

# Introduction to Business Process Management

1. Introduction to Business Process Management Alan McSweeney
2. Objectives • To provide an introduction to Business Process Management • Based on the Association of Business Process Management Professionals (ABPMP) Business Process Management Common Body of Knowledge (CBOK) July 3, 2010 2
3. Topics 1. Introduction and Context of BPM 2. Business Process Management Overview 3. Process Modelling 4. Process Analysis 5. Process Design 6. Process Performance Management 7. Process Transformation 8. Process Management Organisation 9. Enterprise Process Management 10. Business Process Management Technologies July 3, 2010 3
4. Course Schedule • Day 1 • Day 3 – Morning – Morning • Introductions • Enterprise Process Management • Introduction and Context of BPM • Business Process Management • Business Process Management Technologies Overview – Afternoon – Afternoon • Business Process Management and • Process Modelling Business Analysis • Process Analysis • Business Process Management Technology Review and Software • Day 2 Demonstration – Morning • Course Review and Feedback • Process Design • Process Performance Management – Afternoon • Process Transformation • Process Management Organisation July 3, 2010 4
5. Course Handouts • Printout of handouts • CD containing – BPM articles and whitepapers – Sample BPM software July 3, 2010 5
6. Introduction and Context of BPM July 3, 2010 6
7. Lessons Learned From Large Systems Implementation 80 % More attention on process optimisation 65 % Align systematically to company goals 60 % Pay more attention to understanding the subject area spanned 55 % Implementation of a management information system as part of scope 50 % Outsource project management of the project to a third party 45 % Increase investment in training 35 % Greater employees involvement 35 % Enforce changes more courageously 30 % Identify and capture proof of benefits and saving as part of scope 20 % Avoid big-bang implementations July 3, 2010 7
8. Key Business Drivers for BPM • Save money – Do things better with optimised processes – Build better new processes faster – Know what you are doing (right or wrong) through current process understanding – Get control of parallel processes by consolidating to core processes – Get non-value added work through automation of manual processes – Business process outsourcing • Implement large software systems better • Stay ahead of compliance • Move faster through scenario building for agility and policy management July 3, 2010 8
9. Benefits of Business Process Management Reduced process costs 10 - 15 % Increased quality / reduced number of errors 20 - 30 % Reduced process throughput times 10 - 30 % Reduced training time / expenses 10 - 30 % Reduced number of (internal) support requests 15- 30 % Reduced number of customer complaints 20 - 30 % Increased forecast accuracy 15 - 30 % • Real benefits from BPM • Intangible benefits also: better information quality July 3, 2010 9
10. How do Organisations Improve? • Major changes must start at the top • Ultimately, everyone must be involved • Effective change requires a goal and knowledge of the current process • Change is continuous • Change will not be retained without effort and periodic reinforcement • Improvement is continuous July 3, 2010 10
11. Why Business Process Management? • Symptoms of Poor Business Process Management and Design – No standard process/method for addressing how to define business requirements and when to improve business processes – When automation of processes is commissioned,

“Business” says that they do not always get what they think they have asked for – The processes used to document and communicate business processes and requirements are neither easy nor documented – Our business programs frequently exist in a culture of reacting to cross-functional problems/emergencies – IT has responsibility for creating and maintaining business process flows, business requirements and business rules July 3, 2010 11

12. Why Business Process Management and Design - Common Problems 1. Lack of an integrated process for capturing the business domain 2. Techniques that are used are not consistently applied 3. We cannot/do not differentiate key stakeholders' views and different business views 4. We are working without a common language across business, IT and our other partners/vendors 5. Inadequate root cause level business process analysis yields inadequate business requirements and rules to facilitate process optimisation/automation July 3, 2010 12

13. Why Business Modelling - The Problems 1. Lack of an integrated process for capturing the business domain 2. Techniques that are used are not consistently applied 3. We cannot/do not differentiate key stakeholders' views and different business views 4. We are working without a common language across business, IT and our other partners/vendors 5. Inadequate root cause level business process analysis yields inadequate business requirements and rules to facilitate process optimisation/automation July 3, 2010 13

14. Finding the Right Project • Key characteristics of right project – The process or project is related to a key business issue – You have/can get customer input on the issue – Management assigns this project a high priority – Process owner and key stakeholders are defined – The problem is stated as a target or need and NOT a solution – The sponsor of this project can commit time and resources to this project – The business process(es) will not be changed by another initiative at any time in the near future – Focus on: • Which process is the most critical • Which process contributes the most – Ensure the benefits of an improvement project do not degrade over time July 3, 2010 14

15. Critical Success Factors • Linked to business strategies and goals • Linked to customer value • Ability to implement incremental value added change • Ability to track results and measure success • Ability to be aligned with the business July 3, 2010 15

16. Successful Business Process Analysis, Design and Implementation Projects Have • Understood the Business Architecture – Business Process, Metrics, Strategy and Goals • Engaged stakeholders and defined process ownership • Taken an iterative and incremental approach • Tackled the right project at the right time • Implemented internal and external standards and the right level of governance • Understood the role of information • Incorporated process improvement • Achieve business results with a series of small successes July 3, 2010 16

17. Do Not Ignore Organisational Change • The failure to manage the human side of business changes is a major contributor to the reasons programme, projects and initiatives fail • Organisations may not have the experience necessary to manage the speed and complexity of the large-scale changes • Managers are all too frequently concerned with tactical, operational issues and have not had the time to consider organisational changes July 3, 2010 17

18. Process Analysis within Service Orientation • Process Driven Integration – Services Based Integration – Cut integration costs and reduce development • New Business Initiatives – Agility, Growth – New Products and Services – Increased Delivery Channels • Process Improvement – Optimising business processes – Straight Through Processing • IT Regeneration – Enterprise IT Architecture – Aligning more with Business – Legacy Replacement • Extending the Enterprise – Partnering, B2B July 3, 2010 18

19. Intelligent Use of BPM • Help prioritising intelligent cuts: via a business process architecture and a good process measurement system • Process Optimisation: BPM teams can quickly examine processes and suggest changes to eliminate waste – Good BPM teams can almost always identify

some quick changes that will save 10-30% July 3, 2010 19

20. Intelligent Use of BPM • Reorganisations – Changes in status also require that new processes and business rules be implemented throughout the organisation • Additional Regulation – New regulations require new practices and new business rules July 3, 2010 20

21. Business Process Management Common Body of Knowledge (CBOK) Knowledge Areas Business Process Management (1) Process Process Process Process Process Design Performance Transformation Modelling (2) Analysis (3) (4) Management (6) (5) Process Management Organisation (7) Enterprise Process Management (8) Business Process Management Technologies (9) July 3, 2010 21

22. Business Process Management Common Body of Knowledge (CBOK) Knowledge Areas • Nine knowledge areas – Business Process Management (1) - core BPM concepts – Process Modelling (2), Process Analysis (3), Process Design (4), Process Performance Management (5) and Process Transformation (6) - BPM activities and skill sets – Process Management Organisation (7) and Enterprise Process Management (8) - how the practice of BPM relates to other organisational dimensions, such as governance and strategic planning – Business Process Management Technologies (9) – support and enable BPM practices July 3, 2010 22

23. Business Process Management (1) Knowledge Area • Defines BPM and provides the foundation for exploring the remaining Knowledge Areas • Focuses on the core concepts of BPM – Key definitions – End-to-end process – Customer value – Nature of cross-functional work – Process types – Process components – BPM lifecycle – Critical skills – Success factors July 3, 2010 23

24. Process Modelling (2) Knowledge Area • Includes the set of skills and processes which enable people to understand, communicate, measure and manage the primary components of business processes • Covers – Skills, activities and key definitions – An understanding of the purpose and – Benefits of process modelling – Discussion of the types and uses of process models – Tools, techniques and modelling standards July 3, 2010 24

25. Process Analysis (3) Knowledge Area • Involves an understanding of business processes including the efficiency and effectiveness of business processes • Covers – Purpose and activities for process analysis – Decomposition of process components and attributes, analytical techniques and process patterns – Use of process models and other process documentation to validate and understand both current and future state processes – Process analysis types, tools and techniques July 3, 2010 25

26. Process Design (4) Knowledge Area • Intentional and thoughtful planning for how business processes function and are measured, governed and managed • Involves creating the specifications for business processes within the context of business goals and process performance objectives • Covers – Plans and guidelines for how work flows – How rules are applied – How business applications, technology platforms, data resources, financial and operational controls interact with other internal and external processes – Process design roles – Techniques and principles of good design – Common process design patterns – Compliance, executive leadership and strategic alignment July 3, 2010 26

27. Process Performance Measurement (5) Knowledge Area • Formal, planned monitoring of process execution and the tracking of results to determine the effectiveness and efficiency of the process • Used to make decisions for improving or retiring existing processes and/or introducing new processes in order to meet the strategic objectives of the organisation • Covers – Key process performance definitions – Importance and benefits of performance measurement – Monitoring and controlling operations – Alignment of business process and enterprise performance – What to measure – Measurement methods – Modelling and simulation – Decision support for process owners and managers – Considerations for success July 3, 2010 27

28. Process Transformation (6) Knowledge Area • Addresses process change in the context of a business process lifecycle • Covers – Process improvement – Redesign and reengineering methodologies – Tasks associated with implementing process – Organisational change management

methodologies, techniques and best practices July 3, 2010 28

29. Process Organisation (7) Knowledge Area • Addresses the roles, responsibilities and reporting structure to support process-driven organisations • Covers – What defines a process driven enterprise – Cultural considerations – Cross-functional, team-based performance – Business process governance – Governance structures – BPM Centre of Expertise/Excellence (COE) July 3, 2010 29

30. Enterprise Process Management (8) Knowledge Area • Driven by the need to maximise 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 • Covers – Tools and methods to assess process management maturity levels – Required BPM practice areas which can improve their BPM organisation state – Business Process Frameworks – Process integration - interaction of various processes with each other – Models which tie performance, goals, technologies, people and controls (both financial and operational) to business strategy and performance objectives – Process architecture and enterprise process management best practices July 3, 2010 30

31. BPM Technology (9) Knowledge Area • BPM is a technology enabled and supported management discipline • Covers – Wide range of technologies available to support the planning, design, analysis, operation and monitoring of business processes – 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 – BPM standards, methodologies and emerging trends July 3, 2010 31

32. Business Process Management Overview July 3, 2010 32

33. Business Process Management Topic Scope Business Process Management BPM Role Core Concepts of Business Process BPM Critical Operating Business Process BPM Lifecycle Types of Processes Types of Activities Management Success Factors Environment and Management Influences Management Alignment of Discipline and Planning and Strategy, Value Primary Processes Value Added Enabling Strategy Chain and Business Technologies Process Process vs. Analysis Support Processes Handoff Goals Function Ongoing Executive Management Controls and Management of Design Sponsorship/ Processes Control Activities Process Governance Process Performance and Modelling Process Ownership Measurement Organisational Measuring and Metrics, Measures Commitment Monitoring and Monitoring Institution Transformation Practices July 3, 2010 33

34. Business Process Management - Scope • Concepts and strategies required to successfully manage business processes from a holistic end-to-end perspective • Foundation for exploring the remaining knowledge areas July 3, 2010 34

35. Hierarchy of Business, Processes and BPM Business Implements and Uses That Can Be Business Process Managed Using Business Process Management July 3, 2010 35

36. Hierarchy of Business, Processes and BPM • Business – Refers to individuals, interacting together, to perform a set of activities to deliver value to customers and a return on investment to the stakeholders • Business Process – Process is a defined set of activities or behaviours performed by humans or machines to achieve one or more goal – Triggered by specific events and have one or more outcome that may result in the termination of the process or a handoff to another process – Composed of a collection of interrelated tasks or activities which solve a particular issue – End-to-end work which delivers value to customers - end-to-end involves crossing any functional boundaries July 3, 2010 36

37. Hierarchy of Business, Processes and BPM • Business Process Management – Disciplined approach to identify, design, execute, document,

measure, monitor and control both automated and non- automated business processes to achieve consistent, targeted results aligned with an organisation's strategic goals – Involves the deliberate, collaborative and increasingly technology- aided definition, improvement, innovation and management of end-to-end business processes that drive business results, create value and enable an organisation to meet its business objectives with more agility – Enables an enterprise to align its business processes to its business strategy, leading to effective overall company performance through improvements of specific work activities either within a specific department, across the enterprise or between organisations July 3, 2010 37

38. BPM Core Concepts Management Discipline And A Set Of Enabling Technologies Technology Addresses End- Enabled To-End Work Requires A Continuous, Ongoing Significant Set Of Processes Focused Organisational On Managing Commitment End-To-End Processes Includes The Modelling, Analysis, Design And Measurement Of Processes July 3, 2010 38

39. BPM Core Concepts • BPM is a management discipline and a set of enabling technologies • BPM addresses end-to-end work and distinguishes between sets of subprocesses, tasks, activities and functions • BPM is a continuous, ongoing set of processes focused on managing an organisations end-to-end business processes • BPM includes the modelling, analysis, design and measurement of an organisation's business processes • BPM requires a significant organisational commitment, often introducing new roles, responsibilities and structures to traditional functionally oriented organisations • BPM is technology enabled with tools for visual modelling, simulation, automation, integration, control and monitoring of business processes and the information systems which support these processes July 3, 2010 39

40. Management Discipline and Enabling Technologies • BPM acronym used loosely and its meaning varies depending upon the context – Software companies often refer to BPM to describe the capabilities of a particular product or technology – Practitioners, management consultants and academics typically discuss the process and management discipline of BPM • Firstly BPM is a management discipline and process for managing an organisation's business processes – Enabling technology is meaningless without the management disciplines and processes for exploiting the technology • BPM involves managing the end-to-end work organisations perform to create value for their customers – Performance of this work is essentially how organisations fulfill their mission July 3, 2010 40

41. Management Discipline and Enabling Technologies • Vendors have created application suites which help enable organisations to better manage their business processes – Tools to visually design and model business processes – Simulate and test business processes, automate, control and measure business processes – Provide feedback and reporting on process performance – Some vendors have combined these into integrated business process management suites • Most large organisations have a significant investment into a number of legacy systems – Designed to support specific functions – In order to manage the end-to-end work involved in business processes, a BPMS must be able to integrate with legacy systems in order to control work, get information or measure performance – Common framework for how these technologies are deployed is most often referred to as a Service Oriented Architecture (SOA) – Standardising on a specific set of open technologies commonly referred to as web services – By leveraging web services in a SOA, organisations can build and manage end-to-end business processes across organisational silos and their legacy systems July 3, 2010 41

42. Addresses End-To-End Work • Process vs. function – Business functions are typically defined by a group of activities related by a particular skill or goal such as sales, finance or manufacturing – Functions focus on these individual tasks while business processes focus on the end-to-end work, i.e., tasks and activities, across functional boundaries to deliver customer value – Functions are ongoing where business processes have defined inputs and outputs – Business processes, however, focus on end-to-end transactions that deliver value July 3, 2010 42



43. Ongoing Management of Processes BPI (Business Process BPM (Business Process Improvement) Management) One-time exercise Ongoing and continuous Fix or design process Vs. July 3, 2010 43
44. Ongoing Management of Processes • BPM involves a permanent ongoing organisational commitment to managing the organisations processes • Includes – Modelling • Analysis • Process design • Performance measurement – Process transformation – Continuous feedback loop to ensure the organisation's business processes are aligned to its strategy and performing to expectations July 3, 2010 44
45. Modelling, Analysis, Design And Measurement Of Processes • Practice of BPM requires the measurement and supervision of process performance – Setting process performance goals – Measuring actual performance – Reviewing the effectiveness of business processes – Providing information, insight and feedback to other primary activities such as process analysis, design and transformation • Define and measure business process performance across two primary dimensions – Extent to which process goals are attained – Efficiency and effectiveness of process activities July 3, 2010 45
46. Modelling, Analysis, Design And Measurement Of Processes • Gather information at key points in the process to support decisions – Cost – Time to completion of tasks July 3, 2010 46
47. Organisational Commitment • Practice of BPM requires a significant organisational commitment • Management of end-to-end business process crosses organisational boundaries • New roles and responsibilities are introduced, such as process owners, designers and architects • Individuals responsible for end-to-end process design must interact with traditional functionally based managers • New governance structures need to be introduced which may change the way organisations make decisions and allocate resources July 3, 2010 47
48. Organisational Commitment “Horizontal” Cross Functional Processes – Externally Focussed Link Operational Processes Cross Organisation Boundaries “Vertical” Operational Processes – Internally Focussed July 3, 2010 48
49. Organisational Commitment • Without organisational commitment, the practice and benefits of BPM is unlikely to mature within an organisation • Without supporting leadership, values, beliefs and culture, BPM is unlikely to successfully take hold within an organisation July 3, 2010 49
50. BPM Technology • BPM is a technology enabled and supported management discipline • Wide range of technologies available to support the planning, design, analysis, operation and monitoring of business processes • Application suites available which help enable organisations to better manage their business processes • BPMS must be able to integrate with legacy systems in order to control work and get information or measure performance • Common framework for how these technologies are deployed is most often referred to as a Service Oriented Architecture (SOA) July 3, 2010 50
51. BPM Lifecycle BPM Activities Affected BPM Activities by Leadership, Values, Design and Process Analysis of Process Culture and Beliefs Planning and Business Modelling of Process Monitoring and Process Business Implementation Refinement Factors Strategy Processes Processes Controlling Culture and Strategy Methodology Information Technology Process Alignment Process BPM Awareness Factors Process Measures Process Sponsorship Process Responsibility Process Definition Organisation July 3, 2010 51
52. BPM Lifecycle BPM Factors – cross all BPM phases BPM Phases July 3, 2010 52
53. BPM Lifecycle Culture and Strategy Process Process Methodology Refinement Planning and Strategy Information Technology Process Alignment Process Process Awareness Monitoring Analysis of Business and Process Measures Processes Controlling Process Sponsorship Process Responsibility Process Design and Process Definition Implementation Modelling of Business Organisation Processes July 3, 2010 53

54. BPM Lifecycle Monitor • Iterative, Refinement phased set of Refinement Monitor activities Implementation Planning Planning Analysis Implementation Design Design Analysis July 3, 2010 54

55. Process Planning and Strategy • BPM lifecycle begins with developing a process driven strategy and plan for the organisation • Sets the strategy and direction for the BPM process • Plan starts with an understanding of organisational strategies and goals • Designed to ensure a compelling value proposition for customers • Plan provides structure and direction for continued customer centric process management • Provides a foundation for a holistic BPM approach to ensure the alignment with organisational strategy and the integration of strategy, people, processes and systems across functional boundaries • Identifies appropriate BPM organisational roles and responsibilities, executive sponsorship, goals and expected performances measures and methodologies July 3, 2010 55

56. Analysis of Business Processes • Analysis incorporates methodologies with the goal of understanding the current organisational processes in the context of the desired goals and objectives • Takes information from strategic plans, process models, performance measurements, changes in the environment and other factors in order to fully understand the business processes in the context of the overall organisation July 3, 2010 56

57. Design and Modelling of Business Processes • Focus on the intentional, thoughtful design of how end-to-end work occurs in order to deliver value • Document the sequence of activities, including the design of what work is performed, at what time, in what location, by what process actors using what methodology • Defines what the organisation wants the process to be and answers the what, when, where, who and how questions of how end-to-end work is executed • Ensures that the proper management controls and metrics are in place for compliance and performance measurement • Understanding the process typically involves process modelling and an assessment of the environmental factors which enable and constrain the process – May be the first time the entire end-to-end business process has been documented July 3, 2010 57

58. Process Monitoring and Controlling • Continuous measuring and monitoring of business processes provides the information necessary to adjust resources in order to meet process objectives • Measuring and monitoring also provides critical process performance information through key measurements related to goals and value to the organisation • Analysis of process performance information can result in improvement, redesign or reengineering activities July 3, 2010 58

59. Process Refinement • Implements the output of the iterative analysis and design cycle • Addresses organisational change management challenges • Aimed at continuous improvement and process optimisation July 3, 2010 59

60. Types of Processes Management Primary (Core) Processes Processes Support Processes July 3, 2010 60

61. Primary Processes • Primary processes are end-to-end, cross-functional processes which directly deliver value • Represent the essential activities an organisation performs to fulfill its mission • Make up the value chain where each step adds value to the preceding step as measured by its contribution to the creation or delivery of a product or service, ultimately delivering value • Primary processes can move across functional organisations, across departments or even between enterprises and provide a complete end-to-end view of value creation July 3, 2010 61

62. Support Processes • Support primary processes, often by managing resources and/or infrastructure required by primary processes • Differentiator is that support processes do not directly deliver value – Does not mean that they are unimportant to an organisation • Examples of support processes include information technology management, facilities or capacity management and human resource management • Support processes are generally associated with functional areas – Can and often do cross functional boundaries July 3, 2010 62

63. Management Processes • Used to measure, monitor and control business activities • Ensure that a primary or supporting process meets

operational, financial, regulatory and legal goals • Do not directly add value • Necessary in order to ensure the organisation operates effectively and efficiently July 3, 2010 63

64. Process Activities • Value Added - contribute to the process output in a positive way • Handoff - pass control of the process to another department or organisation • Control - assure that the processes behave within desired tolerances or specify a validity checkpoint July 3, 2010 64

65. BPM Critical Success Factors Business Strategy Define Organisation-Wide Business Process Value Chains Executive Sponsorship/ Governance and Institutionalise Practices Standardise Business Processes Measure Process Chain Performance July 3, 2010 65

66. BPM Critical Success Factors • Standardise Business Processes – Adopt common design/re-engineering methodology – Document processes – Manage process diversity • Executive Sponsorship/Governance and Institutionalise Practices – Provide continuous improvement – Manage process governance – Enable change management – Leverage BPM tools • Define Organisation-Wide Business Process Value Chains – Map the organisation's core activities – Assign executive responsibility for/sponsorship of process chains • Measure Process Chain Performance – Manage to process measures and chains of accountability July 3, 2010 66

67. Alignment of Strategy, Value Chain and Business Process • Most successful organisations implementing BPM pay attention to the alignment of business strategy, value- chain definitions and business processes • BPM relies on key business strategies that set the primary direction of the enterprise – Value propositions for goods and services delivered • Business strategy leads to enterprise and business unit goals as the basis for action plans and business tactics July 3, 2010 67

68. Goals • Business goals are most often an output of an organisations strategic planning efforts – Typically decomposed to include functional goals which align an organisations functional areas to overall strategy • Process goals align business processes with overall organisation strategy July 3, 2010 68

69. Executive Sponsorship/Governance • Assigning executive leadership responsibility to oversee the performance of key processes is an indicator of maturity and seriousness • Performance of a process is measured with accountability falling under the executive leadership and reported throughout the enterprise • Important to have organisational discipline to utilise methodologies to document, store, manage and continuously improve the business processes, particularly those that make up the value chains • Includes governance mechanisms to support BPM and associated tools • Institutionalised across all functional areas in order to optimise the impact on value chain performance July 3, 2010 69

70. Process Ownership • Successful BPM implementations recognise that the role of a process owner is critical • Process owner is responsible for the entire end-to-end process across functional departments • Success of this role depends on the authority the individual has to control the budget and make decisions that effect the development, maintenance and improvement of the business process July 3, 2010 70

71. Metrics, Measures and Monitoring • Management requires measurement • Business process measurement and monitoring provides critical feedback on process design, performance and compliance • Necessary to measure process performance in terms of a variety of possible metrics related to how well the process meets its stated goals July 3, 2010 71

72. Institution Practices • Effective attainment of BPM success factors to create value for an organisation depends on – Organisational practices – Mastery of concepts and skills by individuals with accountability for managing business processes July 3, 2010 72

73. BPM Role Operating Environment and Influences BPM Role and Influences Outside But Linked to Within Organisation External BPM Environment Organisation Business Strategy and Organisation's Operating Partners Governance Environment BPM Professional Practices Outsourced Business



BPM Practice and Management of Processes Influencers Business Processes BPM Professional Business Processes Development Programs Applications, Data and IT Platform Values, Beliefs, Leadership and Culture July 3, 2010 73

74. Process Modelling July 3, 2010 74

75. Process Modelling Topic Scope Process Modelling Modelling Business Process Modelling Purpose of Benefits of Standards Modelling Levels of Modelling Capturing Modelling Process Process Modelling Techniques Modelling Modelling and Perspectives Models Approaches Information Participants Simulation Modelling Quality and Tools Notations Process Model Diagrams, Validation Enterprise Direct Enterprise Maps and and Domain Observation Models Simulation Process Business Business Attributes and Interviews Domain Models Characteristics Operations Survey/ Operations and Work Written Domain Flow Feedback Systems Structured System Domain workshops Measureme Builder and Web-Based nt and Operator Conferences Control July 3, 2010 75

76. Business Process Modelling • Set of activities involved in creating representations of an existing (as-is) or proposed (to-be) business process • Provides an end-to-end perspective of an organisations primary, supporting and management processes • Modelling is a means to an end and not an end in itself – You model to get results and reach conclusions July 3, 2010 76

77. Process Diagrams, Maps and Models • Diagrams – Process diagram often depicts simple notation of the basic workflow of a process – Depicts the major elements of a process flow, but omits the minor details which are not necessary for understanding the overall flow of work • Maps – More precision than a diagram – More detail about process and important relationships to other elements such as performers (actors), events, results – Provide a comprehensive view of all of the major components of the process • Models – Represents the performance of what is being modelled – Needs greater precision, data about the process and about the factors that affect its performance – Often done using tools that provide simulation and reporting capability to analyse and understand the process July 3, 2010 77

78. Process Attributes and Characteristics • Attributes and characteristics that describe the properties, behaviour, purpose and other elements of the process • Process attributes are captured in a tool in order to organise, analyse and manage an organisation's portfolio of processes • Inputs/Outputs • Arrival Patterns/Distributions • Events/Results • Costs (indirect and direct • Value Add • Entry Rules • Roles/Organisations • Exit Rules • Data/Information • Branching Rules • Probabilities • Join Rules • Queuing • Work/Handling Time • Transmission Time • Batching • Wait Time • Servers (number of people • available to perform tasks) July 3, 2010 78

79. Purpose of Process Modelling • A model is rarely a complete and full representation of the actual process – Focus on representing those attributes of the process that support continued analysis from one or more perspectives • Objective is to create a representation of the process that describes it accurately and sufficiently for the task at hand – Understanding the business process through the creation of the model – Creating a visible representation and establishing a commonly shared perspective – Analysing process performance and defining and validating changes • To be model is an expression of the target process state and specifies the requirements for the supporting resources that enable effective business operations July 3, 2010 79

80. Purpose of Process Modelling • Models are simplified representations that facilitate understanding of that which is being studied and making decisions about it • Mechanism for understanding, documenting, analysing, designing, automating and measuring business activity as well as measuring the resources that support the activity and the interactions between the business activity and its environment • For process managed business, process models are the primary means for – Measuring performance against standards – Determining opportunities for change – Expressing

the desired end state preceding a change effort July 3, 2010 80

81. Reasons for Process Modelling • To document an existing process clearly • To use as a training aide • To use as an assessment against standards and compliance requirements • To understand how a process will perform under varying loads or in response to some anticipated change • As the basis for analysis in identifying opportunities for improvement • To design a new process or new approach for an existing process • To provide a basis for communication and discussion • To describe requirements for a new business operation July 3, 2010 81

82. Benefits of Modelling • Models are relatively fast, easy and inexpensive to complete • Models are easy to understand (when compared to other forms of documentation) • Models provide a baseline for measurement • Models facilitate process simulation and impact analysis • Models leverage various standards and a common set of techniques July 3, 2010 82

83. Modelling Standards and Notations • Range of number of modelling and notational standards and techniques • Models provide a language for describing and communicating as-is and to-be process information – Like all new languages must be learned • Benefits of using a standards based approach – A common symbology, language and technique which facilitate communication and understanding – Standards-based models provide common and consistently defined processes definitions which eases the process of design, analysis and measurement and facilitates model reuse – An ability to leverage modelling tools based on common standards and notations – An ability to import and export models created in various tools for reuse in other tools – Some tool vendors are leveraging standards and notations for developing the ability to be exported from a modelling notation to an execution language (for example BPMN to BPEL) July 3, 2010 83

84. Modelling Standards and Notations • Commonly used standards (not complete) – Business Process Modelling Notation (BPMN) – Flow Charting – Swim Lanes – Event Process Chain (EPC) – Value Chain – Unified Modelling Language (UML) – IDEF-0 – LOVEM-E – SIPOC – Systems Dynamics – Value Stream Mapping July 3, 2010 84

85. Business Process Modelling Notation (BPMN) • Widely used and supported standard for business process modelling • Provides a graphical notation for specifying business processes in a Business Process Diagram (BPD) • Uses a flowcharting technique similar to activity diagrams from Unified Modelling Language (UML) • Can output BPMN to Business Process Execution Language (BPEL) – Standard executable language for specifying interactions with Web Services • Emerging standard July 3, 2010 85

86. Business Process Modelling Notation (BPMN) – Simplified Structure BPMN Overview Connecting Flow Objects Swimlanes Artefacts Objects Events Activities Gateways Sequences Messages Associations Pool Lane Data Object Group Annotation Start Event Task End Event Sub-Process Intermediate Transaction Event July 3, 2010 86

87. BPMN - Events • Event denotes something that happens • Classifications – Catching – triggered by external event – Throwing – generating an output • Types – Start Event - acts as a trigger for the process – End Event - represents the result of a process – Intermediate Event - represents something that happens between the start and end events July 3, 2010 87

88. BPMN - Activities • Activity describes the kind of work that must be done • Types – Task - represents a single unit of work that is not or cannot be broken down to a further level of business process detail – Sub-Process - used to hide or reveal additional levels of business process detail – Transaction - a form of sub-process in which all contained activities must be treated as a whole July 3, 2010 88

89. BPMN - Gateway • A Gateway determines forking and merging of paths depending on the conditions expressed July 3, 2010 89

90. BPMN - Connecting Objects • Flow objects are connected to each other using connecting objects • Types – Sequence Flow - shows in which order

the activities will be performed – Message Flow - shows what messages flow across organisational boundaries – Association - associate an Artefact to a Flow Object and can indicate directionality July 3, 2010 90

91. BPMN - Swim Lanes • Visual mechanism of organising and categorising activities, based on cross functional flowcharting • Types – Pool - represents major participants in a process and contains one or more lanes – Lane - used to organise and categorise activities within a pool according to function or role July 3, 2010 91

92. BPMN - Artefacts • Used to bring some more information into the model/diagram • Types – Data Objects - show the data is required or produced in an activity – Group - used to group different activities but does not affect the flow in the diagram – Annotation - used to provide the model/diagram with understandable details July 3, 2010 92

93. Flow Charting • Simple type of diagram that represents a process, showing the steps as boxes of various kinds and their order by connecting these with arrows • Widely used July 3, 2010 93

94. Swim Lanes • Swim lanes are an addition to the boxes and arrows process flow view of flow-charting that show how the work flows across organisational units or is handed-off from one role to another • Overall process is divided into lanes, with one lane for each person, group or subprocess • Processes and decisions are grouped by placing them in lanes • Arranged horizontally or vertically and are used for grouping the subprocesses according to the responsibilities of those swim lanes July 3, 2010 94

95. Event Process Chain (EPC) • An EPC is an ordered graph of events and functions • Provides various connectors that allow alternative and parallel execution of processes • Tasks (activities) are followed by outcomes (events) of the task, developing a process model • EPC method was developed within the framework of ARIS (BPM toolset) • EPC elements – Event - describe under what circumstances a function or a process works or which state a function or a process results in – Function - model the tasks or activities – Organisation Unit - determine which person or organisation within the structure of an enterprise is responsible for a specific function – Information, Material or Resource Object - portray objects in the real world – Logical Connector - logical relationships between elements in the control flow – Logical Relationships - Branch/Merge, Fork/Join and OR – Control Flow - connects events with functions, process paths or logical connectors creating chronological sequence and logical interdependencies between them – Information Flow - show the connection between functions and input or output data – Organisation Unit Assignment - show the connection between an organisation unit and the function it is responsible for – Process Path - show the connection from or to other processes July 3, 2010 95

96. Value Chain • Value chain notation is used to demonstrate a single continuous flow from left to right of the sub-processes that directly contribute to producing value for the organisation's customers (clients/constituents) • Value chain is a chain of activities for a firm operating in a specific industry • Chain of activities gives the products more added value than the sum of added values of all activities July 3, 2010 96

97. Unified Modelling Language (UML) • UML provides a standard set of 14 diagramming techniques and notations primarily for describing information systems requirements • Primarily used for systems analysis and design • Can use UML activity diagrams for business process modelling • UML can be very verbose July 3, 2010 97

98. IDEF-0 (Integration Definition for Function Modelling) • Function modelling methodology for describing manufacturing functions • Federal Information Processing Standard (FIPS) that was developed by the US Air Force for documenting manufacturing processes • Part of the IDEF family of modelling languages in software engineering – IDEF0 produces a function model that is structured representation of the functions, activities or processes – IDEF1 produces an information model that represents structure and semantics of information – IDEF2 produces a dynamics model that

represents time-varying behavioural characteristics July 3, 2010 98

99. LOVEM-E (Line of Visibility Engineering Method - Enhanced) • Notation set and a modelling technique that was developed as part of IBM's Business Process Reengineering Methodology • Based on the process path management concept • Introduces concepts of the customer encounter and the collaborative nature of work between external and internal parties and the supporting information systems • Not widely used July 3, 2010 99

100. SIPOC (Supplier, Input, Process, Output and Customer) • Style of process documentation used in Six Sigma July 3, 2010 100

101. Systems Dynamics • Approach to understanding the behaviour of complex systems over time • Deals with internal feedback loops and time delays that affect the behaviour of the entire system • Systems Dynamics models are "activity on arrow" diagrams rather than "activity on node" diagrams • 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 July 3, 2010 101

102. Value Stream Mapping • Technique used in Lean Manufacturing • Expresses the physical environment and flow of materials and products in a manufacturing environment • Used to analyse the flow of materials and information currently required to bring a product or service July 3, 2010 102

103. Process Modelling Quality • Most process analysis and design efforts require the use of models to describe what is happening during the process • Useful to have some standards and measures of quality as it relates to process modelling • Quality of model defined by its accuracy, amount of detail and completeness • Can have multiple versions or iterations of models are created over time to capture more detail and improve the quality of the model • During the modelling of a process, several disconnections, restrictions and/or barriers may become apparent • Items should also be noted on the model as well as any other information discovered that will help create a common understanding of the current state July 3, 2010 103

104. Requirements of a Process Model • The business environment including the customers, suppliers, external events or market pressures that effect or interact with the process • The organisational structure which includes the hierarchical or functional view of the organisation and how the people work together (this information helps understand who the key decision makers are within the process) • The functional or departmental structure of the organisation which explains how the functions or departments work together in the process • The business rules which control the decisions that are made during the process and workflow • The activities or actions that take place within the process and who does those actions July 3, 2010 104

105. Model Validation and Simulation • Useful or necessary to validate the model through simulation before finalising the analysis • Validate the model through simulation is to compare simulated outputs to real-world results • Significant differences should be understood and corrected before the model is used for detailed analysis • Assemble a group of people who work in the process and simulate the process by having one person in the group describe each activity and its product(s) – Real-world participants should be able to tell if the model is accurate July 3, 2010 105

106. Modelling Perspectives • Processes can be modelled from many perspectives • In a BPM environment an organisation's strategy is enacted through process performance, which is linked to the operations model that must be supported by the information technology platform • To keep these aligned, there needs to be a line of visibility from one perspective to the other in a coherent framework, typically maintained in a process repository July 3, 2010 106

107. Modelling Perspectives Systems Operations Enterprise Business Technology Domain Domain System Build Business System Design Operations Operations Domain July 3, 2010 107

108. Modelling Perspectives • Enterprise Perspective – See how the enterprise operates overall and that the primary processes are arranged in some category that gives a sense of their interaction – View supports those who must align overall enterprise strategy with aggregated process performance

• Business Perspective – Supports each of the process owners who is accountable for and has the authority to address overall process performance – Required as the business context that describes each major business process and defines the scope and reach of major transformation efforts • Operations Perspective – More detailed models support the perspectives of those managers who are responsible for monitoring performance and look for ways to continuously improve operational performance July 3, 2010 108

109. Modelling Perspectives • System Design Perspective – Identifies how work gets done and how the systems support that work is the systems perspective – Describes requirements for systems support and performance in support of tasks and procedures • System Build Perspective – Support the individuals who have to build the system • Systems Operations Perspective – Support the individuals who have to build all of the support systems to enable work and to operate the systems that are required to continue to perform that work July 3, 2010 109

110. Levels of Models Enterprise Model Business Model Operational Model Workflow Model Systems Model Measurement and Control July 3, 2010 110

111. Enterprise Models • Typically a highly abstracted business classification model that is used to describe the focus of the organisation and to organise the business processes in an overall business architecture • Each of the high level business processes are then described in more detail by their major components (sub-processes) • An enterprise model will typically have two or more levels of detail and serve as a high level business blueprint or business architecture – May or may not include support and management processes • Processes may be mapped to Key Performance Indicators (KPIs) and strategic goals in a process portfolio and used to prioritise resources and project efforts • Can be mapped to formulate strategies for alternate future scenarios or to develop high level estimates and forecasts July 3, 2010 111

112. Business Models • Business models depict the major events, activities and results that describe each of the major end-to-end processes, their sub-processes and their interactions with their environment • Business models also typically describe the support and management processes as well and how they interact with or support the primary processes July 3, 2010 112

113. Operations and Work Flow Models • Describe how the business model is carried out • Detailed models mapped down to activity, task and procedural level details • Describe the physical implementation details of the operating processes July 3, 2010 113

114. Systems Models • Depict the triggering events, software processes, data flows and system outputs required to support business operations July 3, 2010 114

115. Measurement and Control Models • Indicate points in the operation where key performance measure and control points are monitored July 3, 2010 115

116. Modelling Approaches • Approaches to process modelling: top-down, middle-out and bottom-up • Iterative process approach where several successive passes are used to develop the model • Approach used varies depending on the purpose and the scope of the effort • Bottom-up approaches, centered on very detailed activity and task oriented work flows, work best for projects aimed at improving narrowly focused functions within a single department or operation • Top-down methods work well for projects aimed at improving and innovating large scale, end-to-end, cross-functional business processes and as a means to manage performance of these business processes – Develop a new business model first and then determine what needs to be done to be capable of its implementation – Align business processes with business strategies July 3, 2010 116

117. Capturing Information • Techniques for capturing information for process modelling – Direct Observation – Interviews – Survey/Written Feedback – Structured Workshops – Web-Based Conferencing July 3, 2010 117



**118. Direct Observation** • Good way to document current procedural detail • May uncover activities and tasks that might not be otherwise recognised • Can be effective in identifying variations and deviations that occur in day-to-day work • However limited to a relatively small sample size – 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 (Hawthorne effect) July 3, 2010 118

**119. Interviews** • Can create a sense of ownership and participation in the process of modelling and documenting business processes • Requires minimal time and disruption of normal duties from the participants • May take more overall elapsed time to schedule and conduct the interviews than other methods • May be difficult afterward to build a cohesive process flow and to map the different views into a single view – Generally requires follow up • Sometimes does not uncover all of the activities to completely describe the process July 3, 2010 119

**120. Survey/Written Feedback** • Written feedback requires minimal time and disruption of duties • Liable to the same problems as are encountered with one-on-one interviews such as – Taking more time – Missing some information – Time spent reconciling differences of opinion – Where the same work has just been described differently by different people, it may require follow up July 3, 2010 120

**121. Structured Workshops** • Focused, facilitated meetings where enough subject matter experts and stakeholders are brought together to create the model interactively • Offers the advantage of shortening the elapsed calendar time required to develop the models and gives a stronger sense of ownership to the workshop participants than other techniques • Workshops may be more costly than other methods • Models produced in workshops require less follow up and generate a commonly agreed upon description of a process faster and with higher quality than other techniques July 3, 2010 121

**122. Web-Based Conferencing** • Gain similar benefits to face-to-face workshops, but work best with smaller groups • Workshops done this way can be more difficult to monitor and manage individual participation in the group work July 3, 2010 122

**123. Modelling Participants** • Number of roles involved in developing process models due to the wide range of applicability • Models can be created by individuals expressing their personal knowledge • Models can be created by groups outlining the scope and depth of the business they are addressing – Development of process models may involve many people to create a set of models that fully represent the process • Business strategists • Business managers • Financial analysts • Auditors • Compliance analysts • Process performance analysts • Requirements analysts • Systems analysts • Business analysts • Subject matter experts depend on modelling approach – Executives expressing high level business dynamics – Mid-level managers defining monitoring and control mechanisms – Workers who actually perform the work being modelled July 3, 2010 123

**124. Modelling Techniques and Tools** • Many modelling tools and techniques available from paper to specialised BPM tools – White Boarding and Flip Charts – Paper and Post-Its – Drawing Tools and Reports – Electronic Modelling and Projection • Process analysis can be done effectively and efficiently using any type of tool – Focus of the analysis or design should be on the process and not on the tool itself July 3, 2010 124

**125. White Boarding and Flip Charts** • Draw the process flows and flip charts to capture other information • Later transcribe the results into drawing or modelling and reporting tools • Common method used in workshops, interviews or structured/facilitated modelling sessions July 3, 2010 125

**126. Paper and Post-Its** • Cover the walls of a room with taped up paper • Have workshop participants put removable sticky-notes on the paper until they have arranged the activities into the sequence on which they agree • Done either the participants directing the facilitator in the placement of these activities or the participants place the notes depicting activities • Resulting model must then be transcribed into a drawing or modelling and reporting tool later July 3, 2010 126

**127. Drawing Tools and Reports** • During or after interviews and workshops, participants capture the process flows and notes using inexpensive drawing tools, such as Visio, PowerPoint or any other electronic drawing tool July 3, 2010 127

**128. Electronic Modelling and Projection** • Use electronic drawing or modelling tools and projecting the images to large screens to capture and view the developing models • Model is visible and can be modified during the workshop • No transfer to another toolset required • Repository-based tools allow the reuse of objects or patterns that have already been defined in previous efforts July 3, 2010 128

**129. Capturing Information and Modelling Techniques and Tools** Modelling Techniques and Tools Electronic White Boarding Paper and Post- Drawing Tools Modelling and and Flip Charts Its and Reports Projection Direct Observation Interviews Techniques for Capturing Survey/Written Information Feedback Structured Workshops Web-Based Conferencing July 3, 2010 129

**130. Process Simulation** • Form of models which provide valuable insight to process dynamics • Simulations require sufficient data which typically allows the process to be mathematically simulated under various scenarios, loads, etc. • Simulations can be manual or electronic using process simulation tools • Identify exceptions and handoffs while providing important insights on existing and required communication between tasks, functional areas, teams and systems • Benefits – 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 affect on process performance – Compare performance of different process designs under the same sets of circumstances July 3, 2010 130

**131. Modelling Summary** • Process models are simplified representations of some business activity • A process model serves as a means to communicate several different aspects of a business process • Process models are used to document, analyse or design a business model • Process models are useful as documentation, a means for communication and alignment, design and requirements or a means to analyse aspects of the process, training and explanation • Different levels or perspectives of business processes are expressed by models showing different scopes and levels of detail for different audiences and purposes • There are many different styles of process modelling notation and ways to develop process models July 3, 2010 131

**132. Process Analysis** July 3, 2010 132

**133. Process Analysis** Topic Scope Process Analysis Preparing to Analysis Issues Overview of Purpose of When to Perform Process Analysis Performing the Document the Analyse and Process Analysis Process Analysis Process Analysis Roles Analysis Analysis Processes Considerations Continuous Choose the Understanding Business Monitoring Process the Unknown Environment Event-Triggered Scope the Depth Organisational Performance Analysis of Analysis Culture/Context Metrics Choose Analytical Customer Handoffs# Frameworks Interactions Business Rules Capacity Bottlenecks Variation Human Cost Involvement Process Controls Other Factors Analysing the Gathering Business Information Environment Analysing Analysing the Information Process Systems Analysing Human Interactions July 3, 2010 133

**134. Process Analysis** • Process analysis is the first step in establishing a new process or updating an existing process is creating a common understanding of the current state of the process and its alignment with the business objectives – Process is a defined set of sequential or parallel activities or behaviours to achieve a goal – Process analysis is creating an understanding of the activities of the process and measures the success of those activities in meeting the goals • Accomplished through various techniques including mapping, interviewing, simulations and various other analytical techniques and methodologies • May include a study of the business environment and factors that contribute to or interact with the

environment such as government or industry regulations, market pressures and competition July 3, 2010 134

135. Process Analysis • Other factors to be considered – The context of the business – Business strategy – Supply chain (the inputs and outputs of the process), – Customer needs – Organisational culture – Business values – How the process will perform to achieve business goals • Information gained through the analysis should be agreed upon by all those that interact with the process • Should represent what is actually happening and not what is thought or wished to be happening • Unbiased view without placing blame for existing inefficiencies July 3, 2010 135

136. Purpose of Process Analysis • Analysis generates the information necessary for the organisation to make informed decisions assessing the activities of the business – Without it, decisions are made based on opinion or intuition rather than documented, validated facts • Due to business change the processes of an organisation can quickly become inconsistent to their original design and no longer meet the needs of the business • Process analysis is an essential tool to show how well the business is meeting its objectives • Creates an understanding of how work (the transformation of inputs to outputs) happens in the organisation July 3, 2010 136

137. Purpose of Process Analysis • Analysis generates an understanding and measurement of process effectiveness and its efficiency – Effectiveness of a process is a measurement of achieving the purpose or need for the process whether the process • Meets the needs of the customer • Satisfies the objectives of the business • Is the right process for the current business environment or context • Measuring the efficiency of the process indicates the degree of resources utilised in performing the activities of the process • Measures whether the process is costly, slow, wasteful or has other deficiencies and is a measurement of the performance of the process – Uncovers important facts about how work flows in the organisation – Helps in the design and/or redesign of processes to better meet the goals of the business July 3, 2010 137

138. Purpose of Process Analysis • Information generated from analysis includes – Strategy, culture and environment of the organisation that uses the process (why the process exists) – Inputs and outputs of the process – Stakeholders, both internal and external, including suppliers, customers and their needs and expectations – Inefficiencies within the current process – Scalability of the process to meet customer demands – Business rules that control the process and why they must exist – What performance metrics should monitor the process, who is interested in those metrics and what they mean – What activities make up the process and their dependencies across departments and business functions – Improved resource utilisation – Opportunities to reduce constraints and increase capacity • Information becomes a valuable resource to management and leadership to understand how the business is functioning • Help them to make informed decisions on how to adapt to a changing environment • Ensure that the processes running the business are optimal for attaining business objectives July 3, 2010 138