 55. The core shows the involvement of people and sponsors. This represents both the project and business operation managers/staff participants. The component modules in the outer circle divide the areas that should be considered in a Change Management program into separate groups of issues and options for your initiative. In transformation-level change, this starts with the definition of clear vision for the change that should be aligned with the corporate vision and strategy and moves to include Organizational Design, Organization Development, Communication, Alignment, Support, Performance Management, and Process Transformation. The order of these components in the diagram below does not indicate any special relationship or sequence that the project team should consider when creating the BPMS-supported BPMS transformation project's Change Management plan. It should be noted that considerations such as training are embedded at the next level of detail.

Figure 55 is related to change management and not to a BPM or Process maturity model or a BPMS/BPM methodology. The diagram represents the activities that should be considered to support transformation and smaller incremental-level change. The customization of the activities to fit the company culture and the project will be important in approaching the type and significance of the change that a BPM Transformation or Improvement initiative will bring.

7.3.5 People

Concern for the way people will deal with the level of change in a transformation should be a key area of focus in creating a change management plan. Companies are complex social organizations that are responsible for operating the manual and automated systems that create products and/or services. Without the effort, contribution, and dedication of its workforce a company cannot survive. However, highly repetitive work must be focused and controlled to ensure quality and efficiency. This mix creates an operation that is cohesive and effective in delivering value to the company (through profit) and to the customer (through good service and high-quality products). But the status quo has usually been built up over time, and changing it represents an unknown that must be well facilitated. The simple fact is that in today's economy, people have often become overworked because of downsizing and acquisition-related lay-offs.

This has caused many companies to lose touch with the staff and many managers to lose the trust of their staff members. Transformation based on the involvement of the staff and a sound Change Management plan can begin to address these issues and start to rebuild bridges that have been burned—unless the real goal is staff reduction.

People knowledge, skills, and creativity are of very high value to an organization. Creating knowledge costs money and takes time—sometimes years. Many companies have found, to their detriment, that failing to consider this value in any transformation and acting accordingly can have a serious negative impact on the operation. Knowledge of history, an understanding of rules, familiarity with applications, and the know-how to deal with constantly changing problems departs along with the people who have these assets. The question is "what is this knowledge worth?"

In assessing risk associated with a planned change, it is essential for the transformation project manager to understand the types of knowledge that the people who will be affected may have, which cannot be found in other places in the company—such as policy manuals, procedure manuals, etc. (which are usually out of date). In many cases, the only reliable source of rules, procedures, and much more is the people who do the work. If this is the case, certain goals related to staff reduction may need to be reconsidered.

In addition, the transformation project manager should look at why people resist change and take steps to mitigate this resistance. This will provide a framework for planning how they may overcome this resistance—both during the transformation project and later in the continuing improvement phase of the BPM project life cycle.

According to "The New Science of Change," an article published in *CIO Magazine* (Sept. 2006), 20% to 30% of people are change seekers

20% to 30% of people see change as a threat

50% to 70% of people are skeptics.

Identifying which category the key transformation stakeholders belong in is tough because the true feelings of people are often hidden. However, categorizing the main project participants (change seekers, those who are threatened, or skeptics) is important in planning how to approach the change with them. Also, as the project team becomes more familiar with the key stakeholders and vice versa, opinions and people's classification will change. This makes the strategy in dealing with the key stakeholders very fluid and iterative.

The project team must keep in mind the key stakeholders' motivations and concerns: what is in the change for them? Sometimes a hidden agenda might be at play; the possibility should be considered and steps should be taken to find the real motivators and fears. This is not always easy to do. Some people will say they support the change, yet do everything they can to stop it or make it fail. This can only really be identified by looking objectively at what people are doing—not just at what they are saying. The project managers must use discretion and understanding when addressing these real obstacles, but they must be addressed and removed.

In looking at change resistance, it is important to consider the reasons for change and work with the people affected to address their concerns and fears, and to help them move along with the team, keeping an open, collaborative environment. The most frequent concerns observed on BPM projects include

- Loss of power and control
- Overload with current responsibilities
- Lack of awareness of the need for change
- Uncertainty about possessing required skills for future state
- Fear, uncertainty and doubt
- Distrust of the goals of change (lay-offs announced or fear of change)
- Comfort with current state
- Belief that it will require doing more with less, or for the same pay
- Belief that it won't do anything for them personally
- Perception of it as extra work that will probably not be implemented
- Fear that the new way will be more work and that they will fail.

BPMS-supported BPM helps address some of these concerns by supporting visual mapping, simulation, and iteration. The approach suggested in this chapter is also part of reducing these concerns and the risk of resistance. Involving a great many of the staff for short periods and asking for their opinions is considered by some of the more traditional project managers to be unnecessary. We disagree. Experience has proven that external expertise ("we don't need to talk to anyone because we are the experts") or the involvement of one or two business-area experts is not enough to overcome these concerns. Only by involving many of the people can these concerns be overcome. Involving the key stakeholders early and communicating often in small increments is a key success factor in any significant change initiative.

During the project, communication with all staff and management levels will thus be important. In these interactions/discussions, attention should be paid to the tone and content of the message. The way engagement and change communications and discussions are worded will either help control fear, or cause it. If a change is significant for an individual, the individual will most likely follow some stages of the grieving cycle as described by Kenneth Blanchard in **Who Moved my Cheese?** The stages are denial, anger, bargaining, depression, and acceptance.

It is important to recognize this cycle in any significant change. People will be comfortable with what they know, and how they have done things. The unknown is distrusted and feared. Any abrupt change (happens without the right setup or their involvement) causes personal insecurities and generates feelings of anxiety, as people feel that the change is needed because they are somehow at fault or that they are viewed as having failed.

However, as noted above, following an approach that involves the key stakeholders can significantly impact this normal reaction to change that is forced upon the group. BPM-based transformation can be approached in only two ways—it can be used to do it *to* the staff (impose the change) or it can be used to do it *with* the staff.

While there are shades of these two approaches, these are the only two options. However, when the staff is not actively involved in the change (the 'do it to the staff' option), management builds distrust, resentment, and—often—active resistance. These projects take longer and deliver questionable results. On the other hand, experience has proven that designing and building the change with key stakeholders and significant staff involvement is less risky and better accepted.

For this reason it is recommended that any change be approached with the full involvement of the staff and managers who will be affected.

If this broad involvement approach is not acceptable in a given company culture, the project team will need to build remediation steps into the project plan. Resistance to change and the grieving cycle that can be associated with it are a normal part of change. The best way to address these factors is to anticipate, monitor, and manage them as specific tasks in the project plan. This will also require the involvement of human resource experts and it will be important to have the HR experts involved in these tasks.

7.3.6 Stakeholder Management

The project sponsor is the main stakeholder, but not the only one in a BPM transformation or improvement project. Clearly all business and IT managers who will be part of the projects are key stakeholders; so are finance (SOX, Dodd Frank) and legal, so are the employees (HR/union contracts) etc. But regardless of how stakeholder is defined, an extended group of affected business managers from related processes or, if the whole process is not in scope, managers from downstream of the transformed business operation should also be considered in managing the change.

This is critical because they will have an ability to claim that the changes disrupted their area and caused harm, so they must be involved.

In addition, you might also want to consider people responsible for upstream process, if you would like to modify any of the input you are receiving for the process you are currently improving. If these business areas are not in the scope of the project, any changes to what they may deliver to the business activities in scope will need to be considered as scope changes, and may or may not be allowed.

In any major effort or any effort that is considered critical, it is as important to know who disagrees with the project's scope, approach, deliverables, etc., as it is to know who backs any part of a transformation effort. This evaluation of participants is difficult because of hidden agendas, but it is important that it be considered and then possibly evolved as more is learned by the project sponsor and manager.

Using BPM, possible changes to the business operation will be identified after an initial fact-finding study—the analysis of the "As Is" model with supporting information. This is where those who may say they support the project, but really resist, will be identified.

Although the resistance may be subtle (missed meetings, slow decisions, frequent decision changes, etc.) it can be found if the project manager looks for patterns of activity. As the new design is being built and simulated, the project team will have another opportunity to determine real support through action. Disagreement is not in itself an indication of resistance—unless nothing proves to be acceptable. Disagreement, when constructive, is actually a sign of participation and commitment to the result of the project.

However, for those who truly act as roadblocks to success, mitigation steps must be designed with the project sponsor and, if necessary, discussed with executive management. If this cannot be turned around, the project may need to be adjusted and a new scope or deliverable defined. In this way, even if there are some who will not really back the project (with time, priority, access to staff or data, signoff, etc.), the project will continue. However, executive management must be aware of the situation and expectations set to reflect political and cultural reality.

In addition to political- and culture-based resistance, we have found that once the possible solutions are discussed, operational success-related opposition can also build due to valid issues with other aspects of the organization. Frequent reasons for this success-related opposition are:

- Proposed process does not align with current performance evaluation and reward systems
- Proposed process is not supported by the current staff level and skills
- Proposed process does not align with changing priorities.

Once found, these reasons for resistance must be addressed as quickly as possible. Any resolution of the underlying causes of resistance must then be taken into account in the possible process redesign (solution). A focus on key stakeholders and their concerns throughout this solution validation will help to ensure a process design suited to both its environment and the real needs of the stakeholders and their managers.

As noted, stakeholders may be any person or group who could impact the project or be impacted by the project. The list of stakeholders for a transformation project can thus be long—the bigger the transformation, the bigger the stakeholders list. Luckily, not all the players in an organization have the same level of influence related to a specific change in a transformation. To make sure you make the most of the project-team's time, the BPM transformation project manager needs to focus on involving those 'key' stakeholders that have the highest potential to make or break the change. Success is difficult if some of the transformation participants are not in agreement with the approach, the plan, the task, the way performance is measured, etc., so it is important to identify 'key' stakeholders and involve them, spending time to address any concerns, negotiate issues and address all disagreements.

These stakeholders must become the project's promoters to the key business managers (process owners or department managers). They must vocally support the project and the new design. This is critical. If any key business managers turn against the project, it will fail.

As noted above, the project manager will need to identify, by key stakeholder, what is important (to them) and find a way to deliver that to them as the new design is built. But that is only a start in controlling change. Experience has shown that change must be sold at the personal level to be accepted. Managers will need to become comfortable with the idea that risk is being managed, creative solutions are being found, and that the operation's performance measurement approach will be aligned to the new operation. This comfort is the foundation for acceptance, a trust that the solutions will not cause them harm.

Also, the project team will need to consider the fact that every organization can absorb different amounts of change. There will be limits related to culture, trust, workload, etc. For this reason, each operation's ability to absorb change must be assessed and the design and implementation plan must be adjusted to deliver the change in phases or steps that align to the rate and amount of change that can be integrated into the group.

The approach to managing the project's change requirement will be iterative and will change as the project is performed, based on continued interaction and the project manager's assessment. By analyzing the result of the assessment, the project manager can prioritize the key stakeholders and develop a change plan that will take them to the desired level of acceptance. In this analysis of change acceptance, special attention must be devoted to influential stakeholders that have low level of acceptance. These people could have considerable negative influence on acceptance of the change in the organization, and specialized, flexible mitigation plans will need to be created and then modified as needed during the project life cycle to gain and keep their backing.

7.3.7 Leadership Involvement in change management

BPMS-supported BPM is still new, and when used to support business transformation it requires at least training in the basics of BPM, an overview of BPMS and BPM methodologies, and basic training in the use of the BPMS. In addition, change management will take on a different emphasis through enhanced business-staff involvement in the project and in moving to continuous improvement. This change in transformation-project approach will require a commitment to training, and obtaining experienced transformation experts to act as mentors. Developing the leadership of an organization to better manage this BPM-based change will make a major difference in the speed at which an organization adapts to both transformation and continuous improvement change. This commitment to developing the needed skills is also a test of management's commitment to the transformation.

These and other collaboration-related BPM and BPMS techniques and tasks will require a rethinking of the company's approach to change management. Transformation fear must be addressed and mitigated. If this level of change management is not addressed in your current change-management standards and techniques, it will be necessary to work with HR and IT to make certain the proper steps are taken, given the company's culture.

As with all types of projects, any project that may change culture must be closely monitored by company leadership. Executive, mid-level, and line managers must all agree with the way the culture will change and what new culture will be built. Without this backing and active involvement, the culture will not change and attempts to do so will cause serious staff problems.

Leadership must thus be involved in all aspects of defining the new culture and in controlling the changes that will produce it. They must also monitor the evolution of the culture and the business operation to make certain that the staff's concepts and attitudes are changing and that the new ways are being adopted. From this monitoring, they will be able to apply the right pressure at the right times to prove their backing and thus promote the evolution.

Finally, with all the downsizing and rightsizing that has occurred, many organizations are operating under-staffed and have their mid-level managers focused on daily activities and routine instead of leading and inspiring their team. In these cases, we have seen a higher level of change success when time is taken to train or re-engage the mid-level management's leadership skills. Essential skills for the mid-manager in leading transformation comprise communication, engagement, collaboration, and empowerment. Experience has shown that BPM transformations have a greater chance of success when managers pay attention to their people and their concerns, promote collaboration amongst leadership levels, and focus on staff growth and building improved capabilities. These are critical elements of any successful transformation; failing to give them the attention they need increases risk and builds staff distrust.

7.3.8 Vision

Any transformation should be aligned with company vision, mission, and goals. Going further, management should also have a clear separate vision for the transformation project—what the new business operation will look like and how it will perform. This vision of the new business will include the use of a BPMS and BPM to deliver the transformed business and continuous improvement, clear metric-based performance goals, and definable operational characteristics. This vision will also include the organization structure needed to govern work and the capabilities of the staff. In some cases, this vision will also begin to move the business toward a process-view of the operation and the use of performance measurement and analysis to move to continuous improvement. On the IT side, this vision may also include SOA and other modern technology and concepts such as cloud computing.

For most companies, a part of the business vision will be work reduction, quality improvement, improved flexibility, speed in changing, and improved management control. If possible, staff reduction should not be a key part of any vision to change the company. The reason is that although there is a short-term cost reduction, there is a longer-term cost increase, as knowledge, training, skills and competency are lost with staff reductions. Also lost are trust, commitment and loyalty as fear takes over and productivity is lost. This is a high price to pay for a short-term cost reduction. But that is a decision that will be made outside the transformation (in the business case) and will be a key guiding factor in the project.

In performing any transformation, or in many cases improvement projects, the people who will be affected need to understand why the change is needed and why it is needed now. A good vision will compel them to support the change and act accordingly. However, if they cannot be assured that the change will not affect their jobs or pay, experience has proven that most will simply put one obstacle after the next in the way of the transformation. This can remove benefit and produce a poor solution. It can, and has, caused projects to fail.

The project team, following sound change-management practices, will need to establish a sense of urgency in the business managers and the staff. It is also recommended that the project sponsor clearly set the stage for those affected to gain something, instead of lose something. The transformation vision should therefore be compelling and stimulate people to act quickly. We have found that engaging people by asking their opinions causes excitement and helps create this sense of urgency. But this must be based on a foundation of trust. To help build this foundation, it is important to position the transformation in a positive light at all times. If management positions the transformation in negative terms ("we must do this to cut staff and save money," or "we are doing this to prepare for a move to x"), the participants may find incentives to make the project fail—and they may well succeed.

A last thing to consider while preparing a vision statement is to go beyond the immediate project objective(s). BPM team members are often very analytical people by nature and are persuaded by numbers and rationale, while the rest of the staff in an organization may be moved by something more emotional and inspirational. We have found that transformation projects with an inspiring vision gain alignment and momentum much faster than those with a vision limited to economics. This is important in selling the change to managers and staff, and in avoiding skepticism about the change being "the latest management fad."

7.3.9 Organization Design

Too often organizations are defined before processes are defined—requiring management to make the processes work within the boundaries of the existing organization. This practice can lead to frequent and inefficient handoffs, quality issues, and disconnects in the work. To help avoid these problems, as new processes are defined in the transformation project, special attention should be given to the organization and the possibility of reorganizing to better enable the performance of a process.

In those transformations that are designed to move the operation to a process-centric model, it will be necessary to consider either redesigning the old organization structure to adjust to the new process view, or creating a separate process-manager role that is external to the organization structure. Both of these approaches to process management have worked, and the right approach depends on the company's culture. This decision will obviously be made with input from HR, but it should also have active input from all managers who will be affected and, in unionized shops, union representatives.

In transformation projects that retain the old organization structure, the basic setup of the business will remain the same. Minor changes may, however, be needed, and if acceptable will become part of the new business design. In transformations that are limited in this way, the project team will need to take steps to make certain that the work in the different organization units is recombined to recreate the processes. This will show any holes in the process that need to be fixed and identify all handoffs that may need to be controlled.

New processes may also introduce new roles or impact the level of staff skill needed in certain roles. As new roles are defined, job descriptions and performance measures should be updated accordingly. Often the impact on people varies by their roles, but most will be impacted. Defining roles will help business managers sell role-changes to the staff, tailor training and communication, and align compensation by roles.

The key is that the organization can now be reviewed and redesigned as needed to reflect the work that will be done and how that work will fit into the larger process picture. This provides a chance to modernize the way the operation is structured and the way it is managed.

7.3.10 Organization Development

In most cases, organizations have evolved in response to business needs. If they were designed, the design is often lost in the evolution. This evolution is often focused on structure, and the changes are seldom tied to training requirements; staff skills-improvement is often ad-hoc. Transformation projects offer a chance to change this situation and are the ideal time to help the business move to a "learning environment." This move to an environment where the staff and managers continue to learn and share experiences is a tough target, but it should be part of the transformation goals.

For many companies, the move to a learning operation changes their culture. As such, it bears consideration along with the changes needed to move to continuous improvement and the many more changes to activities, approaches, and attitudes that make up a company's or group's culture.

This shift to a learning organization relies on training—a primary organizational development tool and a critical part of any transformation. It is essential in change management and in delivering a successful new operation that supports the new operation model. Once the skill-needs and training objectives related to the transformed business design are well laid out, a skills assessment can be made and a training strategy developed. The training strategy should consider the population to be trained, their grouping by roles or other logical modes, the training approach (instructor-led class, coaching, self-paced learning, etc.), the training curriculum for each training activity, the list of training material needed, the identification of trainers, and a description of how the training activities' performance will be evaluated. Stakeholders Matrix and Role Mapping are great for helping to identify and understand the population that will be impacted and design the right skill-development plan to support the transition.

Once the process or business operation is transformed, work and process will flow differently, and many people will do their work differently. The approach that is taken in training will make a big difference in staff confidence and the success of the transformation. But just providing training is not enough. If it is provided too early in the solution development, it will be forgotten. If it is too general or too detailed, it will simply cause fear. So, training planning is critical and timing is important.

If the staff has participated in the new design and in its evolution through iteration and simulation, they will be familiar with the way the new business will work. To remove the fear of mistakes, detailed just-in-time training on the business operation, each job, the new applications, the way the IT support will work, the way the BPMS environment works, and the way rules work, will be important. This training should end with a test.

Weaknesses should be reviewed with each person individually to bring them to the level needed. During implementation, it is suggested that a mentor be available to help anyone who loses his or her place and needs help.

Given that staff acceptance is a goal, it is important to take all steps needed to create confidence in their ability to do their jobs in the new operations. This helps improve the results of the change and helps to avoid a long period of "trial and error" as people learn their new jobs.

Promoting open questioning and requests for help in learning is often a cultural change; many are afraid to ask for help or admit that they don't know something. This perception must be changed if the operation ever hopes to evolve into a true learning operation where people try things, learn, and then help the operation evolve.

For most, moving to a "learning" operation model is in the future, but in transforming the process and the business units that perform its activities, the project team can set the foundations for this evolution.

Before moving on to look at communication in the next section of this chapter, a special note is in order. The ability to deliver training is changing as new technologies allow new training options—starting with the use of social tools, mobile technology, and even network design. HR departments are usually well suited to support the project team in picking the right set of tools and techniques to balance the transformation team's training strategy and plan, and should be consulted before any training approach is recommended. In projects where communications needs are addressed through flexible technology support, web-based training, complemented with online "help" support and coaching, is very successful. In projects where training is considered later in the project, a different approach will be needed and it will be necessary to provide more traditional "classroom" training opportunity. The trainer in these situations will play a critical change-agent role, as it might be the first time many people will hear about details of the change and discover its implications for them. To help avoid problems, we strongly recommend a well-balanced approach that includes leadership involvement, a formal training program, and open communication.

7.3.11 Communication

Communication planning should be considered during the project startup and updated at major points (milestones, phase gates, deliverable points, etc.) in the transformation project. Each update should be based on the project manager's assessment (working with the business-unit managers) of which change management techniques are working and how change management issues may be resolved. This allows the plan, and the approach being used to control staff fear, to be adjusted as needed.

The need for good, open communication cannot be overemphasized. It is historically one of the main fail-points in change management and it does not always work the way management thinks. Language can be imprecise and many clever people like to nuance their communication. When the result is misunderstanding, trust is lost. For this reason, communication should be direct and simple, using common language and terms. Nuance should be avoided.

A good communication approach is focused on keeping all stakeholders informed of project activities and progress. Maintaining consistent feedback is an important part of a solid communication approach and ensures an ongoing discussion with the project team and the leadership team. To encourage this two-way communication, the approach taken should give responsibility for this interaction to business-area line managers. This helps build a business-area network of project champions who will promote the benefits of the transformation in terms the staff can relate to: that is, what is in it for them.

Note: While conventional wisdom focuses change benefit on the company, in today's business world, people have largely lost loyalty to the company—especially in transformation projects where they wait to be laid off.

In this environment, success will rely on benefit to the company, to the line managers, and to the staff. If everyone wins in the transformation, the people will do their best to make certain it succeeds. Sound communications approaches use all means possible to reach managers and staff—e-mail, phone, web, handouts/posters, meetings, road shows, etc. As noted earlier in this section, the approach should be updated frequently in response to feedback and organizational reaction to change. In a BPM transformation project, the need for two-way communication becomes critical during the new design phase of the project. Here the design is meant to be iterative and the staff involved in each simulation to determine what is good about it and what needs to change. This involvement is somewhat unique to BPM. But it is a difference that can be used to assure success by driving out fear and making people buy into the solution before it is deployed. Then, following deployment as the business units in the process move into continuous improvement, this open communication with staff at all levels can be used to identify improvements and potentially redesign the business models and rules needed to make changes to the workflow, work management, and applications generated by the BPMS.

7.3.12 Alignment

A simple process change can have an impact on many other things in the organization (see Figure 56). Clearly, the alignment of these and similar factors affects an organization's ability to get results—for better or worse. But in companies that are performing transformation projects, the alignment of these many factors may be a problem.

Because of this, it will be necessary to consider how process, activity, problems, and the alignment of all the various business factors that define functions can be affected by a solution. A great many things that are done affect one another and must be considered together. Below is a graphical representation of major elements of an organization and how they relate to each other.

This chart is more than a little complex: it represents the interconnections between some of the key parts of the business operation and shows that any change can have a considerable impact on other business areas and success factors. The diagram's importance is in showing that the project team must consider a great many parts of the business and manage not only how all will change, but also the ripple of any particular change.

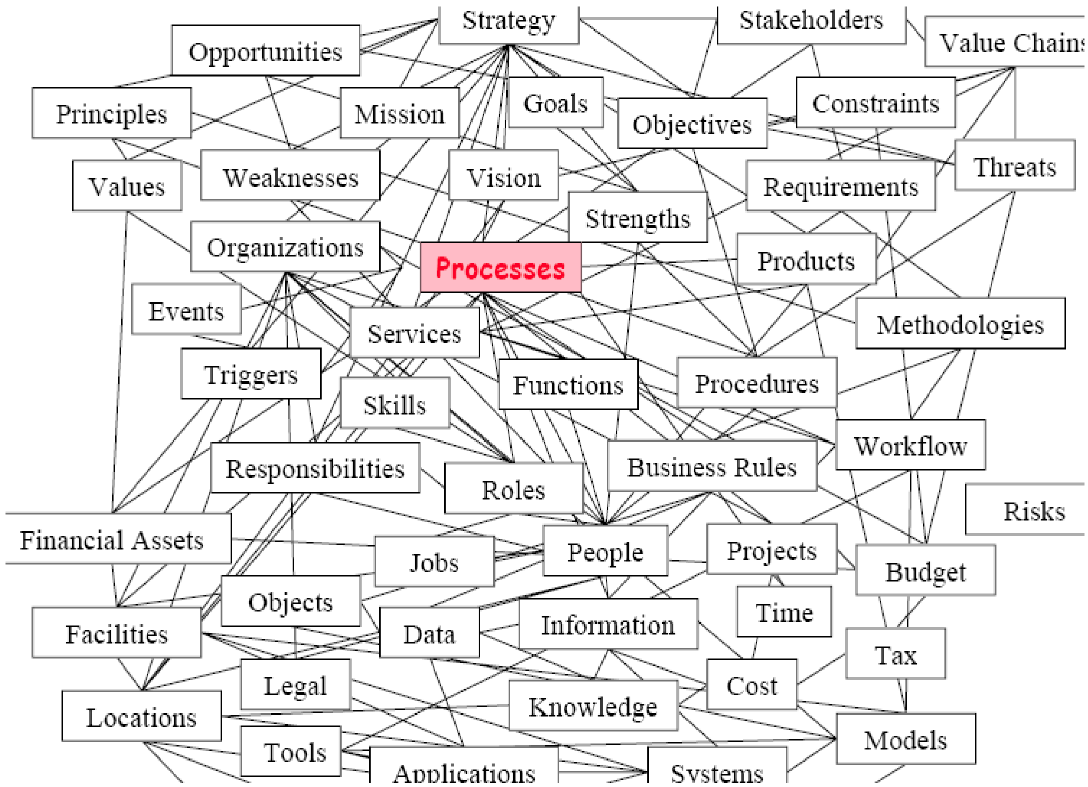


Figure 56

The ripple and tracking it are especially important in any project that addresses only part of a process. Here the team must consider the impact on process, people, and technology work downstream and the many components that define the business operation and how the overall process will be affected.

Trying to attend to all of these factors or components is overwhelming. In our experience with BPM, the key areas to focus on when it comes time to aligning the different components of a change are the following:

Key: Ex: Executives, S: Strategy, BI: Business Intelligence

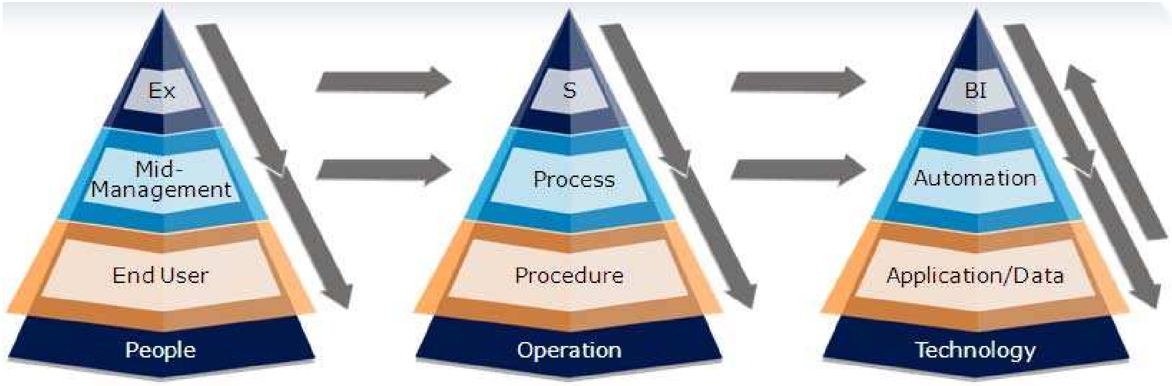


Figure 57. Aligning people/operations (process)/technology

One of our goals in a BPMS initiative is to make sure that the process we design (1) fits properly with the business strategy and other business and IT systems in place, (2) provides clear procedures for those who have to do the work, and (3) provides executives with sound reporting capabilities for progress and performance monitoring (see Figure 57). But this alignment is a constantly shifting target as organizations experience change on an ongoing basis. As such, it should be recognized that it impossible for us to reach and keep perfect alignment. However, the goal should be to bring the new business design as much into alignment as is possible to help glide the change through its introduction.

Other factors in this complex interaction will rise to the surface as issues and concerns are discussed and can be addressed as needed.

Another thing to consider is the alignment of the change management plan to the level of impact a project will have on the business operation. For smaller BPM improvement projects, the project's impact on the change-management approach taken may not be significant. However, in transformation, the impact will, by definition, be significant: it will be invasive and pervasive. Transformation changes the fundamental approach to the business operation with new ideas, new approaches, new applications, and more. The new business design will need to make certain that the new work activities and support all align to deliver what is needed. The change management plan and approach used in this type of project must be designed recognizing the true issues and concerns that the transformation holds for managers and for staff.

The approach to managing change on the staff must also be designed to align with the level of risk associated with transformation. It must bring the ideas of the affected managers and staff and all other factors into a type of cultural alignment with the goals and needs of the operation. As noted above, this requires a flexible approach that will adjust as the project changes the business and as people become more involved.

Clearly, the faster all of these aspects of change can be brought into alignment, the faster the change will be assimilated by the business managers and staff. But the opposite is also true. The greater the misalignment, the higher the risk of failure and the higher the probability that the solution's validity will be challenged by those affected.

7.3.13 Support

Support for Change Management must start during transformation project planning. It is important to adequately address the human part of the change equation as early as possible in the project because people can make a moderate solution a success, and a good solution a failure. The difference is related to their involvement in the project and their acceptance of the solution. For this reason management at all levels should clearly support the need to address the cultural, HR, salary, evaluation, and overall performance measurement aspects of the project.

Following traditional project management approaches, the project is often formally closed as soon as the deliverables are completed and accepted by the sponsor. In BPMS projects we carry this one step further and track the adoption of the change until desired performance is reached. We also try to have the right support structure in place to mentor the people who have been impacted and answer any questions on a variety of issues—on the new systems, the individual's new role and responsibilities, the new processes and any other area where questions may arise.

Access to the available training and support should be clearly communicated and made easily available. However, it is the responsibility of mid-level and line managers to make certain that every person who will be affected has time to take this training, demonstrate their understanding of it when tested, and are ready to perform their activities in the new business operation.

Executive Leadership should also be ready to answer questions such as, why are we doing this? Why now? How does it fit with the corporate direction, vision, and mission? And is our corporate strategy changing? The more transformational the project, the more the staff will be eager to hear from the executive.

Mid-management should also be well prepared to answer the questions important to their direct reports. These include: Is my role changing? Are my responsibilities different? Will we have training? Who can help me if I am struggling? Will my bonus structure change? Will we be evaluated differently?

In all changes, both managers and staff will want to hear from their immediate supervisors (often the mid-management layer) about how the change will affect them personally.

Two other groups that might also need to be ready to support the implementation of changes in the new organization are the HR group (in case of significant change in roles, responsibilities, and performance evaluation structure) and IT (if new systems are put in place and help-desk staff need to answer questions related to the new systems).

The identification of support needs and the people whose support will be needed should be considered as early in the project as possible and built into the change management approach and plan. This will help relieve anxiety amongst management and staff and show that the transformation is important to the company and to individual people affected by it.

7.3.14 Performance Management

In certain corporate cultures, people have become afraid to be monitored and measured. If, in the past, measurement has been use to punish managers and staff, it will have created a climate of distrust, because it is human nature for people to hate anyone looking over their shoulder and evaluating them when motives are questionable. That must be changed if innovation and outside-the-box thinking is to be part of the transformed business process. This breaking of old barriers will take time as management builds trust. However, this is a change that will need to be driven from executive levels down and promoted frequently by executive management.

The change from a fear of evaluation to an openness to try new ideas should be part of a move to a learning organization where ideas are sought and tried in simulation (something that is not possible without a BPMS or simulation system). Performance monitoring and measurement in this innovative environment takes on a different meaning and is not viewed as punitive.

In the transformation project, performance goals should be clearly defined targets. The simulation modeling of the "As Is" business will provide a baseline of the current performance. Business managers and staff will be able to use the baseline to measure the delivery of the project's goals as improvements against the current operation. Using iteration with the simulation, they will be able to help design optimal solutions and prove that the solution should deliver the goals. This allows the project team and the sponsor to learn from each iteration, and apply the new insight to the next iteration. In this way, the team continues to grow in knowledge and ability while the new solution evolves to a measurable level of improvement.

This approach promotes acceptance of the final design because it gives the project team and all who are involved in the design and measurement, a say in how the goals will be made. Also, during the definition of the goals, the business managers will have had input into how performance will be measured and evaluated—the data and the formula. This involvement is part of a change management approach that is designed to make the move to performance monitoring, measurement, and evaluation more acceptable. And acceptance, as discussed elsewhere, is critical.

Performance Management, when used appropriately, is a very powerful tool in helping people clearly understand performance targets, their role in delivering them, and in determining how the organization is progressing toward them. Implementing the performance program also provides a good opportunity to engage people in discussion of how well the change is coming along and what can be done if the performance is not as expected or desired.

Finally, as mentioned earlier in the chapter, it is essential to make certain that the new performance measurement process and targets align with each individual's performance evaluation goals. If the two do not align, the individual performance evaluation targets will need to be used in any evaluation. People are motivated to meet their individual performance goals to obtain positive recognition from their supervisor and any financial gain associated with good performance.

7.3.15 Process Transformation and Change Management

As we have discussed, change management and the human side of the transformation equation are a critical part of business process transformation. The rest of the project deals with activity and technology, both of which are critical. People, however, will make the transformation succeed or fail, and omitting their active involvement can lead to serious problems.

Change management helps the project team focus on the people who will use the solution. In transformation, unlike with improvement, as the business operation is changed, the people's jobs will change. This includes the rules they work with, the way they do work and the way they are evaluated and paid. Transformation touches all of the business operation within scope. This is unsettling to many—especially to those who have been doing the work for some time and are comfortable in their success—but keeping them on the outside to save staff cost is a mistake; their knowledge is simply too valuable to ignore. Bringing them into the transformation will be the main driver of the solution's concern for human engineering, and it is critical it be performed in the right way. As discussed, because of its scope and impact, the change management activity will need to be a formal part of the transformation's plan and execution.

The information in this section is a good overview of some of the things to consider when looking at change management—but it is not all of what must be considered and is not customized to your company. For this reason, it is important to work with change management experts in your company to determine the best way to approach cultural change and training.

Change Management Summary

A well-managed change should

- Call out tangible benefits for the individual and the organization
- Have a shared and compelling vision
- Have visible and committed sponsors and leaders
- Promote early, with frequent and active stakeholders' participation
- Build ownership and accountability; create transformation and BPM champions
- Ensure effective communications are integrated with solid Project Management practices, especially around risks and issues
- Offer appropriate support during and following the project
- Continue after "go live" until adoption and performance have reached expected levels.

Investing time in change management to focus on the people side of transformation increases the probability of success, speeds up adoption, and decreases productivity loss. It is also important in driving out fear and increasing trust and loyalty. This creates a foundation for solution optimization and continuing improvement—both important to the company.

7.4 Getting Ready for Process Transformation

Business transformation must start with strategy and either its confirmation or change. It must also deal with the perspective on the direction the company will take and what taking that direction will mean: how the company will change and why. This is the strategic side of business transformation. Once the strategy is approved by executive management and/or the board of directors, the transformation moves from the conceptual to the physical: that is, real changes to the business operation. The team and the company will now know why this is being done and what is expected in terms of change, goals, and support for a new operating direction.

To begin any operation transformation effort, the company must understand the way the business operation really works, and not just how people think it works. This is where the conceptual understanding and the physical reality meet. Every operation exists to perform work that supports some service or production strategy. But in the normal hierarchy of an organization, the understanding of the business operation and why it exists changes as one moves up or down the organization chart from the line manager.

Most senior managers will have a sound understanding of how the operation is supposed to be working. At a conceptual level, the company usually does work that way. But then comes the translation of the conceptual into reality—the work that is done and how it is performed (including decisions and rules). This is where disconnects often happen. The fact is that few senior people need to understand how the business operations work at a mid-level of detail or lower. They do understand what each business unit does and what each produces. But transformation must also deal with the way work is performed. So, it is necessary to recognize what managers at each level can offer and how that knowledge can be leveraged at the appropriate time and place in the transformation.

To take advantage of this, it is necessary to define what the team will be looking for from managers at each level in the company. Standard questionnaires that can be modified to the individual manager should be created to make certain the team looks for the right level of detail from each interview.

Senior managers will play a critical role early in the project, when an understanding of strategy is critical. This level of management deals with strategic change and is responsible for looking at the business and making fundamental, broad-scope operating decisions and changes. This is business reengineering, and it is critical in a transformation effort. It ties strategy to change and to the business operation and defines how the fundamental rethinking of the operation supports the strategic goals of the company.

Here the senior managers deal with business capacities and the business functions that make them up. Creativity and the application of new technology are important here—possibly more important than at any other level in the transformation because they create the foundation for the change. Because strategy deals with concept (it has no direct execution or physical components), we can consider it a conceptual model.

Following this fundamental rethinking of the operation, transformation activity will focus on the mid-level (department or business unit) manager for each business unit and then line managers, as the transformation effort moves to a lower-level operational view.

These mid-level managers now have the responsibility for looking at how the reengineered business (high-level) conceptual design will affect them and how the physical models of their operations must change. Fundamental rethinking also happens at this level. In moving from the conceptual design level to the physical or execution design level, the managers have a choice of approaches. They can follow the traditional organization model or move to a process-based operating model. Part of the difference is (and the BPM bias says) that a process focus allows you to look at the entire end-to-end process and optimize it. Then look at how the business units that support it will change and how they will each optimize their operation. The advantage is a broad-based optimization instead of organizationally focused optimization that may fail to provide real improvement at the higher process level. In both approaches, the optimization eventually gets to the business unit level. The concern is that it is possible make improvements in a business unit that cause serious problems in downstream activities in other business units. In addition, an organization approach limits the type of performance monitoring and measurement that can be done.

Line managers and their staff become critical participants at this lower level of detail, in the definition/analysis/redesign. Every activity, task, scenario and delivered subassembly, service, etc., must be reviewed and questioned. Each must be justified and those that remain must be viewed with a critical eye for fundamental operational change. All manual work must be questioned. All quality KPIs and standards must be considered, along with effectiveness and efficiency. Following a process approach, the mid-level managers must work in collaboration to make certain this design improves both the process and their work. In reaching consensus on the new design, it is possible that any manager may need to compromise and go along with a solution that, while not optimal for them, is optimal from a process perspective.

Participating managers then need to focus on their business units as the project moves forward and the lower-level designs must be built, including the information needed for application generation or the building of application system specs.

This allows the business unit workflow and activities to be combined to form processes and then aligned to business functions and business capabilities—which then tie to strategy.

This provides a complete view—from conceptual to the physical operation and back to the conceptual view—of the new design as it rolls up to ensure that strategy is supported.

In this progression of involvement, the project will first need to take advantage of

1. Business Architecture and Business Architects to look at strategy and its impact on the business. It will then move to
2. Process Architecture and Process Architects as the current business operation is defined and modified. The changes to the business will then require the involvement of
3. Enterprise Architects to look at the business needs from an IT perspective.

The participation of these individuals along with Enterprise Architects will need to be built into the project approach and plan, along with the differing roles of managers (senior through mid-level to line managers).

To help guide management through this change process, the team should consider adopting a formal BPMS-based BPM project methodology. This can be internal if the company has one (IT methodologies like Agile do not count), or purchased if that makes sense. But the key is to create a consistent framework to base the project and its tasks on. This methodology should include formal change management activity that is meant to engage a broad part of the workforce and win their buy-in.

The transformation project plan will be based on the tasks and guidance in the BPM/BPMS project methodology. This plan will be customized to fit the project, company standards, company culture, and financial realities.

In defining the direction that will be taken in analysis and design, it is suggested that the project team identify the techniques they will use and where they will use them—Value Chain, Lean, Six Sigma, CMM, Activity-Based Costing, etc.

But because it should be built for the project, the approach and plan must be understood by all, both discussed and debated, to make certain it is accepted. Governance then must ensure that everyone follows the plan and lives up to their commitments.

The changes in the business strategy and business capabilities and their functions will now provide the basic requirements for the transformation. These become the Critical Success Factors. These requirements and Critical Success Factors are built into the approach and the project plan to ensure that they drive the analysis and redesign.

7.4.1 Creating a change-ready operation

While the requirements of the transformation and its Critical Success Factors set the stage for change, they do not provide the ability to actually change.

Transformation must take place at all levels in the process or the business capabilities that are being changed as part of the project. Here a top-down approach should be considered because work that is performed today may simply not be necessary tomorrow. The fundamental rethinking will question everything and propose new ways of doing business—including new automation and outsourcing. So, the business operation may become a mixture of work that is very different from today's. In this "nothing is off the table" approach to transformation, the managers and project team will be challenged to "think outside the box" and leverage emerging concepts and technology to come up with new ideas on how the business could run. Part of this questioning and outside-the-box thinking will be based on BPMS-based BPM technology and approaches to both change and continuous improvement.

But the key to real transformation is the creative application of knowledge on how the business actually works at all levels, including the market, legislation, and technology. This must be knowledge of both the current status in all these areas and any changes that experts are predicting. It is creativity that differentiates between teams and companies.

The team with the most creative people will be innovative, and ideas will be very different from those of more traditional teams. Part of the difference is in not knowing any bounds. For this reason, it is suggested that people with transformation expertise, even from other industries, be added to the team. They tend to question different things and propose ideas from new perspectives.

Given creativity and innovation, the team will be faced with looking at the operation in new ways. Many of the ideas will not be feasible. Many will simply not work. Many others will not be palatable in the company's culture. But even in rejected ideas there is often a nugget of gold. These can add up and together allow the team to make design changes that they would otherwise not have considered.

This questioning and learning makes the transformation project the start of building a change-ready operation. Regardless of how good the new design, like all other business designs, it will quickly become obsolete and not reflect the changing business environment. To avoid this aging, it will be necessary to add continuous improvement to the approach. Here the goal is to create an operating environment that learns and then applies that learning to evaluate the business for improvement.

To achieve this, a transformation must be viewed as open-ended. The first transformation project will, of course, have an end-date and deliverable targets, but the project should not end there. This point should be viewed as the starting-point of its evolution, not an end-point.

This approach allows the company to constantly view the operation as changing. In the past this was a scary concept. But today, in a BPMS-supported BPM operation, the change is less dramatic and less risky. It is more dynamic. In this way, the first transformation project sets the stage for continuous improvement and provides the embedded performance monitoring needed to constantly look for problems and ways to do things better.

This will require a change in the way projects and business evolution are viewed. Today, open-ended projects are seldom tolerated—even ones that offer a series of delivery dates and benefits come to an end. But if a company wants to move to continuous improvement, transformation never really ends. Once the initial transformation is implemented, the operation moves to an unending cycle of performance measurement, review, analysis, and change.

7.4.2 Funding: Always a problem

As noted, business transformation is change at a fundamental level, making it disruptive and difficult. Part of the difficulty is the cost of these projects. The funding required is always greater than that of an improvement project. The benefit calculation is also a lot harder because an improvement project will have a very narrow, specific set of objectives and, correspondingly, benefits. Transformation, being more strategic, should be viewed differently and should be funded differently. However, in today's ROI-focused environment, the transformation will likely need to be justified the same way an improvement project is justified—that is, based on hard benefit estimate, not on strategic need. But this will vary by company and the project manager will need to work with the project sponsor to determine the funding view that makes sense in your company.

The key is to work with senior business management, finance, and IT to create an approach and formula for determining benefit of transformation efforts. This formalized and approved approach is rare today, but it is recommended that it be considered before the transformation effort is requested.

Funding should also be tied to the project plan. If the plan is based on a methodology, the project manager and sponsor will be able to estimate the work and cost more easily. It will also show how the funding will be needed (when, what for, and what will be delivered). This can change the way the funding is viewed. By aligning funding with deliverable and benefit over time, the investment will be spread and the benefit may well be able to offset the investment. However, if the initial phase or deliverable needs to cover all BPMS and IT investment, the project will likely not be approved. It is therefore important to work with IT and with the sponsor to see if there is a way to spread or offset the cost of the technology.

Funding may thus follow a different approach than that used for improvement projects. The important fact is that the project manager will need to determine the approach and formula for looking at benefit in transformations.

7.4.3 Understanding the goals of the transformation

Language can be imprecise. Terms may be defined differently. In international companies, currency translation and other factors may also complicate the defining of goals, computing of value and benefit, and compliance with legal requirements. When projects are small, the impact of these considerations is limited. When projects are big, like a transformation project, the impact of these and other issues can be very serious.

For this reason it is important to take the time to make certain that everyone has a common understanding of the goals, approach, measurement, and evaluation of the project's success. If this is not done, the risks associated with the project increase.

This has historically been a key problem with outsourcers, where there are often language and definition barriers. But it doesn't just affect outsourcing. It is seen constantly in everyday work and operations. It drives the ages-old issue of improving internal communications—"this is not what I meant"—"but that is what you said." It is also the reason that ABPMP urges everyone to begin a project by defining "common" and BPM terminology. For example, "customer" can have a great many meanings. "Process" is also a very misunderstood term; in one online BPM dictionary, the term "process" has more than 10 different definitions. The team and all those involved must have one common definition of any term. If not, misunderstandings will occur. Accent and language problems also play their parts in these misunderstandings. All must be considered in collaboration and communication.

To offset this issue, it is important that time be spent up front in the transformation in workshops to bring everyone to a common understanding of the project, its goals, its terminology and its tasks. This will allow managers to know what to expect and to understand their role in the project.

7.4.4 The resources: Different people with different skills

As noted earlier in the chapter, transformation projects should be staffed with people offering a variety of specialized skills. These include Business Architecture, Enterprise Architecture, Process Architecture and Process Management, Database Architecture, Web Services, Data Management/Delivery and Business Operations Management. In some companies, Change Management can be added to this list. Although there are a lot of traditional business skills, BPM skills, BPMS skills, and technical skills on this list, the transformation projects require additional specialty skills. Transformation projects are big and require a lot of resources, both full- and part-time. These skills may include cloud computing, Lean, Six Sigma, BPM strategy, data consolidation, SOA, web application, customer experience, and more.

It is therefore important to identify the source of any skills that may be needed so they can be added to the project team if needed.

7.5 Transforming the business: reaching optimization

The foundation for the transformation is set forth in earlier sections of this chapter (see, for example, 7.2).

The keys in transformation are the targets (goals, standards, performance targets, KPIs and requirements) and the approach. Starting with the goals and requirements, the project team and all participants will need to have a common understanding of what they mean, and the expectations of all business managers, staff, and collaborative partners who are involved. This must be obtained through workshops, and consideration should be given to a test to ensure understanding of key concepts, goals, requirements, IT capabilities, etc.

In addition, the approach will need to be augmented now that the foundation is in place and the project is starting. A lot of issues will have been listed in transformation project setup. These are a good start, but the team will now need to deal with procedural issues, such as

- How many of the assumptions made in considering the project were supported by management?
- How many discovery teams will the project team be broken into?
- Will the interviews be conducted by a single team member or by a pair—one talking and one taking notes?
- Will there be a dedicated user or two, or will the team choose a broader-involvement approach and take a little time from a lot of people?
- Will the business users receive BPMS training or will all modeling be done by the project team?
- Who will be involved in creating the transformation governance and standards?
- Where will the team find business rules—manuals, memos and interviews/workshops? Will any be pulled from applications systems?
- What is out of bounds in questioning and consideration for change—is outsourcing in or out? Are new web applications in or out? Can departments be eliminated?
- Will the team take a process perspective or an organization perspective?
- Will the team use simulation modeling or workshop walkthrough to test the design?
- Will there be a BPM or Business Architecture CoE (Center of Excellence) to provide guidance and standards?

This is not an exhaustive list, merely some examples. The list continues with issues that are specific to your company and the areas of business in the project.

In actually performing the transformation activities, the project team should be guided by the BPMS/BPM methodology the company has adopted. This methodology will provide a list of the tasks that need to be performed and their relationships, along with the data that must be collected for each group of tasks and the deliverables that should be produced in each of these task groups. The project manager will augment this methodology with company-standard formal project-management techniques and activities to create the transformation project's plan. To customize the approach and methodology to the scope, complexity, and objectives of the project, it is recommended that the project manager work with the company's BPM CoE and IT. It is also suggested that the project team involve Business Architecture and Enterprise Architecture at the points in the planning that will need their support. The project plan and approach, once reviewed and accepted by these groups, should then be reviewed for formal acceptance by the executive committee. Following their acceptance, the plan should be published on the project's web site and discussed in a workshop with all participants. This will help ensure that everyone understands the project, its approach, and its plans.

The transformation project will then follow a common approach that is customized to the project. This reduces cost and risk while providing consistency. The project will start by moving through the methodology's start-up task groups to defining the current business with the construction of a high-level "As Is" business-operation model. This model will be focused on the process(es) that will transform in the project and show the activities assigned/performed by each business unit in scope. This is a key part of the transformation.

Note: Every transformation will have different drivers, goals, and scope. Some will be organizationally oriented and confined within a business unit or department. Others will be process oriented. The project plan will reflect the scope and goals, but they will both now define the "box" or limits of the models.

This model will be broken into lower and lower levels of detail until a complete picture of the current business process/operation in scope is defined. Business rules and the applications that are used will be identified and the data used at each application "touch point" in the business will be shown. A variety of metrics (as defined as a standard by the project team and the BPM CoE) will be collected in the discovery process. If the project team will use simulation to test the new design—and this is recommended—the data needed will be identified and collected in this "As Is" discovery. The "As Is" models will be run in simulation to obtain baseline metrics. These metrics should be reviewed with the business managers and adjusted if necessary to accurately represent the current business.

The project team will now need to create a high-level new or "To Be" design with anticipated improvement metrics in the modeling tool. Everything will be questioned, and innovation and "outside-the-box" creativity will be applied. While legal, financial, and reporting limits will need to be considered, aside from these limiting requirements (and others identified by executive management), there are no limitations to what the project team should consider in the transformation design.

At this level, there is little detail on the actual operations. This level is, however, the most important level in the redesign because it is here that fundamental change is first a main driver in the redesign. This will set the stage for the detail design. If the project team is timid in the high-level design, little will change and the lack of creativity will guide the detail design as well.

This high-level design will provide the framework for the detailed "To Be" operational design. By entering the models into the simulation application, the project team will be able to test the delivery of the higher-level transformation requirements and goals. To confirm the delivery of the expected transformation operation, the project team will walk through the high-level simulation with executive management. All comments and observations will be used to finalized the design and create a final high-level simulation test.

Once the high-level models have been accepted, the real work of the transformation will begin.

These high-level "To Be" models will be used to create a series of detailed "To Be" models as the project team iterates through design options to find the best new design.

Following a process-centric approach, it will now be necessary to look at process and the alignment between process and organization.

Note: If the transformation is following an organizational approach, the project will not address entire processes (which are cross-organizational) and it will be necessary to determine the possible impact of changes on the downstream parts of the process that are not in the project. This assessment will help determine what changes can be made in the new design. This is a limitation related to an organization approach.

Once the new "To Be" design is approved, construction of the new business operation can be planned. It is suggested that the project divide the new high-level design into parts that can each deliver a given part of the product. This creates a cohesive new design built as a series of related but separate construction projects—the same as is followed with sub-assemblies coming together to form the product.

Each of these component parts can now be designed at a detail level. In this design, the same approach of questioning everything and being innovative should be applied. As with the high-level redesign, the new detail designs should be tested and iterated using simulation. Here, however, the detail designs should be approached both as individual transformation projects and as a part of a larger transformation. This allows each to be considered individually and also as they fit into the larger transformation design. Here each will receive input from other components and each will perform activity, and deliver data and product to the components it touches, as shown in the high-level design. This allows management to track improvement at the individual component level and at the project level.

Of course, as the component designs are being planned, designed, tested, approved and constructed, IT will be provided with high-level support requirements and more detailed-level application interface, Java module, web service, database design and other specs. Simulation testing will be tied to the delivery of IT infrastructure changes and the needed interfaces, etc. This delivery will determine the final simulation testing schedule and the overall transformation implementation schedule.

As all "final" simulation design tests are completed, the new design should be reviewed in a walkthrough with all the people who will work in the new business operation. Their "hands on" input may cause additional iterations, but the result will be an optimal result. If a BPMS is used, this new low-level design (business model, rules, data, screens (forms)) will be used to generate new applications that are produced and executed within the BPMS environment. These will be tied to the IT-built support (Java modules, etc.) to create a complete solution.

7.5.1 Creating a Win-Win outcome

Win-Win means everyone wins. The company must gain benefit first of all. But it cannot be the only winner. Managers at all levels must individually win and so should staff members. If this is a key goal of the project, acceptance of the solution will be likely and risk will be minimized.

Winning, however, has a lot of different definitions. It may mean that someone is judged as having performed better than expected. It may mean that workload is reduced. It may mean that the culture changes to one where people are treated well and not afraid of being fired in a downsizing. In attempting to create a win-win solution it is important to talk to people and see what they hope to get out of the project. This is where HR (Human Resources / Human Capital, etc.) comes into the transformation project.

While this may seem simple, in union shops it is not. And in today's highly regulated business world with local HR law and reporting mandates, dealing with people issues is anything but easy. So, HR must be involved in any consideration of a win-win scenario.

But even if difficult, a transformation project must look at fundamental changes to work and everything having to do with people. The simple fact is that any company and any process is a social operation. People work together, interact, play politics, and make things work—they find ways around problems every day. So, the people and cultural side of the transformation are critical to success.

7.5.2 The status of Legacy technology: help or limit to transformation

IT will either be a helping or a limiting factor. Even if everyone in IT including the CIO is eager to help and join in the transformation, in many companies, cost-cutting has limited what IT can do. Legacy applications and a legacy IT architecture can serve to limit the types of things that can be considered. If a possible change cannot be supported without a major investment in IT, it may need to be dropped from consideration.

As we keep stressing, transformation requires rethinking and a radically different approach than was taken in the past. Otherwise, you may be simply doing more quickly the things that have limited your success. And, while this may be the case, there is also reality. Some companies have funding constraints, some have IT constraints, some have union constraints, and the list goes on. These realities must be considered in any solution. So, while creative thinking is needed, it must also be done within the bounds of reality.

Here the project team may still consider a solution that ignores certain limitations—after discussion with executive management: it allows the project team to look at differing time-based targets. In each target the limitations and assumptions that are built into the transformation design change. As an example, the end-target design might be based on the elimination of, or spacing of, financial constraints. The project team will then create a final design and back off to add in given constraints at different time periods. Because a transformation project is multi year, it can allow for change in the constraints over time and build different solutions that will move from one constraint-base to the next, with less constraint over time. This is especially helpful if the IT architecture or infrastructure will be a constraint: it may change as new hardware, software, or communications are added.

In this case, the project team should work with the CIO and lay out a series of time-related improvements to the IT capabilities. It is then possible to coordinate the delivery of different phases in an increasingly flexible and capable series of solution releases.

7.5.3 BPMS and transforming the company

Many today believe that true transformation cannot take place without the support of a BPMS. The reason is that, while a design can be built using simple tools or even paper, it will not be as comprehensive as it could be. Simply stated, it is impossible to keep up with the data that is collected in a transformation and the almost daily changes to it.

Also, without automation it is difficult to simulate an operation, and almost impossible to control its iteration. That is why IT and others have historically taken the position of going above and beyond to make certain they get the requirements/specs right the first time. But we all know that while that is the goal, it is seldom reached, particularly in complex projects. The business simply changes too fast for any traditional IT-development or system-improvement project to keep up with it.

But the biggest reason for using a BPMS is the ability to rapidly generate applications to both improve the way the operation is monitored and controlled, and provide task automation. This reduces the burden on IT (create interfaces/data access, web services, Java modules, etc.), and supports an ability to change rapidly through iterative designs and testing. It is this ability to change/monitor/analyze/iterate that delivers optimization and continuous improvement. This is also the tool that allows a learning organization to leverage lessons, eliminate problems, and reduce risk.

7.5.4 Redesigning the operation: Process level, business unit workflow level, leveraging technology

As we have said, transformation is not about doing the same things better. It is not simply about improving efficiency or eliminating error. It is about the customer and taking a new look at the business operation. And, it is about taking this viewpoint and radically rethinking the way the business delivers service. This is a critical point in understanding transformation and in redesigning the business. Without it, you are not doing transformation.

Businesses evolve toward mediocrity over time. Constant small changes and the fact that change has historically been organizationally limited cause processes to become unorganized, weak and ineffective. They are often brittle and break easily. Improving them has helped by putting new patches on the old ones.

But little has happened to make them serve the customer better or make the company more competitive. Eventually, the operation starts to break down and "white space" manual work around effort becomes common. At this point the operation is broken. It may operate and work will be done, but the effort to make it work is extraordinary and the risk of any change is high.

Transformation is a new look at the processes and the company. It is about thinking big, unfettered. And it is about changing at all levels (process, subprocess, business unit, and workflow) simultaneously in a way that looks for the best way to serve the customer and then works inward from the customer interaction to optimize how the processes work. This perspective is often new to companies who are used to looking inward to improving the operation and driving out cost by improving efficiency.

Example: How many people like to call companies to order or request something, when they are likely to speak to someone they can't understand and who really cannot help them? How many people really like calling to talk to a computer that gives them five choices—none of which seen to be the one that will help them? And, how many like going through the layers of automated questions to place an order or find information? I, for one, go right to the 'talk to someone' option.

As a starting point in any transformation design, put yourself in the customer's position, not in your company's position, and eliminate all the things you and the project team hate when dealing with a company. That is a good starting point. Then work inward to eliminate what you hate and correct the deficiencies that stop interaction the way you would like to do it.

Focus groups and customer questionnaires are good tools to help in this definition of interaction problems. Although the customer perspective is only one of many drivers, it is an important one and it affects all levels of the new design.

7.5.5 Performance monitoring and feedback to solve problems

Most companies have some form of manual and automated performance monitoring and reporting. But the question that must be asked is, does it measure the right things? Much of the reporting in companies has evolved over a great many years. People just keep getting the reports and, when asked, acknowledge that many are useless or provide a limited amount of information. But it is so onerous to change these reports in most companies that business managers live with what they have.

During any transformation, this situation must be reviewed and changed. Reporting must be made useful. To do this, it must be built into the new business workflow and management designs.

If a traditional approach of creating requirements/specs from the new design and giving them to IT to build applications/interfaces, etc., is used, the reports will be built following the normal IT methods.

If a BPMS is used to support the creation of the new transformation business design, it will be possible to generate performance-monitoring capabilities from both the parts of the business that will execute within the BPMS (see chapter 10, BPM Technology) and from legacy application data. This allows the BPMS operation to monitor activity and then anticipate outcomes based on given rules. With this ability, managers have a new level of performance monitoring and reporting.

Transformation is a chance to rethink not only what information really will be helpful, but also how it should be delivered—paper, reports delivered on screens, or summaries on automated dashboards. All have a place and the options are growing with iPads, smart phones, etc. The key is to understand each option and then work with the business users and IT to define the right options for the needs.

Through this approach, it is now possible for managers to keep track of what they are interested in monitoring and to instantly send guidance as alerts and warnings are received. The technology is delivering new capabilities, and both performance monitoring and measurement (evaluation) can now provide new ways to deliver information and react to it.

7.5.6 Delivering flexibility and speed of change: Arguably more important than savings (strategic use of BPMS/BPM vs. tactical short-term benefit)

Using a BPMS in a transformation project is a commitment to the tool and the approach. The new design will execute within the BPMS—it cannot be separated from it. So, using it represents a strategic commitment to the tool and the changes it supports. The reason is that transformation implies a broad-based change, and whatever technology is used will affect a significant part of the business operation and the IT infrastructure. Because transformation and continuous improvement (which will hopefully be a goal of the project) require long-term commitments, the technology that is used represents a strategic commitment in the business area that's to be transformed.

A BPMS offers significant advantages over traditional technology. The advantage that is a true game changer is the generation of applications. Today BPMS tools have evolved to the point where they can generate industrial-strength applications (see chapter 10, BPM Technology). Other technology that interfaces with the typical BPMS can offer additional speed in legacy-application interfacing and web-service design/delivery. Together they provide an ability to change very fast by modifying business models and rules, redefining forms that design screens and reports, and then regenerating applications.

This ability to regenerate applications is the foundation for iterative design and testing. Whether the design is simply iterated with built-in performance monitoring that provides results reports or iterated using a simulation modeler, the bottom line is that the BPMS-supported new business operation can change quickly and with limited risk—for a low cost.

This is the true advantage of a BPMS.

7.6 Sustaining Optimization

Transformation is the first step into a new operating future. It is not the last one. Beyond transformation lies continuous improvement.

Traditionally, once a major change has occurred, management believes that the business operation can be left alone for a considerable time. In BPM, that perspective needs to change to adopt a policy of continuous improvement in all areas that have been transformed.

Once optimized, the trick is to sustain an optimal level of performance as the business and the market change. In chapter 5, the Evolutive Management concept was introduced. This is an approach that recognizes that the business will evolve. There is no question about that: the question is whether it will evolve through management direction or simply evolve uncontrolled, with management playing an unending catch-up game.

Transformation, if performed the right way, will have eliminated problems, waste, and cost, while evolving the business to support faster response to market opportunities and legislative requirements. In some cases, performance measurement and reporting will have been put in place to help the operation find and focus on smaller changes as it moves from transformation into a new operation. If continuous improvement is adopted, management will once again focus on improvement to resolve problems and address market and legislated requirements, in the move to sustain the state of optimization. This goes far beyond focused improvement and moves the operation to an environment of continuous evolution with the goal of sustaining a state of operational optimization.

But because optimization is a moving target with a constantly changing set of characteristics and values, it should be realized that optimization can never be maintained for long. The business environment in which companies operate changes constantly. Because the changes are different all the time, they constantly affect different parts of the business—at times even those that have been transformed.

This means that, to approach optimization, the business must be able to change quickly enough to adjust to a variety of drivers and events in a matter of days or at the most weeks. In this reality, optimization may be achieved, but it will be a fleeting victory, for as soon as it is achieved, the company will need to change to keep up with the next change in the changing business world.

To keep pace, the company must adopt a posture that promotes continuous evolution. Here the business, once transformed, never stops changing. In this environment, the ability to change quickly is more important than any single outcome or change. The reason is that any outcome will be valid only briefly and the business will need to move to the next iteration of its operation as quickly and with as much control as possible. This type of constant evolution was not possible before BPMS-supported BPM—it simply took IT too long to change applications.

With the ability of a BPMS to generate applications, the past concept of continuous improvement is changing to support continuous iterative business change. But BPMS-supported BPM is only part of the answer.

Business transformation can set the stage for a new business approach—one of constant evolution to optimization. This will require a new understanding of what BPMS-supported BPM now allows to be possible. The challenge to the transformation team, the BPM CoE, and the BPM industry is to help management understand this new approach and to adopt it.

7.6.1 Commitment to continuous improvement

When everything is going well, the operation has been transformed, and the level of performance approaches optimization, it is easy to forget how that happened and tough to be committed to maintaining that level of service.

Example: A major health insurance company implemented a transformation effort in claims processing. The people on the transformation team were trained and management was committed. The effort achieved all goals and exceeded expectations. The project team members were promoted and either ran or assisted managers in running the transformed areas. Things were great for several years. Improvements were found and made and the operation was fairly optimal. But as the original transformation team members were given different jobs or left the company, the commitment to continuous improvement became less and less. Finally at the seven-year mark, the business operation was once again operating at a mediocre level and was in trouble.

Given the investment in transformation, continuing to insist on a program of continuous improvement just makes sense. But this commitment must transcend any individual or it will slowly be lost as new people replace those who understand what the commitment gives them.

7.6.2 Evolving the process

As the business changes, so will its needs. As noted, these changes will drive continuous improvement, but it will be at the improvement level and not at the transformation level of change. For most things that will be fine. However, the business must evolve with the industry, the marketplace, advances in IT technology, advances in production technology, new products that the company will offer, and much more. At some point, these drivers may be so significant that another transformation will be needed. This transformation will be different from the first, which created the current transformed operation.

In the future, the transformations will be a redesign with a wider scope than the improvements. The models, rules, forms, and other information will be in the BPMS and transformation will simply be a bigger improvement effort with the focus of radically rethinking the business based on the drivers. Disruption should be much less and risk much lower. Everything will be in place and reusable. This eliminates the project start-up "As Is" modeling and starts with simulation-based redesign.

A BPMS-based BPM environment is designed to change and help the business evolve. Care must be taken in putting the people and reporting in place to direct and control this evolution.

7.6.3 Continuous improvement

Often touted and seldom truly delivered, continuous improvement, when performed in a BPMS-supported BPM environment, becomes feasible and beneficial.

The problem with past attempts at continuous improvement has not been with the identification of a need or the redesign. Six Sigma and other evaluation techniques have been mostly successful in identifying the need, and Lean and other improvement techniques have produced good new designs. And, applying these techniques at the improvement level seems to work much better than at the transformation level. So they are being applied at the right level in trying to produce improvement.

The problem comes with the creation and implementation of the changes. This problem is timing. Today in most business environments, changes take a long time—especially when the change involves IT and changing applications or building new ones. Because the business need is changing quickly, it has been difficult or impossible for most companies to build and implement changes quickly enough for them to be effective in moving toward optimization.

Clearly any change that takes months or longer from the time it is requested to the time it is deployed will be out of date when it is delivered. The proof of this is in the requests for further changes that accompany the delivery of most IT support.

Continuous improvement, to be effective, must be capable of delivering very fast changes that include the business operation and IT. Building this environment is part of a commitment to continuous improvement because it can be reused by any part of the business. Building it requires a BPMS tool and a commitment to architecting the IT infrastructure to open data access and increase the speed of delivering applications and interfaces. It also requires a commitment to investigating and adopting new technology and new business approaches.

When this is in place, true continuous improvement can be put into operation.

7.7 Key Concepts

- Transformation is the fundamental rethinking of the business operation.
- Transformation is both invasive and pervasive, and is both a large and expensive project.
- The scope and level of change in transformation requires skills from multiple disciplines.

- To control transformation-level projects, the work should be guided by a formal methodology.
- Transformation-level projects should use a BPMS and follow a BPM-based approach.
- Transformation provides the opportunity to move the business to continuous improvement.
- To succeed, transformation requires the involvement and support of the executive team and the business managers and staff who will be affected—in scope.
- Funding is always problem in large projects. The transformation can be designed as a whole and deployed in high-profile, high-benefit parts in order to start realizing benefit sooner.
- Change management must be considered to help the project win business manager and staff acceptance.
- A formal, but evolving, change management plan should guide the approach and staff interaction.
- Performance monitoring, measurement, and evaluation should be built into the new business design with the involvement of the business managers and staff who will be monitored.
- The end of the transformation is the beginning of the continuous improvement cycle for the transformed business operation and process.
- Transformation and continuous improvement will change culture and should create a partnership between management and staff for future change.
- Management should be committed to innovation and "outside the box" thinking in the transformation.

Chapter 8

Process Organization

Foreword by Andrew Spanyi, Managing Director, Spanyi International Inc.

This chapter addresses some of the key organizational factors that are relevant as a company moves towards becoming a customer-focused, process-centric enterprise.

The principal concept is that an organization needs to introduce and sustain accountability for the flow of work that crosses traditional organizational boundaries in creating value for customers and the company.

The relevant organizational approaches typically include changes in work processes, organizational structure, roles and responsibilities, performance measures, values and culture. The changes in organizational structure do not replace traditional structures based on functional, geographic, or product disciplines. Instead, a process organization represents an overlay on a traditional organization design intended to create greater emphasis on customer focus and process orientation.

Changes in organization structure through the introduction of roles such as process ownership and a BPM Center of Excellence need to be supported by the right models, measures, improvement methods, and aligned recognition systems. Simple, visually compelling and relevant process models, customer-focused measures, integrated improvement methods, and aligned recognition systems all serve to shift company culture from a hierarchical view to a customer-focused, process-based view.

The role of measurement is crucial in this regard. Process-oriented companies measure what matters to customers. The most common of the customer-focused measures include perfect order delivery (as defined by The Supply Chain Council), perfect new product introduction and first-time-right responses to customer inquiries and complaints.

Establishing accountability for process performance is another cornerstone of a customer-focused, process-centric enterprise. In spite of the existing literature and no small amount of fanfare around the importance of process ownership, organizations often stumble with success in process ownership in some or all of the following ways:

- Process owners are appointed at middle management levels with responsibility for processes of small scope and are not supported by executive process-owner appointments for the improvement and management of the firm's end-to-end processes
- There is a lack of adequate and continuing training for, and education on, the role of the process owner
- The role of the process owner is divorced from the fundamental management framework of the firm, and process owners lack a clear voice in making decisions around resources and priorities.

An integrated approach to improving performance through a customer-focused, process-based view of the enterprise is another key element in becoming a process-centric enterprise. This requires integration in the various improvement methods used by an organization, including approaches such as Lean, Six Sigma, Continuous Process Improvement, Reengineering, and technology-enabled BPM initiatives. While such integration involves a greater investment in training and generally requires more effort, the resulting benefits can be significant.

The journey to enterprise-wide process management involves the definition of a company's end-to-end processes (typically 5 to 10), measuring performance from both the customer's and the company's points of view, designating process owners with responsibility and accountability for process performance, selecting two or three processes for improvement action, capturing early wins in each selected process, and sustaining gains through ongoing management of the firm's end-to-end processes. This cycle is then repeated until the entire operations of the firm have been optimized.

Contents

8.0 Introduction

Each business is different, and the nature, amount, and pace of change in a business are dynamic. A business process management focus changes the way executives think about and structure their institutions. Historically, most companies have been structured around functional, geographic, or product disciplines. Few companies are structured around their business processes. As institutions reach new levels of process maturity, new skills, management structures, and ways to align, motivate, and reward employees may be introduced. This chapter helps build an understanding of the nature of what these changes may include, so that Business Process Management Professionals can anticipate, plan, prepare, and guide the business through the transition to a process-driven enterprise. These changes include

- Organizational approaches to consider as businesses introduce and mature in the discipline of managing their business processes. Changing organizational approaches can be challenging and can include changes in work performance processes, organizational structure, roles and responsibilities, performance measures, values, and culture. Essentially, everything about the company, perhaps even how it defines itself, is subject to change.
- Lessons learned from implementing Enterprise Resource Planning (ERP) systems: how organizations have been affected, leading some to become process-driven.
- Specific roles and responsibilities played by individuals in a process-driven organization.
- Process-specific governing bodies, which lead to successful process improvement implementations, according to field practice and research.
- Developing a Business Process Management Process Center of Excellence (BPM COE).

8.1 The Process-Driven Organization

> *The **process-driven organization** is an enterprise that is structured, organized, managed, and measured around its primary business processes.*

8.1.1 Considerations in Managing Primary Processes

Many companies discover that to be effective in managing their primary business processes, they must assign clearly defined accountability for the design, documentation, maintenance, upkeep, and long-term health of these processes. New roles, responsibilities, relationships, and organizational structures may be contemplated. This often leads to a significant change in management focus and the way work is performed, developing from a more traditional structure, focused on a particular resource or business function, to the cross-functional performance of the end-to-end processes that deliver value to customers.

8.1.2 Contrasts between Traditional Management Structures and the Process-Driven Organization

Traditional management structures involve hierarchical resource management that delegates responsibility from one level of management to the next, with ultimate accountability assigned to the organization's individual stakeholders. This delegation is expressed as a downward managerial focus on command and control of individual workers who have responsibility for specific sets of tasks.

In contrast, process-driven organizations assign accountability horizontally, to all functions, for delivery of value to the customer. Process focus involves process design, documentation, measurement, and continuous improvement. Rather than command and control, process managers may find themselves coaching, advocating for, and supporting a group of professionals who actually perform or execute the process.

A process-driven organization does not mean that process is the only dimension of management, performance measurement, or organizational structure. An integrated approach to performance improvement must take into account the organization as a whole, inclusive of process and the role of the individual with respect to the process and the organization. Although this concept has been discussed in depth in **IMPROVING PERFORMANCE: HOW TO MANAGE THE WHITE SPACE IN THE ORGANIZATION CHART,** by Geary A. Rummler and Alan P. Brache, it cannot be emphasized enough that this is the fundamental premise behind the process-driven organization and the organizational structures that support it.

8.1.3 Rummler's Performance Matrix

Rummler suggested using a performance matrix to illustrate and integrate the multiple levels of an organization and its concerns. This is a 3 by 3 matrix (see Table 24) that covers the scope of the approach and indicates the three levels of an organization and the concern of each level.[4]

Level of Organization	Concern at this Level
Organizational	The organization as a whole
Process	The specific processes the organization uses to accomplish work
Job or Job Performer	Concrete activities that people and systems perform

Table 24. Concerns at 3 levels of organization

[4] This is another example of levels of an organization and processes previously discussed in chapter 3, on process modeling.

8.1.4 Performance Matrix Presents an Integrated Approach

At each level, the assumption is that organizations:

- Define goals and measures, and create designs for achieving their goals and measures, and
- Establish management practices that assure that the designs achieve the desired goals and measures.

The table below illustrates the concept of an integrated approach to performance improvement. The primary point is that the matrix stresses an integrated approach and the dynamic interaction among all the levels and the nine variables in the matrix.

Level	**Goals & Measures**	**Design & Implementation**	**Management**
Organizational Level	Organizational Goals & Measures of Organizational success	Organizational Design & Implementation	Organizational Management
Process Level	Process Goals & Measures of Process success	Process Design & Implementation	Process Management
Job/Performer Level	Job/Performer Goals & Measures of Success	Job Design & Implementation	Job/Performer Management

Table 25. Rummler's Performance Matrix[5]

8.1.5 Results of Deploying a Performance Matrix

Organizations that have put into practice the concept of the performance matrix have made a significant transition in the transformation to a process-driven enterprise. Acknowledging the role of process in an organization seems trivial, but integrating process into the organization's goals and measures and integrating the individual's performance into the process and the organizational levels is not trivial. Often, the functional roles and responsibilities conflict within the realm of the Performance Matrix. Financial, market, and other performance measures remain important, as do functional and product skills. Some organizations may leverage hybrid structures, which include a process dimension combined with functional,

[5] Improving Performance: How to Manage the White Space in the Organization Chart, Geary A. Rummler, Alan P. Brache, 1995

product, market, or geographic dimensions. Others may take a more aggressive leap, structuring themselves almost entirely around processes.

8.1.6 Process Culture

A "process culture" exists when the business's processes are known, agreed on, communicated, and visible to all employees. Characteristics of a process culture specifically include

- General agreement on what the business processes are
- Understanding of how business processes interact and affect each other
- Clear definition of the value each process produces
- Documentation of how each process produces its results
- Understanding of what skills are required for each process
- Understanding of how well each process performs
- Ongoing measurement of process performance
- Management decisions based on process performance knowledge
- Owners of each process having accountability for process performance
- Organizations that orient themselves to process understand
- The need to change their management approach to incorporate process, and
- The roles to manage process in their organizational structures.

8.2 From Hierarchical Structures to the Process-Driven Organization

The legacy of managerial structures in functionally oriented companies is typically a departmental hierarchy, where managers are responsible for workers performing tasks related to a particular resource or business function. Groups of workers are combined into divisions or departments, each adding layers of management and control. In large enterprises, these departments are often grouped by product, market, or geography. These "silos" of resources are represented on a common and familiar organizational chart, as in Figure 58.

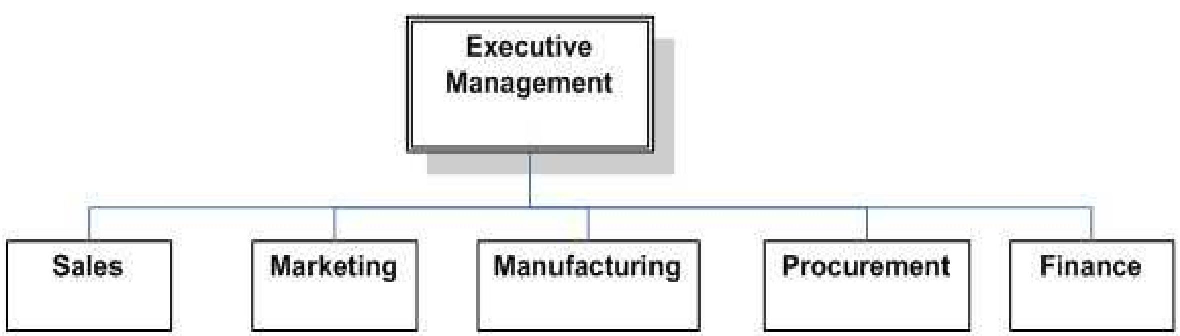


Figure 58. Organizational Chart (example)

8.2.1 Historical Origins of the Traditional Hierarchical Organizations

There are many problems with the traditional vertical organizational structures. However, at one time, these structures worked because that was how the actual work was structured. The best example of this is the early days of auto manufacturing when companies like Ford were vertically integrated and every employee was "specialized" to do the work of their particular area, whether on the assembly lines or in casting steel for autos. Measurements were at the job level, expressed as output of, for example, units per day. Relating this to Rummler's performance matrix:

- The job performer output was units/day,
- The vertical process (functional orientation) was manufacturing, and
- The output was translated into revenue and costs on the income statement.

8.2.2 Impact of ERP and ERP Systems on Organizational Structure

As company growth strategies changed, so did labor strategies. The de-verticalization of many industries led to different organizational structures and business models. What hadn't changed for every company was the functional orientation and approach to work in organizations. It wasn't until the advent of Enterprise Resource Planning (ERP) systems in the mid 1990's that organizations were forced to consider their orientation to process. ERP systems offered a standard, integrated alternative to the existing functional processes by transacting horizontal processes that were enabled through the ERP technology. There are many stories and examples of companies that invested a lot of money on ERP implementations with correspondingly high failure rates for ERP implementations, but the fact remains that the transformation imposed by ERP systems was one of process and not one of technology. Companies that were hugely successful were the ones who took a process-oriented approach to the transformation. The important point to note is that ERP, like it or not, was a technology disruption-point that forced companies to be more process oriented. ERP, by its very nature, demands horizontal, cross-functional processes such as procure-to-pay, order-to-cash (order fulfillment), concept-to-product (product development), and recruit-to-retire (human resources management) into value streams that require horizontal management. Table 26 lists examples of value streams and the typical ERP cross-functional names. ERP system modules typically take on the cross-functional names provided by the vendor.

Value Streams	Typical Cross-Functional Names
Prospect to Customer	Customer Engagement
Order to Cash	Order Fulfillment
Manufacturing to Distribution	Operations & Logistics

Value Streams	Typical Cross-Functional Names
Request to Service	Customer Service
Insight to Strategy	Strategic Planning
Vision to eBusiness Enterprise	Enterprise Management
Concept to Development	R&D, Product & Service Evolution
Initiative to Results	Implementation Execution
Relationship to Partnership	Strategic Partnering & Outsourcing
Forecast to Plan	Budgeting, Outlooks & Forecasting
Requisition to Payables	Procurement/Vendor Management
Resource Availability to Consumption	Resource Management
Acquisition to Obsolescence	Fixed Asset Management
Financial Close to Reporting	Finance & Accounting
Recruitment to Retirement	Human Resource Management
Awareness to Prevention	Quality & Safety Management

Table 26. Cross-functional names given to value streams

8.2.3 ERP Processes Changed Businesses to Process Organizations

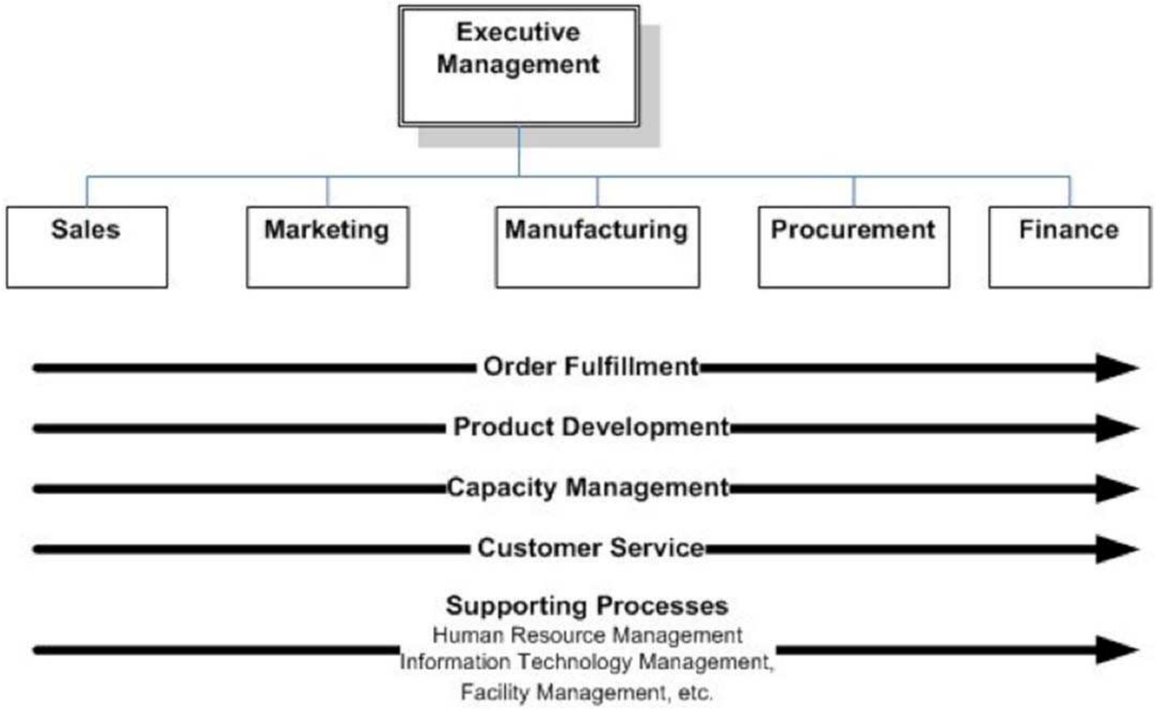


Figure 59. Cross-functional relationships in an end-to-end process

Since ERP processes are "pre-designed," it wasn't long before management of a company's core business processes transitioned to a new, horizontal focus in the organization structure. These cross-functional processes required a new organizational orientation in which accountability and ownership of process performance needed to be explicit (see Figure 59). The addition of new responsibilities to existing roles within functional organizations created a process dimension governed by the role of a process owner.

In terms of Rummler's performance matrix, this new role requires integration of the job or job performer into the horizontal process. For example, order to cash necessitates a team orientation to the process where multiple jobs and job performers are up and downstream to each other before the final output is delivered to the customer.

8.3 Process Management Roles

Process-driven organizations in all stages of development include individuals who support the execution of process improvements:

- Process owners
- Process managers
- Process analysts
- Process designers
- Process architects

- Business analysts
- Subject matter experts
- Executive sponsors
- IT professionals
- Change management professionals.

8.3.1 Process Owner

> *A **process owner** has the ongoing responsibility and accountability for the successful design, development, execution, and performance of a complete end-to-end business process. Process ownership can be a full-time responsibility or an added responsibility such as a line or staff function.*

Characteristics and Responsibilities of Process Owners

Some companies may label the process owner role differently. For example, titles such as process leader, process manager, and process steward are often used. In addition to the title, the substance of this role may also vary. Process owners are likely to be individuals at an executive level, typically VP or higher, who have common responsibilities across vertical silos. They may have direct or indirect authority over strategy, budgets, and resources. Their scope of responsibility may vary.

Process owners usually are those concerned with end-to-end business processes that directly deliver value to the customers of the organization and have enterprise-level responsibility for the performance of the process as it relates to and impacts the balance sheet and income statement. Depending on the type of process—for example, recruitment to retirement—they may be 'support process' owners who are concerned with the processes that support the organization's primary business processes, such as human resources, financial, or information technology processes. They may be subprocess owners concerned with sub-components of an overall end-to-end business process.

The process owner role usually involves other duties, such as chairing transformation efforts, integrating process results with those of other process owners, advocating for process priorities, benchmarking process performance, or coaching process performers. Process owners may also have other roles in the organization, such as functional or departmental management. Whatever the title, authority, or scope may be, all process owners share a unique accountability for a business process.

Some common characteristics of process ownership include:

Accountability and responsibility for process design—Process owners may share decision rights relating to the process design with other managers or participants. However, they are accountable for the overall integrity and integration of the process design. Process design may be iterative, with a goal of continuous improvement involving incremental improvements to tasks and activities, or it may require redesign of the entire end-to-end business process.

Accountability for process performance—Process owners may manage the process, i.e., how work gets done, but not necessarily the people who perform the work. Managing process performance involves developing a strategy for the process, setting performance goals and objectives. It includes ensuring that resources and skills are in place, measuring and communicating actual performance against targets, and using this feedback to continuously reset goals and objectives. Process owners initiate process transformation efforts and define incentives, which ensure that the process continues to deliver value to its customers.

Advocacy and support—In order to ensure that proper resources, training, incentives, and executive attention are allotted, process owners may need to manage communications and advocate for the processes under their care with executive management, customers, suppliers, participants, and other internal and external stakeholders. They may find that they must operate through influence rather than authority. Inevitably, even the most professional and successful teams encounter problems with each other, unanticipated demands, exceptional circumstances, design problems, or changing customer requirements. As process owners continuously monitor results, they must also investigate and resolve problems.

First Process Improvement Projects Can Generate a Process Owner

In organizations whose process cultures are less mature, the first appearance of a process owner could be a project manager responsible for a process improvement effort. These individuals typically have responsibility for a project outcome, such as improvement to a business process, but lack direct control over resources, policies, and budgets. Nonetheless, the project manager is responsible for gaining cooperation among many disparate groups within the organization, adhering to the definition of project delivery methodology, designing and implementing the processes, and managing change to achieve an overall process improvement. Throughout the project delivery process, project managers may monitor and control process operations to ensure that the scope of the project conforms to the project objectives. Projects, however, are temporary endeavors with discrete, finite outcomes and deliverables.

Organizations whose process cultures are more mature have realized that process management requires ongoing support, maintenance, and nurturing; they institute a process owner as a critical and permanent component of an enterprise's organizational structure.

8.3.2 Process Manager

> *A **process manager** actually performs and coordinates the work on a process or processes. Process managers are involved in measuring and monitoring process metrics and driving continuous process improvement.*

Process Manager Responsibilities

The process manager bears accountability and responsibility for process

- Performance, efficiency and quality
- Supply of the necessary resources
- Control by prioritizing, controlling and escalating process needs
- Co-ordination of the individual tasks and the allocation of resources
- Results measurement and analysis, and
- Implementation of required changes for improvement.

8.3.3 Process Analyst

Process analysts manage process transformation projects, lead process discovery and design workshops, coach process owners, and measure and report on process performance. Process analysts typically have a great deal of skill in documenting and understanding process design and performance patterns. They provide analysis and assessment of current processes, evaluate alternate process design options, and make recommendations for change based on various frameworks. Their findings provide insight for process integration, design, and structure. This role is often combined with the role of the process designer.

8.3.4 Process Designer

Process designers have significant process knowledge and design new business processes, transform existing business processes, and implement plans. Designers typically possess analytical and creative skills as well. They use visual and mathematical models to describe each step in a process and the organization of work. A process designer ensures that the process design aligns and complies with the overall business goals and policies.

8.3.5 Process Architects

Business or process architects may function in a business or technology role. Depending on the orientation, they may be focused on managing business performance or on mapping technology to business operations. Process architects are responsible for

- Developing an enterprise business architecture blueprint, along with corresponding value-stream process metrics
- Ensuring alignment among business needs, business architecture, and information technology architecture

- Developing and maintaining a repository of reference models and standards with regard to a company's products and services, business processes, performance measures, and organization.

Process architects are engaged in business process analysis and transformation initiatives. Their involvement may be from a standards and compliance perspective, or they may serve as subject-matter experts (SMEs) to advise the team on the company's process methodology. Through the analysis of business process architecture, companies identify opportunities for market advantage, business integration, and various internal process initiatives.

8.3.6 Other Key Roles

Business Analyst

A common role in process change initiatives is that of business analyst (BA). BAs are responsible for analyzing the information and technology needs of their business clients to help propose information and technology solutions. They may facilitate meetings to assist the project team in analyzing current technology mapping or they may be involved with business operations and designing new information and technology functions. Within the systems development life cycle, the BA typically performs a liaison function between the business side of an enterprise and the information technology department or external service providers. Common alternative titles are business systems analyst, systems analyst, and functional analyst.

Subject Matter Experts

Many process improvement projects or process management teams include what is commonly referred to as "subject matter experts" (SMEs). These individuals are typically people who have a deep understanding of certain business functions or operations, often possessing years of experience as a participant in business operations. They provide input on the current process and assist in designing new processes. They may have institutional knowledge about the rules governing the organization's processes, customer requirements, or the organization's culture. They often validate models and assumptions and are members of implementation teams as trusted stakeholders providing change leadership.

Executive Sponsors: Management and Leadership

The role of executive leadership is critical to business process management. The executive leader(s) set the vision, tone, and pace of business process improvement. They determine the direction and strategy of business process management, focusing the enterprise on its larger objectives. They allocate resources and reward success. They may unify the various missions and groups throughout the enterprise, and appoint and empower process owners or other individuals playing key roles in the management of business processes.

Executive leaders may even be process owners themselves, owning and institutionalizing the process of process management. They act as champions inspiring the enterprise to change, sometimes by creating a sense of urgency to overcome skepticism and resistance. To do this they must communicate the case for process management and remove obstacles that may impede progress toward the goal. They are responsible for creating the environment for success, sometimes through influence and persuasion, other times by resolving conflict and removing roadblocks.

IT Organization Roles

There are a number of roles within Information Technology groups that may play an important part in business process management, including: solution architects, system analysts, BPMS configuration specialists, developers, database administrators, and others. These experts help define supporting technology solutions and may assist in defining new capabilities for business processes based on enabling technology. They assist in process transformation initiatives through the implementation of new technology, while ensuring that the company's technical standards are enforced.

Other Roles

Process owners require the support of a team. Supporting roles may include: design, architecture, mapping, modeling, tool management, repository management, change management, and other critical skills. The ABPMP collaborated in a survey that identified over 100 titles and roles introduced by organizations undertaking business process management initiatives (see Figure 60). Different organizations may use different titles to describe various roles with similar or overlapping responsibilities. Often, a single individual provides the skill and leadership required for two or more of these roles. Several chapters in this Common Body of Knowledge provide additional discussion on some of these roles.

Table 2 - 100 New BPM Job Titles

Rank	Job	Rank	Job
1	Business Process Manager	51	Process & Quality Manager
2	Business Process Analyst	52	Process & Organisational Performance Advisor
3	Business Process Consultant	53	Principal, Process and Perf Mgt
4	Business Process Architect	54	National Practice Leader - Business Process Optimization
5	Director Business Process Management	55	Mgr, Business Process Services
6	Business Process Engineer	56	Manager, Continuous Process Improvement
7	Process Engineering Manager	57	Manager, Business Process Analysis
8	Process Owner	58	Manager, BPM Business Programs
9	Business Process Officer	59	Manager, Adaptive Infrastructure BPM
10	BPM Project Leader	60	Manager Process Management Group
11	Process Design Manager	61	Manager Center of Excellence Process Management
12	Process Designer	62	Manager Business Process Engineering
13	Principle Process Consultant	63	Manager Business Process Alignment
14	Business Process Team Leader	64	IT Process/Cost/Metrics Specialist
15	VP, Process Management	65	IT Process Development Analyst
16	Director, Business Process Improvement	66	IT Process Analyst
17	Enterprise Process Architect	67	IT Business Process Architect
18	Business Process Specialist	68	IT Based Business Process Reengineering
19	Business Process Improvement Manager	69	IS Process Consultant
20	Business Process Developer	70	Innovation & Process Manager
21	Process Improvement Consultant	71	Head of Quality & Process, Information Services Division
22	Business Process & Quality Manager	72	Head of Process Improvement
23	BPM Researcher	73	Head of Process Architecture
24	Business Process Administrator	74	Head of Process & Automation
25	VP, Process Engineering	75	Head of Business Process Management
26	VP, Business Process Consulting	76	Head | Business Process and Analysis
27	Sales Process Change Manager	77	Group Manager - Process Management & Improvement
28	Process Strategy Consultant	78	Global Supply Chain Planning Process Leader
29	Process Optimisation Manager	79	Executive Director for Business Process
30	Process Modeller	80	Enterprise Business Process Manager
31	Process Management Specialist	81	e-business Process Manager
32	Process Management Coordinator	82	Director, Business Process Technologies
33	Process Integration Lead	83	Director Process Development and Quality
34	Process Improvement Specialist	84	Director Marketing BPM
35	Process Improvement Officer	85	Director IT & Process Management Europe
36	Process Improvement Manager	86	Director Business Process Change
37	Process Improvement Engineer	87	Delivery Manager : BPM Solutions
38	Process Executive	88	Business Process Quality Manager
39	Process Development Team	89	Business Process Outsourcing
40	Process Development Manager	90	Business Process Optimization
41	Process Development Engineer	91	Business Process Marketing
42	Process Developer/Project Manager	92	Business Process Innovation Manager
43	Process Coordinator	93	Business Process Development Manager
44	Process Consultant	94	Business Process Designer - Project Manager
45	Process Assurance	95	Business Process Design Mgr
46	Process Assistant	96	Business Process Articulation Consultant
47	Process and Process Management Specialist	97	Business Process Arch / Project Manager
48	Process and Change Management	98	BPM Specialist
49	Process Analysis, Education and Communication	99	BPM PreSales
50	Process & Systems Integration Architect - Director	100	BPM Executive

Figure 60. One hundred new BPM job titles

8.4 Governing Bodies

As organizations mature in the management of their business processes, issues arise regarding process integration, such as how various processes must join as a collective whole to ensure a single, coherent organization that consistently delivers value across all of the company's processes. The organization thus needs to identify new mechanisms for planning, budgeting, and allocating resources to ensure that its processes are properly resourced, integrated, and aligned with strategic objectives.

Organizations must have a clear governance structure to provide leadership and clarify decision-rights to enable cross-functional and departmental process improvement or management programs to succeed. Often, the root of resistance to business process management initiatives, sometimes causing them to fail, is change in the organizational governance structure. Individuals who may have had a great deal of power and control over resources based upon organizational functions, product lines, or geographic boundaries may find that their performance measures, authority, and span of control must change in order to successfully implement business process management.

The reason for change is simple. Business process management provides an end-to-end perspective on how work is done. This end-to-end perspective crosses traditional organizational boundaries and requires that the mechanisms by which decisions are made and resources allocated must also be aligned with the end-to-end business process. Sound governance provides a structure of authority and a framework for collaboration. The structure and framework enable proper allocation of resources and efficient coordination of activity control throughout the organization. Traditional managers who are unable to adapt their thinking beyond their organizational silo to end-to-end business process management are likely to resist initiatives that potentially change their influence in the organization.

8.4.1 Process Governance

There is no single, standard, process governance structure widely in use. Organizational focus on process is still emerging and a variety of governance structures are in use and evolving. Issues such as organizational strategy, culture and process maturity, business process outsourcing, and even the nature of individual leaders can cause a significant deviation from any given governance framework.

According to Forrester Research, "Business professionals hold the key to 21st century business transformation as process skills migrate out of IT departments and into business operation groups. Supply Chain is a perfect example where, depending on the industry, there are critical processes like Order to Cash, Manufacturing to Distribution and Request to Service [that] have explicit ownership along with the appropriate roles and skills to manage and improve process performance, which directly impacts the top and bottom lines of companies."

Information Technology is an enabler in the Supply Chain example, as it is in many other process examples. The partnership between the business and IT is critical to the success of business transformation efforts. There have been many studies in the ERP arena that have looked at the importance of first designing business processes and implementing them prior to IT implementations. Panorama Consulting has published an ERP report every year for the last three years and has observed the same results across multiple industries.

The 2010 ERP report (http://panorama-consulting.com/resource-center/2010-erp-report) mentions that more than 67.5% of ERP implementations fail to realize the business improvement benefits. According to the study, the best-in-class companies who realize the business benefits of ERP tend to have the following best practices:

- Exquisite focus on the business processes, that is, identifying the primary, management, and support business processes, and then defining and designing them for optimal performance. Choosing the software to fit the process is the goal, yet most companies get too tied up in the technical capability of supporting software and forget about the business process.

- Focus on achieving a healthy ROI based on business performance and having a business case that addresses post-implementation performance measurement.
- Strong commitment from senior business executives with CIO or IT alignment to a common set of goals.
- Adequate change management and training for the new processes and systems.

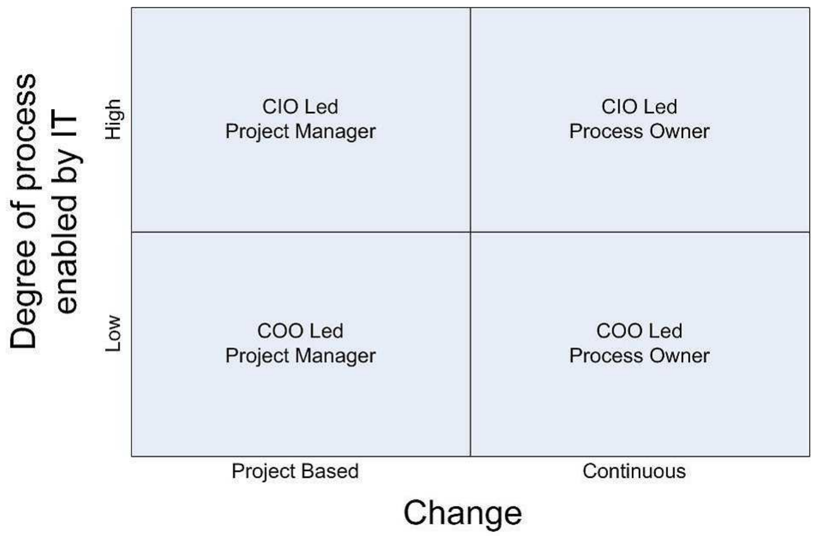


Figure 61 (Source: http://panorama-consulting.com/resource-center/2010-erp-report

8.4.2 Process Council

Organizations undertaking the process journey should consider instituting a Process Council or Business Process Management Center of Excellence (BPMCOE) to address enterprise process management and performance issues. Research from both Forrester and Gartner stresses that successful companies have instituted Business Process Management Centers of Excellence or Process Councils to address enterprise-level process performance issues. "The EA View: BPM Has Become Mainstream," from Forrester Research (February 19, 2009), indicates that "...of the companies experiencing clear, measurable improvement due to BPM, 49% have a COE. . . . [O]f the companies that had no success with BPM, 4% have a COE."

A Process Council (see Figure 62) may be made up of a combination of executive leaders, functional or departmental heads, and the process owners of the core cross-functional enterprise processes. Its mission may include the identification and resolution of any cross-process integration issues, conflicts between process and functional (or departmental) ownership, resource allocation, and the development and alignment of the organization's business objectives, goals, and strategy.

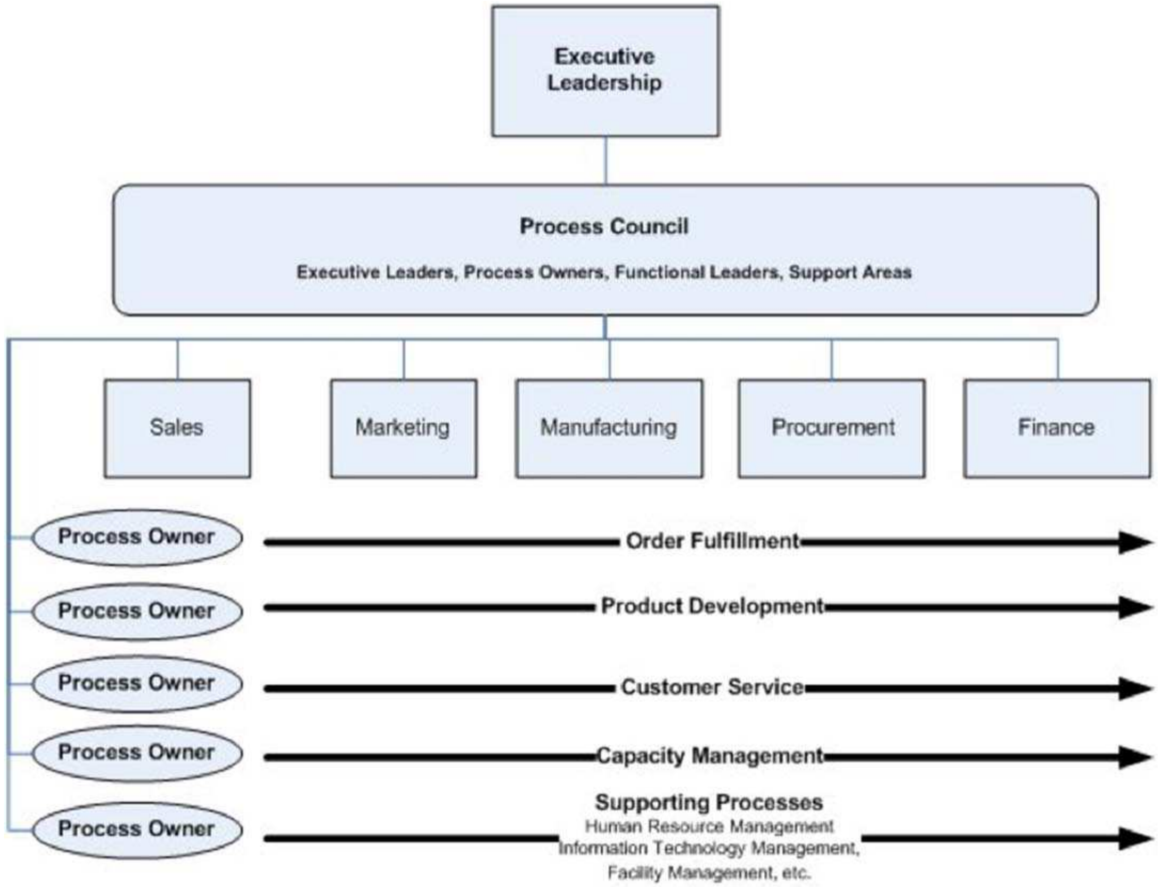


Figure 62. Process Leadership

What is important is that companies ensure the Process Council structure is set up for efficiency and effectiveness in execution, so as not to entangle themselves in a process council bureaucracy.

8.4.3 BPM Office or BPM Center of Excellence

Some organizations, particularly in government, have created what is referred to as a Business Process Management Office (BPMO) or a BPM Center of Excellence (BPMCOE). Many BPMOs act in a manner similar to that of a project management office, identifying, consolidating and reporting status on various process improvement projects across the enterprise. BPMCOE charters include setting standards, providing common tools and methods, training and education on business process management principles and practices, providing governance on overall process design, and integrating business processes at the enterprise level. BPMOs and BPMCOEs play an integral role in prioritizing and allocating scarce resources to business process improvement efforts, as well as tracking and reporting process performance metrics to the respective process owners and executive management.

8.4.4 Setting Up a Business Process Management Center of Process

A white paper developed by Savvion provides a nine-step methodology for setting up a Business Process Management Center of Excellence. This methodology is summarized in Table 27.

Setting Up a Business Process Management Center of Excellence	
#	Step
1	Attain executive sponsorship
2	Define goals and Success criteria
3	Define governance structure
4	Establish a BPM architecture
5	Set up BPM library and repository
6	Establish change management practice
7	Take process inventory
8	Prioritize process selection based on strategic objectives
9	Start executing BPM projects

Table 27. Setting up a BPM Center of Excellence

Government Organizations and BPMOs

In government, many BPMOs have a role in enterprise architecture efforts as mandated by the Office of Management and Budget (OMB). The OMB Federal Enterprise Architecture Framework (FEAF) requires agencies to maintain models of their key business processes and relate them to other architectural models such as business reference, technology, and performance models. BPMOs are responsible for maintaining the repository of process models, identifying opportunities for improvement, and working with various stakeholders in the development of business cases for process improvement and transformation efforts.

Functional Centers of Excellence

As businesses mature in implementing process management, assigning accountability for the management of core business processes, and developing mechanisms to integrate and align these processes, they may discover the nature of how work is performed and improves in the organization. Rather than command and control of the performance of individual tasks, process owners find that they need to be supported by cross-functional teams who are also focused on the performance of the overall process. Instead of command and control oversight, these teams may work relatively independently, with guidance and support from management.

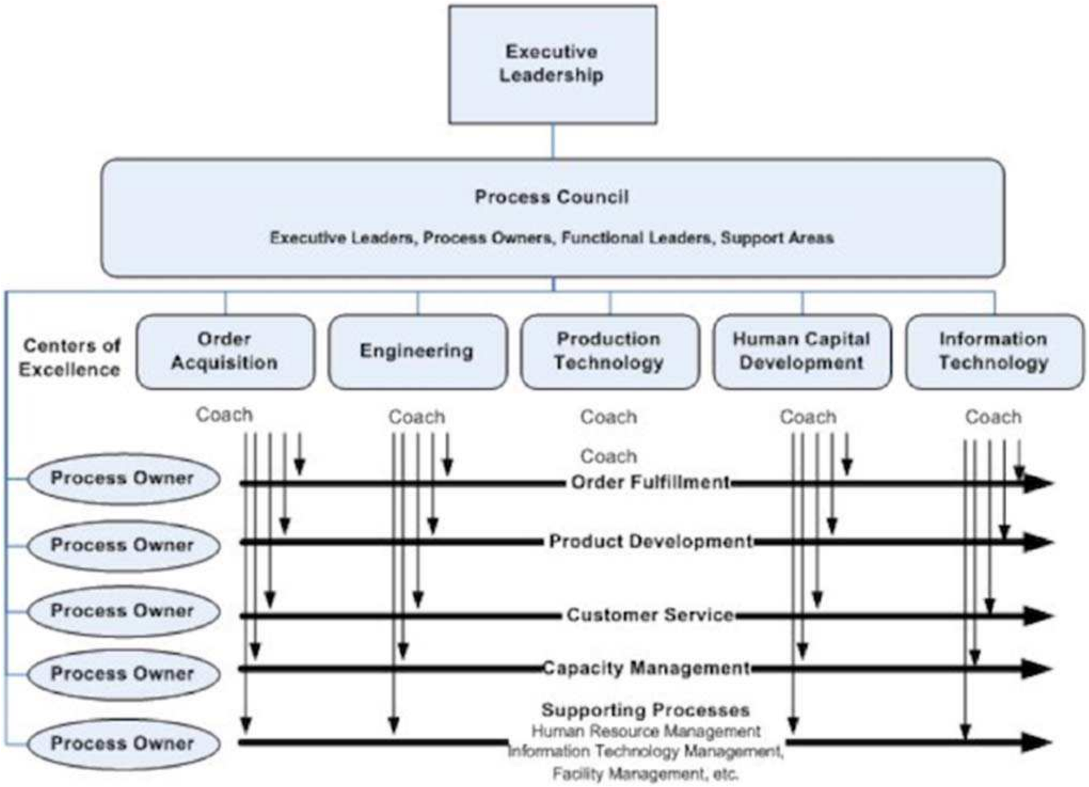


Figure 63. The need for cross-functional process collaboration

Companies encounter a need for change in the required skills and culture of their organization as they gain experience in process management. They need to maintain and integrate new skills and professional expertise across all business processes. Specialized skills may have previously resided in a functional group of the enterprise. Best practices groups, sometimes called centers of excellence, provide knowledge, standards, best practices, training, and education. They are responsible for ensuring the proper resources with proper skills are placed and allocated properly throughout the company's business processes (see Figure 63).[6]

Centers of Excellence may be virtual organizations (often known as a Community of Interest, or COIN). They may simply comprise an email distribution list to connect all engineers, or they may be robust, institutionalized groups with large training facilities. Many centers of excellence are organized around a particular skill or profession, such as sales, marketing, finance, and information technology. Coaches

[6] Concept derived from Dr. Michael Hammer's 1997 book **Beyond Reengineering – How the Process Centered Organization is Changing Our Work and Our Lives.** Dr. Hammer discusses several case studies relating to the evolution of the process-centered enterprise, including the introduction of centers of excellence.

may be assigned to business processes from the Centers of Excellence, with a responsibility for supporting and developing members in order to ensure that the caliber of localized skills is maintained and enhanced. Centers of Excellence offer training and education programs as well as professional networking for sharing experiences. Some organizations use Centers of Excellence as an entrée for people into the organization; i.e., they are hired by the center and deployed from the centers to process teams.

8.5 A Summary Discussion

Every enterprise is unique, with its own unique culture, values, incentive systems, business processes, and structure. Today many companies are still structured around a functional hierarchy, with little or no accountability for their end-to-end business processes, which deliver customer value across functional silos. However, companies that have made the transition to Process Councils and Business Process Management Centers of Excellence seem to have had much more success than those that have not made the leap into BPM process governing structures.

As the power and benefit of managing business process becomes more prevalent, organizational focus and structure are likely to progress to include a process dimension. This development may lead to significant change in how work is performed and managed. It will involve new roles and responsibilities, performance measures, and compensation plans. Businesses have found that the notion of process ownership is critical to the successful management of their core business processes.

There is no single structure, set of tiles, roles, or culture that is clearly emerging. However, many companies appear to be adapting to business process management and have many attributes in common, in terms of their orientation to process, setting up a governing body (either stand-alone or as a council), and developing the skill sets to improve process performance. What is clear is that Process Organizations are taking shape and developing, and best practices are emerging that are clearly setting apart those who have embedded process within their organizations and those who have not.

8.6 Key Concepts

Process Organization—Key Concepts	
Fostering a process culture	An enterprise fosters a process culture when the business' processes are known, agreed upon, communicated, and visible to all employees.

Process Organization—Key Concepts	
Characteristics of the process-maturing enterprise	As an enterprise matures in managing its business processes, its organizational structure will naturally tend toward change, which comprehends a process dimension. Management of work from a downward managerial command-and-control approach adapts to include a horizontal dimension reflective of end-to-end processes, driving accountability to the customer for delivery of value across functions.
Process owner	An individual or group is assigned the role of process owner for a complete end-to-end business process. The process owner has an ongoing responsibility and accountability for the successful design, development, execution and ongoing performance of this process.
Process supporting roles	Successful process management within an enterprise will involve numerous roles in addition to process owner. Some individuals will have responsibility for more than one role. The more common roles include • Process manager, • Process analyst, • Process designer, • Process architect, • Business analyst, • Subject matter expert, and • Executive management and leadership.
Process governing body	To enable cross-functional and departmental process improvement or management programs to succeed, organizations set up a distinct governing body to provide leadership and clarify decision rights
Governance structure standards	While there are many governance structures (governing bodies) proposed and implemented, there is no single standard for creating an organizational focus on process.

Process Organization—Key Concepts	
Process Council	A Process Council, made up of executive leaders, functional or department heads, and process owners, is one common approach to process governance. The Process Council • Ensures alignment of business processes with enterprise strategies, goals and objectives, • May have responsibility to identify and resolve cross-process integration issues, conflicts between process and functional ownership • May have responsibility for the allocation of business process management resources.
Additional process governing bodies	Other organizational approaches to process management include establishing a • Business Process Management Office (BPMO), • Business Process Management Center of Excellence (BPMCOE), or • Functional Center of Excellence (often known as a Community of Interest, or COIN).
Setting up a Business Process Management Center of Excellence	• Attain executive sponsorship • Define goals and Success criteria • Define governance structure • Establish a BPM architecture • Set up BPM library and repository • Establish change management practice • Take process inventory • Prioritize process selection based on strategic objectives • Start executing BPM projects
Business Process Management Professional	Business Process Management Professionals must understand the myriad of potential organizational changes that may be brought about through increasing process maturity, so that they can guide the enterprise through the transition.

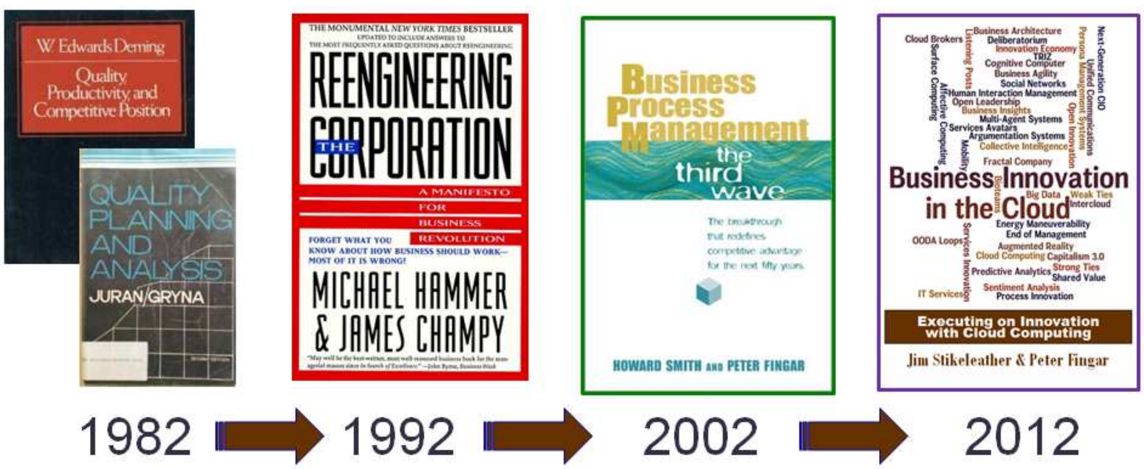
Chapter 9

Enterprise Process Management

Foreword by Peter Fingar, Business Strategy, BPM, and Globalization Advisor at PeterFingar.com

Back to the Future of Enterprise BPM. Process is nothing new, but the capability to manage end-to-end processes has progressed through three waves over the past several decades.

The First Wave. In the first wave of business process management, which began in the 1920s and was dominated by Fredrick Taylor's theory of management, processes were implicit in work practices and not automated. After World War II, however, applying science to process became front-and-center as W. Edwards Deming and Joseph Juran taught the Japanese about the power of quality management. Their work and that of others triggered a wave of total quality management (TQM), spurred on by the publications of Deming and Juran in 1982, as shown below. The emphasis was not so much on the design of new processes, but on statistical measurements as a means of improving work practices and quality.



The Second Wave. Then a decade later, the 1992 blockbuster book **REENGINEERING THE CORPORATION** hit corporate board rooms. In this second wave of business process management, processes were manually reengineered and, through a one-time activity, cast in concrete in the bowels of today's automated Enterprise Resource Planning (ERP) and other packaged systems. Although "downsizing" is the moniker most remembered from Hammer and Champy's Business Process Reengineering (BPR), it was technological enablement that allowed companies to tear down functional silos and reengineer end-to-end business processes that spanned individual functional departments (silos). Historically, ERP solutions had all the flexibility of wet concrete before they were installed and all the flexibility of dry concrete after installation. Even with document-centered workflow added to ERP, such systems only took up discrete roles as participants in processes; rarely did they provide business management control over the processes. Those that did, only did so for subprocesses and were generally limited in their capability.

The Third Wave. In the Third Wave of BPM, the business process was freed from its concrete castings and made the central focus and basic building block of automation and business systems. Processes became first-class citizens in the world of automation. Change was the primary design goal because, in the world of business process management, the ability to change is far more prized than the ability to create in the first place. It is through agile business process management that end-to-end processes can be monitored, continuously improved and optimized. Feedback of results, agility, and adaptability are the bywords of the third wave. The question is, however, how can such noble goals be attained? And the answer came in the form of a Business Process Management System (BPMS) that, unlike an ERP system with data and applications at its core, places the abstract data-type of process at the core. In lay terms, the BPMS places the notion of process center stage in the world of technological enablement for business change.

Happy Anniversary and the Next Decade. As the coauthor of **THE THIRD WAVE**, it's hard to believe that 2012 is its tenth anniversary (I suppose the title of grandpa does indeed apply). But instead of celebrating the Tin Anniversary, it's also somewhat disheartening that the "M" in BPM has often been ignored. As process luminary Andrew Spanyi famously asked, "How has BPM actually changed the behavior of leadership?" Such questions go straight to the heart of true business transformation. In some cases the BPMS has been used for little more than a newer version of enterprise application integration (EAI) or traditional workflow. While such approaches can improve back-office efficiencies, where's the competitive-advantage beef? As we'll explore in this chapter, the word "enterprise" has to be appended to the term BPM. For that to have meaning, companies must cross over from "organization management" of people to process management that supersedes organization management and spans multiple organizations. Politics and inertia are the high-barrier obstacles, and this chapter explores how to navigate these obstacles to harness the true value of process management, strategic BPM.

Okay, your organization has made the big leap to Enterprise BPM. But that doesn't signal the beginning of the end of your BPM journey; it signals the end of the beginning of a much more challenging journey. Now what?

In today's world of globalization and extreme competition, leadership (the "M" in BPM) must extend not just across the enterprise, but also across the entire value chain!

Companies don't work alone, and, on average, over 20 companies make up today's value chains—sometimes hundreds. This is especially important to recognize, as no one company "owns" the overall value chain. In **MANAGEMENT CHALLENGES OF THE 21ST CENTURY**, the late Peter Drucker elaborates, "The legal entity, the company, is a reality for shareholders, for creditors, for employees and for tax collectors. But economically, it is fiction. What matters in the marketplace is the economic reality, the costs of the entire process, regardless of who owns what. Again and again in business history, an unknown company has come from nowhere and in a few short years has overtaken the established leaders without apparently even breathing hard. The explanation always given is superior strategy, superior technology, superior marketing or lean manufacturing, but in every single case, the newcomer also enjoys a tremendous cost advantage, usually about 30 percent. The reason is always the same: the new company knows and manages the costs of the entire economic [value] chain rather than its costs alone."

The challenge ahead is to take the huge leap from Enterprise BPM to Value Chain BPM, and cloud computing provides the technological enablement for that leap. Cloud computing allows a company to collaborate in new ways with its trading partners, and process collaboration across the value chain is the key to gaining competitive advantage. As explained in the 2012 book, **BUSINESS INNOVATION IN THE CLOUD**, by establishing shared workspaces powered by a shared BPMS in "Community Clouds," employees from multiple companies can work together as a "virtual enterprise network" and function as though they were a single company. They all participate in the same value-delivery system, sharing computing, communication, information and BPM resources. No, this is not some 800-pound gorilla dominating the value chain, using its might to squeeze suppliers. It's about Open Leadership, Collective Leadership, and Collaborative Key Performance Indicators (KPIs) that foster trust (for real data sharing) and incentivize all participants in the value-delivery ecosystem in the Cloud.

By taking the BPMS as the technological enabler into the Cloud, companies and their suppliers and customers can build and manage dynamic Business Operations Platforms (BOPs) or Business Networks (Business "Operating Systems," if you will). As with Enterprise BPM, success with Value Chain BPM won't magically happen because of technology-enablement in the Cloud; it will be the "M" in BPM that once again counts. Leadership is all in the new world of extreme total global competition. The lesson is short: innovate or die; and the cornerstone of business innovation is management innovation.

Contents

9.0 Introduction

Fundamentally, organization management is about managing people and how they do work. It is concerned about efficiency. Process management is about managing how all the work needed to deliver an end product or service (regardless of who does it or where) fits together and is performed—for quality, timing and cost management.

Enterprise Process Management represents a new way to view a business operation—one that does not fit a traditional organization structure. This view spans an entire process and includes all the work that is performed to deliver the process' product or service, regardless of what business units or locations may be involved. This view begins at a higher level than the level in the organization that actually performs work and then breaks down into subprocesses, which may be performed by one or more business units, and then to activities and their workflow within business units.

This higher-level perspective is critical in controlling the impact and thus the benefit of changes in the business operation. Change is now viewed from both its impact on the individual business unit that is making the change and from its impact on the activities upstream (how they will need to change to provide the material, documents, information etc., that the changed business activity requires) and downstream (how consumers of whatever the changed business unit produces will be required to modify their work, in order to consume what is now going to be produced). This provides a very different view of cost, impact, and benefit that is not available in the traditional organizational view of the business.

This broader view of the business management involves all aspects of the process—its cost, its problems, its systems, its quality, and its performance. This is independent of where the work is done—internal or external, in the same location or other geographical locations, in subsidiaries or outsourced. It views all groups as suppliers of components of the work and the process as the integrator of the components. This allows management to have a different view of performance, cost, and quality. In this view, management can evolve meaningful KPIs for each of the components in the process and measure performance against them—allowing all parts of the business to essentially compete, based on price, service, quality, and on-time delivery, with other internal and external suppliers.

Of course, if all work remains internal within the company, this view allows management to benchmark each component in the process as the baseline for a quality improvement program and to constantly promote quality improvement, customer service improvement, and cost reduction.

This gives management a level of control that has not been possible in the past. This also allows Senior Management to gain better visibility into the operation and the way product or services are built, delivered, and invoiced. It ties everything together from a product perspective and offers a different way to look at cost—as it relates to the process and its components. It also allows them to identify weaknesses in the way product is built and the way the product is managed—from sales through delivery.

9.1 Transitioning to Enterprise Process Management

Most change today is focused on small improvement or problem-resolution projects. A few projects are actually broad enough to be transformational and deliver fundamental changes in the way the business is viewed and the way work is done. But more often, changes to rules, operations, policies, and procedures are made every day; over time they become institutionalized as unwritten (and unapproved) law in the way the business operation works. Together, these changes cause constant disruption, impair productivity, and build a layer of unintended regulations around real work.

While this unintended overhead causes harm, the biggest problem caused by today's narrowly-focused change is the ripple of the changes as their impact accumulates, introducing constant problems into upstream and downstream business operations. While most small changes have a minimal impact on other parts of the operation, over time, these small changes combine to have a serious impact, disrupting operations and degrading both quality and performance.

This creeping disruption is caused by the narrow perspective required by management under the current organizational view and the limits it imposes when looking at change and its impact. Removing this limitation is among the key reasons to move to a process perspective and create a process management approach to controlling change and improving both quality and performance.

9.1.1 Building the Business Case for Moving to a Process Centric Model

"If it is worth doing, it is worth doing right"; but as they say in the medical profession, the first rule is "do no harm." After that, all that's left is improvement. But how do you know that what you think is right will do no harm to others? That is the infamous ripple effect that both IT and business operations struggle with every day. The root cause of this problem has been an inability to predict impact and mitigate the potentially negative side of it.

The underlying reason for this problem's existence is that change has usually been viewed from an organization perspective. While this has been the only perspective available to most managers, it is not a real view of how business actually works. Each business unit performs work that is basically the same each day. What is done is based on what the business unit staff receive from outside the business or from another business unit. They then take some action and pass the work on to another business unit. But, concepts of 'change' seldom comprised or considered what is happening outside any business unit. The reason why is based on the organizational view of the company. Managers are judged on how their business unit performs and how close they come to meeting their business unit goals. In this view, there is generally no consideration for the impact of a change on others, and this has limited management's ability to look beyond the usual organizational silos. To be fair, however, until recently there has been not alternative to the organization view.

But this is changing as companies like UPS and Sloan Valve move to provide a process perspective that complements the normal organizational perspective.

In today's business environment, it is critical to optimize the result of any change expenditure. Companies are not spending money on high-risk improvement projects. But, given the problems associated with the narrow organizational view that management has had to deal with, the question becomes, "how can management be certain that every dollar spent on improvement actually improves the immediate operation while at least causing no harm in other parts of the company?" At ABPMP, we believe a large part of the answer is to provide a view of the entire processes in a company or to at least track work and build high-level process models in the areas that will be changed.

While this may seem like a significant effort, it is actually manageable given today's BPMS technology (see chapter 10). In addition, it is not necessary to identify or define in detail all the processes in a company for a Project Manager or team to begin to integrate a process perspective into their projects. High-level processes and the way they interweave can be quickly identified and defined by working backward from product delivery or service delivery. But this requires a shift from congenital thinking, or the belief that you must be 100% right and complete in anything that is done.

BPM is all about iteration and evolution to optimization. You are not expected to spend long periods in the analysis and redesign to try to get to the 100% level. You are expected to move quickly and come close to right, and then find holes and errors and iterate again. In this way, everything evolves and change happens quickly, with the serious problems being corrected first. This gives the greatest benefit early in the project and changes the benefit curve.

When applied to process, the company can move quickly and identify a first cut at high-level processes and the way they interact, and then iterate and refine the models. This provides a framework for the evolution of detail through projects in different business units, which fill in the detail.

For a project to build this view, the Project Team will need to work their way upstream in the activities that feed the part of the business that will be changed. Then they need to work downstream, following the consumption of the deliverables of the work that will be changed. This tracking must go all the way to the beginning and the end points.

What this provides is a way to check changes against impact outside the business unit.

This check will show how any change can cause disruption downstream and additional requirements of business units upstream. With this new information, the team can take a broader view and avoid solutions that cause harm to others, which may result in serious business disruption.

In addition, moving to a process-level project, the company can look at quality and cost in a very different way. While each business unit can impact quality and must thus control it, overall quality requires a process perspective to manage the "build" of quality problems and eliminate them.

With a process perspective, the Project Team will be able to collaborate with other potentially impacted business groups to avoid change-related problems and implement a more comprehensive type of performance measurement and quality monitoring—saving time, money, disruption, and avoiding sudden quality problems. It will be able to look at the root causes of problems outside the business unit, often for the first time.

9.1.2 Getting started—the importance of leadership, BPM leadership plan

Process Management cannot be viewed in terms of a traditional organization structure. It is separate and it doesn't align to the organization. In reality, process is cross-organizational. It winds through multiple organizations, with each adding some component or part of the final product or service. The process doesn't need to be limited to any one location or even to any one company—as in outsourcing or the purchase of parts, sub-assemblies, or services that join to produce the product.

Because it is totally independent from organization management, process management will require a separate view of the operation and a separate set of process managers. These managers should be responsible for the overall quality and efficiency of one or more processes, depending on their size and complexity. Also, because this is separate from the normal organization structure, the process managers should report to a separate executive. This will allow them to remain independent of the normal operational concerns that affect the organization structure.

These managers must have a unique set of objectives that they are measured against. Their concern is the process and its improvement in terms of recognition from business-unit managers that they are part of a larger operation involving collaboration among the business unit managers, overall cost, timing, quality-improvement for the process, and customer-satisfaction improvement. Of course, to do this, the company will need to define processes, and start to measure the things that process managers will be responsible for. But using BPMS technology support, this information can be obtained and the process management activity can be controlled.

However, to be effective, the process managers must have the authority to work with all levels of business unit managers, and when collaboration breaks down, to access senior executive management for arbitration.

9.1.3 Where Process and Organization Come Together

As noted throughout the CBOK, process can be broken into multiple parts focused on different levels—for discussion, let's call them Business Functions, subprocesses, activities with workflow, tasks, work steps. The number of levels and the names of those levels will change by company or department within a company. There are no standards in the industry. But the number of levels in your definition of process and the names you call them are not what is important. What is important is that they formally exist.

Using this version of levels and names, we will say that process intersects with organization at the activity (workflow) level, where work is now broken apart and assigned to business units to be executed. This is the point where process management and organization management, and a relation between their respective managers, come together.

This link forms a type of map of process execution and moves it from a conceptual entity to a physical entity: the work is no longer just an idea—it is tangible. The process manager must now form a separate management group of the business managers whose organizations perform the work that delivers the process's product or service. This is a committee that must be responsible for improvement in the process and in the individual business units. They must look at proposed changes in all business units and make certain that solutions do not negatively impact their individual business units or the process. Creating this committee must be part of the Process Manager's formal responsibility.

However, because a process view is very different from what most managers are familiar with, it is necessary for the Process Manager to provide information on what is involved, how it all fits together and how it is managed. This, frankly, cannot be provided through the use of low-level draw tools. Organizing this information and controlling it can best be supported through a BPMS. This will allow the company to have both end-to-end process views of the business and detailed views within business units. It will also allow all components, sub-assemblies, etc., to be identified and where they are created, used, modified, joined into larger sub-assemblies, etc., to be tracked. In addition, problems can be shown, process and workflow monitored and reported against, and the main rules that drive the quality process and timing to be known and adjusted to optimize the operation.

But, most importantly, a BPMS provides a common base for the Process Management committee to prioritize change projects, review change, look at potential impact using simulation modeling, and monitor the process as it moves from business unit to business unit.

Without this support, the Process Management committee can certainly be effective, but the amount of work will be significantly increased, and reporting to the group will be delayed.

9.1.4 Things to consider: Process Frameworks & Industry Reference Models

Fundamental to Business Process Management in an organization is the Enterprise Process Model. Most organizations will benefit greatly from utilizing a Process or industry reference model as a starting point for the classification of processes. Process frameworks can be

- Generally applicable across different types of companies or organizations (APQC Process Classification Model, Value Chain Operational Reference [VRM]) Model)
- Specific to an industry (Supply Chain Operations Reference Model)
- Specific to a process area (Information Technology Infrastructure Library), or
- Specific to technology (SAP).

As outlined above, there are numerous reference models with applicability to all organizations, specific industries or even specific process areas or technologies, and combinations of all four. The APQC PCF and VRM can be widely used to support a number of organizations. The SCOR model is more specifically tailored to supply-chain organizations. At this same level, there are also numerous industry-related models. APQC has several variations for specific industries, such as pharmaceuticals. There are also more general architectures that include process views at an industry level: for example, eTOM is an architecture used by telecommunication companies. Some process areas can have specific models: ITIL describes the common processes to support an organization's IT operations. There are even definitions of processes used to support technology, typically large-scale ERP implementations. SAP uses a specific process structure to support the blueprint of processes.

Process and Industry models typically serve as a starting point for an organization to base its process design and are not meant to be an exhaustive representation of an enterprise. Depending on the organization, practitioners may leverage different components of varying models to create a structure that best incorporates the structure of an enterprise. Reference models can be useful in identifying a general taxonomy and ensuring that all aspects of process are thought of as part of the EPM development process.

Process and Industry Reference Models can also be useful in tying in other common components of an overall business or technical architecture. By providing a common taxonomy or language to understand enterprise processes, organizations can better compare or leverage shared assets. An example of this is benchmarking. Common comparison of processes allows companies within an industry- or cross-industry to compare benchmarking data. Some reference models also include more technical aspects related to data or services model where the processes are the common framework for managing the content. Common understanding of processes across organizations and industries will become even more important over time to further support ERP development, commoditization of processes or technologies, and ultimately business process outsourcing.

The purpose of this document is to outline the common types and uses of process frameworks; it is not an exhaustive list of all valuable methodologies. To serve as an example, we will provide further explanation of some of the more commonly used reference models below.

9.1.4.1 APQC Process Classification Framework

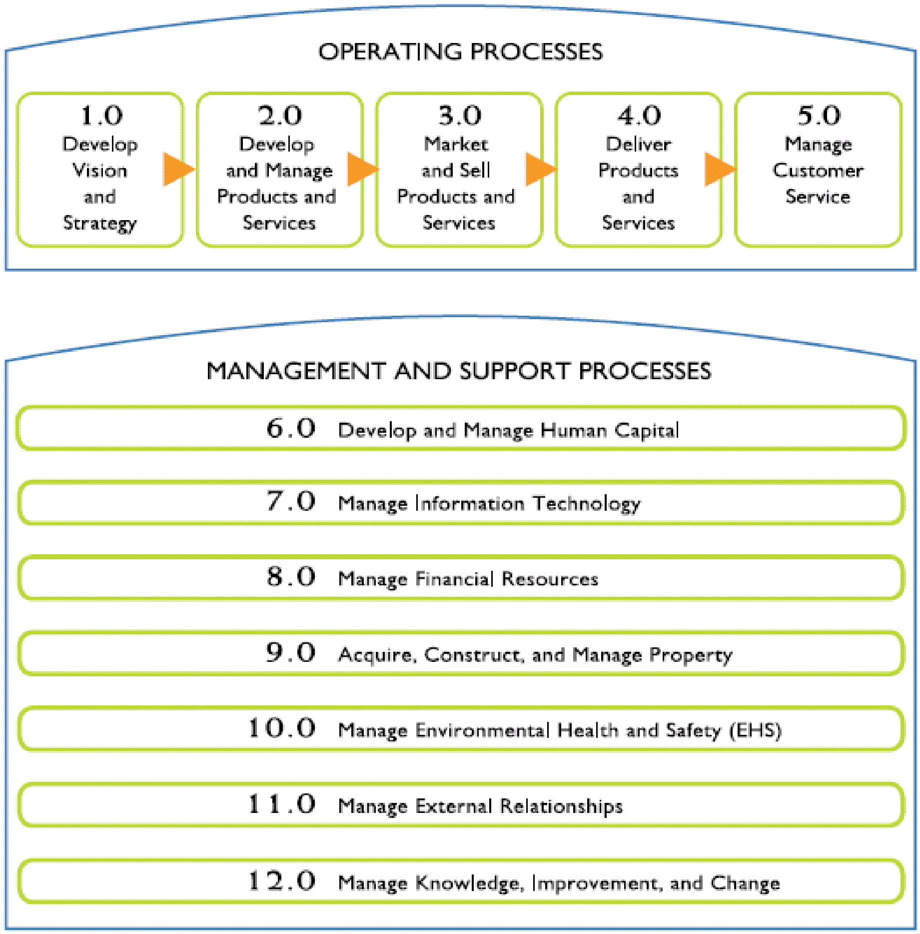


Figure 64. APQC Process Classification Framework

APQC is an international benchmarking clearinghouse that has collaborated with 80 organizations in developing a framework for process evaluation. The APQC Process Classification Framework (PCF) can be used by many organizations as the starting point for an Enterprise Process Model. The APQC's Process Classification Framework is meant to serve as a high-level, industry-neutral enterprise model that allows organizations to see their activities from a cross-industry process viewpoint. Originally created in 1992 by APQC and a group of members, the framework has been in use by many organizations on a worldwide basis. The APQC has indicated that the PCF is supported by the Open Standards Benchmarking Collaborative (OSBC) database and is an open standard. The APQC plans that the PCF will continuously be enhanced as the OSBC database further develops definitions, processes, and measures related to process improvement. The PCF is available for organizations of all industries and sizes at no charge by visiting http://www.apqc.org.

The Process Classification Framework (PCF) set of tools provides a beginning for discerning core, support, and management processes common between and across industries such as manufacturing and service, health care, government, and education, to mention only a few. The PCF represents a series of interrelated processes that are considered to be business-critical. It can be used "to enable organizations to understand their inner workings from a horizontal process viewpoint, rather than a vertical functional viewpoint".

The PCF consists of four phases: Prepare, Plan, Implement, and Transition. Prepare is a strategic phase. It is a comprehensive assessment that focuses on the core processes. During this phase, a business case is identified with opportunities and determines the expected business results. In the Plan phase, a time-phased approach to implement the changes identified during the assessment is developed. During this phase the process analyst and the analysis team refines, redesigns, or reengineers core business processes. In the Implement phase the changes are implemented. The Transition phase is both tactical and strategic.

Tactically, employee teams develop process operating procedures and oversee the transition to the new process. Strategically, the organization will repeat the model with other processes, based on their business needs and priorities.

9.1.4.2 Value Chain Operational Reference (VRM) Model

An additional model worthy of consideration is the Value Chain Operational Reference (VRM) Model. VRM attempts to integrate the three domains of a Value Chain: product, operations, and customer.

The model has 3 levels of detail under one framework. The highest level is called Level 1, and the Level 1 processes of VRM are: Plan—Govern—Execute. In Level 2, as the figure below shows, the Level 1 process category 'Execute' is decomposed to the components of Market-Research-Develop-Acquire-Build-Sell-Fulfill-Support process categories. Level 3, which is not considered here, provides a more complete framework for understanding and control of the extended Value Chain.

The VRM model supports the key issues and the meshing of processes within and between the units of chains (networks) for the benefit of Planning, Governing and Execution (information, financial, physical flows) with the objective of increasing performance of the total chain and supporting its continuous evolution. The Value Chain Group describes VRM as a model that provides "a common terminology and standard process descriptions to order and understand the activities that make up the value chain."

Enterprises applying the model are provided with a framework to achieve their goals of both horizontal and vertical collaboration. The VRM model uses a common language while at the same time creating a foundation for successful Service Oriented Architecture. The VRM framework organizes processes through five levels representing the various layers of the organization. As the processes work their way from the bottom (actions) through the top to the strategic processes, they become more complex and closer to realization of the strategic goals.

Strategic processes are the top-level processes in the value chain. These are the processes specifically designed around customer needs and the business strategy. Decomposed from strategic processes, tactical processes outline how the goals of the strategic processes will be met. Tactical processes are derived from operational processes, which are where the work gets done. Activities are groups of actions that make up the operational processes. Actions are the last group of processes and represent individual items of work that cannot be broken down further.

These processes are further governed by three macro processes that control the enterprise: Govern, Plan and Execute.

9.1.4.3 The Supply Chain Operations Reference Model (SCOR)

The SCOR Model represents a framework that offers a means of facilitating the identification of process models for nearly any and all types of enterprises. This is a holistic end-to-end process inclusive of the supply chain ecosystem. Such a framework is valuable for enhancing enterprise and stakeholder (internal and external) communication for building and sustaining process-centricity into the enterprise.

The Supply Chain Operations Reference-model (SCOR) has been developed and endorsed by the Supply-Chain Council (SCC), an independent not-for-profit corporation, as the cross-industry standard for supply-chain management. Initially this consortium included 69 voluntary member companies interested in advancing state-of-the-art supply-chain management systems and practices. It has since expanded its reach to healthcare, government, education, and many other service-based enterprises.

9.2 Current state: Assessing Process Maturity

Assessing an organization's process maturity is an integral part of understanding where the organization is today and where it aspires to go in its overall process journey. There are numerous process maturity models that are used by a number of practitioners or vendors. They can range from the basic five-point scale to a multi-dimensional prescriptive methodology.

Process maturity assessments typically assess the ability of an enterprise to support Business Process Management—they focus on the enterprise's level of maturity with respect to BPM capabilities. At the same time, maturity assessments can gauge the capability of enterprise processes to deliver business results. In some cases, a process maturity assessment will capture both. Organizations may choose multiple maturity assessments over time and for different purposes.

Process maturity assessments can be useful for establishing a baseline of existing capabilities and to align the organization on the current state. Assessments are also useful in identifying and addressing any gaps. The gap assessment can thus be prescriptive and assist an organization in creating actionable plans or an overall roadmap for Business Process Management, which will be discussed further in this section.

At the time of this publication, over thirty different process maturity assessments were identified from numerous consulting, analyst and technology vendors. This list continues to grow. The purpose of this document is not to identify all of the methodologies in the marketplace but rather illustrate the importance of conducting an assessment to establish a baseline and provide actionable guidance to achieve greater maturity. Practitioners must decide on the right model for their organization, depending on the overall strategy of Business Process Management. To illustrate, we will review two common maturity assessments going from the basic to the more complex.

9.2.1 Capability Maturity Model Integration (CMMI)

The Capability Maturity Model Integration (CMMI) is a process-maturity approach that can be used for a process, project, or an enterprise. CMMI is a registered patent by Carnegie Mellon University. The five-scale classification is typically less prescriptive than other methodologies but can be used as a general discussion guide in evaluating a specific process area or enterprise maturity.

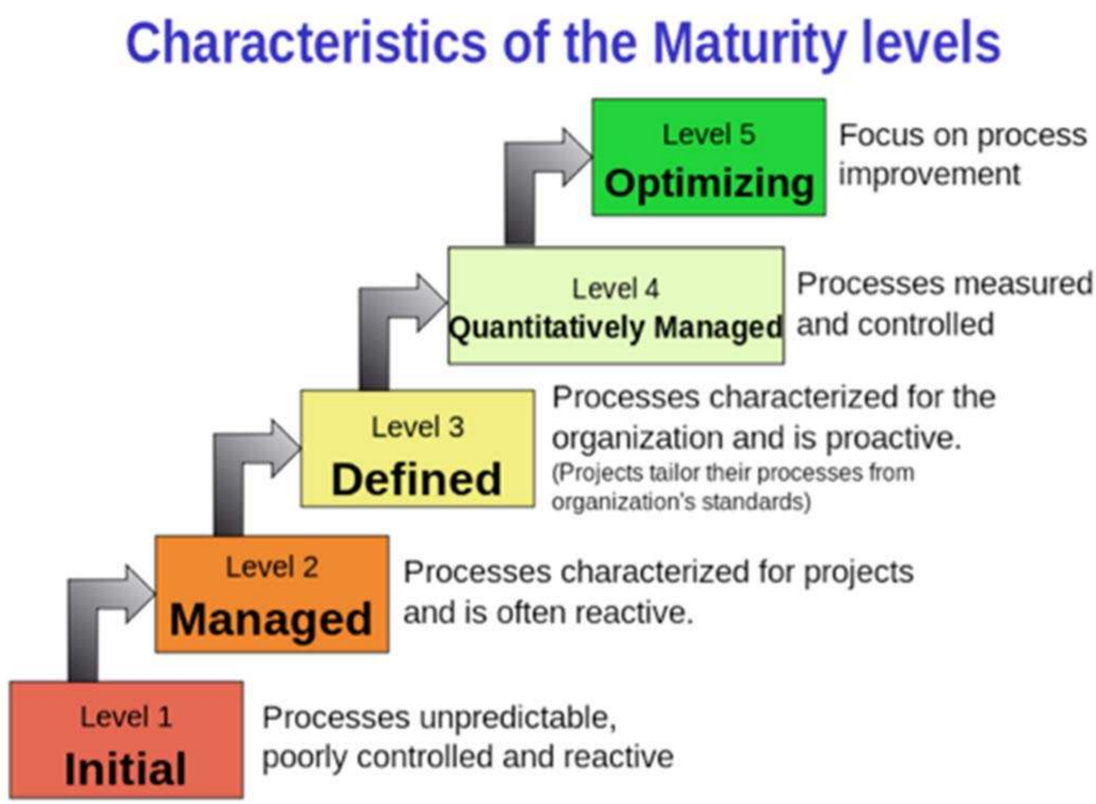


Figure 65. Maturity Levels

9.2.2 Process Enterprise Maturity Model (PEMM)

The Process Enterprise Maturity Model (PEMM) was developed by Michael Hammer and summarized in "The Process Audit" (Harvard Business Review, April 2007). The PEMM is meant as a tool to help organizations plan and manage their transitions to process and consists of one framework for assessing the maturity of any particular business process and another for assessing the maturity of an enterprise as a whole. Hammer classifies these two components as two separate dimensions:

Enterprise Capabilities—foundational requirements across the enterprise to enable successful process transformation within an enterprises specific processes

Process Enablers—maturity of individual processes to drive process transformation within a business area.

The Enterprise Capabilities include the following components: leadership, culture, expertise, and governance (see Figure 66). The Process Enablers include design, metrics, performers, owner and infrastructure. Hammer provides a four-point scale for each of these dimensions to assess and manage overall maturity.

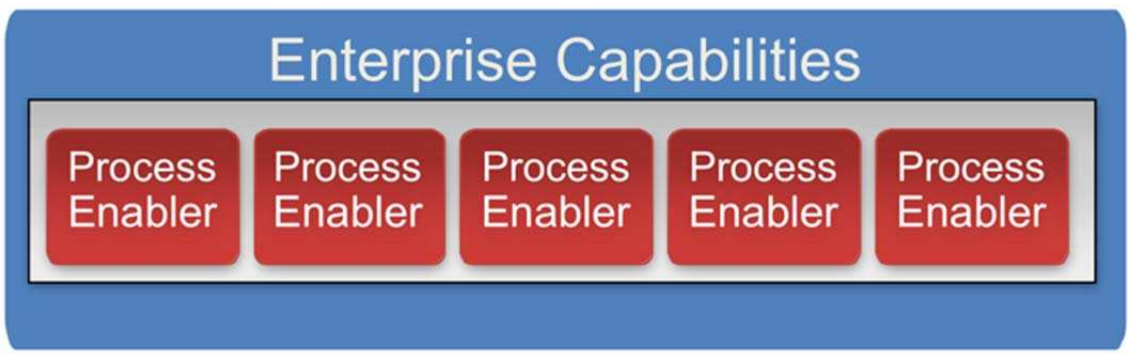


Figure 66. Enterprise Capabilities

9.3 Process Enablement

Core to enterprise process management are capabilities to support the overall enterprise in developing process capabilities. Essential to conducting enterprise-wide Business Process Management is an overall strategy to enable the organization. The enablement strategy should be described in detail and given as much attention as the processes themselves. In many organizations, an overall change management construct should be employed to ensure proper adoption by the organization. Although outside of the scope of this document, it is recommended that practitioners familiarize themselves with the basic principles of change management and incorporate them into the overall process program. In addition to change management, an overall structure for project and program management should also be incorporated. The enablement activities should be specifically defined within the overall roadmap, as discussed later in this section. For illustration, we will cover several important enabling concepts.

9.3.1 Training and Education

Many aspects of business process management will require enterprise training and education to address numerous capability gaps in the overall maturity. To ensure that the concepts of business process management are adequately covered, practitioners should consider developing a detailed training and education plan. The education plan can be comprised of a stakeholder assessment, a listing of curriculum and delivery mediums, an education matrix, and an approach to content development and ongoing training development. Many large organizations have a dedicated training department that can assist in development.

The stakeholder assessment should be aligned to the overall maturity assessment or defined BPM strategy for the enterprise. It should include the various stakeholders for BPM, specific requirements tied to process strategy, specific roles, and the type of information that is required.

From the overall stakeholder assessment, the curriculum and delivery mediums can be drafted to best serve the needs of the stakeholders. This listing of courses can vary greatly depending on the overall level of maturity of various stakeholders and the strategy of the overall process program: courses can range from specific training on BPM technologies to what it means to be a process owner. Multiple delivery mediums—such as eLearning, Podcasts, classroom, and web training—should be considered, based on the type of training and the overall audience.

An education matrix should be developed to tie stakeholders and specific learning objectives to the various training programs and mediums. A plan will also need to be developed on how to create this content and manage on an on-going basis. This should be included as part of the overall enabling roadmap (discussed below).

9.3.2 Marketing and Communications

In many enterprise projects and initiatives, this enabling capability would typically be called communications and focus primarily on providing process communications to the enterprise. However, given the strategic importance of business process programs and the organizational headwinds they face, the overall communication of Business Process Management to the enterprise should be given the treatment of a marketing campaign. Because of its scope, this document does not delve into the various aspects of marketing; however, it is important to note that practitioners should develop a plan to this level of detail that includes an overall strategy and targeted campaigns. Aspects of social media should also be considered to reach broader audiences.

9.3.3 Process Scorecards

Process scorecards can play an important role in the ongoing management of a process to ensure the overall operational objectives are met. Similarly, a scorecard should be considered as part of enabling enterprise process management. Metrics or Key Performance Indicators (KPIs) should be defined as part of the overall process program that aligns with specific objectives as defined by the process roadmap, discussed later in this section. The scorecard should be used a mechanism to track enterprise enablers against overall goals.

9.4 Process Governance

While the Process Manager will have responsibility for the overall activity in the process, that will not take the place of the normal Business Unit Manager's operational responsibility. The Process Manager will have a broader operational responsibility, but he or she will typically not have the authority to directly guide the Business Unit Managers. This makes for a difficult situation and it is the reason the Process Manager must have a way to deal with disagreement, recalcitrant Business Unit Managers, and often conflicting priorities and interests.

A large part of this ability to deal with the problems is related to working with managers who must, by personal evaluation requirements from their own bosses, focus on their individual operations. It would be nice if people always played nicely with one another, but they don't. This is reality. To mitigate this reality, it is necessary to implement a process governance structure with separate rules that control the interaction between the managers on the Process Management committee and way that priorities are set and performance is managed.

These rules will be unique to each company and reflect the company's culture and the way the process is performed. Consider an example in which parts are outsourced or replaced by purchasing sub-assemblies that were once built in-house. Control of the process and governance would change, and must be formally created, accepted and managed by the Process Manager. Without it, the committee would be chaotic and fail to deliver real process management.

However, in all governance, care must be taken to find the right balance between control and flexibility. Too much flexibility entails ineffective control; with too much control, everything becomes a challenge. Finding the right balance will be a negotiation in all companies: no managers willingly give up their freedom to act or their authority to make change-decisions. That is why consensus on the rules that control governance is important. It is also why senior executives' higher authority is critical—there will always be disagreements when authority is being taken away.

In addition, a move to a process viewpoint will push managers into unfamiliar territory, especially when there are so many definitions of what a process is. This problem is manifest in the fact that, in many companies, a "process" is any group of tasks or, in some cases, a single task. In these companies, the concept of process management will be a struggle for many managers, and it will take time and possibly executive definition mandate and executive decree that the company or department is moving to include a process view as part of the way they will manage work and change.

9.4.1 Role of Governance in the Process Organization

Process governance is the mechanism for creating the rules and standards by which Business Unit Managers interact with the Process Manager, who has no authority over them and cannot make them do anything. This is an example of the matrix organization based on a central coordinator. The coordinator (Process Manager) has no real authority, but must coordinate what all participants are doing. Without solid governance rules, this would be a formula for disaster. Responsibility without authority simply doesn't work. But possessing the ability to appeal to a higher authority who can make things happen, does work for a coordinator. Setting the environment for this committee to operate is the role of the Process Manager and through him or her, the approach that is taken in Process Management Governance.

As noted above, the end-product or Process Management approach will be unique to each company based on such factors as culture, placement of the Process Management role, and the authority that is given to the Process Management committee by the "higher authority"—the executive manager responsible for this function.

Once the governance standards are defined and the approach agreed upon by the Process Management committee, Process Management Governance will become part of the overall change-governance structure in the company. This will include both Business and IT change-management and all the Centers of Excellence or Centers of Expertise in both groups. Overall, the Process Manager's role in all change is to help managers evaluate change from a broader perspective and avoid a business-unit silo view. This is scaled to be both strategic for all change projects company-wide, and narrowly focused to help individual projects avoid causing downstream problems or contributing to the accumulated negative impact of myriad small changes in activity and rules.

9.4.2 Governance Processes

Process Management is defined by suggestion from the Process Manager and approved by each Process Management committee. The governance of this function is also suggested by the Process Manager and approved by the business managers in the various Process Management committees they belong to. The result is a set of procedures that combine to define how Process Management will be implemented in the company and, to some degree, in the various projects (flexibility is often needed at the project level and variances should be allowed to avoid overhead).

Formally provided in this way, governance is itself a management process, and as such it is subject to the same forces that disrupt any process. Therefore, it must itself be re-baselined periodically to avoid white-space work creep and make certain its process is visible, controlled, and automated to the greatest extent possible.

With BPMS support, automation can be generated from a governance process model, just as all business models in a BPMS can be used to generate management tracking and performance-measurement applications. All process simulation and improvement comparison will be measured against the baseline or initial iteration of the process.

9.4.3 Process Governance: Making it Work

Process Management is a change-governance activity. It helps govern change and provides a broader perspective on the change process, with one purpose: to help coordinate change, making certain that changes are done in the right way and that none of them cause harm.

Process Governance must be based on agreement among the business managers involved in any specific change project. Without their agreement, governance will not work and the benefits of Process Management will not be available to the company—at least not for that project. At a broader level, the same is true for Process Management. If governance is not agreed on by all involved and committed to by executive management, the move to a process view will not succeed.

The real problem of process governance, however, is one of collaboration, as processes are becoming more complex and involve suppliers, outsourced work, and internal work that can be geographically located anywhere. Obtaining agreement in this environment is difficult, especially for a person who has no real authority over the work, but responsibility to make certain the process itself runs well and improves.

Agreement among the participants, while vital, is not enough. Process Managers must eventually coordinate all process change. They must also report to a Process Officer who has the authority to make decisions about change and the influence needed to persuade managers to modify any changes to their operation that will cause harm to other managers' operations. They must also have the mandate to work with the Centers of Excellence, both within and outside of IT, and with collaborative partners to ensure that changes actually benefit the greatest number of business units.

In addition, it is suggested that companies moving to a process approach in controlling work create a separate process function that will tie organization managers who contribute to a process and likewise the Process Manager to the same evaluation metrics for performance and quality. This will provide incentive for them to work together as a process management team.

9.4.4 Process Portfolio Management

The cornerstone of governing enterprise processes is coordinating the enterprise portfolio of initiatives. To provide effective governance in accordance with overall process design, it is imperative that the process enterprise provides input or is directly aligned to the enterprise Project Management Office.

9.4.5 Process Repository Management

At the heart of process governance are the enterprise processes. To provide governance in a complex organization, it is important to have a common, standardized view of processes. In more mature organizations, these processes are typically managed in an enterprise process repository that is enabled by a Business Process Analysis (BPA) toolset. Additional governance frameworks should be applied to the management of the enterprise process repository, which often overlaps with the overall governance structure. For example, process ownership would define the ability to make updates to or define the approver of process content within the repository.

9.5 Business Process Management Roadmap

Essential to establishing enterprise process management is a centralized plan to develop and deliver process capabilities for the enterprise. The Business Process Management Roadmap is meant to be the strategic plan for an enterprise to deliver Business Process Management over time. The BPM Roadmap will vary by organization, depending on current and desired maturity and overall process strategy.

The roadmap should typically span several years and direct the ongoing activities associated with the process program. The roadmap should consist of multiple dimensions, including clearly defined goals, objectives, stakeholder analysis, and—tied to overall strategy—the defined activities and a time component.

As described above, the roadmap can take on several instantiations, depending on numerous enterprise factors. To help manage the overall complexity of activities required, it is helpful to separate the work into two separate categories: (1) those related to specific process areas and (2) those related to developing the overall enterprise capabilities.

9.5.1 Process Roadmap

The process roadmap should include the required set of activities related to increasing the maturity or capabilities of a specific process area. For example, a roadmap should be developed specific to Order to Cash that depicts the overall and detailed programs and projects to drive value across the process. Process-area roadmaps should be managed by the overall process owner and integrated across the process areas. If the specific process area has been assessed as part of a maturity assessment, these results as well as any additional projects should be included here.

9.5.2 Enabling Roadmap

The enabling process roadmap would run parallel to the individual process roadmaps and depict the activities required to drive overall process maturity in the enterprise. Examples of elements within the enabling roadmap have been discussed throughout this section and include aspects of process maturity, process governance, process marketing, process education, and overall leadership development. Again, depending on the type of maturity assessment used, results and actions should be reflected in the enabling roadmap.

9.6 Process Management Center of Excellence

To concentrate expertise, many companies are moving to a Center of Excellence or Center of Expertise (CoE) model. In some companies we are seeing the creation of specialty CoEs in both IT and the business operations to help focus skills and knowledge and provide help broadly to the business.

> ***"The key to CoE success is a combination of authority concentration and expertise in the BPMS(s), the technical environment of the company, an understanding of business operations, and BPM expertise." –Dan Morris and Raju Saxena in a paper titled "The Need for a BPM Center of Excellence" (ABPMP).***

A Process Management Center of Excellence is needed (at least eventually) to provide consistency of approach through the creation of policy and standards at process level and lower, more focused Business Unit-level change, operation management, and a move to continuous improvement. This CoE will work with other company CoEs to coordinate standards and avoid overlap, conflict, and a lack of clarity.

The need to concentrate Process Management expertise will become evident at some point in your company's evolution to a process perspective—a perspective that allows managers and Project Team members to look at processes from end to end and drill down to any part of the process and the Business Unit that performs it. Assuming that a good BPMS is used as the base enterprise business modeling tool, managers and Project Team members will also be able to start at a Business Unit or greater level of detail, then follow the work upward to see the entire process, and model the ripple of changes to any part of the work.

Process Managers (discussed above) may be part of this Process Management CoE or they may be separate and more focused on managing the process they are responsible for. If this is the case, the Process Managers will draw on the Process Management CoE to provide the guidance necessary for approach consistency, model consistency, reporting clarity and consistency, and Process Change methodology.

This recognizes the role of the Process Management CoE staff as internal consultants that help Process Managers with change projects. As such, the CoE staff must be experts in the approaches, concepts, method, techniques, and tools used in Process Management and Process Change. They must be familiar with the standards, rules, and policies that will govern Process Management and Process Change in the company, and they must know the players and the politics in the company.

9.6.1 Benefits to the Organization

The main benefits to the business from a Process Management CoE are the delivery of Process Management consistency and the coordination of governance, standards, techniques and methodology used by the Process Managers. Just as their roles focus on consistency in coordinating work and change in their processes, they themselves should be governed and their work coordinated by common approaches and rules.

This is important in establishing any new CoE or taking an existing CoE to the point where it can support consistency across the company.

But with consistency comes limitation. This limitation should not replace or prevent innovation and creativity in the way Processes are viewed, managed, or changed. It is rather the job of the CoE's internal consultants to promote these qualities in the projects that will improve the Process's operation.

Finally, the CoE will be able to work with the Data Architects to determine the "systems or sources of record" for data. These are the places where the highest quality data available can be found, which becomes the foundation for reporting. This will be supported by the creation of common performance monitoring and reporting requirements to make certain that the same type of information is available and reviewed by Process and Business Unit Managers on the Process Management committees.

9.6.2 Typical Roles

There are at least three distinct roles in Process Management. These are

- **The Process Manager**, who will monitor all activity in the process and help the Business Unit Managers work with the other Business Unit Managers who contribute to the process and its products. This is a measurement and problem-solving role that involves creating and coordinating committees of Business Unit Managers who perform the work of the process. This role helps identify problems in the process, recommends corrective or improvement action, manages process-level change projects, and helps the various Business Unit Managers work together to govern the operation of the process.
- **The Process Change Manager**, a role that may or may not be the responsibility of the Process Manager, who must focus on operational issues first. If this role is assigned to someone other than the Process Manager, that person should report to the Process Manager. The Process Change Manager is an advisor or internal consultant who is focused on change for the process—he or she is not operationally focused and is not involved in managing the day-to-day activities of the process. Rather, this person is responsible for improvement and controlling of the impact on upstream and downstream work of any changes in business operation, rules, data, or reporting.
- **The Process Consultant** is an internal role provided by the Process Management CoE. People filling this role are experts in controlling process change and in the standards, policies, techniques, etc. that are used in the company to govern process change.

9.6.3 Responsibilities

Process Management involves only a few responsibilities at a high level. These are:

- Provide an end-to-end process view to Business Unit Managers who are involved in the process
- Create Process performance monitoring and measurement
- Coordinate the Process Management Business Unit Manager's committee
- Control change at the process level and review Business Unit Change to ensure that there is no impact upstream or downstream in the process
- Provide consistency in approach, technique, and method
- If there is a Process Management CoE, to work with the CoE to create standards, policies and governance rules.

9.7 BPM Integration in Support of Process Management

Process Management is very difficult to implement and perform without the implementation of a supporting BPM discipline and without BPMS tools. Why? Because of the scope of activity and information that must be dealt with. BPM is process- and workflow-oriented. As such, it is meant to look at process management and improvement. Since it uses workflow management as the foundation for process and activities as process building blocks, it is designed to help managers deal at all levels in the business.

Second, the Process Management function can either focus on business and BPM or on the technical side and deal with Enterprise Architecture—which today is trying to move out of the IT infrastructure to include business process. ABPMP's recommendation is, of course, to look at process from a business perspective and support improvement through the use of business redesign techniques and a BPMS tool suite.

A third reason to integrate BPM and Process Management is the tools. BPMS tools provide the automated support needed to understand processes and monitor activity. These tools create a new operating environment that allows managers to track progress in near-real-time and add in Six Sigma quality monitoring systems, cost tracking, and more. They also allow Process Managers to work with Business Unit Managers and simulate proposed change at the process or the workflow levels, then look at the possible ripple effect of the change on other Business Units.

Built-in security also allows the BPMS tools to control who views information and what they can do to it: read, add to it, or change it. This is critical in processes where parts of the work are outsourced or parts of the work are performed in different geographical locations. Because of the information-delivery capabilities (models, rules, etc.), these tools allow all managers in any part of the process to understand how their work fits in and how their staff contributes to the end product or service.

Finally, the BPMS tools allow Process Management standards and policies to be translated into rules that will control work, decisions, governance, and reporting. These rules are linked to the Process and workflow activities and provide consistency.

9.7.1 Fit in the organization

Process Management should be a separate structure in any company. It must be independent of the business units that support a process and it should have different performance targets than the groups it works with. In some respects, Process Management should be provided through a separate type of organization. At the top level is the Process Management Executive or Chief Process Officer who should report to the Senior Management Committee. The individual Process Managers or Process Owners should report to this executive manager. Process Change managers will report to these Process Owners.

The Chief Process Officer is obviously responsible for the health of all the processes in the company. The Process Managers own the processes they are responsible for. These people will create Process Management Committees with the Business Unit Managers whose staff do the work needed to build the components of the process's products or services. In doing this, the Process Managers will interact with IT, collaborative partners, outsourcers, and virtually all the Centers of Excellence in the company to identify problems, opportunities for improvement, cost-cutting measures, and quality improvement changes. They will also be responsible for the process view models in the BPMS and the (high-level) process business rules.

Process Managers will work with their Business Unit Manager Committees to recommend projects and build business cases that the managers will agree to and sign.

Process Change Managers will be responsible for modeling and governing change in the process. The most difficult part of this role is building the relationships with line managers and staff needed to identify low-level rule and activity change so they can be added to the workflow models and rules library. This updating is a critical activity needed to keep the operation and its models in sync.

In addition, the Process Change Managers will be responsible for working with the BPMS and the Project Teams to model and simulate the change to identify potential impacts upstream and downstream in the workflow and process flow.

External to this main Process shadow organization, but related to it, is the Process Management CoE. The CoE staff are process consultants who work with all levels of Project Management managers to advise them on standards, techniques, rules, and methods as they perform improvement projects and manage the processes.

9.7.2 Role of IT in Process Management

As with all parts of any business, IT provides the infrastructure that enables and limits automated support. This is as true in process management as in the Business Unit-focused application systems. The difference in supporting Process Management is that the applications are generally designed to support operational activity and not process.

Today it is usually difficult to identify all the applications that support any process and the data they contain. It is also almost impossible to track activity across processes and identify the status of work. This void can be filled through the use of BPMS technology, which can model the process and then monitor the movement of activity and the quality of work. However, this will mean that a process-level management structure will need to be built.

Because this type of tracking and reporting cannot be effective when manual, some form of automated tracking and reporting is needed. Generally, this support can be built quickly using a BPMS, which can monitor work and add in metrics from other tracking applications in different parts of the process. This type of application support is needed to monitor activity and provide near-real-time dashboard reporting with alerts and inference-based guidance.

However, building this support will require an appropriate IT infrastructure and a BPMS tool. That may or may not be possible in your current IT environment. It may be necessary to do the best you can using simple manual tracking, recognizing that this tracking will be high-level and incomplete.

9.7.3 Enterprise or Business Architecture and Process Management

Each of these approaches is unique and offers different support. But to form a complete picture of the business operation, all should be present:

- Enterprise Architecture: A look at the business operation from a technology point of view.
- Business Architecture: Alignment of the strategy of the company with business capabilities and through them to business functions and process components. That ties strategy and capability to process and Business Units.
- Process Management: The end-to-end view and management of activity across the entire process and, at a lower level, the workflows that make up the process.

Each of these disciplines and models adds something that the others miss. With a center of process, Enterprise Architecture provides a complete picture of how IT applications support activity and how the infrastructure supports applications. Business Architecture models provide a great picture of the business from a perspective of what needs to be done to deliver products or services. This defines effectiveness in the business. Process Management now adds the "how." It defines how work must be done and how it changes. Although it is difficult to do because these products and the groups that own them are separate, it is possible to pull this information together and offer a complete view of any process or any level of detail in a process.

9.7.4 Continuous or Quality Improvement initiatives

Process Management must deliver continuous improvement in all Processes and, at lower levels, support improvement in the Business Units. That is the goal of implementing any Process Management program. But to do this, the information that forms the view and defines the operation must be reusable, and the Process

Managers must be able to update and use the information quickly. If this is not available, the effort will slow and become overhead.

Interestingly, as soon as anything becomes overhead it is deemed unnecessary and dropped.

It is thus important that any move to a process perspective and Process Management be thought out and supported by executive management through budget and mandate. It should also be recognized that a move to this approach cannot occur quickly or without considerable work. Even with this support, any move to implement a continuous improvement program must provide an ability to change quickly—very quickly. The reason is that the business will change continuously and any change that takes a long time will deliver a solution that meets the old needs of the operation, not the new needs. So, speed of change is critical.

This can be provided through the BPMS and its ability to quickly model and iterate. With this capability, changes in a process or at a lower workflow level can be modeled, simulated, tested, and deployed in days or weeks, instead of months. This also allows management to track the outcome of changes and make certain that the operation is improving.

Chapter 10

BPM Technology

Foreword by Dr. Mathias Kirchmer, Executive Director BPM and Global Lead Business Process Management-Lifecycle (BPM-L) Practice, Accenture

Business Process Management (BPM) has become a management discipline that transfers business strategy into IT and people-based execution—at pace with certainty. BPM technology is key to delivering on this promise. It helps in creating the transparency necessary to achieve conflicting goals like quality and efficiency, agility and compliance, or internal alignment and external integration into enterprise networks. BPM systems enable the implementation of “processes to change” where this is appropriate. The high level of maturity of many components of BPM technology is also a reason for the increasing interest in BPM. Now BPM practitioners can focus on business outcomes and line up the necessary technology accordingly. We can move towards “value-driven BPM.”

BPM technology supports the entire lifecycle of a business process, from design through implementation to execution and controlling of processes. It supports the linking of strategy to processes through an appropriate design using Business Process Analysis (BPA) tools and converts that strategy into an agile execution using BPM automation engines. Process Performance Management and Business Activity Monitoring (BAM) systems shed light on running processes that enable effective controlling. New architectures, such as Service-Oriented Architectures (SOA), support the agility of IT-supported business processes even more. The resulting agility will again be increased through new approaches such as Software-as-a-Service (SaaS) or Cloud computing. BPM systems align software components with the business needs of processes. The use of social media resulting in “Social BPM” creates opportunities to integrate the people and IT dimension of BPM, delivering even higher performance of the powerful management discipline BPM.

The agile BPM technology requires appropriate governance around it. This is the basis for creating real value through this new level of agility and scalability. BPM governance makes sure that technology is consistent with the people requirements and that both are aligned to produce best value for the organization. Governance is an integrated part of a BPM technology approach and strategy.

The following chapter gives you an overview of the status and development of BPM technology, as well as the required governance component. It positions this important aspect of BPM in the larger context of an outcome-focused BPM management discipline that adds real value to an organization.

Contents

10.0 Introduction

BPM is a comprehensive melding of Business Process Reengineering, Business Process Improvement, and Business Process Management methods and techniques that are designed to deliver both immediate and long-term improvement. These methods and techniques may be supported by Business Process Management Suites (BPMS) of tools to achieve Business Improvement or even Transformation. When combined, a new type of BPMS-supported BPM environment is created.

This environment provides a new level of automation through application definition within the BPMS. Combining the logic shown in the business models with the rules and data that are linked to each activity, these tools then support the generation of business applications. This ability to define and generate supporting applications from models and rules allows the BPMS to offer unprecedented workflow management and improved flow-status reporting. It also improves control over work quality and activity timing.

In this operating environment, the business activity is actually supported within the BPMS technical environment, with the BPMS controlling all aspects of IT support. This moves the BPMS to a controlling role in the orchestration of any support. As such, it is responsible for calling legacy applications, using what is needed (screens/functionality), controlling data use within the job that is being performed (following both traditional and Service Oriented Architecture—SOA approaches) and then mixing and delivering data where it will be stored.

Although a BPMS-supported BPM operating environment offers many advantages, the three main benefits it creates are

- Speed, through application modeling and generation
- Quality, through an ability to externalize rules and then test them individually and in groups
- Flexibility, through rapid iteration.

10.0.1 An Introduction to Business Process Management technology

The technology that supports Business Process Management is rapidly changing as every major vendor constantly monitors the competition and market in an attempt to read the market, anticipate corporate client needs, and offer features that make their suites easier to use and more functionally rich.

> ***Business Process Management Operating Environment**: BPM today melds Business Process Reengineering methods and techniques with Business Process Management Suite (BPMS) automation capabilities to achieve radical Business Transformation. In this emerging environment, the BPM teams use the full spectrum of BPMS tools to deliver business and IT change. Together, BPM and BPMS form a new operating environment that integrates new business management automation with legacy production applications to open access to data and functionality. This is usually created by considering most activity as web services and leveraging the power of the Internet to provide access and move information. The primary advantage of this environment is the speed of application development, the continuing improvement that can be delivered, and the flexibility it provides in changing the business operation and IT support.*

BPM technology has been changing rapidly over the past 15 years as vendors leapfrog one another in a race to provide the best business operating/change environment. In this race to provide support and thus capture market share, vendor consolidation has become a common occurrence. Two recent examples are Savvion (now Progress Software) and Lombardi (now part of IBM), both of whom have been purchased and are being integrated into other offerings. For example, Lombardi Blueprint has been changed by IBM into a product named Blueworks Live.

This consolidation has been a significant factor in product-line extension and functionality enhancement, as vendors purchase parts of their overall product suites and then integrate them. Vendor partnering has also been common, as many vendors have incorporated other vendors' components, such as rules engines. But, while this consolidation is common, some vendors, such as Pega, have resisted and have built most of their tool offerings. This latter option is now continuing as others are starting to replace partnered parts of their tool suites with internally developed or purchased offerings.

Clearly, the BPMS marketplace is anything but stable. This trend is likely to continue as firms are bought and merged. However, this is actually far from a problem, as it is driving a rapid expansion of capabilities and a general improvement in product quality and stability.

The past is clearly showing us that while tool evolution was fairly slow during the late 1980s and 1990s, it gained momentum in the early 2000s, and the pace of its evolution is increasing. Today, the various tool suites offer an unprecedented level of functionality and ease of use. And while many believe that the direction is clearly to move much of the traditional role of technicians to business professionals, we are starting to actually see a new level of collaboration as the roles of both the business user and the IT technician blend in the analysis and definition of needs, rules, and data use.

This blending is actually leading to a redefinition of roles and ways in which IT and the business operations interact. It will now not be long before the separation between IT and the business community, which has caused so much trouble in the past, will be reduced to simply dealing with the more technical aspects of data modeling and infrastructure. Among the key drivers in this bridging is the fact that the traditional way of looking at business requirements definition, the design of systems from specs, and the separation of data from the business in designing systems, is very different in a BPM environment, which makes the traditional forms to a large degree unnecessary.

These and other approach differences are a direct result of the functionality provided by BPMSs and the fact that they provide their own operating environment, where the technology cannot be separated from the business operation.

This chapter discusses these points and their impact on traditional IT concepts. It also looks at how this technology can be used to create a very different type of business operating environment.

10.0.2 A Business Perspective

The ABPMP CBOK will address this topic from a business manager or staff member's perspective. This is thus a business-oriented discussion of a technical topic. Technical concepts and terms are discussed, but the discussions are not detailed technical discussions. They are rather presented in a way that provides the background that a business manager or a business-side BPM professional should have to understand. The presentation is thus fairly broad, but at a basic level to show how the BPM technologies work and the issues that must be looked at with the IT BPMS developer or BPM tool technician.

Business managers and staff should read this discussion because it may well help them to understand the technical concepts, approaches, and considerations that will affect them.

Technical BPM professionals should read this chapter because it will acquaint them with the issues and aspects of the topic that are important from their business client's point of view.

BPM technical standards and a detailed technical discussion are thus not addressed in this chapter.

10.1 Evolution of BPM Technologies

BPM technology has its roots in simple modeling tools. These tools were introduced in the early- to mid-1980s and evolved throughout the 1990s. In this evolution the tools became more capable of reflecting the business operation, and with the addition of rules engines and application generators in the early 2000s, the tool suites started down a different path—they evolved into application operation environments with the generated applications being executed by and within the BPMS.

Today BPM tools have evolved into two basic categories. These are standalone single-purpose tools and integrated groups of tools that together form Business Process Management Suites. The advent of these tools is fairly recent and they are still maturing.

Standalone single-purpose tools

These tools have provided companies the ability to inexpensively look at, and for the first time define, their processes and workflows. They also have allowed companies to look at their business rules and often uncover inconsistencies and conflicts. But their use is limited, and although they do provide good support, they do not allow companies to move to an environment where the models and rules can build new business operations and systems.

BPMS

Between 2003 and 2005 the fairly simple application-generation capabilities of the better tool suites underwent a change and evolved to provide a generation of industrial-strength applications capable of supporting complex logic and large transaction volumes. These tools became suites of modular products called BPMS, or Business Process Modeling Suites. Throughout this time, these tools also moved to a new status: they became business operating "environments." The applications that are generated are actually operating within the BPMS and the business now logs into the BPMS environment to run the business. Now the models define the business (context) and rules (logic, what data to get and from where, and what to do with it), and the forms provide the screen designs (within the context of their use). If an SOA-compliant data layer is available, the legacy application's functionality is open and the legacy data can be easily found.

But the evolution has not stopped with application generation. Today, many vendors boast simulation modeling that is capable of dealing with complex simulation. This allows companies to look at possible alternatives and select the best parts of these alternatives in order to come up with optimal business designs. And when SOA is added, companies can now change quickly by leveraging existing models and data, changing them, simulating the changes to reach optimal results, tie into legacy data through SOA, and then generate new applications.

While this is possible now, it is seldom done. The reason is that few companies really understand that this is available and few have had the luxury of looking at BPM as a strategic tool suite instead of a way to deal with specific problems. But this use is changing and it will continue to change as companies realize the flexibility of this type of environment.

10.2 BPM Technology: Enabling Business Change

BPM technology has been evolving for over 20 years as it has moved from simple workflow modeling tools to complex integrated tool sets that provide a complete operating platform and environment. Today's tool suites vary considerably in their sophistication and function as many vendors try to supply tools for different need niches. But it is now possible to license very sophisticated standalone modelers, rules engines, simulation engines, performance modeling/monitoring/reporting and other special-purpose tools. It is also possible to buy closely integrated groupings of these tools to provide a seamless operating environment, as is found in the leading Business Process Management Suites (BPMS).

The individual standalone tools offer model reuse, rules rationalization, operational visibility, and more. They have a place and are beneficial when used within their focus area. However, for a variety of reasons, some companies try to use these types of tools to provide support beyond their design intention. As with all tools, when used “creatively” (in unintended ways), they can encounter a variety of problems. In many cases, these “use pushes” are an effort to fulfill needs when tools cannot be switched to more functionally rich ones or where the company is locked into an inflexible technology environment. In these cases, the developers may have little choice, but extra care should be taken when it is necessary to “push” any tool beyond its intended use.

While the individual standalone tools offer significant capabilities, these tools will not deliver the major benefits of the BPMS, such as speed of change (which allows companies to evolve quickly and optimize their operations), because they were never intended to do so. The integrated BPMSs, on the other hand, were designed to deliver a complete operating environment where the models and rules work together to generate applications that execute within the tool environment.

In these tool suite environments, once the models are defined, the rules defined and placed in the tool suite’s rule engine, and the data is dealt with, operational change along with applications-change can happen very quickly. It is this speed of change that allows businesses to evolve quickly enough to optimize their operations and sustain that optimization. However, this ability is related to the difficulty in dealing with data and legacy applications. Companies that have moved to a Services Oriented Architecture (SOA) environment have the ability to deal with data quickly and effectively, supporting a faster method of change, than do companies that operate using the more traditional ways of dealing with individual application interfaces and data access.

But even in more traditional IT environments, the BPMSs allow the users to move quickly in redesigning the business operation and how it will work. These tools also allow the analyst to capture supporting information and enter notes into the data screens that support each symbol used in the models. This information can then be viewed in a variety of ways and at different levels of detail. It can also be used in simulations. This allows IT to understand the data needs, legacy application interfaces, and data-use much faster than more traditional approaches. It also allows a much more modular approach to looking at functionality evolution and cost reduction. These modules are often referred to as services. This “modularity” is what allows data about the business, business models, rules, and more to be reused and simply modified at the model level to regenerate modified applications.

This delivers on two integrated BPMS promises: the advantage of speed of change and the ability to look at the operation at various levels of detail with immediate access to relevant information on how the operation really functions.

However, stepping back from the high-end BPMS products, significant benefit can also be realized from individual modeling tools, rules engines, SOA and other BPMS components. For example, many businesses have never had the advantage of an end-to-end detailed view of their business operation or processes. Many more can gain serious improvements in simplifying IT and in opening access to data through SOA. So BPM is not an all-or-nothing prospect, nor is it a one-size-fits-all approach to improvement. But BPMS product flexibility does suggest a need to create a BPM or business improvement strategy and then build the business and technical operations to adhere to it with its tool use and implementation standards.

This chapter provides the foundation needed to consider how a BPMS-driven BPM environment can provide a competitive advantage and how the use of individual BPMS tools can start you down a path to control the evolution of the company. (See "Evolutive Management" in chapter 5.)

10.2.1 Overview of BPM Technology

Business Process Management Suites (BPMSs) provide a new type of business environment that melds the business and IT. We use the term "environment" to describe the resulting operation when using a BPMS, because these tool suites generate the applications and provide the overall operating environment through which the business and the applications run.

Through the business models in these tools, the context for the business operation is defined as a step-by-step framework of the business operation. From these models, the requirements for the data use, legacy use, and technical support of the operation are defined. When the screens are defined (as forms) in the business designs, they provide the touch-point interaction locations and data use requirements for the business worker. When the rules are defined and added to the design, they deliver the logic or "thinking" that the system will do to support the operation. With forms and rules together, the BPMS can now simulate possible design scenarios and evaluate outcomes based on testing that mirrors the real way the application will be used. As part of this simulation, the applications are generated and tested—along with all interfaces to legacy applications and other BPMS-generated applications. After testing, the applications are moved to "production" and the business is supported by executing these applications according to the framework shown in the business workflow maps and the rules that define the logic.

The data and interaction between people and applications are defined by form and supporting database schemas in the BPM tools suites, and the data use and transformation are directed by rules. To provide the data needed to support the data call rules, it is usually necessary to define and construct interfaces to the current applications and their databases, as well as to current data marts. In companies using SOA tools, these interfaces can be simplified through the use of adaptors that help define the interaction and the systems that will deliver the flow of data between applications.

Together this forms a complete operating environment where the business operation is performed within the BPMS environment. However, without the necessary modules from a complete BPMS, the environment will not be able to generate applications, and the benefits from flexibility and speed of change will not be available.

Although you may not be able to address all issues or solve all problems with any tool suite, you will never solve any problem or make any improvement unless you actively look at the operation and how it functions. This is not a one-time activity. It is constant, and it creates the foundation for continuous improvement. In addition, it is necessary for management to be open to ideas and innovative solutions. No one can provide all the ideas or answers, but managers with closed minds seldom achieve the changes that those who are willing to try new ideas achieve. It is important to build a change environment that promotes "outside-the-box" thinking and controlled improvement experimentation. Apart from these qualities, it is necessary for management, in order to be effective, to support improvement ideas with a change environment that allows the ideas to be quickly defined, designed, simulated, built, tested and implemented. That is where the BPMS technical environment comes in. This environment (supported by a full BPM technology suite) delivers the ability to support thought and then quickly to turn that thought into deployable action. This is why a BPMS technical environment, when used to its fullest, can provide a competitive advantage.

10.2.2 What is it? Capabilities

The term "BPM technology" today means different things to different people—even within a single company. The differences start with the differing perspectives between business and IT. In business, the term BPM technology can refer to something simplistic and limited, such as the use of tools like Visio for simple modeling, or it can refer to the use of complex tools and full BPM Suites (BPMSs) for complex modeling with rules definition and generated operating applications. This side of BPM is focused on improving business activity and is limited to the process optimization aspect of change. In addition, some organizations with more advanced document management systems are now being told that the document management tools are BPMSs. We will leave that as a "matter of opinion." However, even these tools do have simple workflow modelers.

From the IT perspective, BPM tools have often focused on Service Oriented Architecture (SOA) and Enterprise Application Integration (EAI). These tools are important to IT and are the foundation of a move to a very different architecture for application integration and data delivery. Of course, this perspective leaves out the process modeling and rules tools, which are business-oriented. At times this technical perspective includes an Enterprise Service Bus (ESB). This gives the IT group a focus on application interfacing and data delivery.

In addition, just to make things interesting, both the business and IT sides are now looking at adding Enterprise Architecture tools into the mix. These tools can have fairly advanced modelers and add the ability to model the technical architecture, data architecture, and more on the technical side. These tools may soon "muddy" the BPMS discussion, but for now, we can still consider them as a separate group of enterprise modeling tools mainly for IT.

From the ABPMP perspective, BPMS technology includes both the Business perspective and the IT perspective on tools and technology. It is thus broadly encompassing and BPM Professional Practitioners are expected to understand both sides of the technology, Business and IT. To have "understanding" does not mean that business professionals are expected to become technicians or that technical professionals must become business operational managers. It does, however, mean that each group should have a good understanding of the needs, work, and tools used by both, and how the tools and their use fit together to allow rapid, continuous change in a controlled new operation.

In addition to the general Business/IT difference in perspective, the differences in definitions of BPM and its technology continue, based on company and department perspectives.

The problem is that many people look at BPM according to their company's definition and the functionality BPM technology provides to their team. Comprehensive as it may be, a company perspective is often an incomplete view because few companies use BPM or a BPMS to its fullest (use complete sets of BPMS tools and all or most of the features). Also, because many companies have used BPM only in specific solutions, the tool suites are often not kept up to date and the company view may be based on experiences with prior versions of tool sets that are more limited than today's capabilities.

Adding to this definition and concept problem is the fact that many companies are now using multiple BPMSs from different vendors. As each vendor uses terms differently, the various departments will have a different vocabulary and different meanings for common terms. When added to the differing definitions for commonly used terms within a single organization, the communication issue becomes a serious impediment.

Terminology, concept, and sophistication can thus be expected to vary among these groups, as do approaches, an understanding of what a BPMS can do, and the way data access and use are governed.

The differences in perspective among groups become even more complicated when the use of the tools is limited to specific purposes for different groups—such as the use of process modelers for business people, the use of rules engines for technical people, the generation of applications as a technical function, the creation of forms as a business function, and so on. This limited use also narrows people's exposure to BPM and BPMS tools and can impact their understanding individually or as groups.

While the capabilities of BPM tools and BPMS change constantly as the vendors add new functionality in their effort to compete, some version of this core functionality will include

- Process modeling
- Simulation of new designs
- Rules definition and management
- Performance reporting
- Application generation (usually somewhat limited)
- Service Oriented Architecture (SOA)/Enterprise Application Integration (EAI)
- Enterprise Service Bus (ESB)

The features and capabilities of these functional components vary today and can be expected to vary in the future. Any look at capabilities is thus time-dependent and any study must be focused on current information. An overview of the core support in these major areas is provided in section 10.3.

As shown in Figure 67, BPM tools can be viewed as providing distinct functionality. Some provide full functionality and others are focused on one or two levels in this hierarchy. The placement of the function on this diagram indicates its relationships to the business on the top and IT on the bottom.

The categories of levels will be discussed in 10.3, but their relationship is driven from the top of the model in Figure 67 by the business needs, or from the bottom by the IT need to better control data access and use. The Rules Engine can be used with all levels and spans the use of all tools. However, the Rules Engine will seldom be used alone except by IT to help get a handle on the rules in legacy applications.

The technology layers are at the bottom of this model. They primarily deal with data, data access, data manipulation, data delivery over the Internet, and interfaces between applications.

In use, the process modeling tools feed the simulation tools. The simulation tools are primarily found as modules in the more advanced BPMSs. However, not all of the BPMS tools have this capability. These tools allow the business and IT managers to look at "what if" scenarios. Business model designs, with supporting volume and other information, are modified to represent different business scenarios and tested in the simulation tool. The new business workflow design and the rules feed the application-generation modules in the BPMSs and drive the need for, and requirement for, legacy application use, data access, and interfacing. Performance Management (monitoring of real-time work and measurement of trends with BI reporting) can be built into the prototype new designs, to help determine the optimized design within the simulation tool. The BPMS applications can then be generated and used in "live" simulations of the new business with its applications. Legacy application-use and legacy data can itself be added to the simulation to form a complete version of the business operation.

Different versions of the business operation can now be easily built and tested. In this approach, Six Sigma-related tools are linked to the generated applications and help point to areas of improvement, which are then monitored.

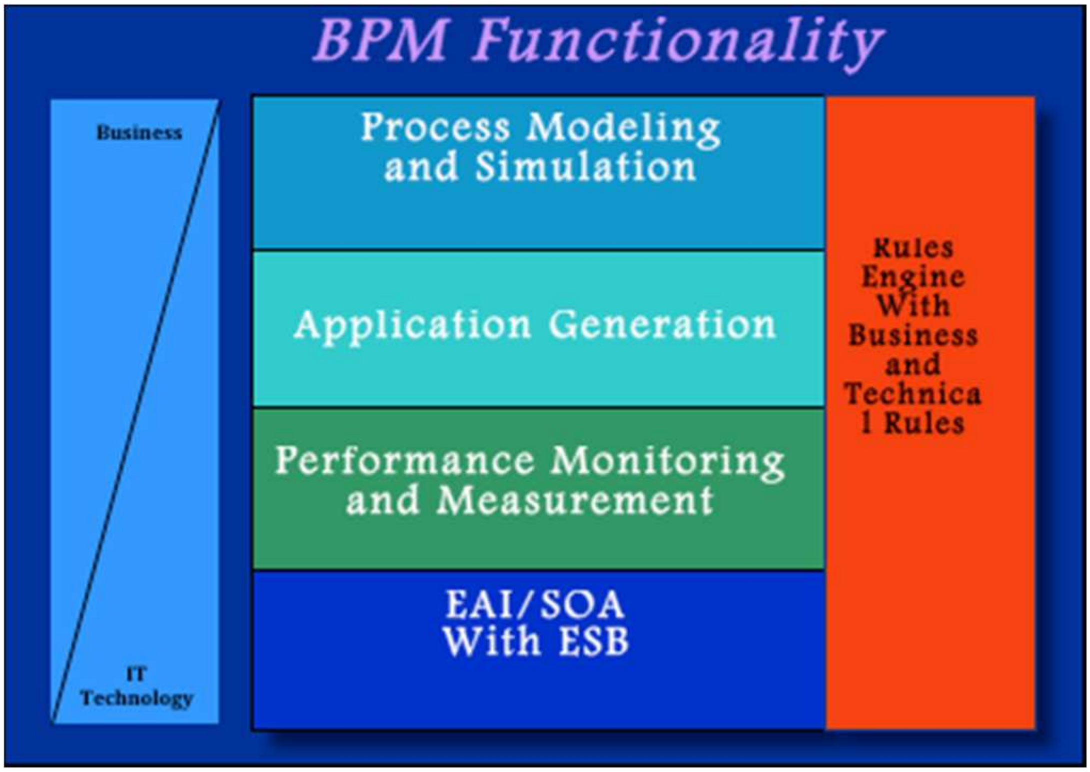


Figure 67. BPM Functionality

Once the optimal solution is proven, interfaces to legacy applications' functionality and data can be built (using either SOA or a traditional single interface construction) and the final application can be moved from the simulation environment to the production environment (within IT) and implemented.

It is this capability that allows both the business and IT to continually look for improvements and quickly respond to new business and application requirements. In this new operating environment, change is quickly analyzed within the BPMS models; a solution is simulated and then once optimal, moved into production. Optimizing here is a fast, iterative process where the solution is honed using performance measurement tools and business-user "use testing." In the BPMS environment these iterations can be built and executed within hours and new business operation (with workflow, application, management control and other changes) put in place.

While these tools can be somewhat unbundled, they only deliver the real promise of BPM *(speed of change)* when they are all used together. This is important because it is only when this speed of change is delivered that business optimization can be reached.

Delivering this speed of change requires an initial investment in the creation of business process and workflow models, the definition of business rules, and the baseline models and interfaces for simulation and deployment. This creates a new integrated business/technology environment. Changes are now made in the BPMS, and (BPMS) applications are regenerated. Interfaces, however, still need to be changed. Testing now needs to take place in the business and in the normal IT testing done by the company. The time-frame in this environment is very different, with business changes that once took months or over a year, now compressed into days or weeks.

This capability is the biggest benefit of a BPMS-supported BPM operating environment. It is also the advantage that can be gained from using a BPMS rather than separate process modeling tools and separate rules engines.

10.3 Capabilities of BPM technologies

Components: Process Modelers, Application Generators, Rules Engines, Performance Monitoring, EAI/SOA, ESB

To help focus on core capabilities in the diagram below (BPM Tool Use), rules are included in Process Modeling, and Enterprise Service Buses are included in the EAI/SOA group. The BPMS data repository is included as part of each level. However, it is generally appropriate to use databases that are external to the DBMS for serious applications.

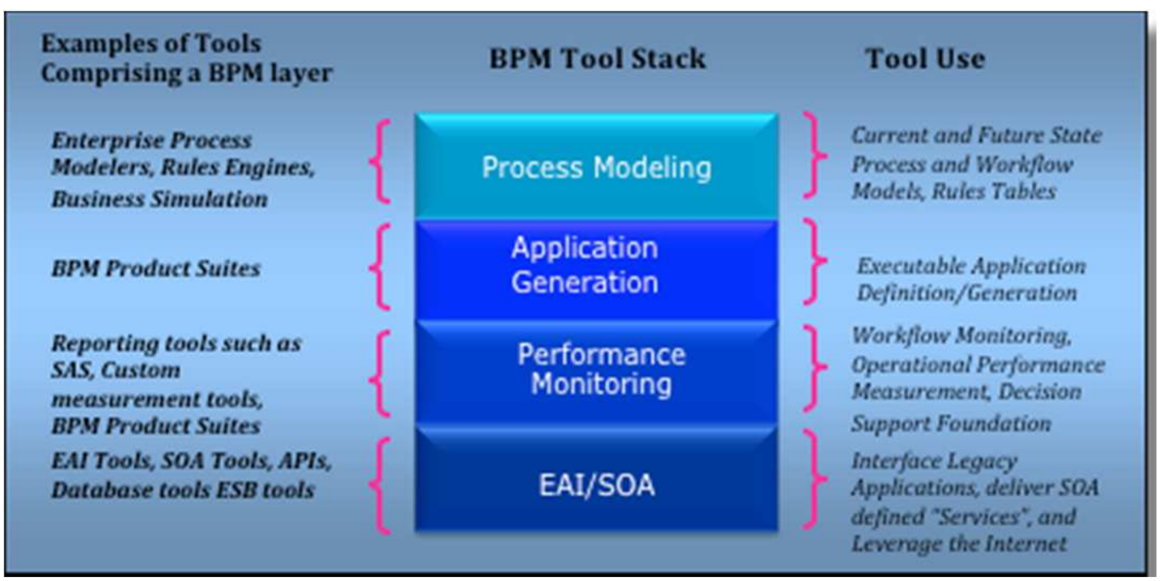


Figure 68. BPM Tool Use

BPM Tool Use

shows the relationship between the functionally oriented tool groups and defines what each group supports. Business models contain the definition of the activity, its flow, its rules, its data use, its user interface, and the way performance will be monitored. Here, detailed business process models are used to drive application generation. The application generation will support the simulation of the design iterations until an optimal design and supporting applications have been identified. The "solution" will then be put into production, and performance measurement and analysis will occur. If this solution will be supported by legacy data and legacy application functionality, the solution will be interfaced with legacy application through SOA adaptors and web services. The data will be moved across an Enterprise Service Bus. This, of course, assumes that all layers are in place. But, as discussed earlier in the chapter, it is very possible to use special purpose-tools or tools that apply to only one or two layers in the model.

Currently, the major BPMS tools operate on local company-based hardware servers. However, most vendors are now moving to offer their products through a form of network "cloud"-based services. These offer a different architecture and a different form of billing—usually on a transaction basis. It seems clear that a greater variety of architecture/use offerings will be available to companies using BPMS tools. While the variety is difficult to predict, security will likely remain a problem, as will data integrity. For many companies, these issues may limit options, as use and data may need to remain locked behind the corporate firewalls.

Although similar in many ways, in reality each vendor's tool suite modules and functionality will vary. Some are narrowly focused and some provide modules that perform a wide range of functions. In addition, some vendors have "integrated" tools from other vendors into their product offering and resell these modules as part of a complete tool suite. Because of acquisitions, the playing field among these vendors is constantly changing, with major companies like IBM and Oracle augmenting and changing their offerings by purchasing higher-end BPM vendors.

This tendency creates a temporary instability in the market as vendors adjust their offerings and decide what they will keep, modify, and eliminate. While this should eventually create better products, in the interim, it does increase the risk of any commitment to a specific vendor.

Some vendors will also require the person using their tools to be much more technical. Open-source BPMS are an example of this and require a great deal of Java coding to drive the products behind the scenes. Other mainstream products, such as Pega, also fall into this "technical" category. So, "user friendliness" can be a major concern and could be considered more important than a BPMS's functionality or cost.

Although the past focus in BPM on using a BPMS for specific problem-resolution efforts has caused many companies to purchase multiple BPMSs, any more strategic use of BPMS technology will likely mandate that the company move to a single vendor or a least a limited number of BPMS vendors. A company looking at a vendor consolidation or moving to centralize on a single vendor should consider, in addition to functionality and usability, several factors. These include:

- **The vendor's plans for the modules in their product**. Will any products be replaced or sunset in the next three years? If you make a commitment to their product, how will they help you migrate to the new version? This is a problem today with some vendors as they continually move to new products and versions.

- **Is the vendor for sale?** What will be guaranteed if the vendor is sold? You will want to be assured that some products will not simply be dropped by the new owner. Many vendors have been purchased in the past three years. This trend will continue. How will it impact you?
- **Alliance stability:** are vendors strategically and legally committed to continue supporting any integration of products? If a vendor alliance is dropped, what will be done to assure your continued use of the full product suite and how will the vendors work to continue your support?

The next section describes the main BPM technologies. They are:

- Business Process Analysis Tools (BPA)
- Enterprise Architecture Tools (EA)
- Business Rules Management Systems (BRMS)
- Business Process Management Suite (BPMS)
- Business Activity Monitoring (BAM)
- Service Oriented Architecture with Enterprise Application Integration (SOA/EAI)
- BPM Enterprise Repository (external to the BPM tool alternatives but needed)

Note: While Enterprise Architecture tools are usually not considered a BPM technology, they are needed to help evaluate the current IT environment's ability to support a new business operating design.

The following discussion looks at the major modules or components of BPM tools. This discussion is not meant to look at all possible components and it does not attempt to comply with the naming convention of any vendor. The table below shows the main BPM support tools and some of their main uses.

	BPM Tool Alternatives						
Core Use Cases	BPA	EA	BRMS	BPMS	BAM	SOA/EAI	BPM Repository
Process Analysis (cost, time, others)	*Yes*	*Yes*		*Yes*			
Comprehensive Process Modeling	*Yes*			*Yes* *for most*			
Business Process Architecture Design	*Yes*			*Yes*			
Simulation	*Yes*			*Yes*			
Data Management		*Yes*		*Yes*			*Yes*

Application, Hardware, Information Architecture Design		*Yes*					
Application, Hardware, Information Architecture Monitoring / Management		*Yes*					
Design and store business rules			*Yes*	*Yes*			
Execute business rules			*Yes*	*Yes*			
Application Interfacing				*Yes*		*Yes*	
Application Generation				*Yes*			
Process Execution				*Yes*			
Process Measurement				*Yes*	*Yes*		

Table 28. BPM Tool Alternatives

10.3.1 Business Process Analysis (BPA)

Process and Workflow Modelers

Modeling tools (BPA tools) allow business managers and staff to enter diagrammatic and detail information about their operations and the problems, volumes, opportunities, etc. associated with the activity. To control the use of these tools it is critical that a company standardize symbol use, modeling approaches, and terminology. For many companies that have multiple BPA tools, this will be difficult: not only will it be costly, but it will be a politically-charged, high-risk activity.

Modeling tools typically allow the person entering the model to define the activity in the business by clicking on a given type of symbol and dragging and dropping it onto the model page. The placement of symbols can usually be changed easily by clicking and dragging the symbol to where you would like to put it. This is true for all the different symbols that can be selected from the symbol list. Each symbol is made unique by the label you give it and the information that is entered to support it on a detail data-form that can be reached by clicking on the symbol once it is placed. Flow is defined by the use of various types of connectors. Some connectors can have information on what is passing associated with the use of the symbol. Decomposing a symbol happens in different ways in different BPA tools, but most can support it.

The information that can be collected by BPM modeling tools is somewhat standard, but it will vary by tool depending on the supported modeling methodologies. In some tools, the modelers can support a limited amount of "company specific" or user-defined information collection and retention. In others, the user will be limited to the data that can be collected through attributes associated with a given symbol used in building the graphical model of the business operation. This is important, in that it will allow or limit flexibility in a company's symbol-use and data-capture standards. It is this standardization that allows model, object, service, information capture, etc. reuse within the company.

To the extent supported by the vendor, the definition of these data fields should be reviewed during the tool's setup and the definition of the underlying data model and schemas that will be associated with the tool's database, models, and data-selection menu (for dragging and dropping data elements in models).

Process Modelers' features include:

- The ability to identify and define activities or work steps; this can be through swim lanes or through a free format diagramming technique
- Hierarchically associate the levels of detail
- Show where rules apply—decisions, etc.
- Associate notes or other information with the activity
- Enter details about each symbol's volume, data use, screens, etc.
- A way to link the activities into a type of flow showing the placement of each activity relative to the other activities that need to be performed
- Build processes and workflows
- Decompose any activity into lower levels of detail
- A way to show activity by user role (swim lanes; each swim lane is definable by role or department)
- The ability to capture supporting information about each activity
- Volumes
- Value ranges
- Timing

And more:

- A context to capture rules that control the operation, and interface to a rules engine
- Identify and associate rules with activity
- Determine rule redundancy etc.
- Build in data quality requirements
- A context to identify and associate reporting and auditing activity
- Six Sigma tool application
- Data collection points
- Work quality checks
- A framework to associate the use of application systems and the use of data
- Define the data that can be entered for symbol definition and background
- Define the data on each application screen
- Define the edits and other quality checks for new applications
- Define the way data will be used through rules
- The ability to design screens that will be used at any point using forms
- Iteratively design screens with the people who will use them
- Align screens to data and rules
- Change screens and data quickly

- The ability to link to a business simulation module (some BPA tools cannot support simulation)
- Simulate the use of changes and their impact
- Create multiple models to see what changes work best
- Ability to support testing
- An ability to track performance information capture into the models—
- Track performance for each individual
- Track performance at the process or workflow levels
- Collaboration software including electronic communication tools, conferencing tools and management tools.
- Multiple concurrent users
- Multiple locations
- Team use of information

Note: These tools often take advantage of the Internet and provide web-based applications that are supported by web browsers.

10.3.2 Enterprise Architecture (EA)

Business workflow, Data Flow, Data use, Applications tied to workflow

Enterprise Architecture is a model of the business operation that defines the structure of the organization and how it can achieve its current business requirements and its future goals. The basic viewpoint of EA is fairly technical. It includes an application viewpoint, a data viewpoint, and an infrastructure viewpoint. These perspectives are centered on a business view that serves to tie the others to business organization.

This area of work is changing today. In the past, Enterprise Architecture was really an IT technology architecture for the business. This was a model of all the hardware and its supporting technical software: operating systems, middleware, and tools. It included applications—especially when ERPs or other large systems (integrated groups of vendor application modules, such as Health Information Systems) are used. The Enterprise Architect's focus is on using technology to solve business problems. To many, this is interpreted as modeling the entire business and its IT support and then applying IT to solve all business problems.

Although this discipline still reflects its technical roots in the capabilities of EA tools, its scope and focus are expanding to include business concerns. In EA modeling, the models will use a type of process model as the central model. This is usually a higher-level look than in BPMS or BPA tools. These models usually follow one of two basic approaches to business definition—TOGAF or the Zachman Framework.

The Enterprise Architect is concerned with the structure of the organization. This often includes business strategy, process, business and IT infrastructure, organization, and culture. In modeling, the EA models may include these components and external components that affect the business.

While the EA core models include process models, EA tools often have a technical view that is lacking in a BPMS. This allows them to look at the way applications tie to activity and how the applications then link to one another and how data flows between these applications.

Note: In Enterprise Architecture (EA) tools, a technology perspective is added to the business view.

EA tools, however, have limitations in other business modeling areas, but will at some point likely compete with traditional BPMS tools. Generally, the EA tools are used for a different purpose than BPMSs and are not good at rapid iteration because they usually lack simulation capabilities or good ways to decompose process or workflow diagrams to lower levels of detail. However, their use in relating hardware and software to business activities forms a very different and useful picture of the enterprise and IT support. Most of the more advanced EA tools offer a great deal of functionality in requirements definition and management with an ability to track requirements through the systems development lifecycle, generate applications in one or more languages, reverse engineer legacy applications, database modeling, application debugging, and more. Collaborative processing is also supported in most of the tools, with security over access and change.

Although many EA tools use BPMN to define symbol use, the tools generally have a difficult time interfacing with a BPMS. This can be a problem because it means that EA and BPM models will require two different tool suites, and that the models may easily get out of sync.

As EA becomes more attuned to the business operation and less IT oriented, it will cross boundaries with Business Architecture and Process Architecture. This will likely cause confusion over roles and responsibilities that may be reflected in tools. However, today there is still a distinction between the more physical view of EA and the more conceptual focus of Business Architects on Business and Technical Capabilities as they relate to strategy. But both eventually consider process, which is the realm of the Process Architect. So, we can expect considerable overlap and shakeout as these disciplines sort out their boundaries.

10.3.3 Rules Engines or Business Rules Management Systems (BRMS)

Business Rules Definition, Rules Storage, Rules Access by Applications

Business and technical rules define how work will be performed in each activity or step in a workflow or, at a higher level, a process. They are the "institutional knowledge" of the company and they are the real competitive differentiator of the company. They define who will do something, what they will do, when they will do it, why they will do it, how they will do it, and how it will be controlled. From a technical perspective, rules are the logic of the business.

Rules Engines are tools that support the identification, definition, rationalization and quality of business and technology rules. Rules Engines also provide a repository that allows rules to be checked against one another for definition or context problems, and thus checks for redundancy and definition quality. These engines today tend to be fairly technical in nature, so the definition of rules in these products tends to require both training and experience in technology and in business.

In practice, rules are looked at as “if—then” statements: “if” (an event or value), “then” do something. Because the list of things that must be considered in any decision can be fairly long and complex, rule definition can be a serious undertaking.

Rules tend to fall into one of several categories. These include

- Business operation rules
- Decision rules
- Flow sequencing rules
- Procedural and Policy rules
- Data use/security rules
- Access security rules
- Monitoring and reporting rules
- Technical rules associated with data calls, data transformation, application interfaces, etc.
- Legal rules
- Financial rules
- Monitoring and measurement rules
- Regulatory rules.

While this list of categories is fairly representative, it must be customized to each company and used to create the internal architecture of a rules repository. This and other definition functions allow the setup of the Rules Engine to work at an optimal level in your company. This definition is not trivial and should be carefully considered prior to the implementation of a Rules Engine to maximize its use and company benefit.

Rules definition and coding is critical to the way a generated application will execute. If the rules are too complex, the execution will be slow. If they are long and test for a long list of conditions, they will be slow. If they call multiple databases, they can be slow. If too many slow rules are placed in a row, the execution of the application will be slow. For these reasons, the coding and use of rules should be carefully checked and standards customized from a list of best practices provided by the vendor.

The biggest problem in most companies is that business rules are not well defined or organized in current procedural manuals. Few companies really understand their operating rules or have them formalized—especially low-level business execution and decision rules. In most companies, rules simply do not work the way many think they do. That is because people at the execution level must find ways to get their jobs done and they interpret and change rules constantly.

Rules are virtually everywhere in companies. In some cases they can be found in procedural manuals or in policy manuals. In other cases they are in memos, notes, emails, and just "folklore." They are also embedded in legacy applications and in the implementation of licensed or purchased software. They are everywhere in the business, but they are almost never in one place.

This has serious implications for the selection and use of a Rules Engine. It is also a reason that many rules projects are driven from IT, where they are needed to define how applications will work. Regardless of who or what is driving the move to identify, define, and rationalize rules, the technology must be able to accept entries from multiple business units and merge the rules to create common definitions, versions, synonyms, antonyms, etc., as it brings rules into a common repository and ensures their quality. This use has implications for access, security, and change abilities. So, it is important that a Rules Engine be able to conform to the realities of the way you need to use it in your company.

It must be noted that the definition of a rule for entry into a Rules Engine for storage and use in a Rules Repository is not a simple activity. Rules are complex, and their definitions need to be complete before entry. They seldom stand alone and must be defined in complete sets of decisions and organized in a well thought-out structure that supports the way they will be executed by an operation or program.

This must be considered in the setup of the Rules Engine and the Rules Repository. Following this setup, the rules must be translated into a type of computer program code for entry. The better Rules Engines will do a variety of complicated syntax, relationship, and other testing as the rule is entered, but it is important that the rule be defined correctly and checked, because it will be used to generate BPM applications and to run the business.

Common Rules Repository use includes

- The capture of an organization's institutional knowledge in a central place
    - The definition of rule templates for specific customer interactions, such as action compliance, cross-sell, up-sell, and more—including
        - Scorecard—based on scoring and ranking
        - Decision Tree—based on if-then logic
        - Decision Map—based on one or two explicit input values
        - Decision Table—based on a series of test conditions to be evaluated
    - The creation, alignment, testing and deployment of rules
    - Rule storage for company wide access
- Finding currently defined rules and their definitions:
    - Direct flow logic and execution steps in business modeling
    - Use in BPMS applications generation
    - Design legacy application modification
    - Determine legacy application interfacing design and needs
- Supporting rule execution by programs and managing rule use
    - Elimination of rule conflicts and redundancy
    - Identification of rules that no longer meet legal requirements
    - Improve rule quality—clarity, consistency, and editing

- The analysis of Service Level Agreements, Key Performance Indicators, Six Sigma formulae, and more
- Management of the quality and integrity of the rules and rule sets
    - Manage changes to rules
    - Manage the creation of new rules
    - Provide a picture of everywhere the rule is used to determine how it should change
    - Test rule use
    - Manage access to rules
- Building what-if analytics to analyze inter-related rules and rule use
    - Historical and runtime analytics
    - Deploy rules to target programs and BPM use
- Validation that the right data is being used by the rules
- Data use, editing, testing, and legacy data use.

Benefits that can be expected from a Rules Engine include

- Externalization of rules in a standard format, using a standard vocabulary
- Place all rules in a single central rules repository
- Expedite program changes by having all rules and their uses cross-referenced in a single place
- Flexible rule definition—legacy applications, interviews, documents
- Improve rule definition quality—provides consistency in rule reuse
- Rule definition and testing support—redundancy, "holes," logic, etc.
- Version control
- Improved rule visibility
- Ability to evolve applications and business operations faster by dealing with external rules
- Make a change in one place and have it applied everywhere the rule is used.

10.3.4 Business Process Management Suites (BPMS)

Process Modeling, Workflow Modeling, Rules Definition, Business Operation Simulation, Application Generation, Business Operation Environment, Management Reporting

A BPMS is a suite of tools that form a joint IT/Business operating environment. Here the business runs within the BPMS environment. By this we mean that when a person starts their work and logs into an application system, they are logging into the "run time" part of the BPMS. This "run time" part is where the models and rules are executed.

In a BPMS the business process models are built of BPMN symbols. These symbols represent tasks, decisions, automated actions, etc., and each is unique in that it represents a type of small, single-purpose computer program module. These program modules are arranged and run (executed) in the order defined by the flow in the business process models. The program code of these modules has blank spaces that are automatically filled in by the BPMS with the rules that the business models associate with the symbol's use and the data that the models tell the system to use. Screens are defined as forms and associated with tasks within the BPMS. Reports are also defined.

Exits from the business process models to legacy applications or other programs can be put into the business process models to call other applications and form a series of automated tasks. Although a type of interface is still needed, Service Oriented Architecture (SOA)-use with Enterprise Application Integration (EAI) adaptors and accelerators make interfacing in this environment much easier and thus reduce time and risk.

Special management controls can also be added to the models to control workflow volume, work routing, delay alert, etc. These should be standards-based, but the BPMS can support almost any company standards.

Rules are entered in coded form and the rules-engine part of the BPMS keeps track of every place the rule is used. Changes to any rule are made in the rules engine and then called by all the business workflow models as they are executed. This greatly simplifies changes.

Performance measurement can also be added to the workflow models and specific measurements are created through rules or exits to other measurement programs. This is where performance disciplines such as Six Sigma, Lean and BAM (Business Activity Monitoring) are used, by embedding their performance-monitoring approaches or programs into the new designs. The results can be used to feed complex dashboards and provide warnings with recommended actions—again based on rules. Many BPMS tools also allow you to define forms that can be accessed from a symbol to capture screen and report-related information. The tools that can generate applications allow the designer to create models of data-capture and lookup screens, as well as reports. The more sophisticated tools also allow you to link legacy applications (at the function and data level) to the symbol's use in the business flow. Of course, the tools that can generate BPM applications allow you to link rules directly to the activity symbols for BPM application generation.

This environment is easy and quick to change. Most changes are model-based or rules redefinitions or additions. To help ensure the completeness of the change, and reduce risk of error or data-quality harm, any change can be quickly simulated using the simulation capability in most BPMS. This allows the team to iterate quickly until an optimal solution is ready. Implementation is really a matter of a software switch and any retraining needed.

10.3.4.1 BPMS setup

All of the major BPMS tools provide a significant amount of diagramming and definition flexibility. This is both a strength and a weakness. Because models can be built using any of the available symbols, the use of the symbols must be standardized for the models to be readable. This is true even using a tool that has been built to follow the BPMN standard set.

It is also important that in the BPMS tools setup you consider the symbol sets that will be used and whether special symbols are needed. This use-design will likely need to follow the Business Process Modeling Notation standards (BPMN), since most BPMS tools follow this standard. However, as noted earlier, in some BPMS tools there is minor flexibility in defining symbols and data-capture screens.

Note: BPMN is a set of graphical standards that specify the symbol sets that will be used in BPM diagrams/models. As such, they define the symbols that will be used in depicting process and workflow in business modeling. The BPMN standards were originally formed by the Business Process Management Initiative (BPMI) and are now maintained by the Object Management Group. In addition to symbol standardization, BPMN attempts to standardize terminology and modeling technique.

Most process modelers offer a drag-and-drop form of use that allows a user to select a symbol or connector from a menu and then drop it where he or she wants it. If swim lanes are used, the context of the setup must first be defined.

Note: Swim-lane models divide a screen or page into multiple parallel lines or lanes. Each of these lanes is defined as a specific department or by a role that a person plays in performing the work. The work moves from activity to activity, following the path of the flow from business unit to business unit or from role to role. The way these models are set up for each project must be controlled by corporate standards if the long-term vision is to build an integrated corporate business model. These standards should govern when and how the swim lanes are defined (business unit or role), how the activities are decomposed, what data is collected in the modeling, and more.

The same is true for the information that is captured. It must be defined and standardized in the BPMS for consistent use. Setting these standards and controlling their use should be the objective of a company's BPM Center of Excellence, or a company Business Transformation group. If these do not exist in the company, a cross-functional team of members from the business, IT, Business Architecture, Data Management and BPM should be formed. If this is required, it is important to make certain that all groups are represented and that all agree to follow the standards and rules that are created. Without this input, the standards will be imposed without broad acceptance or an understanding of their purpose or value and they will not be well accepted or used.

This section talks about the major components of a BPMS and forms a composite picture of the more important capabilities of this environment. It should also be noted, that although each vendor approaches this in a different way, all tool suites provide basically the same capabilities and function in much the same way.

10.3.4.2 Application Generation

Most legacy applications are oriented to supporting work. They are used to handle repetitive tasks against large numbers of transactions.

Today, BPM allows you to not only consider transaction applications, but also work management applications—applications that control the flow of work and how that work is done or should be done. This includes workload assignment, workload tracking, workload balancing, workload aging, error identification, performance management, reporting and more.

Application generation involves the use of business models to provide context and direction to the workflow, and rules to identify the data that will be used and the action that will be taken. Forms that are defined in the BPMS tools generate the screens that are used. This is a form of Object Oriented Programming, in which different objects are defined by a combination of activity and rules, and the execution sequence is defined by the placement of the activity in relation to other activities in the workflow. Because the applications can be generated every time they are used, any change to the workflow models, the rules, or the forms will be immediately included in the application.

Application generation creates a different type of application than those created in the past using traditional computer languages. These applications are made of small independent modules that execute when called. Each activity in the process map can have any number of associated rules. The process map's activities provide context, sequencing, and relationship. The associated business and technology rules provide the commands—call, perform, etc. Each activity essentially calls the rules, and at a lower level of detail, the rules can call other rules and data. Control over the human interaction is defined in forms that tell the BPMS how to build screens and then, using associated rules, tell the suite what to do with the data.

The development of user-friendly BPMS forms is critical to the acceptance of the new business design by the users. These forms define User Interfaces (often referred to as Graphical User Interfaces or GUIs) and represent a fairly time-consuming and cost-relevant element of any BPMS implementation project. This is the part of the overall redesign that the user will see and work with daily. It is critical that this design be laid out with the user and modified through simulation or iteration to provide optimal ease of use. It is also important in this design to get data element definitions right and to find the accepted source for each data element on each screen or form. Business logic and data use/edit rules are also associated with each data element and each form. These components, when viewed together, represent the way the system will be used and determine whether it will be "user friendly."

The finished application is really a series of reusable modules that call data or do something with it. These modules are like pearls on a necklace. They can be strung together in an infinite variety, where each does one thing and then passes the results to another module for the next step. Because the modules (activity level or lower steps and rules) are independent, they can be used in a variety of applications.

This application generation is the major breakthrough in BPMS. This is the tool, when used with a modeler and a rules engine, which provides speed of change. Application generation allows IT and business to change the way they approach automated support. Through this tool, business and IT will eventually become merged for application development, maintenance, and enhancement. Process Models and Rules Models, together with the definition of screen and other forms in the BPMS, provide the specifications needed to generate applications. The program modules and the way they are executed by the BPMS allow a totally different approach to business and to IT. In the not-too-distant future, legacy and purchased applications will become anachronisms as they are replaced by generated applications made of BPMS modules. While this is still a future possibility, it is not science fiction and it is coming soon. As this nears, the ability to change will become a core competency in companies, and those who move to adopt this new model will have a significant competitive advantage over those who are late adopters.

Today, many of the better BPMS tools support very flexible and rapid application generation and modification. They also support high transaction-volume activity and complex logic. Using external database tools, the BPMS-generated applications can also support high-volume data use and storage. Because of this flexibility, some application vendors have begun to use a BPMS engine in their software products. An example of this is the healthcare package called Soarian by Siemens, which is built using the TIBCO BPMS.

10.3.4.3 Supporting Groupware and Collaboration

While most vendors excel at providing some of the functionality shown in Figure 67, many are either weak in some areas or do not provide a full suite of tools. As can be expected, due to competition a growing number of vendors are now reaching fairly high levels of support across all areas of functionality.

This functionality, for the most part, works and actually performs well for all the major vendors. A key feature of the major BPMSs is the ability to support large numbers of concurrent developers and users and to hand models back and forth between people or teams. This ability allows the tools to be referred to as "groupware." It is this ability that lets BPMS-supported applications be modeled in one location (by one or more teams), constructed by BPMS Developers and Data Architects in a second or third location, and then used in multiple locations. This ability also allows distributed teams to work with the same sets of models and the same information. Of course, governance in this open environment becomes critical, but the key is that all parties must be governed by the same set of standards and that each group's work be periodically audited for compliance and quality. In this way, the teams can work together to evolve designs or add detail. When this happens, the BPM environment's data repositories can easily begin to evolve into true enterprise management repositories. Because of this groupware capability, a great deal of the technical side of using a BPMS to build applications has been moved offshore in support of an approach called the Global Delivery Model.

This opens the business environment to real collaboration between internal groups and with partners, as it supports the use of the tools by people in different locations.

10.3.4.4 Rapid Evolution

At present, it is suggested that the tools from the following vendors be reviewed as a starting point in any look at functionality. This list is partial and is meant only as a start in looking at full BPMSs. Although these products are considered to be among the leaders today, this list will change as the leaders leapfrog one another and new companies release high quality tools.

- IBM/Lombardi
- Software AG

- Global 360
- Oracle
- Pega
- Savvion (Progress Software)
- TIBCO

Note: The vendors are placed on this list alphabetically. Placement does not indicate quality, completeness or preference. It is recommended that the Forrester Wave or the Gartner Magic Quadrant BPMS rating reports be used to identify the leading vendors at the time you are interested in evaluating BPMS tools.

The result of this leapfrogging one another is a rapid evolution in the BPMS tools and the advent of a set of tools that can handle large transaction volumes, large databases, and complex logic. However, because the main tool suites do vary in capability, it is suggested that any consideration of moving to a BPMS tool or consolidating BPMS tools to a single enterprise-wide BPMS, begin by defining the business and technical capabilities that are required, and then go one major step further to define the way the tool will be used, and by whom. This adds an “ease of use” dimension to any tool evaluation or selection. Excellent places to begin this research are groups like Gartner, Inc., Forrester Research, and IBM Research. Other good places to look for information are the Business Process Management Institute’s website (BPMI), the ABPMP website, and the Bruce Silver.com blog. In addition, social networking sites like LinkedIn offer access to different BPM groups and thus access to a variety of experiences and ideas. However, information from social networking sources must be considered to be suspect because anyone can claim to be an expert.

10.3.5 Business Activity Monitoring (BAM)

Performance Monitoring, Performance Measurement, Performance Reporting

The objective of BAM is to provide a comprehensive look at the business operation as the operation is performing its tasks. This allows management to take corrective action as problems are occurring and helps optimize the performance of the business.

Although usually included in the BPMS tool suite, Business Activity Monitoring is not supported equally by all the BPMS. Most BPMS tools have a basic level of BAM built into them. However, this is a basic level and advanced reporting is supported by only a few BPMSs; most vendors rely on external tools that are fed by the BPMS as its applications are executed during business use.

Generally, BAM is considered real-time, online monitoring and measurement of activity that will feed various performance review programs. Data is aggregated and compared against KPIs and other standards to determine quality and perform work management, such as workload balancing with case assignment or shifting. Six Sigma performance applications can be used in-stream to monitor workflow against preset evaluation limits and feed back into the BAM for near-real-time reporting.

An exception to this real-time use is the addition of performance (completion etc.) information from the execution of legacy applications and application execution data. Here the information from the BPMS and other performance monitors are collected and added to information from legacy application execution and external sources to form the data used in a broader analysis of the business operation's status. This information can be fed to databases outside the BPMS for use by a variety of Business Intelligence tools.

10.3.6 Enterprise Application Integration (EAI)

Communication Templates, Accelerators, Adaptors used to access legacy application data

Enterprise Application Integration (EAI) helps implement the SOA protocol and vision. It is supported by tools that enable the creation of "adaptors" between the communication medium (ESB or other communications platform) and the applications themselves, as well as between applications. An application may have one or more adaptors, depending on the way data are to be obtained and used. These adaptors control the translation of data from to and from the format used in a given application, and its flow to and from the communications platform.

In practice, an application's data is opened or exposed to access by a call to the program over the adaptor. The adaptor takes the information from the target applications and puts it into an SOA-based format for generalized consumption by other applications that have adaptors to control the translation of data to and from the application. This greatly decreases the number of interfaces between applications and between programs within applications. It also decreases the complexity of interfacing applications and reduces risk and cost. Again, however, data integrity is a key issue that must be addressed.

The process of building EAI adaptors to legacy applications is called Wrapping. These adaptors are custom-built to deliver or obtain information from applications or to access certain parts of the application's functionality.

10.3.7 SOA

This part of the SOA discussion provides a more technical view. This discussion has been provided by Michael Fuller, a former Managing Principal who is currently an independent consultant.

10.3.7.1 What is SOA?

Service Oriented Architecture (SOA) is a flexible set of design principles used in application systems development and integration. The applications are written as individual services that follow SOA-formatted calls to data in legacy or other applications. These calls are passed to Enterprise Application Integration (EAI) adaptors and translated to calls or update (puts) in more traditional programming languages that operate within the applications' technical environment. This allows data calls and puts to be built following a single SOA format and then delivered (often using an Enterprise Service Bus or ESB) to an application in a way that it can easily accept without the need for complex interfacing. However, this is still not a simple process, and although SOA, EAI, and ESB-use does simplify the need to get, move, deliver and format data, it still remains a complex task.

This provides a loosely integrated group of program modules that can be used on an as-called basis. In addition to creating this type of object/service library, SOA provides a format and foundation to notify consumers of these services of their availability.

10.3.7.2 How Does SOA work? A background.

SOA is an approach for linking resources to obtain or present data "on demand." Within the Service Oriented Architecture (SOA) paradigm, there are two fundamental and independent resources: Interface and Implementation.

The following definitions are important to the discussion of a Service Oriented Architecture. Because of their nature, the definitions contain technical references that the business-oriented BPM professional may need in discussions with the IT SOA architects.

> ***Interface****: The software that calls data from, or presents data to, one or more applications that are external to the application being executed. The interface address information for locating the associated implementation(s) is called the request.*

The request is the command that begins the execution of the interface and calls data from, or inputs data to, a database through the system being accessed. Once the data call is executed, the data is presented to the "interface" program with the content of the WSDL (see below) used to "direct" the request to the program that is invoking the service or interface. This program is called the "implementation."

> ***Implementation****: A program to invoke a service, but does not contain "business logic."*
>
> ***WSDL****: The Web Services Description Language (WSDL) is a standard way for defining a service interface.*

The basic elements of WSDL are:

- Interface information describing all publicly available services (functions)
- Data type information for all message requests and message responses
- Binding information about the transport protocol to be used (e.g. tcp/ip, http, jms, etc. A single service can be supported over multiple transport protocols).

> ***Service**: a service is a specific executable or program that is defined by the set of functions it supports. Services are independent program modules that can be called by other programs or services and executed to provide a specific action or product—function.*

10.3.7.3 SOA Principles

SOA is a data access and delivery strategy pursued by the enterprise—it is not simply a tactic or technique that the enterprise adopts to pursue a goal of improved application interfacing. The distinction is critical. Because of the scope of change and the impact, a move to SOA should be closely associated with the strategic goals, objectives, and benefits sought by the Enterprise Architecture.

Today, there is no single consensus on what the term SOA entails or how to distinguish between an "SOA Solution" and a "Non-SOA Solution." SOA can be viewed within the framework of accepted principles that can be applied to evaluate the use of an approach that delivers SOA's principles. Although there is debate on what SOA entails, as part of defining accepted principles there is general consensus on the benefits of SOA: "flexibility," "agility," "scalability," "reuse," etc. In addition to these significant benefits, SOA mandates provide a benefit that has been elusive—the deconstruction of the barriers that typically exist between the "business" and "I/T"; between different "business units"; and between different "I/T specialties."

To help control the use of SOA, the industry has accepted a large number of international standards that most vendors, consultants, and the media associate with SOA. The main standard is the "Extensible Markup Language" (XML) published by the World Wide Web Consortium (W3C). XML is a standard for defining a "vocabulary" that describes information being moved among systems. XML allows programmers to describe the "syntax" of the information, but not the "structure" or "semantics" of the information. The XML Schema standard, also published by the W3C, provides the "vocabulary" for describing the "structure" and "semantics" of the XML document.

Note: the term "XML document" refers to anything that is encoded using an XML vocabulary: a business letter; a purchase order; a message exchanged between parties; a schema describing a database; etc.

Overall, there are more than 30 additional standards published by the W3C, OASIS (Organization for the Advancement of Structured Information Standards), the ISO (International Standards Organization), the OMG (Object Management Group), and others that are closely associated with SOA. Among these are the Web Services Description Language (WSDL), WS-Policy, WS-Security, WS-Reliable Messaging, Business Process Execution Language (BPEL), Business Process Modeling Notation (BPMN), Java Script Object Notation (JSON) and many others.

The standards used by a particular enterprise in creating their SOA solutions, and in particular what portions of the complete standard are used, determine how SOA will be used and which of the many SOA benefits a particular enterprise is emphasizing. SOA is thus not a one-size-fits-all for company IT environments or business use strategies.

To implement SOA it is thus necessary to define its goals, use, and internal standards. In creating an SOA strategy, it is important to identify the benefits that are needed and then adopt the standards, methods, techniques and concepts needed to deliver these benefits. It is also necessary to make certain that IT and the business have a clear roadmap for how an SOA strategy will be implemented and what role the people involved will play. But, even with a clear vision, a strategy and a plan, the management of the implementation will require funding and constant oversight to ensure that the new approach is being followed the right way.

SOA requires that a company consider and explicitly document what "resources will be linked on demand"—for example, processes, messages, data entities/views, data stores, rules, events, etc.

It also requires the company to consider and explicitly document

- Whether the "resources linked on demand" are always internal to the organization or may involve their business partners and customers
- How changes will be controlled
- Work in migrating their software environment to an SOA format
- The ability of their technology platform to support SOA changes
- New data storage requirements.

SOA by its very definition—"A system for linking resources on demand"—requires that companies understand how it can be used so they can manage the costs and risks inherent in this approach. Because of its flexibility and the way it opens data access, it is critical that a comprehensive and effective governance regime be implemented. The lack of comprehensive and effective governance is the most commonly cited reason for the failure of SOA initiatives.

A major governance challenge for SOA is managing the lifecycle of services from conception through specification, development, testing, deployment, daily operations, and finally retirement of the service. This includes controlling changes to the ways

- Organizational units collaborate
- Decision rights and responsibilities are handled
- Process is changed
- Procedures are vetted
- Methods and techniques are used.

There are currently a great many software products that are closely associated with SOA, including Service Registry, Service Repository, Enterprise Service Bus, Complex Event Processing, Business Process Management System, etc. Companies of all sizes have succeeded in their efforts to realize the benefits of SOA. But many companies have also failed. These products can provide a standard platform to build an enterprise's SOA solutions, but unless the enterprise has systematically institutionalized the requisite strategy, methods, standards, governance regime, techniques, and staff development programs, the products will simply not deliver the expected benefits. It is therefore important that these be put in place as soon as possible in any organization that is seriously looking at moving to SOA, expanding a limited used of SOA, or having trouble implementing SOA.

10.3.7.4 Moving to SOA

The following must be considered when moving to SOA architecture:

- Vision, strategic planning, executive acceptance and budget assignment along with expectation management
- Business performance evaluation strategy—value, line-of-sight from Strategic goals through run-time performance of a service, or composite application techniques for realizing both the benefits of SOA
- SOA readiness assessment—current technical environment and architecture
- Definition of SOA strategy—including use definition and implementation roadmap
- Definition SOA architecture—that considers things such as, operating with or without an "enterprise service bus," static vs. dynamic instantiation of services, static vs. dynamic binding of service policies, enforcement of SLAs/QoS, realization of operability goals such as availability, reliability, fault-tolerance, etc., and use of a repository/registry to support the service life-cycle)
- Governance—full life cycle including SOAP rules and how they will be used (see SOAP below)
- Identification of initial services to be used in prototyping and the requirements of the prototype—including results reporting and analysis
- Definition of service types that will be built
- Build an SOA capability—Training and Proficiency Testing, tool selection and implementation
- How to develop, test (coding/code debugging), and implement SOA access/interfaces/EAI adaptors, etc.
- How to define, design, build and implement an ESB—including any redesign of current communications.

Note: While these activities are key considerations, this is not a comprehensive list.

10.3.7.5 SOA and SOAP

Embedded within the SOA umbrella is a set of standards that govern data transfer. These standards, named Simple Object Access Protocol (SOAP), are a set of rules for transferring structured information across a network in the implementation of Web Services. SOAP messages rely on the use of Extensible Markup Language (XML) as a message format.

SOAP rules can be organized into three groups:

1. A message packet—defining a message format and how it is to be processed
2. Coding rules for defining SOA programming along with data format and content
3. Standards defining program procedure calls and responses.

Following these rules, programmers build code modules that operate as individual small programs. Each performs an action and then passes the result. By calling the modules that you need from a module or service library, the programmer has flexibility in the use of the services and the ability to reuse them either as they are or with modification. This allows programs to be constructed from common parts and reduces the programming time and risk.

SOAP characteristics include:

- A protocol for defining and building programs to allow and govern communication between applications over the Web or over an internal ESB

Note: As a protocol, SOAP is platform and computer language independent.

- An ability to deal with internet communication
- Adheres to World Wide Web Consortium (W3C) standards
- Support of text, voice, email.

10.3.7.6 Using SOA

To define the way to integrate different legacy and/or new applications for use by multiple separate business units or applications, SOA defines interfaces in terms of protocols and functionality. This allows the interfacing to be standardized and allows systems to share data with others that follow the same protocols. This reduces the point-to-point interfacing between applications used in the past and simplifies the way applications can share data. This also, however, increases the criticality of data integrity for the data in use.

By using standardized services (program code modules or objects) and standardized interfacing, SOA offers new ways to build service oriented applications that are external to BPMS-generated and legacy applications. However, the applications generated in in the BPMS-supported BPM environment follow a standardized format and are conceptually similar to SOA-oriented program code modules—they perform one function, they are standardized, and they are reusable program objects.

Applications following a SOA approach and used to support BPM may include

- Workflow execution—leverage SOA concepts to create programs and obtain data needed to perform activities
- EAI services—adaptors supporting SOA communications approaches
- Business Intelligence—operational statistics, audit etc.
- Rules management—description and execution capabilities
- Process operation—action or work monitoring and control
- Performance management—obtain data from the real time BPM applications and from legacy and other applications following SOA protocols.

10.3.8 Enterprise Service Bus (ESB)

An Enterprise Service Bus is a software architecture, set of software tools, software, and a communication medium or carrier. Together these ESB components control the movement of data between computers. Applications in an ESB-supported IT architecture can communicate by tying into the communications carrier (network) part of the ESB, which serves as a message broker between the various applications in the company that use the ESB. Each computer on the ESB is a separate node on the network. Each has a separate unique address on the network. The applications using the ESB will define the places or nodes that will receive the message or request and then assign the right address or addresses to the message. All nodes on the network constantly monitor or listen to the traffic on the network, waiting for a message with their address. When heard, the node accepts the message and sends it through the EAI adaptor to the application. The adaptor converts the format of the message so it can be accepted by the application. The reverse is true for messages being sent by an application.

The ESB software tools thus sit between the applications and work with the Enterprise Application Interface (EAI) software, allowing legacy or any other applications to communicate over the ESB in a standard format.

When used with an SOA open-messaging approach, information can be broadcast over the network for all applications on the ESB to hear and use. These messages will be in a common SOA form so they can be easily consumed by the EAI adaptor. In this way, information can be easily sent to several applications at one time, without a need to build separate interface programs between each of the applications. This eliminates the need for much of the point-to-point or application-to-application communication connections (interfaces) that exist today.

This simplification of interfaces and the reduction in the number of interfaces between applications reduces the risk of change, cost of change, and the time it takes for a change to an application.

Enterprise Service Buses normally work well with BPMSs and are, in fact, part of some BPMSs such as the IBM WebSphere and TIBCO suites.

10.3.9 External BPM Enterprise Transaction Data Repository

BPMS repositories have the ability to store a majority of the information on the company's operation. They do not, however, usually store all the value data that is collected from transactions that are processed through the BPMS-supported business operation. Because of the volume of this information, these transaction values are often externally stored using DBM tools. The key in determining what is stored within the BPMS repository and what is stored externally is often use-based. For example, the information needed to drive the business operation, such as task assignment, work routing, and screen content is generally stored in the tool suite database. However, in any BPMS or BPM tool implementation, the internal Data Base Management group should be involved determining what will be stored where, creating the data schemas that will be used, and determining applications/databases that will service as “sources of record” for given data.

Process repository content can include the following for Process and workflow models.

Note: Process is cross organizational and cross functional in nature. Workflow is at an organization or function level and looks at the activity that is performed in the organization to produce a product or sub component.

- Who owns the process
- What the process does
- What activities are taking place and their links to one another
- What technology enablers and controls are used
- What triggers or events initiate the process
- What are the expected results
- What problems are associated with each activity
- When is the process initiated
- Where the process take place
- How the process interacts or links to other processes
- How the process interacts with those of other business units or external enterprises
- Volumes and timing
- How the results are delivered
- Why it’s needed, how the process aligns to strategic goals
- Service Level Agreements, KPIs, goals, etc.
- Process metrics such as time to perform, number of resources required, minimum and maximum concurrent executions, direct and indirect cost, etc.
- Business Rules
- Type and source of data related to the process
- Regulatory requirements
- Timing, nature and forms of possible output
- Outputs that become a trigger for another process.

This list will, of course, vary by vendor, but the higher-end vendors will have much of this capability. The key, however, is to make certain that the use of the tool suite is defined for both today and tomorrow when looking at a BPMS or BPM tool. This is necessary to provide the flexibility you need without having to completely start over or move to a more flexible tool suite as your needs change. Part of defining what the tool suite must provide is the definition of what information you believe will be needed to control the evolution of the operation, the ability to deal with legacy applications, and the flexibility you will need to keep pace with the changing business world.

Because the repository can support collaborative business solution development, people’s ability to access it from multiple concurrent locations provides an access problem. Controlling access thus becomes an issue that must be addressed. While this is really not a concern for most past uses of BPMSs for specific problem resolution solutions, it becomes critical in a broader use of these tools to create operating environments. For this reason, it is important for your Data Base Architects and Data Base Administrators to play a role in the selection of the right tool suite for your needs and for the way that the BPMS Enterprise Repository will be set up.

10.4 Making BPM technologies work for you

Success in any move to new technology depends upon an ability to understand the true capabilities and use of the tool, and an ability to work closely with the vendor you have chosen. This latter need may, however, require a negotiated relationship with KPIs imbedded in the license contract. In addition, it is important to consider how the tool and BPM will be used and to create a design or architecture of the way the tool will fit into your company's business operation and IT environment. It is also important to consider how data will be managed and how the tool will be used to support collaboration within the company and with partners.

Note: This is not an all-inclusive or exhaustive discussion. It simply covers some of more important considerations that should be highlighted in any BPMS or BPM tool strategy.

10.4.1 BPM Infrastructure Architecture

An architecture is simply a design. A BPM architecture is a design of how the various component parts of a BPM environment fit together. Today, there are a great many of these architectures available for a BPMS-supported BPM environment. As with most things, some are better than others and some will more closely fit your company and how it thinks BPM and a BPMS should work within its operation. BPM is often started without any tool use in mind: it evolves and a tool is selected to meet business needs. This is normal and it is fine, but the tool selection (based on the vision for how the tool will fit into the company, how it will change the way business is approached and the way information is delivered) has a definite impact on IT and the business. This impact can be described in a design or architecture of the future operating environment. This is important because it is a guide for how the new business/IT environment will work and who is responsible for what.

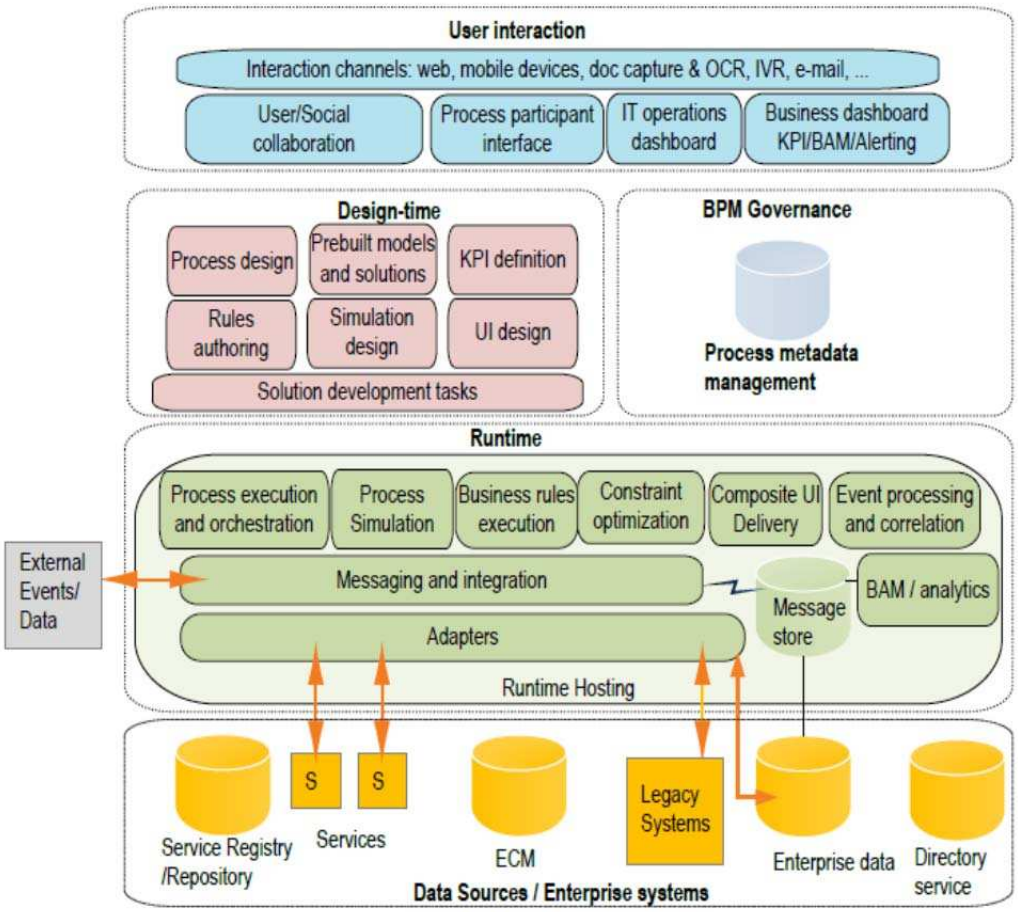


Figure 69. Basic BPM Technology Architecture (Source: Reference Architecture for a BPM Infrastructure; Richard Watson, Research Director, Gartner)

When all the component BPMS modules and concepts are put together, the model looks something like the one above.

In this architecture, the BPM Enterprise Repository holds all the models, rules, and associated information about the company's operation. This information is collected during the business analysis and modified in the business redesign using the BPMS. Once the new design is approved and the new business operation and applications are deployed, this information is used by the BPMS to support the execution of the business's tasks. In a BPMS-supported BPM environment, this usually happens through the use of the applications generated by the BPMS. These applications and the business operation leverage links to data, using Application Program Interfaces in the EAI products to create legacy application adaptors. Calls for data will then go either over the ESB or directly to the source database. Of course, the security that is agreed upon in the IT Governance or Policy committee will control access to this data. The calls for data will then go through the EAI adaptor that controls access to the application or database. This creates SOA-based data packets that are then sent to the ESB for delivery.

Modern BPMS System architectures typically implement two different layers, a presentation layer (usually implemented in form of a web server with suitable task services) and a process layer, where the process engine executes process models. This will include web services that need to be defined or built (programmed) and, within the BPMS, the calls to execute external code modules.

Although most BPMSs have fairly consistent architectural components, each is somewhat unique in the way it functions, the way it interacts with rules, the number of templates it provides to define web services (and more), and the way it accesses and uses databases. It is thus important to define the architecture that will be used by the BPMS you license and the way it will be used in your IT environment.

10.4.2 Business and Data Requirements Definition

As always, the business requirements that are defined in the business case created for project-funding approval will serve as the guide in setting project goals and in defining the project's scope. Smaller projects that do not have business cases will still have a set of goals that can serve as requirements. These project-level requirements will continue to be used as the basis for determining project estimates, schedules, and completion-measurement steps, so real benefit can be calculated and compared to estimate.

As mentioned above, the traditional approach to defining applications and business requirements begins with the creation of separate business and technical change requirements from a new conceptual design of the business. The conceptual design will itself reflect the project change requirements. In a BPMS-supported BPM operating environment, the delivery of these requirements can be tested in simulation. In a traditional approach, the system and actual business operation change-requirements definition begins with identification of the differences between the old and new business model. It then relies on business and technical people to convert these requirements into system specifications (specs) so programs can be built, test plans created, and training programs written.

With the use of a BPMS, this traditional approach is becoming an anachronism. In the BPMS environment, the new business design, along with the rules definition and forms (screens) designs, becomes the new operation and systems requirements and specs. BPMS applications are generated from these models, making the models and the requirements definition the same thing.

The delta from the old version of the business operation (the "As Is" models) to the new design ("To Be" models) defines the change and provides the specs for the parts of the change that are not addressed in the BPMS-generated applications. These specs focus outside the BPMS environment to look at a need for data acquisition, movement, and delivery, with legacy functionality use, web services requirements, and database design requirements.

In the BPMS operating environment, the BPMS and enterprise BPMS repository provide the information and tools to model the business and then quickly define and design changes. These changes can be run through the simulation engines in many of the higher-end tool suites, and the results compared and analyzed, to quickly create new iterations that constantly improve the business operation. The new design from this iterative improvement process becomes the new baseline. Then the process of changing the business operation and its applications support starts again, in a never-ending cycle of improvement.

10.4.3 Team Collaboration

In a BPMS-supported BPM environment the business designs thus become the requirements and the rules become the logic that defines the requirements. This forces a new type of collaboration between IT and the business, redefining the roles that each group plays in the ongoing evolution of the operation and its applications. Fortunately, the groupware capabilities of the BPMSs allow multiple people from any location or locations to work together on the same business models. This creates a virtual team of people from multiple locations: the experts can be in any part of the business and still be involved in the creation, modification, and approval of the new business designs. This also allows them to be involved in the definition and approval of the rules, the way performance will be measured, and the way the operation will change and improve.

Of course standards, control, and governance direct how this is done, but everyone on the team will always be looking at the same models with the same information. This is a critical improvement over the traditional business and applications design approaches. Using a BPMS's collaborative capabilities, anyone and everyone who will be impacted can now easily have a role in determining how the business operation will work. This creates a very different dynamic. With this ability, it is now economically possible to ensure that any change is done with the people who will be affected and not just to them.

The presentation of the business information is also much easier to absorb and comprehend than the traditional lists and text approach. Today, models and supporting data can be quickly referenced at a variety of levels of detail, and any audience or group can deal with the level of detail that they need—with the ability to move to more detail if they need to. This greatly improves the willingness of people to become involved and significantly reduces the time-requirement for most people on the process-improvement or problem-resolution project.

These capabilities, however, require different consideration of issues that may be new to many people in the companies. The politics change, the need for inclusion changes, the applications that are supporting the business may be different, localized regulations will need to be considered. If you will need international access by teams in different countries, you will need 24/7 access and you will need to identify and understand the laws in each of the countries you are dealing with. However, if the company intends to offer its products in different markets, these issues will need to be addressed anyway. The BPMS tools simply allow this information to be collected and then provided at any time it is needed. BPMS thus becomes an enabler for the business to expand its brands.

10.4.4 Underutilized Capabilities

The key problem in the past has been the approach to using BPMSs. A BPMS has seldom been considered as an operating environment and it has seldom been considered as an architecture. Most organizations have used BPMSs to help solve specific problems, and the use of these tools has been limited. There are usually no overall BPMS use guidelines and seldom an enterprise BPMS policy.

This is because BPMSs have been viewed as tools, and their potential has been undersold by the vendors, who simply want quick sales. When used the right way, however, the BPMSs have delivered significant results. The suites are much more than most envision them to be. They provide a new way of delivering automated support and of approaching business evolution. When considered in the broader context (not simply as a problem-specific solution enabler) they have the potential to deliver unexpected results in the delivery of a continuous improvement capability, the environment needed to deliver a meaningful Six Sigma program, and the ability to optimize a business operation.

This broader vision of the use of these tools provides a very different framework for looking at BPMSs and what a company expects from its investment. Unfortunately, few of the vendors today offer this vision, and the discussion on what a BPMS can really do is just beginning. However, the ability of the better tool suites to support this operating vision is available and the discussions on how BPM can really help a business improve are happening in organizations like ABPMP.

10.4.5 Decision Support and Performance Management

Among the generally underutilized capabilities in many BPMS-supported solutions is performance management and decision support. BPMS-supported operating environments offer a variety of performance management (performance monitoring, performance measurement and business intelligence) capabilities. These tools can also work with Six Sigma and other measurement tools to integrate their information into the data mix available for analysis and management activities.

The use of these capabilities, driven by simulation of the solution that will be built, provides the foundation for actually measuring improvement related to the new solution. This will allow real ROI determination. Today, business cases are used to help justify the need for a project or action. But there is seldom a reasonable way to actually measure improvement. Once a business operation is being supported in a BPMS environment, this type of measurement is fairly straightforward and allows the business and IT to determine actual improvement, instead of just estimated improvement. This ability is a key part of the delivery of continuous improvement by BPMS technology environments.

In these environments, the BPMS will support the redesign of the business and application components needed to make a change, and then predict the improvement through the simulation module. This can then be implemented and the actual improvement measured against the predicted improvement. This then helps guide further improvement, which follows the same process. When looked at over any time period, it is thus possible to see the KPIs and other performance numbers at the start of the time period and then at the end of it. This is a way to measure actual improvement, and it can be applied at any level in the business operation.

For example, if you implement a workflow in a BPM environment, you will be able to determine how any service in a Service Level Agreement (SLA) is measured. The same is true of a Key Performance Indicator (KPI). Implementing these measurements can be easily accomplished within the BPMS technology environment or, using more traditional means, outside the BPM environment. By taking periodic readings, you can look at trends and determine improvement. At any time, it is therefore possible to determine improvement over a given period. By taking these updates following projects, it is possible to see the benefit of the project.

In addition, BPM technology environments support work-in-progress monitoring to help balance and manage workload on any time basis—weekly, daily, hourly, etc. This is supported by real-time monitoring and dashboard reporting. Various limits can be set as rules and associated with activity or any level of work in the operation. The rules then drive the monitoring and measurement. This allows real-time intervention by management to keep the work flowing at an optimal rate.

By adding standards and rules that look for patterns in the data, it is possible to move this level of analysis and reporting to the Business Intelligence level. This is predictive modeling and reporting. Base on the way the values are building in the various components that are being monitored, it is also possible to create rules that recommend action. While these types of reporting require creativity and an in-depth understanding of the data and the processes, they can be supported by the better BPMSs.

10.4.6 Buy-in and Monitoring

Creating a sound performance-monitoring capability requires the buy-in from all who will use it. While obtaining this buy-in is not a technology concern, it is related to the technology's ability to support monitoring and the collaboration needed to obtain feedback and build consensus. This is important in determining the way the business really works. While the single-purpose modeling tools, rules engines, etc. do not support performance monitoring very well, the BPMS technology of the full product suites do support this through their collaboration and measurement capabilities.

Using these tools makes it possible for all involved to see how performance will be monitored, measured, and reported. It is also possible for everyone to see how the rules that drive this monitoring will calculate and what data they will use. While this can be done outside a BPMS environment, it can be easily accommodated in real time across multiple groups and locations within a BPMS environment. This capability is not theoretical, and can easily be supported within a BPMS technical environment.

10.4.7 Setup

While modelers and most other “single purpose” BPM tools are flexible, it is important that considerable use analysis be done up front to avoid setup problems. While the vendor will have a list of considerations that you will need to make decisions on, it is advisable to look internally at such considerations as: “How will you use the BPM tool or tool suite?” and “What flexibility will you need?” This list of decisions should be formal and it should be reviewed by the business sponsors and managers, the IT infrastructure group, the Data Management group, and the applications support group. If your company has a BPM Center of Excellence or a Business Architecture Center of Excellence, they should also review this list of setup decisions for completeness and for their ability to support any answer that is given to a decision on the list.

In addition to how the tool will be used, it is critical to consider the data that will be collected by the tool to support the business, the way the data schemas will work, and the way the tool will interact with external databases and tools such as Word and Excel, legacy applications, and purchased packages such as an ERP.

The answers should look at both current and future needs. In this way, the setup will tie into the vision and strategy of the BPMS or BPM tool’s use. The data captured in these tools’ models can change easily and quickly, but the structure of the tool and many definitions that are set up at the time of installation cannot. To avoid limitations on how you can use the tools, it is important that they be set up for your use to optimize your capabilities and the way the functions work. It is suggested that care be used in approaching implementation issues with the vendor and that you have a clear understanding of what you need the tool suite to do, both now and in the future, before you begin implementation.

While this sounds like a basic consideration, it is often narrowly focused and often fails to look at the long-term use of the products or the true business needs that must be addressed. This information should be reviewed in detail with the vendor, who should be able to provide guidance on how to optimize the internal tool setup during each installation.

10.5 BPMS Governance

Governance is a tradeoff between control and flexibility. The more control that is imposed, the less flexibility is available to the users, architects, and applications development people. In a BPMS-based environment, this need for control becomes greater than in the past. However, the strength of using a BPMS is the speed of change—implying minimum control. So, the two goals are opposed to one another. While this is an age-old problem, it now takes on a different spin. We can now do things that we could never do in the past, with the help of BPMS tools. For many things, the question now moves from “can we do something?” to “should we do it?”

An example is a change to an operational management application generated by a BPM suite. We can now define the improvement, model it, simulate different options, and then implement the change in almost real time. This was seldom possible in the past. But to do this, we need to suspend control. So, we can make and implement change very fast, but should we? The answer here is "no, we shouldn't." We need some form of quality control prior to implementing any change. That is simply a wise policy. But *how* do we want to control the process? We could impose barriers that add weeks to the almost-instant process. That also is not wise. So, where do we draw the line? The answer will be different for different situations and for different companies. Whatever the company decides, this issue must be carefully debated and the appropriate compromise reached.

This concern is reaching new heights as "cloud computing" and "cloud applications" are considered. The Internet is a wonderful tool and it is changing the world. But it is full of danger and many companies have experienced continuing breaches, data loss, and more. As the issue moves out of the IT department, it is necessary for the business managers and IT to work together to understand risk and spend the funds to implement the right level of security—in everyone's opinion. The value of open access to Internet sites by customers is a game-changing requirement in many businesses. It cannot be underestimated. But too much control will impose barriers and limit the value of this channel. Similarly, too little control will expose the company to risk it doesn't need. This is a constantly changing line that must be set with the full involvement of IT and the business officers in any company. The decisions that are made in this regard will have an impact on collaborative teaming and on the way BPMSs and applications are approached and used. These decisions are important in looking at both BPMS acquisition and setup. They are also important in looking at the need for flexibility and speed in responding to customer demands and market opportunities.

10.5.1 BPM Standards and Methodologies

Today, many companies have moved into point-specific BPMS solutions without standards or accepted methodologies. This is often made more complex by the politics associated with different business or IT groups getting involved with different vendors within the same department or company. In these companies, what may be best defined as a political "war" over whose BPMS technology will become the company standard can arise; everyone will have a lot invested and no one will want to absorb the cost or disruption of changing to a different BPMS and thus new applications. For this reason, it is important for a central BPM management group to form as quickly as possible. These groups are often called Centers of Excellence. However, wrestling with the politics of creating the initial BPMS environment is a challenge and will usually require executive leadership. Even so, it may be difficult for management to move to a single BPMS once multiple tools suites have been used in the operation. In short order, there can be too much disruption associated with the migration to a single vendor's BPMS. In this case a multi-vendor BPM-tool strategy will need to be formed.

Even in multi-BPMS-vendor environments, consistency can be obtained through the creation of standards on modeling, rule definition, vocabulary, naming, etc. Where a BPM Center of Excellence has been formed, its members usually become responsible for defining and negotiating these standards and for enforcing them. As a result, the Center of Excellence must have the participation of key operational people so that these standards make sense in the context of the company's business and culture. It is equally important that the standards are not a burden—if they are, they will not be followed. So, care must be taken in creating this control.

However, it is premature to think that there is a set of accepted standards for BPMS use in the industry or in companies. BPM and its BPMS technology is still new and it will be up to groups like the ABPMP to create standards in different areas of BPMS capabilities and use. In the interim, it is necessary to move forward and create standards for the use of tools within your company and the modeling and other techniques you will use. This is important for information understanding and for use among the different internal groups. These standards should include

- The information that will be collected and the way it will be used to set up the system
- Model symbol set (usually this will follow BPMN standards)
- Data repository
- Access security and regulatory and legal requirements that may apply
- Use architecture: all models from different projects should fit together to form an enterprise picture
- Standard terms and levels, etc.
- Governance.

10.5.2 Governance Models

As with many aspects of BPM, there is no shortage of information on the Internet about BPM governance. These discussions include use, setup, and control. It is advisable to view the majority of these articles and approaches with skepticism as you research them for ideas. Some are true and good, but others will not work and still others may be good ideas, but not a good fit.

BPM Maturity is an example. Gartner, Forrester, IBM, and other groups have developed BPM maturity models to show the way companies move through a type of lifecycle to maturity. These models are often similar, but can have significant differences in areas such as governance. Some of these models look at only parts of the BPMS and BPM governance needs and focus on tool use; others are broader and have more detailed concerns. As noted above, the Internet is full of articles related to BPM and BPMS governance, and care must be taken in considering any papers or articles found on blogs, consulting firm web sites, LinkedIn, and open forums. Some discussions are good and others simply prove the need for vetting information obtained from unknown sources. It is clearly necessary to look at as much high-quality information as possible in forming your governance model. It is also necessary to customize your governance to your company and the way it will use BPM and a BPMS tool.

While the governance models and information you find can help in planning how the company will control the evolution of in its use of BPM, they are not a real guide and should not be considered to be a roadmap. They are, however, a good place to find ideas and can be used to help define and plan changes in control as the company moves from level to level in the evolution that is shown in the BPM maturity model adopted by the company.

The problem in setting up a governance process is that each company is unique and the path to a BPMS-operating environment will be different depending on many factors. These factors include the willingness of the business managers and IT managers to accept controls, the current operational culture and standards that are in place, the state of the IT environment, the nature of the company (collaborative or closed, local or multi-facility, US or international, etc.) and more. This fact in no way suggests that a formal governance model and plan are not needed. It does suggest that this is a serious part of your BPMS implementation and evolution; it must not only be put in place, but monitored and changed as your needs are better understood.

10.5.3 Data Integrity

"Garbage in, Gospel out." – Rod Moyer, VP, BenefitAllies

Even when everyone knows that the information in a system is suspect, they use it as if it were the final word. They actually have no choice. This is true in any internal activity or in any interaction with a customer. While the causes for poor data vary, it is frustrating to everyone dealing with a company and causes untold hard feelings with customers. But it is accepted within companies because data cleanup would break the bank in most companies. The real problem this causes is that management and staff do not know who to trust in customer interactions or what the information is really telling them.

In addition, data security is a problem that is getting worse. Not only is data often lost, but it is often corrupted. Data corruption is the more serious problem because IT managers often do not know what is corrupted or when it was done, so no one can identify or fix it, and restoring it to an earlier point will cause untold loss of new data. From this perspective, the Internet and other technology advances have actually hurt companies, as well as customers, with the problems of viruses and information theft. In a Cloud environment, it will be much worse. In an environment where people can access anything with their mobile phones, the problem will go off the charts.

Today, with the growing identity-theft problems and acknowledged problems with application interoperability, data redundancy, data quality, and data timeliness, the problems with data integrity are growing. Data-related errors cost time, money, and customer loyalty; they can even lead to legal problems. There is no silver bullet here: BPMS supports rapid application change to internal and customer-facing systems and exposes the customer to greater potential interaction with the company. Companies that have data quality problems will find that the increased interaction shines light on these weaknesses.

This is a quality issue, one that many companies have ignored for years. In moving to a BPMS operating environment, companies will once again have an opportunity to improve the foundation. While BPMS tools and techniques cannot fix old data quality problems, they do present an opportunity to tighten control over the new data and correct data errors when found during customer interaction.

Because the generated applications in a BPMS-supported BPM environment are the primary places where data is collected, data edit rules and rules that control data use are critical. Both standards and corrective action in this area should be created by a composite group of Data Architects, Process Architects, Business Architects, IT security management and BPM implementation planners. As with all security and governance, this area represents a set of trade-offs. However, one of the most valuable assets of any company is its data. It is the lifeblood of the company, and its loss or corruption can be a game-end level problem. Its corruption is a serious issue and it must be considered in any move to a BPMS. Such a move presents the opportunity to improve the controls placed on checking data for quality and completeness. If done right, the BPMS rules can actually start helping improve the overall quality of the data even in legacy applications.

So far, most uses of BPMS have been narrowly focused, so data integrity has been an isolated concern. But that is changing. As the use of BPM in any company increases, the issue takes on a new importance for the BPM architect and implementation planner.

Today, some companies are trying to do something about it and are spending time and effort to go through the fragmented customer information and pulling it together while trying to clean it. Some companies are addressing this problem through the externalization of rules (outside of the legacy applications). Many are also involved in projects to identify and define business rules throughout the company or at least in large parts of their business. However, as these needed efforts are going on, it is imperative that the data-capture approaches be changed and that any BPM activity considers this need to improve data integrity.

This requires a new emphasis on controlling data access, data use, and the way it is checked. It also requires that company-wide standards be put in place and that new data-collection policies be applied for every application and every data access. This can be accomplished at a company level much faster and for much less cost than other methods by using BPMS technology to create new front-end operational management capabilities. The control the company thinks is needed and the creation of data standards should be part of the rules that are put in place and the vision that will guide the acquisition and use of BPMSs.

At some point in the future, when a company's use of BPMS and rules has matured, it is recommended that they consider the value of creating stringent rules-based edits and running all legacy data through the BPMS-generated applications that support these edits. This will help clean data and improve quality. However, it will also require mining the current edit rules and then upgrading them. Such an effort will take time and require thought to make it worthwhile; the eventual question for management is the value of better information.

10.5.4 Evolving as Technical Standards Change

As noted above, managing and integrating models to form a composite picture of the company and its processes requires a BPM tool and the careful building of business and technical standards. These standards will control the use of the company's modeling tool or BPMS as well as the approach taken in incrementally tying project business models into a complete mosaic of the company.

In order to be effective, these standards will need to be blended with current IT operational standards, database use standards, Business Architecture standards, and others. This will eliminate overlaps and disconnects and create a set of integrated standards for the company. This integration of standards, however, will be a future goal that the company will need to work toward. For this reason, the use of standards in any area will evolve and the retrofitting of standards will require some additional work. This will be necessary because many standards are already in place and their extension, reuse, modification or deletion will need to be negotiated by a group that includes representatives from the major players in the company.

While this negotiation is going on, the BPMS users should move forward as quickly as possible to provide controls for consistency and repeatable success. These standards will be less specific in addressing business issues than technical ones. The reason is that business standards tend to be guidelines as much as standards. Technical standards, however, can be much more specific and detailed. These standards should also be oriented to the modeling tool or BPMS you have chosen and the vendor's list of best practices. Of course, these standards must also reflect current IT and business standards and policy, and, to the extent possible, have modifications that support as many of the company's BPM tools and BPMS as possible. As additional standards related to specific IT areas are added, all standards should be reviewed and modified to reflect links or eliminate disagreement, redundancies and conflict.

As BPM standards and guidelines are being written, care should be taken to make certain they are not a burden. If they become too invasive or too much work, they will either be ignored or, if they are monitored, will be given minimal effort—so the team can say they complied. To help the standards group understand the burden, they must always look at the standards as an aggregation of required work: it helps to embed members in projects and make them do the work of complying and reporting on the standards so they can understand what they have asked the teams to do.

In order to control the evolution of a company's BPM tool or BPMS standards, an internal BPM Center of Excellence should keep track of all modifications to related technical and business standards or guidelines and how they apply to the BPM tool and BPMS users in the company. This includes

- Information Collection: guide the business operation discovery process

- Simulation: control the information, its quality, and how it is modeled
- Business Process Modeling Notation (BPMN): used for graphical design of processes—defines the way each symbol will be used and provides the directions for the generation of BPMS applications
- Business Process Execution Language (BPEL): for coding BPMS-generated applications
- eXtensible Markup Language (XML): for sharing data and documents
- eXtensible Process Definition Language (XPDL): a file format specification that provides a common format for sharing process models between tools
- Database and data modeling: defines the data that will be supported in the models and the schema for data use and storage
- Java: standards that address the way this language will be used
- Web services: standards that address construction, use and control
- SOA: standards that relate to the strategy, use, design etc. of SOA
- Testing: ensure that generated applications, interfaces, data use, and more perform as expected

Note: This list is representative of the types of standards that should be analyzed. It is not meant to be all-inclusive.

The place to begin the creation of individual BPM tools and BPMS standards is with the vendor. The vendor will have a set of recommended standards for using their tools. Next, look to BPM associations and other reliable sources for the experiences of their members. An Internet search may help, but care must be taken in looking at the quality of anything found because the source of any general information found on the Internet must always be suspect. If a BPM tool or a BPMS has been used by another department in the company, their experiences may be helpful in looking at standards.

As noted above, as new standards are added, care must be taken to consider the overall burden that will be placed on teams. The objective is for standards to be accepted and used. However, if they become a burden, the teams will find ways to do the minimum possible to comply with them. This will defeat the purpose and must be avoided.

10.6 Coming Soon to Help Deliver Flexibility

BPM technology is constantly evolving as new supporting technologies become available. This section talks about four technologies/approaches that may increase the flexibility offered by BPM tools and BPMS.

10.6.1 BPM and SaaS

Software as a Service (SaaS) is the latest incarnation of the time-sharing concept of the late 1970s and the 1980s. In this option, SaaS customers sign on to the vendor's hardware/software environment and use the applications from any location. The hardware and applications or tools are located externally to the company and may be anyplace in the world. Typically, companies will pay for use based on the amount of the service that is used. In addition, access to these applications and tools is generally over the Internet and a significant part of the cost and maintenance burden of the classical communications requirements are replaced by Internet services. For these reasons, proponents claim that this option is far less expensive than in-house systems.

Some BPM tool vendors are adopting this approach in order to offer lower-priced use of their tools by changing their price models to reflect actual use of the tool. This promotes collaborative access to the tools by teams located anywhere in the world and allows model and data access anytime, from anywhere. In reality, the BPM tool user is absolutely independent of the physical location of the computers and their mass storage. This is, of course, true for virtually all applications and tools that use this access model—depending on the architecture of the applications and the use of "thin client" and other technical design approaches.

When mixed with meeting technology and video conferencing that supports common viewing of screens to all meeting participants, this creates a virtual teaming capability that supports the offshore Global Delivery Model of global teams, so work never stops.

While claims are made concerning access and data security, time will tell how well the vendors' sites, applications, tools, and data are locked down. Time will also tell how well this approach works in resisting hacking and the viruses that plague the Internet, not to mention Internet disruptions. For the time being, security and the trade-offs that are normally considered may need to be viewed differently in this SaaS environment.

10.6.2 Network Clouds

A Cloud is a modern Internet-based communications network option that eliminates specific point-to-point communications over specific lines—like T1 lines. In "cloud computing," the computer and the user have no idea of the path the message is taking to get the intended target or end-point. The call and the data packets simply are sent by a different route each time, as determined by the communications carrier (ATT, Verizon, etc.). As a result, many traditional communication concerns cease to be relevant in this environment. This use of a virtual network concept eliminates the risk of a single line failure; it also provides unlimited scalability in the use of communication services and the ability to take advantage of Internet-based features like web browsers.

As BPM tool vendors move to offer SaaS alternatives to customers, the impact of cloud computing will need to be considered. In cases where the BPM technology environment actually becomes the business's IT operating environment, the way legacy applications and data are accessed may open new external Internet threats. A company's communications capabilities, the way it allows Internet access, and the policies governing Internet use may also require changes to the business and its technology architecture. These and many other things must be considered as the company looks at the benefits of SaaS and cloud computing in terms of the approach it will take in creating a BPM technology environment, the type of tool suites that should be used, and the way BPM will support business activity and continuous improvement.

This open access to Internet services also allows companies to mix elements of the work and Internet capabilities to create new and very different approaches to accessing applications and tools (see SaaS) to provide new levels of overall access reliability. But, as pointed out above, this also opens the company to greater security risks from Internet-based attacks.

In many models, the Internet is simply represented as a cloud to show that the communications part of the application or tool "system" is provided by an external source that is only partially controlled by the company. SaaS access is often tied closely to cloud computing, and in some literature the two cannot be separated. In reality, this is true from a use perspective. However, this type of use must be considered as a company creates its BPM environment vision and determines how BPM tools and techniques will be used in the future. The simple fact is that the use of SaaS and cloud computing changes the approach and the architecture of current approaches to IT; a move to this technology will create different technical requirements that must be part of any IT strategy and planning.

Because SaaS applications and the Internet cloud are external to the company, maintenance of the applications, tools and communication hardware/software are also outside the company. A move to new versions of the software is no longer the responsibility of the company and the cost of maintenance shifts to the vendor, who theoretically spreads the cost of these services over the entire user community. While this should lower maintenance costs and improve the quality of any maintenance (the vendor is making the changes to their applications or tools), it also takes the company out of the upgrade decision process. The vendor may decide not to make changes that you need, or may bundle a change you need with an enhancement you are not interested in, and they will make changes in their timeframe, not yours. This is really an application or tool issue. The impact on internal communications will be more related to capabilities that may be needed to take advantage of the company's access and other needs.

10.6.3 Social Networking

Social media are becoming a force in today's business world. New CRM and other applications are being built to look at the various social networks and mine them for customer and product information. What this information will be used for is still questionable—this is simply too young a part of business to know. But it is clear that the mining of social networks will be rule-driven, and the use of the information will feed back to changes in the business and IT operations. To have any real impact, the company will need the flexibility to implement the changes driven by social network data very fast. This need for rapid change and business evolution is a key driver in the move to BPMS technical environments. Only these environments provide the ability to change quickly. They are also the only environment that offers control over these changes and an ability to work collaboratively with all affected business groups to define, simulate, and implement the needed changes.

But this environment is based on the creation of current business models with defined rules. Until these models are in place, the ability of the company to react to information from social media and other sources is restricted to the same approach and capabilities that are available today.

10.6.4 Dynamic Business Applications

Dynamic Business Applications are applications that can quickly adapt to changing business needs, competitive pressure, and market opportunity. They are theoretically designed to support continuous change. This ability to adapt quickly, change the business, and adapt applications at the pace the business needs has been a goal for many years and simply was not well supported before full BPMSs and the environment that their technology creates.

Now it is possible, with full BPMSs and the technical environment they offer, to change models, rules, and information and to generate applications very quickly. This ability is extended beyond BPM-generated applications to the use of legacy applications and data when the company moves to SOA and has the needed SOA/EAI legacy application adaptors in place.

Of course, the ability to change fast requires an ability to look at how the company needs to evolve and then control that evolution. It is also important that any rapid change preserve the integrity of the other application systems, the business operation, and business rules regarding data access and use.

This flexibility and the speed of change that a fully functioning BPMS environment offers is a driving force behind BPM. It relies on the creation of baseline models with sound rule definition and the implementation of an SOA environment to support access to legacy information. Once this is in place the models can be changed very quickly and the BPM applications regenerated. This ability to change quickly and constantly makes change support dynamic.

10.7 Vision of the Future

In the not-too-distant future, BPMSs will have evolved to the point where they will be able to generate code modules that use complex logic in support of transaction-level applications. Some vendors claim their BPMS can do this today. As part of this direction, BPM is pulling the business user and the IT technician close together and promoting a new level of collaboration. With BPM it is not appropriate to simply ask users for specs as we have in the past. In BPM the new business models and their rules are used to generate business management applications and define the specs for legacy application changes. The BPM management applications and the business actions performed by people form a model of the business that is executed in the BPMS technology environment. The business user actually signs on to applications through the BPMS, which then controls the execution of the applications. The result is an environment where the business cannot be separated from its systems and vice versa.

When this happens, the world of IT as we know it will change. The goal is the ability to change very fast. To help in this activity, a new type of analyst will be needed. This person will have one foot in the business and one foot in IT. But this person will be a hybrid between a business designer and a technician. He or she will need to understand exactly how the business functions and what is important in performing the work along with the BPMS, the legacy applications and the data.

Many believe that tool availability will be delivered through cloud computing and that most application access will be through a cloud-type of service architecture. The BPMS vendors are looking at this trend and many are starting to move to this type of a model. However, this transition will take time, and it can be expected to lag behind other application use models until cloud architecture becomes widely accepted.

But the key to future single-purpose BPM tools and BPMS use and evolution is likely to remain focused on ease of use and speed of delivery. These factors are critical to building an environment that is geared to support rapid change and thus business improvement.

In the future, the issue will likely change from the question of “can we do this?” to “should we do this?” This will change the dynamic in business and IT. As BPMS environments become more flexible and offer a greater ability to simply regenerate legacy applications, the company will have the ability to do things that it cannot do today. In this environment the issues related to access and other types of security will need to be balanced with the need to support rapid change. The issues of control in the future will thus become even more critical than they are today.

But the tools still have a long way to go before this becomes reality. So, while this environment is coming, advanced companies will have time to deal with an evolving set of issues as their use of BPM matures.

In this journey, BPM vendors will continue to merge, form alliances, and integrate their tool suites. The important factor in this ownership shuffling is that any tool suite that is chosen should come with guarantees of continued support regardless of who may purchase the company or whom the company may purchase.

While the evolution of BPM tools is set to change the face of business and IT, the company’s business strategy will be the driving force behind the adoption of a BPM vision. Business strategy must determine the type of technology that is needed to deliver the business operation vision. Without this direct tie to strategy and operating vision, neither BPM technology nor any other automation can be justified. The creation of the business vision must, however, take into account the emerging BPM technology capabilities and the potential for a very different and flexible business operation. This strategic collaboration between IT and the business will need to be somewhat visionary as it reaches out beyond the three-year horizon. The needs of the business will clearly drive the limits of the IT vision and the way the company’s IT architecture and support vision will change. However, IT communications, technical software, and hardware realities will play a significant role in determining the evolution of the company and its ability to create a flexible change environment. For these reasons, supporting this new BPM-based vision will require a new type of IT strategy that clearly merges company business strategy, department operating strategy, and IT strategy to create a realistic acquisition and implementation plan.

The other limiting factor is financial reality. Moving to a full BPM technical environment is not simple nor can it be completed quickly. It is also expensive. Legacy application-wrapping in a move to SOA is expensive and requires a commitment to change the basic technical environment. A move to go beyond using BPM tools for specific problem solutions also requires a different vision for IT service delivery and a different vision of how the business will operate. This is often expensive and difficult to sell. But the implementation of a BPM platform can be accomplished gradually, and the amount of disruption to the business can be minimized by approaching the move in increments. This will control costs and limit risk while allowing the move to be controlled and focused on high-value improvements.

10.8 Summary: Advantages and Risks of Process Automation

BPM technology is evolving rapidly as vendors leapfrog one another in their drive to offer the features and abilities that the market is demanding. This will continue. In addition, vendors are consolidating. Bigger ones are buying the competition and we can expect that some of these products will be integrated into the purchaser's product suite, while some will simply be sunset.

The technology side of BPM is both dynamic and visionary. This is a double-edged sword: with the advances come the disruption of changing to new versions and the cost of migrating systems to these new versions and offerings. But the direction is fairly clear, and the fact that BPM is changing the way business and IT interact will help companies to deliver improved automated support.

The past approach of looking at BPM technology to help create solutions to business problems has proven the value of BPM, and many companies are now going beyond this trial to look at broad use of BPM in their companies. As this happens, an understanding of how the technology works and what it can do becomes a key part of any BPM professional practitioner's knowledge. Given the evolution of BPM and the technology that supports it, the practitioner will need to track changes and capabilities and remain current on how the technology of BPM is changing, if he or she wants to remain effective. It is this understanding of the evolution of BPM that is driving the evolution of the ABPMP CBOK.

10.9 Key Concepts

- There are many different ideas of what BPM technology is and what it can do. These views are often aligned with what the practitioner's company is doing with BPM. Where this is happening, practitioners need to broaden their perspective and consider methods, approaches, techniques, tools and capabilities outside their normal exposure.

- The use of a BPMS is needed to support rapid change through rules libraries, forms generation for screens, application generation, and external technical support—legacy application interface, data, web services and Java modules. The BPMS uses this information to support rapid iteration and prototyping to shorten the overall change cycle.
- Today there are two different views of BPM technology. These are the business view, which focuses on modeling, rules and application generation, and the technology view, which focuses on SOA/EAI and ESB with an overlap on the need to control rules. These views must be brought together to form a full picture of what BPM is and can do.
- BPM technology is sold as single-purpose tools (modelers, rules engines, etc.) or as integrated suites of tools that support all BPM activity from business modeling and rules management (with simulation, application generation and performance management) to SOA/EAI and ESB.
- The way the tool or tool suite will be used will be driven by the business view of their future change ability. This must support the business vision and strategy.
- A BPM technology strategy must support the business vision, but it must also support the financial and acceptance realities in the company. Moving to an enterprise or broad use of BPM is a cultural change as well as a technology and change approach issue.
- Tool or tool suite setup is important in determining the way the tool will be used and its capabilities. Time should be taken working with the vendor to make certain the current and planned use of the tool is part of the implementation design.
- Data access and use must be considered in moving into SOA/EAI. Internet use in data or application access carries new risk and capabilities; all must be considered in the way this access is allowed.
- The use of BPM is found in pockets in most companies. This is causing a situation where multiple internal business and IT organizations have vested interests in their tool or tool suite.
- It is important that BPM use, naming, quality, testing, and implementation methods and standards be put in place. All BPM models and systems should be migrated to these common standards so they can eventually be fit together to provide enterprise wide information.
- Few companies have a vision of how BPM can work within their company. This is necessary to provide an operating-environment target and a roadmap as to how to get there.
- To be effective, companies need to begin their BPM use with the creation of a common business and BPM vocabulary, modeling standards, data quality

standards, and much more. This is critical in creating an enterprise model and view of the business.

- Few companies have a BPM architecture or a plan for how BPM will be governed. Without this architecture it is impossible to build to an enterprise use of BPM.
- Creating a broad-based BPM environment requires vision and will take years to implement. That is why an architecture is needed—to define all the parts and how they will fit together.
- The BPM technology architecture will be a moving target that reflects both current BPM and other technology, as well as predicted changes to these technologies. It is important that the architecture constantly change and be kept up to date to be effective in guiding the BPM environment.
- Rapid business evolution creates an environment where change can be a core competency. The only thing today that provides the level and speed of change needed to do this is BPM—it incorporates business change, applications generation, and the use of legacy data, to allow a company to change fast, and with little risk. This speed is the key to optimization and to improved competitiveness.
- BPM's ability to support collaboration, governance over the traditional business and IT activities in a company will need to evolve.
- Many BPM tools and tool suites are now offered in a "Software as a Service" version. To select this option, it is necessary to consider "cloud computing" security and use.
- The BPM technology of today is a direct result of approximately 25 years of evolution. It is changing rapidly as vendors purchase one another and as products are merged or sunset. The key is for the BPM practitioner to recognize this marketplace and to take steps to protect their company in the leasing of any BPM tool or tool suite.
- BPM tools and tool suites are becoming more robust, and the applications they generate are becoming good enough to handle even transaction-system needs. As this happens, it will be possible to simply generate many of the current legacy applications—once the rules have been mined from them and the logic mapped. This will change the face of IT and of business. But the move will take time.

Glossary

The purpose of the CBOK Glossary is to define terms for business professionals. The definitions are thus not technical in nature but reflect plain business English. To help reduce confusion and promote understanding, some terms have descriptive information along with the definition.

ABPMP recognizes that any term in BPM or BPMS today is open to interpretation because people apply definitions used wherever they learned the term. Consequently, most terms have competing definitions, and this complicates communication in companies and among BPM professionals. In creating this glossary, we had to decide whether to list numerous competing definitions or to provide a standard definition for each term. Our goal was to create consistency in BPM discussions for the BPM industry and our members, so we have provided a single standard definition for all terms. This glossary is thus a step in achieving the ABPMP goal of creating a standard understanding of BPM throughout the world.

Although these definitions may be somewhat different from those you currently use, they are the ABPMP standard definitions and are used throughout the CBOK.

A

Activity
The aggregation of tasks needed to deliver a definable part of a sub assembly or service. An example is the milling of a part that will become part of a sub assembly. Here the raw material will need to be heat treated, then milled, then degreased, then polished, then tested for tolerance. These tasks form a definable outcome or part of a sub assembly. In a service business (insurance), an example is the claim review, which may be part of the claim adjudication subprocess, which in turn may be part of the line of business management process. Activities can aggregate to form scenarios. These are groups of activities and their tasks that are always executed in certain events or in response to specific needs — such as customer registration or on-boarding in a banking wealth management line of business.

Activity Based Costing
An approach to cost accounting. It starts by determining how much it costs to perform a given activity in a process, and then adds up costs of all activities in the process to determine the total process costs. Fixed, variable, and direct costs associated with the activity are considered. This analytical technique is used as part of a business transformation effort to gain an understanding of the cost and income associated with a product or service, in order to determine true profitability.

Agile Methodology
One of several software development methodologies based on iterative and incremental development, as opposed to traditional linear or waterfall-type software development methodologies. An agile methodology provides a framework to support the design, development, and testing of software solutions throughout their life cycle.

Agile methods (e.g., Scrum) encourage rapid and flexible responses to change by promoting adaptive planning, collaborative requirement identification, and rationalization between self-organizing cross-functional team, as well as time-boxed, incremental development of solutions. Many modern commercial software development efforts follow this type of approach.

Architecture
In process modeling, a purposeful arrangement of models in a framework that describes a whole business in terms of its component parts. These may be created in compliance with well-known frameworks to reduce ambiguity. Examples include architectures based on The Zachman Framework and its derivatives, such as The Open Group Architectural Framework (TOGAF).

ARIS (Architecture of Integrated Information Systems)
An approach to enterprise modeling. It offers methods for analyzing processes and taking a holistic view of process design-management workflow and application processing. The ARIS approach provides a well-documented, methodological framework for BPM, based on Prof. August Wilhelm Scheer's research from the

1990s. ARIS uses a modeling language known as Event Driven Process Chain (EPC), which brings multiple aspects of enterprise modeling together using the ARIS House of Business Engineering framework.

B

Benchmarking
A comparison of the performance of a process in one organization to performance of similar processes in companies within the same industry. Many companies seek benchmark data to help with business transformation efforts and determine how well other companies are managing similar processes.

Big Data
Data from the outside world, obtained from social media, sensors, and mobile capture.

Bottleneck
A constraint that creates a backlog around the "bottleneck." Usually, these constraints prevent the system from achieving more of its goals. There are many ways the constraints can show up. They can be internal or external to the system types and could be a result of equipment, people, policies, or ineffective processes. Identifying constraints and alleviating bottlenecks are often a key objective of business transformation projects.

Business Analysts (BAs)
A person performing this role is responsible for analyzing the business operation's work and workflow to help propose changes that will eliminate problems, cut cost, improve quality, and improve customer interaction. Once improvements are identified, the Business Analyst then defines how information technology changes can improve the business operation. Business Analysts usually work as part of the process team.

Business Architecture
The design of a business operation, usually described in terms of business capabilities and supporting technology capabilities. This design is conceptual and is used to determine how a business will need to change to support a given strategy.

Business Architect
A person performing this role is responsible for determining how the business operation needs to change to support business strategy. The Business Architect works with the corporate planning group to define the business outcomes needed to deliver the strategy, and to identify how the current and anticipated business capabilities will need to change in order to produce these defined outcomes. The Business Architect then works with the Process Architect to define how the company's processes must change to support this mix of current/modified and new business capabilities.

Business Process Improvement (BPI)

Business process improvement focuses on incrementally improving existing processes. There are many approaches, including the popular Six Sigma approach. BPI is usually narrowly focused and continuously applied at various stages during the life of a process. BPI includes the selection, analysis, design, and implementation of the (improved) process. This usually results in an initiative or project to improve the performance of a particular process in alignment with the organizational strategy and customer expectations.

Business Process Management (BPM)

BPM is a management discipline that integrates the strategy and goals of an organization with the expectations and needs of customers by focusing on end-to-end processes. It brings together strategies, goals, culture, organizational structures, roles, policies, methodologies, and IT tools to

(a) Analyze, design, implement, control, and continuously improve end-to-end processes, and
(b) Establish process governance.

It is focused on delivering operational improvement, or, in a large-scale change, transformation. This process-centric approach to business management is supported by automated tools to deliver an operational environment that supports rapid change and continuous improvement. BPM provides a view of the business activity through the use of process models with clearly visible associated business and technical operational rules.

BPM Methodology

A formal, written, comprehensive list of organized tasks with supporting documentation on how the tasks should be performed, the data that the team should look for, and identification of the deliverables from tasks. All together, this information should provide direction on how the BPMS/BPM project should be done.

Business Process Management Center of Excellence (BPMCOE)

An internal group within a company, which specializes in BPM and BPMS use and helps the business address enterprise process management and performance issues.

Business Process Management Operating Environment

BPM today melds Business Process design, improvement, and transformation methods and techniques, with Business Process Management Suite (BPMS) automation capabilities to achieve radical Business Transformation. In this emerging environment, the BPM teams use the full spectrum of BPMS tools to deliver business and IT change. Together, BPM and BPMS form a new operating environment that integrates new business management automation with legacy production applications to open access to data and functionality.

Business Process Modeling

The set of activities involved in creating representations of an existing or proposed business process. It can provide an end-to-end perspective or a portion of an organization's primary, supporting or management processes.

Business Process Modeling Notation (BPMN)

A set of graphical standards that specify the symbol sets that will be used in BPM diagrams/models. As such, they define the symbols that will be used in depicting process and workflow in business modeling.

Created by the Business Process Management Initiative, now merged with the Object Management Group (OMG), an information systems standards setting group, BPMN has growing acceptance as a standard from many perspectives, which has resulted in its inclusion in several of the most widely used modeling tools. It provides a robust symbol set for modeling different aspects of business processes. Like most modern notations, the symbols describe definite relationships such as workflow and order of precedence.

In addition to symbol standardization, BPMN attempts to standardize terminology and modeling technique. It serves a purpose similar to the Event Process Chain (EPC) notation used in the ARIS methodology.

This standard has gone through several iterations, the latest being 2.0. However, the standard will continue to be modified and the version number and content will change. It is anticipated that the BPM modeling tool vendors and BPMS vendors will adjust to the standards as they change.

Although BPMN provides a set of standard modeling symbols, most organizations will still need to apply their own architectural and engineering standards to have a complete BPM modeling solution.

Business Process Management Suites (BPMS)

A set of automated tools that allows the business to be modeled, showing flow, rule use, data use and more. This provides an integrated suite of software that defines the application architecture and infrastructure technology needs for the operation and execution of the applications that run within the BPMS technical environment. The BPMS operating environment addresses business users' desire to see and manage work as it progresses across organizational activity.

A BPMS supports process modeling, design, development, and the managed execution of work and applications. The information in the BPMS design and rules libraries is used to automatically generate the applications that are used in the solution. This allows very fast change, with control over the way the change will be applied.

A BPMS provides a new type of business environment that melds the business and IT. We use the term "environment" to describe the resulting operation when using a BPMS, because these tool suites generate the applications and provide the overall operating environment through which the business and the applications run.

While component parts of these tool suites have existed since the late 1980s, they were not combined until a breakthrough in the early 2000's. The real breakthrough that allowed this coalescing of products was the advent of rules-based application generation that was tied to process models. Since 2003, various component products have been brought together to form BPM product suites. It is the melding of the BPM approaches, techniques, and tools, along with their ability to quickly generate applications, which delivers the speed needed to optimize an operation and to support rapid change. This ability is what delivers both initial optimization and continuous improvement.

BPMS Architecture

A design of how the various component software tools that work together to provide a BPMS environment fit together.

BPMS/BPM or BPMS-Supported BPM

A business operation that follows a BPM approach to improvement using a BPMS tool to drive and support business activity and coordinate the use of legacy IT applications. This forms an operating "environment" where the business actually runs using the BPMS.

BPMS Repositories

Electronic databases (repositories) that have the ability to store a majority of an organization's business process information in a single location. This can significantly reduce the need for managing large volumes of Microsoft Office documents (e.g., Word, Excel and Visio) and simplifies version control. They do not however, usually store all the real-time data that is collected from transactions processed through the BPMS-supported business operation (through data entry in the screens that are used) or obtained from Legacy Business Applications or Databases.

Business Process Transformation

The fundamental rethinking of a process. This is focused on the end-to-end alignment and change of a business's functions, processes, organization, data, metrics, and technology in accordance with the strategic objectives and tactical demands of the business, delivering a significant, measured increase in customer value.

The goal is innovation and the application of new concepts, capabilities, technology, etc., to the design of the work that needs to be done. In this business redesign, no idea is off the table. No option is initially rejected—unless by company policy, law or financial reality. Improvement is thus not the goal, but a by-product of a radical change to the way the process is approached and performed. This level of change is by nature invasive and will be disruptive.

C

Capability Maturity Model (CMM)

A Capability Maturity Model (CMM) lists important activities common to similar organizations and provides rating scales (e.g., 1-5) for each activity, along with descriptions of what each rating means. A CMM is a way of evaluating how well an organization does what it does. CobiT is an example of a framework that contains a CMM used to rate the activities of Informational Technology divisions across all stages of service design and implementation. The ratings of a CMM *may* be correlated to other measures of organizational success, such as brand value, profitability, and market growth.

A CMM, when used by external, impartial, third-party evaluators, helps other interested parties compare multiple organizations. When used internally, a CMM can be used to establish an organizational vision, and organizational and individual goals. This helps set the time-frame in which an organization may achieve each level of the CMM.

Change Management

A structured approach to manage the people- and organization-related aspects of change to achieve the desired business outcomes. It is aimed at helping management, employees and stakeholders to accept and embrace change in their current business environment. This often involves conducting formal change-impact assessments, developing individual action plans, improving communications, and providing training to counter resistance. The result is that these plans help align changes to the overall strategic direction of the organization.

Continuous Improvement

An approach to operational process improvement that is based on the need to continually review operations for problems, cost reduction opportunity, streamlining, and other factors that together allow optimization. Often associated with process methodologies, continuous improvement activity provides ongoing insight, measurement, and feedback on process performance to drive improvement in the execution of processes.

In Continuous Improvement (following evaluation techniques like Six Sigma) business managers work with BPM and IT professionals to implement performance monitoring and measurement—i.e., to identify, define, measure, analyze, improve and control business processes. This leads to an ongoing list of improvement opportunities and related projects that allow the company to optimize its operations.

Critical Success Factor (CSF)

Critical Success Factors (CSFs) are those activities and capabilities that are essential for a company to succeed in its market. CSFs are those few things that absolutely, positively must go right to ensure success for the organization. Because these factors are industry- and at times geographically-specific, they will vary from company to company. These factors relate to what the company needs to do to succeed in a continuous manner, not necessarily what it is currently doing.

Typically referring to process-related improvement programs, CSFs are the key factors as relayed by stakeholders that are important to the success of the project/program.

Cross-functional processes

See Enterprise Process Management

Cloud Computing

Cloud Computing is the delivery of computing resources to an organization as a complete service over the Internet, rather than having the organization purchase each component separately and internally manage and support the computing resource. Think of it as renting a computing resource instead of buying, building, and operating your own computing infrastructure. Similar to the "time-share" computing services of the 1970s, 1980s and 1990s, cloud computing provides users with access to software applications, data, hardware and support resources without the users needing to know the location and other details of the computing environment. End-users access cloud-based applications through a Web browser. Access is to business software and data that are stored on servers at remote locations. Cloud Computing is also referred to as Software as a Service (SaaS).

D

Data Flow Analysis

An analysis technique that seeks to understand how data flows through a system. It looks at data use in different parts of an organization as well as how data is used by applications supporting a given business process.

DCOR™

Design Chain Operations Reference: a reference model created by the Supply Chain Council.

Dynamic Business Applications

Applications that can quickly adapt to changing business needs, competitive pressure, and market opportunity.

E

Enterprise Process Management (EPM)

EPM is the application of BPM principles, methods, and processes to an individual enterprise. It (a) assures the alignment of the portfolio and architecture of end-to-end processes with the organization's strategy and resources, and (b) provides a governance model for the management and evaluation of BPM initiatives.

Enterprise Process Model(s)

A model that shows the full end-to-end activity (high-level view) needed to create the outcome (service or product) of the process. Enterprise Process Models may also be known as value chain models. Depending on the needs of the organization or project, these models can be created, at different levels of detail—processes decomposed into subprocesses, activities, and tasks—to provide a complete functional view.

Enterprise Resource Planning (ERP) systems

A pre-packaged set of business software applications that help integrate internal and external management information across an organization. Typical areas of functionality include finance/accounting, sales and service, manufacturing, inventory management, procurement and customer relationship management. ERP systems can run on a variety of computing platforms, and typically feature a central database for storing information.

Enterprise Service Bus (ESB)

A software architecture—supported by a set of software tools, software, and a communication medium or carrier—that moves data between applications and communications equipment. The combined ESB components control the movement of data between computers.

Event Process Chain (EPC)

Event-driven Process Chain models are a type of flowchart used for business process modeling. They serve a purpose similar to BPMN models in supporting business process improvement by helping to link different views of an enterprise model together. An EPC considers "events" as triggers to or results from a process step; this is useful for modeling complex sets of processes. EPC triggers resulting from a process step are called "functions." Thus, the flow is normally event-function-event.

F

Failure Mode and Effects Analysis (FMEA)

A FMEA is a Six Sigma risk assessment technique that identifies how a product, service, or process can fail, estimates the related risks, and prioritizes actions that reduce the risk of failure.

Flow Charting

A type of diagram that represents in visual format a sequence of events, processing steps, and/or decisions. Originally approved as an ANSI standard, flow charting includes a very simple and small set of symbols, which are not standardized; it facilitates "quick capture" of process flow.

Framework

In process modeling, a framework is any planned association among the models applied to meet a policy, design, or usability requirement. The framework may or may not be architecturally significant. Example: a value chain for a process, with overlays depicting aspects of performers, timing, and financial elements, and with event chains describing details of process steps.

G

BPM Governance

BPM Governance orchestrates the process of process management and provides a sustainable continuous process improvement capability, which is aligned with the business strategy.

H

Handoffs

Any point in a process where work or information passes from one system, person, or group to another is a "handoff" for that process. Handoffs are often illustrated as process interfaces or intermediary events.

I

Integrated Definition Language (IDEF)

A Federal Information Processing Standard that highlights the inputs, outputs, mechanisms, and controls of a process, and clearly links processes up and down levels of detail; IDEF is a good starting place for an enterprise-wide view of an organization.

ITIL

ITIL stands for Information Technology Infrastructure Library. It is a collection of best practices for Information Technology (IT) service management.

J

K

Key Performance Indicator (KPI)

KPI refers to the metrics or measures of a process that are indicative of overall performance.

Companies that measure performance should have set targets and standards for measuring performance on those things they consider to be really important. These measures are called Key Performance Indicators (KPIs). KPI's measure factors that management believes are an indication of operational excellence. To be a realistic indicator, each KPI should be based on a reasonable target and should change over time as the business improves.

L

Lean

A philosophy and approach that stresses the elimination of waste or non-value-add work through a focus on continuous improvement to streamline the operations. It is customer-centric and stresses the concept of eliminating any activity that fails to add value to the creation or delivery of a product or service. Lean is focused on providing higher quality, reduced cycle time, and lower costs. Because it produces improved production systems, it is believed to increase production capability and flexibility. But in practice, its concepts can be, and have been, applied in all areas of a business. James Womack and Daniel Jones developed the term "Lean" in their book about the Toyota Production System (TPS), **The Machine That Changed the World.** Today, Lean is supported by tools and statistical methods that, although not as robust as those of Six Sigma, are an important part of improvement projects. For the most part Lean has been used in manufacturing, where organizations are applying Lean tools in service and transactional settings with great success. Typical results show dramatic reductions in time while significantly boosting quality. This approach is sometimes combined with Six Sigma techniques and referred to as Lean/Six Sigma (L-SS).

M

Measurement

The quantification of data (or data set) in an acceptable standard and quality (accuracy, completeness, consistency, and timeliness).

Measurable Activity

Any properly defined activity is measurable. At a minimum, the number of cases coming into the activity, the time in the activity, the error rate, and multiple other factors can be measured. That an activity *can* be measured however, does not mean it *should* be measured. A measurable activity is one that should be measured. It may be a cost driver, a quality checkpoint, or something else. But care should be taken in identifying measurable activity because it is easy to measure the wrong things, and it is easy to over-measure and create worthless reports.

Metric

A quantitative measure of a given attribute in a system, component, or process. Metric represents an extrapolation or a mathematical calculation of measurements, resulting in a derived value.

Modernization

Activity that uses the knowledge of the current operation and leverages new technology, new manufacturing techniques, and new management philosophies to define how the products or services will be produced by the operation.

N

Notation

The specific set of symbols and their rules of usage in describing a thing. There are notations created or adapted for use in BPM, just as in other fields. Flowcharting is an example of a notation used both for business process documentation and for documenting computer-programming logic. Other examples include BPMN and EPC.

O

P

Performance Management
Performance Management is the use of performance information to control the process or workflow/business unit's productivity, quality, cost, etc., against predetermined targets. This measurement information is used to direct specific improvement that helps reach performance targets.

Performance Measurement
All business activities can be monitored, measured, and evaluated when properly understood and modeled. Although this measurement can be used to monitor the overall performance of a process, it typically refers to the measurement of groups of activities against specific standards, targets, KPIs or success factors.

Performance Evaluation
The identification of gaps between how a process is currently performing in relation to how it should be performing to meet the organization's objectives. This evaluation can be against standards, targets or existing performance.

Process
A process is a set of functions in a certain sequence that delivers value to a customer. Processes are started by clearly defined external events.

They are formed from a combination of all the activities and support that are needed to produce and deliver an objective, outcome, product or service, regardless of where the activity is performed. These activities are usually a cross-functional, cross-organization aggregation of activities that work together to create an end product or service. Activities are shown in the context of their relationship with one another to provide a picture of sequence and flow.

This context includes a defined set of activities or behaviors performed by humans, systems, or a combination of both to achieve one or more goals. Processes are triggered by specific events and have one or more outcomes that may result in the termination of the process or a handoff to another process. Processes are composed of a collection of interrelated tasks or activities that solve a particular issue. In the context of business process management, a "business process" is defined as end-to-end work that delivers value to customers. The notion of end-to-end work is critical as it involves all of the work, crossing any functional boundaries, necessary to completely deliver customer value.

Process Analysis
Process analysis is the act of conducting a thorough review and arriving at a complete understanding of a business process (or portion thereof), with the goal of maintaining or achieving process excellence, or achieving incremental to transformational improvements in a business process.

Process analysis involves looking at all components of a process — inputs, outputs, mechanisms and controls—inspecting each component individually and as they interact to produce results. These components can often be categorized into the people, processes, applications, data, and technology needed to support a business goal or objective. Analyses cover and *uncover* quality, time, and costs at all points of a business process, from inception to completion.

Aids to process analysis include

- Visual process models, both static and dynamic
- Data collected at the beginning, duration, and end of key activities, lower-level processes, and the entire business process itself
- Business process analysis methods such as value chain analysis, end-to-end modeling, and functional decomposition.

Some typical process analyses are

- Resource utilization
- Distribution analysis
- Cycle time analysis
- Cost analysis
- Software application usage
- Global/Local process variations.

Holistic business process analyses evaluate

- Total cost of the process tools (e.g., computer systems)
- Impact of the process on internal participants (employees) and external (paying) customers and stakeholders
- Impact of the process on the organization's community (e.g., environmental impacts) and other stakeholders.

Process Analyst

A person with this role is responsible for working with business managers and staff to define and validate the current business operation and design future process models with business participants, Process Architects and Process Designers. Their role is to help identify how a business operation really functions and then to help identify, design, build and deploy improvement. They are often called upon to train project team members on modeling standards and approaches as defined by the Process Architect and Business Architect.

Process Manager or Leader

A person with this role manages process transformation projects, leads process discovery and design workshops, coaches process owners, and measures and reports on process performance.

Process Architect

A person with this role is focused on defining, redesigning, and optimizing activities in a process or group of processes. These people work with Business Architects to look at how processes need to change to deliver business goals, with Solution Architects to ensure performance, maintainability, and scalability, and with Enterprise Architects to identify IT capability, limitations, and support changes.

Process Component
The parts of a process: inputs, outputs, mechanisms, and controls.

- **Inputs** are resources or data that must be present, and "triggers" " (different types of events) that invoke a process.
- **Mechanisms** are the "tools," including machines, systems, and people, that perform "activities," the actions upon and in response to the inputs.
- **Controls** are the requirements, constraints, guides, and restraints; and defining laws, policies, rules and regulations that shape and determine the actions upon the inputs. Mechanisms and controls can be the same: for example, regulations, money, or people.
- **Outputs** are the results of the actions of the mechanisms, guided by the controls and mechanisms, upon the inputs. Optimally, outputs are services or products meeting or exceeding the time, quality, or cost expectations of an organization's customers. They may also be events that trigger other processes in the same or in a different organization.

Process Culture
Organizations where the business's processes are known, agreed on, communicated, and visible to all employees.

Process Design
Process design is the act of transforming an organization's vision, goals, and available resources into a discernible, measureable means of achieving the organization's vision. Process design may start with process analysis; best practices from similar organizations; process reference models from industry-standards organizations (e.g., SCOR or eTOM) or third party consultants; or "green field" — ideas coupled with the experience and insights of the process design team. Process design focuses on defining what the organization will do to achieve its financial and other goals.

Process Designer
A person in this role works with business managers and staff to define and validate the future-state operational design of processes. The Process Designer is thus the catalyst to the future-state design and its continuous evolution. These people understand the mechanisms of the business and know how to develop a solution that meets performance targets, is scalable, and can be easily maintained. The Process Architect views the process from the perspective of how it interacts with the bigger picture (outside in).

Process Flow
The aggregation of subprocesses into a sequential relationship that shows the order in which they are performed.

Process Management Maturity
A measure of the state of a company's journey to consider and manage work using a process centric approach. The level of maturity is defined by comparing the company's current operation against characteristics and capabilities that are defined in one of the many Process Maturity Models in the market.

Process Manager
A person in this role performs and coordinates the work on a process or processes and manages the process/processes' business performance.

Process Modeling
Process modeling is the act of creating visible illustrations, which can be static or dynamic, of what an organization does to produce services or products (optimally of value to one or more customers). Optimally, process modeling results in an illustration that an independent evaluator can compare and match to the organization's process.

Process Organization
An organization that is structured, organized, managed, and measured around its primary business processes. Its knowledge area addresses two types of organizations:

- The process-driven organization
- The roles and responsibilities of the governing bodies needed to support the process- driven organization.

Process Owner
A person in this role has the ongoing responsibility and accountability for the successful design, development, execution, and performance of a complete end-to-end (cross-functional) business process.

Process ownership can be adopted full time or as an additional responsibility, as a line or staff function.

Executive process owners (Enterprise Process Owners and Chief Process Officers) commonly have financial responsibility for groups of business processes. They have an inherent investment in the successful execution of cross-functional business processes that are key to the success of the company.

Process owners are among the essentials to business process success. A business process without an organizationally influential process owner is like a ship without a rudder, propeller, and sails — the business process can't execute in the most efficient and effective way possible.

Process Team
A process team is a process owner and the supporting "players" who define, analyze, and refine a business process.

The more common process team roles include

- Process manager,
- Process analyst,
- Process designer, and
- Process architect, along with
- Business analyst,
- Subject matter expert, and
- Executive management and leadership

Process teams are often advised by a Business Architect and/or Process Architect.

Q

R

Reference Model

A normalized model that provides a high-level integrated view of a business, its technology, and its data; it is used as a reference for building similar models. Reference models are useful in providing a degree of standardization among elements of a discipline. A well-known reference model is the supply-chain operations reference (SCOR), which allows for describing supply chains using common terminology and relationships to aid in comparisons and diagnostics.

Another popular industry reference model is the eTOM or Enhanced Telecom Operations Map published by the TM Forum. The eTOM model describes the full scope of business processes required by a telecom company and defines key organizational and business process elements and how they interact. eTOM is often associated with ITIL, a standard framework for best practices in information technology. Many consulting organizations also offer business process reference models for specific industries.

Risk Analysis

Examines the effectiveness of process control points against given stresses to determine when something will fail. It also can mean the level of risk that can be expected in a given course of action and the probability of failure—such as the probability of project failure if a given action is or is not taken.

Role

A business role is a group of related skills with a level of authority to perform a given task. This includes all task types whether they are a manual or system enabled. Business roles *are not* the same as:

- Organizational Jobs — a job is a role that exists in the organization and comprises a common set of responsibilities. For example, a manager's job includes performing the function of a department manager and being responsible for direct report employees.
- Organizational Positions — an organizational position is a specific opening that someone fills (in a specific location). This is a skill- and location-specific

opening that is filled by a specific person. For example, a departmental manager in the San Francisco office.

- Security Roles — a security role is a tactical object that gets assigned to a user ID, and allows the user access to the system.

Rules

The logic that defines what will be done, when it will be done, where it will be done, why it will be done, how it will be done, and how it will all be managed or governed. Rules can take many forms, from simple binary decisions to decisions involving more advanced Boolean logic rules. Examples range from simple yes/no decisions to multi-threaded decision trees to determine how a process responds to a given event.

S

SCOR®

Supply Chain Operations Reference (SCOR) is business process reference model endorsed by the Supply Chain Council as a de-facto standard diagnostic tool for supply chain management. SCOR is a management tool spanning an organization's suppliers to its customers. This reference describes the business activities associated with all phases of satisfying the customer's demands. This reference model looks at business processes and activities used in all stages of supply chain activity. The SCOR a model is based on three major pillars: process modeling, performance measurements, and best practices. The process model is divided into five groups: Plan, Source, Make, Deliver, and Return. Each of these process groups is decomposed into progressively lower levels of detail to help model supply chain activities. Each level is a decomposition of the activities in the level above and all are supported by a set of standard key performance indicators (KPI).

Sensitivity Analysis (also known as a "what if" analysis)

An analytical technique that tries to determine the outcome of changes to the parameters of or the activities in a process. This is a measure of the sensitivity of something to a given change. It measures the hypothetical impact of different types of change (such as capacity, financial issues) on the overall process, workflow, or activity, and it is useful for determining how a change may impact the operation. It is also known as "what if analysis" and is used to support decision-making or the development of recommendations for decision-makers based on changing certain variables in the analytical model.

Also called hypothesis testing, the goal is to test the measurable outcomes of performance (e.g. time, cost) from different ways to achieve desired objectives.

Service Level Agreement (SLA)

An agreement between two or multiple parties that defines specific levels of performance related to given activities. The SLAs are targets or standards that must be met by a supplier, outsourcing company, vendor, service provider or partner. SLAs are written in plain language specifying the target performance levels and how the target performance will be measured. They include the timing of the agreed measurement and a clearly defined issue resolution and escalation process for all parties agreeing to the SLA. An SLA may also build in penalties or incentives tied to performance targets for improved performance or for excellence.

As related to a process, SLAs focus on measureable outcomes that have been defined by stakeholders to meet set performance criteria.

Simulation

A modeling technique that uses business process models in a BPMS tool to make predictions about how a process may perform under different circumstances and workloads. Business process simulation can be either formal or informal and use a variety of techniques. Process simulation usually assigns values to activities and then defines a number of anticipated use cases to see how the business process will respond under different circumstances. The simulation of complex business processes can often reveal outcomes that business process transformation teams can't anticipate. This is especially relevant when trying to model new automated business processes being carried out on mobile devices. Simulations require sufficient data, which typically allows the process to be mathematically simulated under various scenarios, loads, or other conditions.

SIPOC

SIPOC is a Six Sigma tool; it stands for "Supplier-Input-Process-Output-Customer". A SIPOC diagram verifies that process inputs match outputs of the upstream process and that process outputs match the expected inputs of the downstream process.

Six Sigma

A method that drives business performance improvement by reducing or narrowing variation in work or in quality. The goal is to reach a statistical variation of Six Sigma (or six standard deviations of variation) within the limits defined by the customer's specifications. Since its introduction in 1987, Six Sigma has become one of the most recognized enterprise improvement methodologies for companies seeking to identify business problems, define improvement opportunities and projects, and deliver solutions to realize predictable and repeatable results.

SOA

An approach for linking resources to obtain or present data on an "on demand' basis. It is a data access and delivery strategy pursued by the enterprise — it is not simply a tactic or technique that the enterprise adopts to pursue a goal of improved application interfacing.

Service Oriented Architecture (SOA), is an approach for building computing applications that support or automate business processes by using a set of loosely coupled black-box components. SOA represents a dramatic change in the relationship between business and IT. SOA makes technology a true business enabler and empowers business and technology leaders alike.

From a technical perspective, SOA is a method to design and architect solutions. It could be implemented in a messaging or integration layer or it could be a way that an application is designed to provide services to other applications.

SOA Implementation
A project or initiative to implement business solutions using SOA technology.

SOA Execution
A program to invoke a service, but does not contain 'business logic'.

SOA Interface
The software that calls data from, or presents data to, one or more applications that are external to the application being executed. The interface address information for locating the associated implementation(s) is called the request.

SOAP
Imbedded within the SOA umbrella is a set of standards that govern data transfer. These standards, named Simple Object Access Protocol (SOAP), are a set of rules for transferring structured information across a network in the implementation of Web Services.

Swim Lanes
Swim lane models divide a screen or page into multiple parallel lines or lanes. The lanes are generally represented as long vertical or horizontal rectangles or sometimes-simple lines or bars. Each of these lanes is defined as a specific organization unit or a business role that a person plays in performing the work. The work moves from activity to activity following the path of the flow from business unit to business unit or from role to role. By showing the flow from lane (role/ organization) to lane, swim lanes help identify hand-offs in a process.

Software as a Service (SaaS)
Sometimes referred to as on-demand software, SaaS is a software delivery model in which application software and its associated data and infrastructure are hosted on the Internet and accessed by users with a web browser. This is the latest incarnation of the time-sharing concept of the late 1970s and the 1980s. In this option, SaaS customers sign on to the vendor's hardware/software environment and use the applications from any location (common examples include sales force and payroll automation). The hardware and applications or tools are located externally to the company and may be anyplace in the world. SaaS computing services and applications are typically managed and supported by a third-party vendor on a fee-for-service basis.

Strategic BPM Planning
Strategic BPM Planning defines the way BPM and BPMS will be used in the company. It translates the vision of business improvement into action plans and aligns required BPM/BPMS capabilities with the approach that will be taken in improving

business processes. This is important in delivering the business objectives of transformation projects.

Subject Matter Experts (SMEs)
These individuals are typically people who have a deep understanding of certain business functions or operations, often possessing years of experience as a participant in business operations. This term is also applied to people who have deep expertise in an area of IT, production operations, supply chain management or other areas of activity.

Success Criteria
The topics or items that a project must address and the standards, targets, and limits that must be achieved in order for it to be a success.

Systems Dynamics Models
These models are "activity on arrow" diagrams rather than "activity on node" diagrams like most of the other notations. These are more often used to model an entire enterprise or line of business than to model lower-level workflow. They describe the enterprise business "architecture" from a dynamic behavioral perspective rather than a static structural perspective.

T

Task
The steps or actions taken to perform a specific piece of work — such as to enter a claim's information into the line of business' claim system, register a patient in a hospital, or enter an order for a project into a sales system. A number of logically related tasks can be combined into a higher-level "Activity". A task may or may not have automated support. Some tasks can even be totally automated. These may be shown in a workflow model to provide information that helps staff understand what is happening. Tasks can also combine to form scenarios that are repeated based on events, timing, etc.

U

Unified Modeling Language (UML)
Maintained by the Object Management Group, a standard set of diagramming technique notations primarily for describing information systems requirements. UML models are most often associated with custom software development efforts, though they may also be associated with the custom development portions of an ERP implementation project for defining custom reports, interfaces, conversions, and enhancement (RICE) objects.

V

Value Chain
Value chains are large-scale business processes that are initiated by a customer request, and result in the delivery of a process or service to a customer. A value

chain includes everything that contributes to the delivery of a given product. By adding up all the costs of each activity in the value chain, and subtracting the total from the sales price, an organization can determine the profit margin on the value chain. Most organizations support from 3 to 15 value chains. Introduced by Michael Porter in his 1985 book entitled **COMPETITIVE ADVANTAGE**, this approach emphasizes capturing those processes and activities that "add value" to the service or product provided to a customer. Value Chains provide a strategic view of business processes across the organizations and products they support.

Value Chain Notations
A category of symbol sets used to visualize the accumulation of value or steps toward achievement of a goal.

Value Stream Mapping
A Value Stream Map is a Lean Six Sigma tool used for detailed process analysis and design. It captures all key process activities and metrics, and focuses on eliminating activities that do not add value to the product or service being built or delivered.

In Lean Manufacturing, this is used to add process resource costs and time elements to a process model to clearly show the flow of materials and products, and to depict process efficiency.

W

Workflow
This is a generic term for the sequential movement of information or materials from one activity in a process or subprocess to another in the same overall process. As applied in the CBOK, this is the aggregation of activity within a single Business Unit. Activity will be a combination of work from one or more processes. Organization of this work will be around efficiency. The activities in the workflow will be shown as a flow that describes each activity's relationship with all the others performed in the Business Unit. Modelling will show this work as a flow that describes each activity's relationship with all the others performed in the Business Unit.

Workflows can be manual, automated, or more likely a combination of both. Workflow models often include both the diagram and the specific rules that define the flow of information from one activity to the next. When used in conjunction with the workflow system or engine, it usually refers to a software-based workflow system that will move information from a database to one computer or organization after the other.

WSDL
The Web Services Description Language (WSDL) is a standard way of defining an SOA service interface.

Web Services

Web Services are a set of standards that enable the integration of web-based applications. In BPMS, Web Services are used to move data and initiate processing in applications that are not part of the BPMS solution operating environment.

Web Application

A computer program or set of programs that are called from a web portal and used to perform a given business function—such as purchase a product. The term may also mean software application that is coded in a browser-supported language (such as Java) and reliant on a common web browser to render the application's executable over internal networks or over the Internet. These applications can either be purpose-built or purchased from a vendor; they usually link to other legacy or special-purpose background applications that can access multiple databases or perform given functions in the background while the web application continues to interact with the application user.

Web Portal

A website that provides a single point of access to information over internal networks and/or the Internet. Web portals usually provide access to specific information and capabilities that a company wants to make available to a broad range of people in a consolidated manner. Well-structured web portals allow users to personalize their views. In addition to information gathering and sharing, web portals can be built to include workflow management, work group collaboration, and content management features to help deliver self-service support.

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BUSINESS PROCESS MANAGEMENT

Business Process Management (BPM) is a management discipline that integrates the strategy and goals of an organization with the expectations and needs of customers by focusing on end-to-end processes. BPM comprises strategies, goals, culture, organizational structures, roles, policies, methodologies and IT tools to analyze, design, implement, control, continuously improve end-to-end processes and establish process governance.

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