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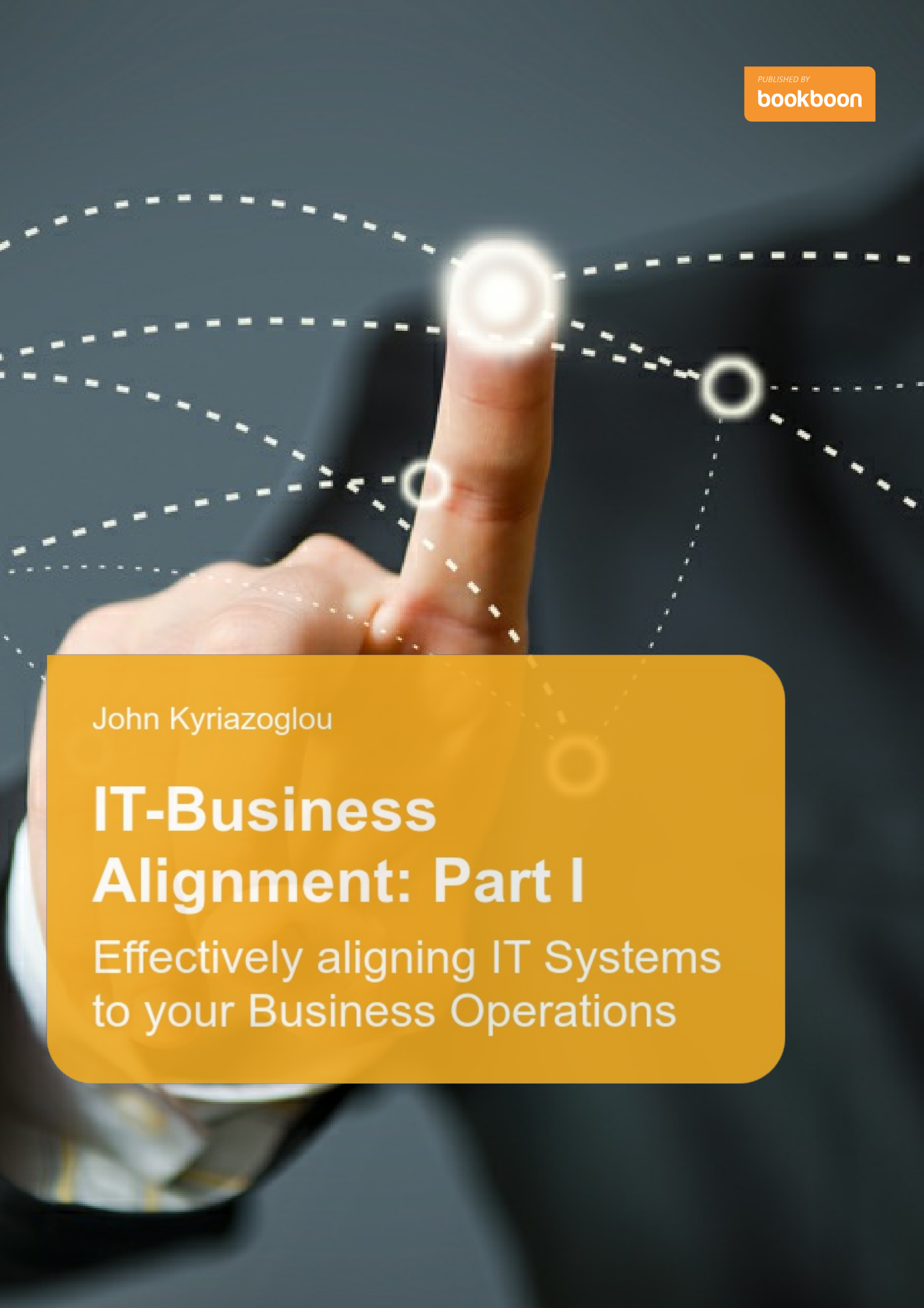

John Kyriazoglou

IT-Business Alignment: Part I

Effectively aligning IT Systems to your Business Operations

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Preface

MY CONSULTING experience has proved to me and to numerous clients and companies I have advised that **strategies** and plans, alone, are not enough in most cases in the present ever-changing and crisis-ridden environment for best business results.

Even the best designed **strategies** fail, as, for a variety of reasons they are not well communicated, aligned (e.g., business strategy has different focus than IT strategy, etc.) and supported at all levels of the business organizations.

I have also found that **IT systems**, in many business organizations (both private and public) are not well (or at all) aligned and linked to the business objectives of their company. They must (or should) exist to serve and support the specific business needs of your company, as noted in your informal or formal business strategy.

Unfortunately, they do not. Upon further analysis this is due to several reasons.

First, boards and senior executives, in quite many cases, are not IT technology-conscious or fully aware of what systems they have or what exactly these systems do.

Second, companies and public organizations are faced with demands, such as: increased societal and citizen participation, increased commitment to customer services, minimization of fraud and corruption, new compliance requirements, etc.

Both of these drive the management of companies to establish, more and more, better and more effective business controls to run their companies. These business controls relate to all areas of your company: corporate governance, risk, administration, **enterprise architecture**, strategy, finance, IT, sales, production, etc.

In other books and articles I have written before (see my blog: http://businessmanagementcontrols.blogspot.com/). I deal with the greater topics of both business controls (in a general sense for companies) and for the IT function (in particular). This book expands on the particular issue of IT alignment with your business strategy.

It deals, more specifically, with the issues of linking and aligning your IT application systems and services with your business goals to achieve your business objectives in a more effective and efficient way by the use of the Enterprise Architecture (EA) approach.

The EA approach bridges IT (systems and services) and links them to your business processes better. It also enables both of these to function as a coherent and integrated whole system to serve your business needs and expectations from deploying and operating your IT systems.

THE APPROACH I use in this book is the following:

1. **First** I outline the importance of EA for companies (Chapter 1: Why is Enterprise Architecture (EA) crucial?) while defining the term 'Enterprise Architecture' and describing the purpose and main types of EA Processes making up the EA approach (Chapter 2: Definition and Processes of the EA Approach).

2. **Next** I present in four chapters each EA process and the controls and products that make them up and deemed necessary for an effective EA implementation.
   Chapter 3 (Main Process 1 – EA Management Plan) relates to the management effort.
   Chapter 4 (Main Process 2 – EA Resources) pertains to employing human resources.
   Chapter 5 (Main Process 3 – EA Components) deals with the technical and procedural components of the EA approach.
   Chapter 6 (Main Process 4 – EA Improvement) handles issues of performance and auditing of EA implementations.

3. **Then** I expand on the benefits (real and potential) of the EA approach to your business organization (Chapter 7: Benefits of Enterprise Architecture).

4. **In my conclusion** (Chapter 8: Concluding Remarks) I present the latest data on how the enterprise architecture approach changes business management, while offering seven recommendations for more effective EA implementations.

5. **Lastly**, in Part 2 (additional volume), I present various plans, policies, checklists, EA frameworks and a case study with the purpose to support and elaborate more on the EA Approach.
   The contents of **Part 2** are:
   Appendix 1: EA POLICY
   Appendix 2: OTHER EA SUPPORT ROLES
   Appendix 3: EA Frameworks
   Appendix 4: BUSINESS PROCESS NARRATIVE
   Appendix 5: BUSINESS PLAN
   Appendix 6: Strategy Assessment Methods and Tools
   Appendix 7: Examples of Strategy, Goals and Objectives
   Appendix 8: Examples of Vision, Mission and Values
   Appendix 9: EA Checklists
   Appendix 10: EA Case Study

The material, concepts, ideas, plans, policies, procedures, forms, methods, tools, etc. presented, described and analyzed in all chapters and appendices, are for educational and training purposes only. These may be used only, possibly, as an indicative base set, and should be customized by each organization, after careful and considerable thought as to the needs and requirements of each organization, taking into effect the implications and aspects of the legal, national, religious, philosophical, cultural and social environments, and expectations, within which each organization operates and exists.

John Kyriazoglou, CICA, BA (Hons)

1 Why is Enterprise Architecture crucial?

IN MY VARIOUS international consulting assignments and projects I am often asked by senior company executives two questions.

1. *Why is enterprise architecture (EA) important in my business and my specific operating environment?*
2. *We have a business strategy, a business plan and an IT plan. Are they not enough?*

My view is that strategies and plans, alone, are not enough in most cases in the present ever-changing and crisis-ridden environment. Even the best designed strategies fail, as, for a variety of reasons they are not well communicated, aligned (e.g., business strategy has different focus than IT strategy, etc.) and supported at all levels off the business organizations.

Clearly a new approach is warranted. This is due to the ever changing environment of most modern organizations (private, public, non-profit, etc.) which is currently affected by a set of social, political, economic, technological and scientific factors and conditions at a speed not foreseen even by the best minds.

Even Alvin Toffler, the most famous futurologist did not foresee fully all the current problems (globalization, terrorism, global financial crisis, political instability, poverty, mass immigration, regional wars, etc.), and their solutions the modern nations, societies and economies are faced with and must handle effectively. This often presents new opportunities, challenges, threats and risks to all business organizations across the globe. These must be managed and resolved accordingly by all corporations and organizations, in order to keep them going to the best of their capabilities.

The solution to dealing with the uncertainty of the future is the ability to sense the oncoming needs and apply the necessary changes and business controls in the functions of the said corporations and organization for their best long-term survival.

The ability to implement all these changes can be described as 'flexibility' and is of the most strategic importance to modern organizations.

For the last three decades, many methods and approaches, such as: Business process re-design, business process improvement, organizational design strategy, outsourcing, excessive use of ready-made software packages, ERP systems, etc., have been introduced and used in order to attempt to achieve strategic flexibility for organizations. Without, however, with very much success, due to various complications and disabling factors, beyond the scope of this book.

One approach that seems to bring forth better results to managing the 'flexibility' issue is the 'Enterprise Architecture' approach according to a Forrester Survey on Enterprise Architecture (as per www.forrester.com).

ENTERPRISE ARCHITECTURE (EA) is the process of translating your business vision and strategies (both corporate and IT) into effective enterprise change by creating, communicating and improving the key requirements, principles and models that describe your enterprise's present and future state and enable its evolution by establishing and deploying IT systems.

I define 'enterprise' as a private (for profit) or public (not profit) business entity which supports a defined business scope, vision, mission and values. An enterprise includes resources (people, systems, information, data, assets, technology, equipment, processes, patents, etc.) that must be coordinated to produce products and provide services to its users (consumers, citizens, customers, etc.) and share information with its stakeholders.

I define 'architecture' as the structure of components, their interrelationships, and the principles and guidelines governing their design and evolution over time.

IN SUMMARY, EA enables linking and aligning, in a better way, corporate IT systems and services to your company business objectives by executing a set of EA processes outlined next.

2 Definition and Processes of the EA Approach

IT systems cannot exist on their own, as I find, unfortunately, in many IT consulting and audit assignments, and in quite many countries and industries. They must (or should) exist to serve the specific business needs of your company, as noted in your informal or formal business strategy.

Unfortunately, boards, in quite many cases, are not IT technology-conscious or fully aware of what systems they have or what exactly these systems do.

Enterprise architecture (approach, processes and controls) bridges these two and fuses them to function as a coherent and integrated whole system to serve your needs and expectations from deploying and operating your IT systems.

The role and purpose of Enterprise Architecture (approach, processes and controls) is to enable, facilitate and support the alignment of your IT strategy, IT and communications infrastructure and application systems (e.g., financial accounting system, payroll system, computerized manufacturing system, etc.) with your business strategy, operations and support functions of you company.

More specifically, Enterprise Architecture will ensure, enable and facilitate:

1. The establishment of the entire IT Governance framework (i.e., policies, standards, procedures, practices, methods and software to establish and manage IT hardware, systems, IT vendors and other IT-related infrastructural components of the company),
2. The good alignment between the corporate strategy and the specific IT strategy,
3. The accomplishment of the strategic goals by the provision of optimal IT services, and
4. The continuous support of your critical business functions by IT systems and infrastructure on an efficient and effective basis.

In the profession of managing organizations, the term 'enterprise architecture' refers to the art and science of designing an enterprise.

An 'enterprise' is any organized business entity engaged in the provision of goods, services, or both, to consumers, citizens, organizations, or their valid combinations, and includes organizational entities, such as:

1. **Private Sector Companies**: Small, medium or large size companies, multi-national conglomerates, private listed or not listed corporations, private for-profit organizations,

2. **Public Sector Organizations**: Public administration services, government ministries, agencies or organizations, local, provincial, territorial, or regional public government agencies or organizations, state regulatory authorities, non-profit organizations (church, professional societies, think-tanks, etc.), etc.

One formal definition (as per MIT Center for Information Systems Research: http://cisr.mit.edu/) of the architecture of an enterprise is: 'Enterprise Architecture' is the organizing logic of business processes and IT infrastructure reflecting the integration and standardization requirements of the firm's operating model'.

Another definition of an architecture used in ANSI/IEEE Standard 1471-2000 (http://standards.ieee.org/findstds/standard/1471-2000.html) is: 'the fundamental organization of a system, embodied in its components, their relationships to each other and the environment, and the principles governing its design and evolution.'

The most comprehensive definition, probably, of enterprise architecture is offered by IFEAD (Institute for Enterprise Architecture Developments):

'Enterprise Architecture is a complex expression of the enterprise; A master plan which acts as a collaboration force between aspects of business planning such as goals, visions, strategies and governance principles; Aspects of business operations such as business terms, organization structures, processes and data; Aspects of automation such as Information Systems and Data Bases; and the enabling technological infrastructure of the business such as computers, operating systems and networks'.

This definition by IFEAD with the addition of performance management, system development methodologies, and other strategic management and audit tools has been used in various consulting projects by the author and other professionals very successfully.

I think of enterprise architecture as part of the management function of control. The other managerial functions are usually considered to be planning, organizing, staffing and directing.

Control is an important function because it helps to check the errors and to take the corrective action so that deviation from standards are minimized and stated goals of the organization are achieved in a desired manner. According to modern concepts, control is a foreseeing action whereas earlier concept of control was used only when errors were detected.

The current concept of control I have used in various assignments in management means setting standards, linking systems and processes to business functions, measuring actual performance and taking corrective action.

The Enterprise Architecture (approach, processes, controls) enables, facilitates and achieves the required linking and alignment of the company's IT systems to its business objectives, and validates the company's IT strategy.

Establishing the Enterprise Architecture (approach, processes, controls) should be done by your authorized business management and staff (e.g., Enterprise Architecture Coordinator and his team), reviewed by the corporate and IT strategic committees and ratified by the board. Also various EA – related checklists may be used to support the design, implementation and post-implementation review of the enterprise architecture controls for the specific organization (see later for more details).

The main processes of Enterprise Architecture (EA) are:

MAIN PROCESS 1. Establish and execute your EA management plan (chapter 3).
MAIN PROCESS 2. Obtain and employ the proper resources (chapter 4).
MAIN PROCESS 3. Establish and administer the technical components (chapter 5).
MAIN PROCESS 4. Review and improve your EA implementation (chapter 6).

Each of these processes consists of several controls. These are noted in the description of each EA process.

ALL THESE EA processes are necessary to enable linking and aligning, in a better way, your corporate IT systems and services to your company business objectives.

3 Main Process 1 – EA Management Plan

This is the first process of the EA approach you can use to implement enterprise architecture for your business. This **EA process and the management steps and actions it contains comprise the first things you need to do to start** linking and aligning, in a better way, your corporate IT systems and services to your company business objectives.

The controls supporting this process are identified in each step of the plan described next.

You should note that an enterprise architecture (EA) approach is a conceptual approach that assists your organization with the understanding of your own business structure and the way your functions work. It provides a map of your enterprise and is a route planner for your business and technology change. Normally an enterprise architecture takes the form of a comprehensive set of cohesive models that describe the structure and the functions of your company.

This can only be achieved in an organized, systematic, effective and efficient manner by an enterprise architecture (EA) management plan.

I have used the following 12-step plan in various EA consulting assignments and projects quite effectively (see also case study in Appendix 10 in the second part of this book (**IT-BUSINESS ALIGNMENT: Part 2**)). This approach has given my customers the results and value of EA and the IT-Business alignment they expected. You may, of course, customize it to fit your business purposes. For a much more sophisticated approach, see: http://www.gao.gov/assets/590/588407.pdf).

You must remember that your own plan should examine all perspectives pertaining to an effective EA framework implementation: business processes, management, culture, technical, human, project management, training and awareness.

My own, practical and results-oriented version of an EA plan is presented next.

EA management plan

Step 1. Conduct EA Preliminary Study

Activity 1. Appoint an external consultant or internal corporate officer to carry out the activities of this step.

Activity 2. Carry out a requirements analysis. This should include a 'Gap Analysis' identifying:

1. Whether your current company's IT systems and services are aligned with your company's business strategy, functions, processes and model.
2. How well your company's IT systems and services satisfy the business needs and demands of your company's critical decision makers.
3. What new IT systems and services are required to satisfy the business needs and demands of your company's future business model and compete better in an ever-changing corporate environment.

Activity 3. Prepare a feasibility study that includes a list of EA demands and expectations and a preliminary budget, focusing on critical areas of business processes, information and data, and technology.

Activity 4. Review and obtain approval of the feasibility study and the budget for the EA implementation**.** Transfer the whole project to the EA team (identified in next step).

All the following steps are carried out by the EA team with involvement by senior management, board and other resources (IT, audit, etc.), as identified in each EA process (see following chapters). Details about the responsibilities of all resources related to the EA effort are described in chapter 6 (Process 2 – EA Resources).

The end result (product) of this step is your approved **'EA Feasibility Study** (**Process 1 – Control 1**)**'.**

Step 2. Set up EA Organization

Activity 1. Craft and communicate an EA policy (**Process 1 – Control 2**).

An EA policy is required to govern the development, implementation, and maintenance aspects of your company's EA. The EA policy should be approved by the IT Committee or the CIO and should be ratified by the board.

*For an example see '**Appendix 1: EA Policy**' in the second part of this book* (***IT-BUSINESS ALIGNMENT: Part 2***).

Activity 2. Form an Enterprise Architecture (EA) Team by selecting an EA coordinator and the other required EA and support staff, and appointing them on a formal basis, and with a charter and specific time-table, approved budget and responsibilities. Details about the responsibilities of all EA-related resources are described in chapter 4 (Process 2 – EA Resources).

The end result (products) of this step is your 'EA Policy', 'EA Organization (**Process 1 – Control 3**)' and 'EA Budget (**Process 1 – Control 4**)'.

Step 3. Commit EA Users

Activity 1. Identify senior business and IT (technical) executives to gather knowledge about the strategic and operational needs and requirements of the organization.

Activity 2. Obtain their commitment on EA implementation.

More details are also described in chapter 4 (Process 2 – EA Resources).

These are carried out by the EA team. Details about the responsibilities of all EA-related resources are described in chapter 6 (Process 2 – EA Resources). The end result (product) of this step is your 'List of EA Participating Managers (**Process 1 – Control 5**)'.

Step 4. Develop EA Communication

Activity 1. Devise an EA communication plan with relevant methods, tools and services.

Activity 2. Execute your EA communication plan by ensuring that all parties in the EA effort are well aware of what is required during the EA process.

These are carried out by the EA team. Details about the responsibilities of all EA-related resources are described in chapter 4 (Process 2 – EA Resources).

The end result (product) of this step is your **'EA Communication Plan** (**Process 1 – Control 6)'.**

Step 5. Document EA Demands Documentation

Activity 1. Review all your business EA demands and expectations, focusing on critical areas of business processes, information and data, and technology.

Activity 2. Document all your business EA demands and expectations. More details about these activities are described in chapter 5 (Process 3 – EA Components).

The end result (product) of this step is your '**EA Requirements Study** (**Process 1 – Control 7**)'.

Step 6. Select EA Framework

Activity 1. Firstly, study the existing standards and the business and industry environments in which your particular organization operates. Such an EA standard is the ISO 19439:2006 Enterprise Integration Framework. This is an international standard for enterprise modelling and enterprise integration developed by the International Organization for Standardization. It specifies a framework conforming to requirements of ISO 15704, which serves as a common basis to identify and coordinate standards development for modelling of enterprises, emphasising, but not restricted to, computer integrated manufacturing.

Secondly, examine the alternate EA frameworks in the market (see also chapter 5 and Part 2 of this book-additional volume) and record your results.

Activity 2. Evaluate and select an EA Framework (**Process 1 – Control 8**) by using EA Framework Checklists (see Part 2 of this book-additional volume).

Activity 3. Obtain an EA framework and the associated methods and tools by following the procurement procedures of the organization, and trying the selected EA. More details about these activities are described in chapter 5 (Process 3 – EA Components).

The end result (products) of this step is your installed and tested **EA Framework**, tools and repository.

Step 7. Define Current Business Model

Activity 1. Define the 'as-is' model (**Process 1 – Control 9**) of your organization in terms of:

a) The business model, processes and data of your company,
b) Your customers, products and services offered,
c) Your financing sources,
d) The applications (e.g., financial accounting system, payroll system, computerized manufacturing system, etc.) supporting your business objectives,
e) The system development methodology your IT is using,
f) The way your IT systems support your business processes, and
g) Your IT infrastructure.

Activity 2. Use the Enterprise Architecture Repository to record all data and findings. More details about these activities are described in chapter 5 (Process 3 – EA Components).

The end result (products) of this step is your '**As-is business model**' and an updated repository.

Step 8. Develop Changes to the Current Business Model

Activity 1. Identify desired and necessary enhancements to the current business model.

Activity 2. Obtain approvals from senior management.

Activity 3. Use the Enterprise Architecture Repository (see chapter 5) to record all data and findings.

More details about these activities are described in chapter 5 (Process 3 – EA Components).

The end result (product) of this step is your '**Current Business Model Changes** (**Process 1 – Control 10**)'.

Step 9. Document Future Business Model

Activity 1. Define the 'to-be' model (**Process 1 – Control 11**) of your business organization in terms of:

a) Your future business model,
b) The processes, data, customers, products and services offered to support this model,
c) The financing sources required to support the new model,
d) The IT resources required (applications, system development methodology, IT controls, IT staff, etc.) to enable and support the business processes of the new model.

See also chapter 5 for the description of formulating and documenting the enterprise architecture components for your business.

Activity 2. Use the Enterprise Architecture Repository to record all data and findings. More details about these activities are described in chapter 5 (Process 3 – EA Components).

The end results (products) of this step are: (a) Your 'To-be business model', (b) An updated repository, (c) A set of changes to your existing IT systems, and (d) A list of new systems to be purchased from the market or developed from within.

Step 10. Craft EA Implementation Plan

Activity 1. Formulate the EA implementation plan (**Process 1 – Control 12**) (project team, risks, time-table, resources, tools, technologies, change plan, etc.).

Activity 2. Make everyone aware of its purpose by execution the EA communication plan (see step 4 above).

Activity 3. Consider specific actions to examine and prepare to address all perspectives pertaining to an effective EA framework implementation: management, culture, technical, human, project management, training and awareness.

Activity 4. Also prepare a plan to migrate and incorporate each IT application system into the integrated EA process.

Activity 5. Establish EA administration procedures to control security access, backup and manage all elements of EA (software, tools, data, etc.).

More details about these activities are described in chapter 5 (Process 3 – EA Components). The end results (products) of this step are:

a) Your '**EA Implementation Plan** (**Process 1 – Control 13**)',
b) Your '**IT Systems Migration Plan** (**Process 1- Control 14**)',
c) A **risk mitigation plan** (**Process 1 – Control 15**),
d) A **quality assurance plan** (**Process 1 – Control 16**),
e) A **budget** (**Process 1 – Control 17**) for the procurement of your new IT systems (see step 9), and
f) Your '**EA Administration Procedures** (**Process 1 – Control 18**)'.

Step 11. Execute EA Plan

Activity 1. Execute the EA implementation plan by installing EA system, EA software tools, populating EA asset repository, implementing key EA technologies.

Activity 2. Carry out training (**Process 1 – Control 19**) of all participants (board members, senior executives, EA support staff, etc.).

Activity 3. Incorporate each IT application system into the integrated EA process according to the implementation plan (see step 10), etc. More details about these activities are described in chapter 5 (Process 3 – EA Components).

The end results (products) of this step are your **EA Framework, tools and repository** in full production status.

Step 12. Monitor, Review and Improve EA Process

Activity 1. Monitor the execution of the EA implementation plan and the operation of EA administration procedures.

Activity 2. Review and communicate the EA results to all stakeholders.

Activity 3. Monitor changes and progress.

Activity 4. Assess, review and improve process.

Activity 5. Manage EA environment, including performing audit reviews of EA components and process, etc. More details about these activities are described in chapter 6 (Process 4 – EA Improvement).

The end result (product) of this step is your '**EA Improvements Study** (**Process 1 – Control 20**)'.

IN CONCLUSION, as I noted above you may amend this to suit your purposes. Other consultants I know have also used a similar plan. What is important is that you are purpose-driven (teleological in an Aristotelian sense according to Aristotle's saying 'every art and every scientific inquiry, and similarly every action and purpose, may be said to aim at some good') and disciplined in your approach so that you have practical results and good benefits to your company.

Do not be blind. Plan well and execute with diligence, without forgetting to always evaluate how you are getting along and making all the necessary improvements to get your EA job done.

4 Main Process 2 – EA Resources

This is the second process of the EA approach you can use to implement enterprise architecture for your business. This **EA process and the management actions it contains comprise the second things you need to do to continue** linking and aligning your corporate IT systems and services to your company business objectives. The controls enabling and supporting this process are identified in each management function and other roles described next.

In the previous chapter I described a generic Management Plan for Designing and Implementing an EA Framework for your business.

But we should not forget that you also need to have dedicated people to develop and support your EA effort (see also previous chapter, step 2: EA organization of the 'management plan for designing and implementing an EA framework').

This step and the activities it contains (craft and communicate an EA policy, form an Enterprise Architecture (EA) Team, etc.) are required for creating effective enterprise architecture solutions for your company.

More specifically the establishment of your Enterprise Architecture (EA) Team requires the careful execution and effective management and fruitful use of several roles by a set of specific personnel of your company, such as:

1. Management and Board,
2. Enterprise Architecture Coordinator,
3. Enterprise Architect,
4. Technical Architect,
5. Other typical IT staff, and
6. The application of segregation of duties controls.

These personnel roles are expressed in job duties and responsibilities and are recorded in a formal job description. Job Descriptions are usually written statements that describe the duties and responsibilities, the most important results needed to be performed, the required skills and qualifications, the reporting relationships, and the specific management activities of the position. These personnel roles, job duties and responsibilities relevant to your EA efforts are detailed next.

Management and Board Roles

It is common practice complemented by my experience, albeit sometimes forgotten with disastrous results, that Management and boards need to be involved in EA efforts.

Managers (**Process 2 – Control 1**), regardless of their level in the hierarchy of the organization, are directly responsible for all activities of an organization, including: Directing, designing, developing, implementing, supervising, monitoring and controlling the proper functioning of, and maintaining, documenting and improving the internal control system.

Their specific role and responsibilities vary depending on their function in the organization and the given organization's characteristics, country, culture, industry-type, and other socio-economic factors and conditions. In terms of enterprise architecture they:

1. Set up the EA team,
2. Plan and develop EA systems and procedures to improve the operating quality and efficiency of the EA process,
3. Approve and monitor the execution of the EA implementation plan,
4. Apply segregation of duties controls on all EA staff, and
5. Monitor, review and improve the whole EA process.

The role and the responsibilities of the board of directors (**Process 2 – Control 2**), in general terms, are:

a) To guide the establishment of the internal control framework, system, environment and process and ensure that this control system operates effectively and efficiently, and
b) To ensure that an effective internal controls system is monitored, reviewed and improved accordingly.

In terms of enterprise architecture they:

1. Guide the EA team,
2. Sponsor, approve and monitor the execution of the EA implementation plan,
3. Oversee the application of segregation of duties controls on all EA staff by management, and
4. Ensure that the whole EA process functions for the benefit of their company.

You, as a manager charged with EA implementation, must not be afraid to get them involved as you need their support and sponsoring both when things go well and most definitely when things do not go as you may have planned. In addition, you must not forget that you need other support roles (e.g. Enterprise Architecture Coordinator, Enterprise Architect, etc.) that are also deemed necessary for an effective EA project, as presented next.

Enterprise Architecture Coordinator (EAC)

The EAC (**Process 2** – **Control 3**) is responsible for establishing the enterprise architecture (EA) team and acting as its main co-ordinator, guide and coach in the project of designing, developing and implementing an enterprise architecture for your specific organization. The specific duties and responsibilities of an EAC include, as an example:

a) Selection of the staff and organizing the EA team,
b) Analysis and assessment of how IT serves the needs of your company,
c) Defining the scope of work of the EA team,
d) Co-ordination of the team in its EA tasks, meetings, and daily activities,
e) Obtaining other IT and business personnel to support the EA efforts and team,
f) Supervising all EA activities of the EA team,
g) Reporting and communicating on the performance of the EA project to higher management and getting their support and guidance on resolving the reported issues, and
h) Managing the EA and other staff as regards the EA project, and all its activities.

Enterprise Architect

The enterprise architect (**Process 2** – **Control 4**) links, under the guidance and supervision of the EAC, the corporate vision, mission, values, strategy and processes of your company to its IT strategy. This person also documents this by the use of multiple architectural views that depict how the current and future needs of an organization will be met in an effective and efficient manner.

Other duties may also include:

a) Responsibility for the company's long-term EA strategy and its links to IT strategy, IT systems and infrastructure,
b) Supporting the company's long-term strategic goals and objectives in relation to EA, and
c) Ensuring alignment of all EA components to the company business strategy, IT strategy and detail project development action plans.

Technical Architect

The technical architect (**Process 2** – **Control 5**), under the guidance and supervision of the EAC:

a) Supports the EA development methodology and recommends improvements, as needed,
b) Identifies requirements, defines, analyzes, and reviews software architecture specifications,
c) participates in the definition, design, and review activities of software enterprise architecture design, enterprise architecture application frameworks, and enterprise architecture interfaces, and (d) supports the EA team in various technical implementation tasks such as security, data base design, testing, and problem debugging and resolution.

Other Roles

Besides the Enterprise Architecture support roles noted above, and depending on the scope and coverage of IT operations of your company, you may need to involve, in your EA project, other support roles, such as: Corporate Quality Assurance Manager, Corporate Risk Manager, Business Process Experts, etc.

*For an example see '**Appendix 2: Other EA Support Roles**' in the second part of this book (**IT-BUSINESS ALIGNMENT: Part 2**).*

Segregation of duties controls

Why do you need segregation of duties controls (**Process 2** – **Control 6**) in business operations?
The typical answer is to avoid potential fraud, minimize errors in updating files and systems and ensure that all management control of an operational process is not the complete responsibility of one person, and therefore subject to all kinds of risks.

In my view and in the view of other business consultants, segregation of duties (SOD) is a very critical corporate governance mechanism.

It involves assigning specific responsibilities for certain key duties between board members, directors, managers and other individuals of your business. This means that each individual's responsibility is well within the moral and operating bounds of both the organization and society. Also not conflicting with but contributing to the organization's goals and objectives.

In segregating duties, no employee should be responsible for two or more of the following four activities in each business process, in general terms, of record keeping, authorization of transactions, asset custody and reconciliation of transactions and activities.

In EA implementations and to maintain proper SOD, no employee should be responsible for two or more of the following four activities in each business process of enterprise architecture administration:

1. **Record Keeping**: Creating and maintaining your company's enterprise architecture framework and repository, including updating manual files, computerized EA repository transactions, etc.
2. **Authorization**: Reviewing and approving your EA transactions (payments to EA vendors, issuing purchase orders for EA software tools, etc.).
3. **Asset custody**: Managing, accessing and controlling your company's enterprise architecture repository, including implementing software changes to this system, managing backup copies of data contained in this, etc.
4. **Reconciliation**: Executing assurance processes to confirm that your EA operations, transactions and activities are proper (valid, accurately reported, in compliance with rules and regulations) and are aligned with other IT systems of your company.

THE OVERALL MAIN POINT I am making here is that, besides an external consultant to provide you with adequate expertise (which you may need or not), you also must have:

1. All the above noted roles: Board, management and technical,
2. The application of segregation of duties, and
3. Your EA staff certified in the specific EA software systems implemented.

These are required to execute and drive your EA project to full fruition. It is entirely up to you how you apply these roles in your specific business environment.

5 Main Process 3 – EA Components

This is the third process of the EA approach you can use to implement enterprise architecture for your business.

This **EA process and the management actions it contains comprise the third things you need to do to complete** linking and aligning your corporate IT systems and services to your company business objectives, in accordance with your **EA management plan** (see the specific steps of this plan in chapter 3).

The controls enabling and supporting this process are identified in each EA component described next.

In previous chapters I described a generic Management Plan and the required resources for Designing and Implementing an EA for your business. In this chapter I will present a way to document your enterprise architecture components and provide examples of strategic statements (vision, mission, goals and objectives) so that I can elaborate better on how EA fits in a business environment.

As enterprise architecture is directly related to specialized technology issues you also need a set of **EA technical and procedural components** to implement the EA for your business, in the best possible way.

These are detailed next.

EA Technical Components

The EA technical components required for an EA implementation are the following:

1. Enterprise Architecture Framework
2. Organizational Structure
3. Business Operating Model of the Organization
4. Business Process Narratives and IT infrastructure
5. Business Strategic Goals
6. Mission, Vision and Values Statements
7. Enterprise Architecture Repository (EAR)
8. Other EA Business Related Controls.

FIRST EA technical component: EA Framework

An EA framework is your first EA technical component.

I am often asked 'Why do you need an architecture framework'? My answer is that you need it because it is the basis which all other components require so that your EA is implemented successfully.

You cannot establish an enterprise architecture and derive its benefits for your company without using a standard-industry framework. All the other enterprise architecture components are based on this. It is my experience that you cannot develop your own, as this exercise, to say the least, will prove to be not only too costly but also have inconclusive results.

The best way is not to develop an **enterprise architecture framework (Process 3 – Control 1)** yourself, but get and use an industry-standard EA framework. And this is because you want to assure both yourself and your company (board, senior management) that what has worked for others it will also work for you. In other words industry-standard EA frameworks provide you with added confidence in your search for an effective EA solution.

The most common industry-standard EA Frameworks are:

a) The Zachman Framework,
b) The Open Group Architecture Framework (TOGAF),
c) Enterprise Architecture Body of Knowledge (EABOK),

d) Generalized Enterprise Reference Architecture and Methodology (GERAM),
e) Reference Model of Open Distributed Processing (RM-ODP),
f) The CIMOSA Framework,
g) The Federal Enterprise Architecture (FEA) Framework,
h) Other Government Enterprise Architecture Frameworks,
i) ITIL Enterprise Architecture Framework, and
j) Microsoft Enterprise Architecture Framework.

*Also all of these frameworks are described in summary in **Appendix 3** in the second part of this book (**IT-BUSINESS ALIGNMENT: Part 2**).*

In conclusion, most EA frameworks offer more or less a similar structure or conceptual layers. What is important for you is to select one that you can easily use and benefit from.

Once you become familiar with industry-standard enterprise architecture frameworks (as briefly noted before) you need to select one to fit your purposes. You may follow the plan presented in the next paragraphs.

Establishing your Enterprise Architecture Framework

You may review several industry-standard enterprise architecture frameworks (as noted before) and select one to fit your purposes.

To evaluate, select, establish and implement your EA framework you may use the management plan described in chapter 5, and follow:

1. Step 6 (select an EA framework),
2. Step 10 (Craft EA Implementation Plan),
3. Step 11 (EA Execution) and
4. Step 12 (Monitor, Review and Improve EA Process).

It is the responsibility of the board to:

a) Ensure that the senior management of their business organization appoint and authorize one or more officers to select an enterprise architecture framework,
b) Obtain the necessary expertise and required tools, and
c) Set up the enterprise architecture process, and
d) Validate that the best and most effective EA implementation for their company is carried out.

SECOND EA technical component: Organizational Structure

Organizational structure is your second enterprise architectural component. You cannot have your company, regardless of its size and type without a formal or informal organizational structure **(Process 3 – Control 2)**.

It is an absolute must. It is my professional experience that all companies (small, medium and large) usually design their organizational structure in such a way that suits them and works best for them.

Most of them usually follow the basis of what other similar entities would. Such organizations and companies might be Government Ministries, Local or regional authorities, private corporations, etc.

All of these have their own hierarchical structures, such as: Board of Directors or Executive Committee, CEO (or Secretary, or Vice-minister, in charge of government function), Vice Presidents (or General Directors), Corporate Committees, Lawyers, Auditors, Other Professionals, Decision Support Staff, Management, and Employees. The details of your company organizational structure should be recorded in your enterprise architecture repository (see enterprise architectural component 7 in this section).

The point I would like to make here is that your enterprise architecture (EA) team will have to work within the structure of your business organization for which it develops its enterprise architecture. You cannot have and operate an enterprise architecture in a vacuum. Unfortunately I have seen multiple examples of these. You must be, therefore, careful that this is not your case.

THIRD EA technical component: Business Model

Business operating model is your third enterprise architectural component. You cannot also operate your company, regardless of its size and type without a formal or informal business operating model **(Process 3 – Control 3)**. It is an absolute must. It is my professional experience that if your company has an effective business operating model, well communicated and supported by all your stakeholders (board, management, staff, regulators, customers, etc.) you will be successful in the long run.

An enterprise or business operating model for your company is a representation of the structure, activities, processes, information, resources, people, behaviour, strategic goals, and constraints of your business.

This is usually depicted in a diagram, which is supported by narrative text, showing the operating units of the organization, the relationships between these operating units or business functions, the external interfaces, the company stakeholders, the production process, products and services offered, and the decision and process flows between these units or functions.

The details of your business operating model should be recorded in your enterprise architecture repository (see enterprise architectural component 7 in this chapter).

The EA team will study this model, if it exists, or will have to create it from scratch, if it does not exist.

FOURTH EA technical component: Business Process Narratives and IT infrastructure

Business process narratives and IT infrastructure is your fourth enterprise architectural component. I have seen and audited several organizations (both public and private) that did not have their business processes documented and did not know, in a holistic way how their IT systems served their detail business processes. This leads to all kinds of potential deficiencies and errors. This can be remedied by the use of business process narratives.

Business Process Narratives document **(Process 3 – Control 4)** all the processing logic for your business transactions. These narratives are also documented in the form of diagrams and are complemented by formal policies, procedures and forms. IT infrastructure relates to your information flows, IT systems and services provided, descriptions of operating system, networks, data base management software, buildings, equipment, etc., security and IT Asset Management.

You can obtain the details of your business process narratives and IT infrastructure **(Process 3 – Control 5)** by reviewing the company's corporate policies and procedures manuals and the IT documentation (vendor manuals, vendor invoices, purchase orders, IT assets register, application systems manuals, etc.). These should be recorded in your enterprise architecture repository (see enterprise architectural component 7 in this section).

*For an example of a business process narrative see '**Appendix 4: BUSINESS PROCESS NARRATIVE**' in the second part of this book (**IT-BUSINESS ALIGNMENT: Part 2**).*

The EA team will study all business process narratives, if they exist, or will have to create them from scratch, if they do not exist. In the second case other staff (IT, business users, etc.) will have to be involved as well and the EA project will definitely prolong, in most cases.

FIFTH EA technical component: Business Strategic Goals

Business strategic goals is your fifth enterprise architectural component. Business strategic goals **(Process 3 – Control 6)**, objectives **(Process 3 – Control 7)**, strategy statements **(Process 3 – Control 8)** and vision **(Process 3 – Control 9)**, mission **(Process 3 – Control 10)** and values statements **(Process 3 – Control 11)** (along with other information) are usually part of a formal 'Business Strategy' document or Plan.

*For an example of a business plan see '**Appendix 5: BUSINESS PLAN**' in the second part of this book (**IT-BUSINESS ALIGNMENT: Part 2**).*

Unfortunately I have seen many business strategies without specific goals and objectives. My consulting practice has shown me that this is not very effective and does not provide you with the results you expect. You must have goals and objectives to drive your company and your people forward.

There are many approaches to formulating business strategic goals, strategies and objectives, such as: SWOT analysis, Portfolio analysis, Scenario planning, etc.

*For a description of these see '**APPENDIX 6: STRATEGY ASSESSMENT METHODS AND TOOLS**' in the second part of this book (**IT-BUSINESS ALIGNMENT: Part 2**).*

Goals are typically timeless and less specific.

Objectives are more specific and for a given time period. Also all these must be funded via a budget.

The details of your business strategic goals and objectives should be recorded in your enterprise architecture repository (see enterprise architectural component 7 in this section).

*For an example of these see '**Appendix 7: EXAMPLES OF STRATEGY, GOALS AND OBJECTIVES**' in the second part of this book (**IT-BUSINESS ALIGNMENT: Part 2**).*

The EA team will study them, if they exist, or will have to create them from scratch, if they do not exist. In the second case other staff (IT, business users, etc.) will have to be involved as well and the EA project will definitely prolong, in most cases.

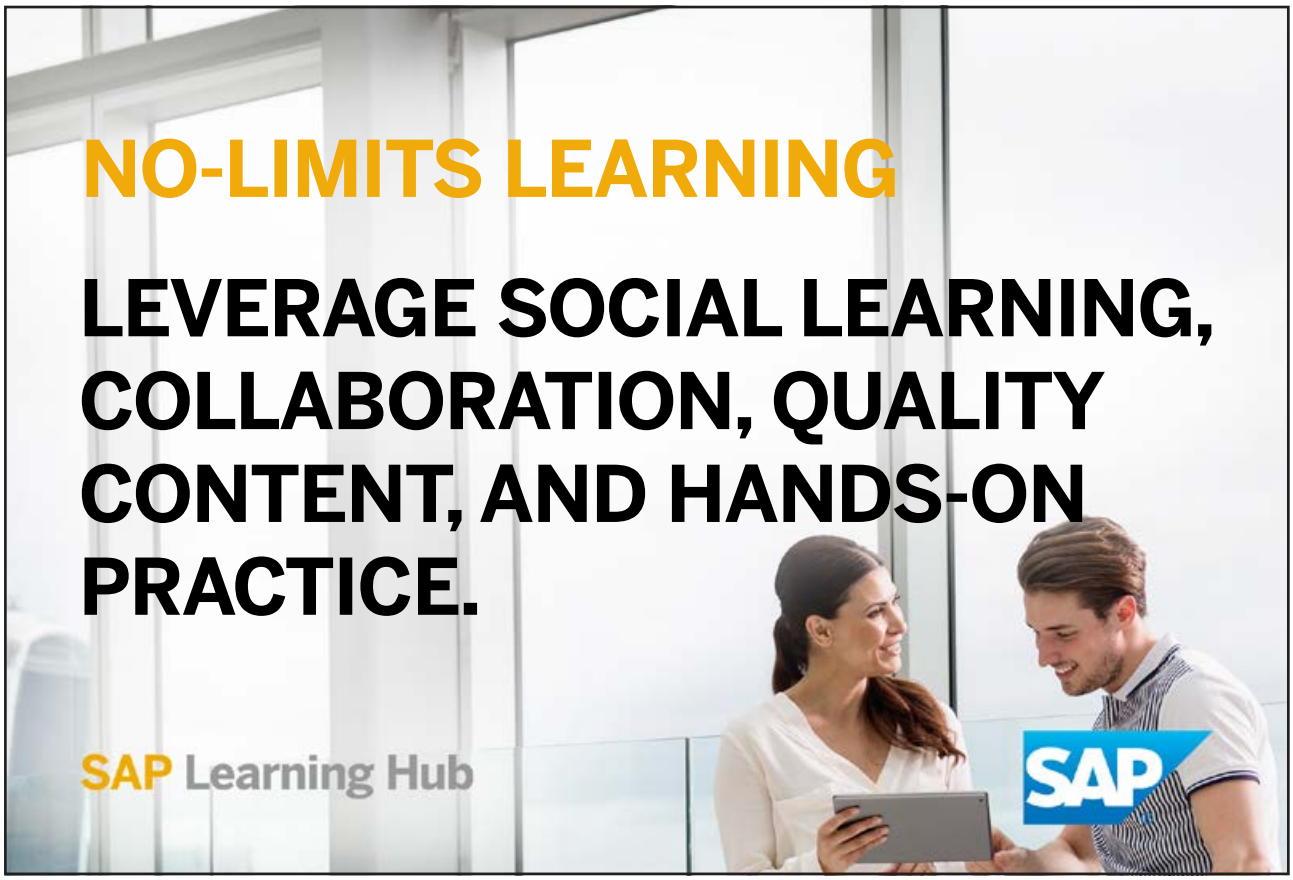
SIXTH EA technical component: Mission, Vision and Values Statements

Mission, vision and values statements make up your sixth enterprise architectural component.

Your mission statement is like an introductory paragraph: it lets the reader know where your company is going, and it also shows that the writer knows where he or she is going.

A mission statement typically describes your organization in terms of its purpose (why the organization exists, and what it seeks to accomplish), business (the main method or activity through which the organization tries it fulfil this purpose), and values (the principles or beliefs that guide an organization's members as they pursue the organization's purpose). A good mission gives answers to the questions, such as:

1. 'Who are we'?



2. 'What social or political needs do we exist to meet'?
3. 'What problems do we exist to resolve'?
4. 'How do we respond to our key stakeholders'?
5. 'How do we resolve social or other problems'?
6. 'What is our guiding philosophy or culture'?
7. 'What makes us unique or distinctive'?

Whereas your mission statement summarizes the what, how, and why of your organization's work, a vision statement presents an image of what success will look like.

The values statement (as per www.franklincovey.com) provides the guiding principles to enable both the mission and the vision to be realized. The details of your company's vision, mission and values statements should be recorded in your enterprise architecture repository (see enterprise architectural component 7 in this section).

*For an example of these see '**Appendix 8: EXAMPLES OF VISION, MISSION AND VALUES**' in the second part of this book (**IT-BUSINESS ALIGNMENT: Part 2**).*

The EA team will study them, if they exist, or will have to create them from scratch, if they do not exist. In the second case other staff (IT, business users, etc.) will have to be involved as well and the EA project will definitely prolong, in most cases.

SEVENTH EA technical component: Enterprise Architecture Repository (EAR)

The Enterprise Architecture Repository (Process 3 – Control 12) is your seventh enterprise architectural component. I am often asked why do we need an enterprise architecture repository (EAR)?

My experience has been that the documentation of business processes, policies, procedures and applications systems is the weak point, and in many cases they exist in the original form not updated for several years, or documented partly.

I consider this weakness to be almost similar to an Achilles' heel (see the ancient Greek myth), this being an almost deadly weakness in spite of the apparent overall strength of corporate manuals and IT systems, that can potentially lead to a disastrous downfall, in case of failures or other unforeseen contingencies.

As one can easily guess the most valuable assets of any 21st century business organization are often not its land, equipment or other assets (people, etc., even though people, for example, are very critical to any business operation). The most important assets are its business processes, IT applications, and data, which can represent an investment of several millions of dollars (or euros, etc.).

Without adequate and well-maintained documentation the business is running a major risk that can lead to tremendous financial and other corporate losses (brand name, reputation, position in the market, etc.).

Also all of the above enterprise architecture components (EA framework, Organizational structure, Business operating model, Business process narratives and IT infrastructure, Business strategic goals and objectives, Mission, Vision and Values Statements) are not good unless they are well communicated and properly maintained. This is minimized and improved by the use and effective maintenance of your EAR.

The Enterprise Architecture Repository (EAR) is a web-based enterprise architecture knowledge repository solution that provides knowledge and related information to several parties. These parties are: top executives, managers, staff and authorized suppliers and system development contractors, and other external authorized parties. The purpose of the information provided relates to access of the EAR for the design, documentation, capture, viewing and collaboration on all the elements and information (including models, etc.) that define and describe the enterprise architecture of your specific organization.

The typical EAR contains the following information on the enterprise architecture specifics[38] of the organization, such as:

1. Technical parameters and details on establishing your EA (software) solution (see also enterprise architectural components 1 above).
1. Strategic Initiatives (descriptions of organizational structure, business operating model, vision, mission, goals, initiatives, performance measures, etc. See also enterprise architectural components 2, 3, 5 and 6 above),
2. Stakeholders (descriptions of internal and external customers, regulatory authorities, government auditors, external auditors, etc. See also enterprise architectural component 2 and 3 above),
3. Business Processes (descriptions of lines of business, investment portfolio, IT projects, business processes, etc. See also enterprise architectural component 4 above),
4. Information Flows (descriptions of knowledge warehouse, data flows, data dictionary, etc. See also enterprise architectural component 4 above),
5. Systems and Services (descriptions of IT Strategy, IT continuity, IT systems and services provided, front office systems, back office systems, e-mail and web systems, data bases, etc. See also enterprise architectural component 4 above),
6. Technology Infrastructure (descriptions of operating system, networks, data base management software, buildings, equipment, etc. See also enterprise architectural component 4 above),
7. Security (descriptions of security policies, data privacy rules, procedures, monitoring mechanisms, logging, etc. See also enterprise architectural component 4 above), and

8. IT Asset Management (descriptions of IT inventory items: hardware, systems, etc., IT asset disposition policy, etc. See also enterprise architectural component 4 above).

Your EA team will use the EAR to document all the required enterprise architecture information, so that all the recorded architectural components are used by all authorized users in the strategic projects and development efforts, of your specific organization.

EIGHTH EA technical component: Other EA Business Related Controls

EA cannot and should not exist on its own.

I addition to the above described enterprise architectural components, you need, in order to have better chances at success in your EA effort, the effective operation of the other main business controls **(Process 3 – Control 13)** of your company.

These support your EA and relate to: Corporate Governance Controls, Administration Controls, Financial Management Controls, Production or Output Controls, and IT Controls. For more details see my books listed at the end of this book.

These are usually recorded in corporate, financial, production and IT manuals containing strategic statements, policies, procedures, practices, application systems documentation, and other controls (e.g. segregation of duties).

These are beyond the scope of this book and will not be discussed further.

Your EA team, however, will need to analyze all the information, policies, controls, and procedures contained in these manuals, and record in the EAR, whatever information is required. For example details of financial computerized system included in the IT application system manual, etc.

EA Procedural Components

In addition to the EA technical components (described previously), the following EA procedural components are also required for an EA implementation:

1. EA Installation Procedure
2. EA Procurement Procedure
3. EA Security Procedure
4. EA Backup Procedure
5. EA Maintenance Procedure

Once you have implemented your EA (framework, software, tools, repository, etc.), according to step 10 (Craft EA Implementation Plan and Administration Procedures, in chapter 3 (Management Plan for Designing and Implementing an EA Framework) you will need to administer your EA and integrate all EA elements into your normal IT operational environment.

This is the task of the following EA Procedures, as noted next:

EA Installation Procedure (Process 3 – Control 14)

A procedure is required to perform all activities related to software installation and configuration of your EA software systems (framework, tools, repository, etc.). This procedure should be developed by the EA support staff with close co-operation of the IT technical support staff, approved by the board and included as part of your other normal IT software installation procedures.

EA Procurement Procedure (Process 3 – Control 15)

A procedure is required to perform all procurement activities related to your EA software systems (framework, tools, repository, etc.). This procedure should be part of your other normal corporate procurement procedures.

EA Security Procedure (Process 3 – Control 16)

A procedure is required to authorize who has installation, access and update rights as regards all your EA elements (software, tools, data, repository, etc.). This procedure could be developed by EA staff with close co-operation of the IT technical support staff, approved by the board and be included as part of your other normal IT security procedures.

EA Backup Procedure (Process 3 – Control 17)

A procedure is required to take copies (backup) of all your EA elements (software, tools, data, repository, etc.) on the basis of a backup policy, usually approved by the board. This procedure should be included as part of your other normal IT backup procedures.

EA Maintenance Procedure (Process 3 – Control 18)

A procedure is required to ensure that all your EA elements (software, tools, data, repository, etc.) are kept up-to-date, as changes to the business processes and IT systems need to be reflected in the EA process and architecture. Without such a procedure your EA will be tend to become out-of-date and eventually obsolete, diminishing if not eliminating any benefits you had initially, and even risking other operational errors and failures. This procedure should be included as part of your normal IT strategic review process.

I would like to offer a word of caution here. I have seen some major companies where one procedure (procurement) or all these procedures, for various organizational and management reasons, are run independently of central management or IT.

This practice will lead you into major crises, errors and potential losses and even fraud, often difficult to examine and resolve. Procurement should be run by the central corporate procurement organization. The other procedures should be run by one function and one only, this being IT. Avoid experiments when it comes to these critical issues.

6 Main Process 4 – EA Improvement

This is the fourth process of the EA approach you can use to implement and improve enterprise architecture for your business. This **EA process and the management actions it contains comprise the fourth things you need to do to improve** linking and aligning your corporate IT systems and services to your company business objectives, in accordance with your **EA management plan** (see the specific steps of this plan in chapter 5).

The controls supporting this process are identified in each paragraph next.

In the previous chapters I described the main standard-industry EA frameworks, a management plan, and support roles for management, board and support staff to design, implement and monitor your EA implementation, formulating and documenting the enterprise architecture components and EA Administration Procedures.

But how do you know and check that your EA implementation is giving you the results you expect? Especially if you are a board member or senior executive, besides the EA project progress report, you need to double-check and assure yourself and your company is on the right track, in your EA project, or in any other business operational activity of your company.

This is the task of your corporate performance management system. This usually contains a policy, a business scorecard and a dashboard system (for immediate graphics) to track your performance related to customers, financial activities, operations, etc., coupled with a set of performance measures and compliance indicators, and EA checklists.

In more specific terms, as EA projects are lengthy and cumbersome, at times, you need to be more diligent in monitoring and evaluating its progress.

EA Improvement Plan

You need, therefore, to monitor how your EA implementation is doing all the time. **This may be achieved** by executing an EA Improvement Plan, outlined next:

Step 1. Examine all activities contained in the 12 steps of Process 1 – Management Plan (Conduct EA Preliminary Study, Set up EA Organization, Commit EA Users, Develop EA Communication, etc.) to ensure that they were executed fully.

Step 2. Evaluate the results of all products as identified in Process 1 – Management Plan (EA Feasibility Study, EA policy, EA Communication Plan, EA Requirements Study, EA framework, Business Model, Enterprise Architecture Repository, EA Implementation Plan, etc.)

Step 3. Monitor and evaluate the whole implementation of your EA and its related components, as well as the performance measures and compliance indicators noted next.

Step 4. Audit all activities by the use of the EA checklists described in **APPENDIX 9- EA CHECKLISTS** in the second part of this book (**IT-BUSINESS ALIGNMENT: Part 2**) to improve all elements of your EA implementation.

Performance Measures and Compliance Indicators

The **role** of performance measures and compliance indicators, in general, is to support and enable the easy monitoring and reviewing of all types of business controls functioning in a given organization, and in the functions of: Corporate Governance, Strategy, Enterprise Architecture, Finance, Production, IT, etc.

A **performance measure** is a description of what is measured to determine the extent to which objectives and outcomes have been achieved and to what level.

Some examples of performance measures are: Stock market price, return on investment, return on assets, number of coding errors found during formal testing, number of test case errors, number of changes to customer requirements, etc.

A **compliance indicator** denotes:

a) whether plans, policies, procedures, etc., exist or not,
b) whether these are followed or not, and
c) whether the organization complies or not to the specific state laws, industry standards, ethics codes, etc.

Some examples are: Corporate purchasing procedures not implemented, IT Security policy not followed, Data Privacy Laws not complied with, etc.

The typical EA performance measures and compliance indicators that support the design, development, monitoring and evaluation of your enterprise architecture are presented next:

EA Performance Measures (Process 4 – Control 1): Amount spent on EA training, Number of IT systems linked to business functions, Hours of EA review by the board, Number of critical business functions not supported by IT systems and Number of critical business processes not supported by IT systems.

EA Compliance Indicators (Process 4 – Control 2): Corporate Vision statement crafted and communicated (or not), Enterprise architecture framework implemented (or not), Enterprise architects and other team members functioning (or not), Enterprise Architecture Repository used (or not) and Training for Enterprise Architecture issues given (or not).

Your EA team, the board and the management of the company (and in many cases your internal or external auditors) will analyze all this information to monitor the EA implementation project, and review, assess and improve the enterprise architecture of your specific business organization. See also Step 12 (Monitor, Review and Improve EA Process) of the 'management plan for designing and implementing an EA framework' (chapter 5).

7 Benefits of Enterprise Architecture

ON THE BASIS of my varied IT consulting and auditing experience, in multiple business entities in several countries, when you implement enterprise architecture for your company on the basis of the approach described in this book, or an approach suited to your specific needs and requirements, you are bound to have several benefits, such as:

1. Better alignment of your business strategy and business processes with your IT systems
2. Better control of business data and faster and more seamless flow of information
3. A more efficient control of your IT operation (systems, projects, data, etc.) fully supporting your business
4. Better return on existing IT investments and systems development projects
5. Reduced business risk associated with IT operations
6. Increased business effectiveness and efficiency through the better co-ordination of all resources (people, systems flows, data, etc.)
7. Reduced operational risks in all business functions

8. Better access to company information
9. Improvement of business flexibility and business resilience
10. More improved corporate performance results.

I would like to note, however, that whether you get all of these benefits by implementing an enterprise architecture for your business, depends, clearly and mostly, on your management and board skills and dexterities, your business operating conditions and the socio-economic environment in which you do business.

Every business can follow somebody else's example and readily-available methods and techniques but it is also, let us not forget, a unique organism, and as such, it is prone to various dynamic elements and forces beyond, sometimes, your direct control, as a board member, manager, etc. Be always on your guard. Plan, execute, evaluate and improve. Only then you are bound to reap the accrued benefits.

8 Concluding Remarks

Modern 21st century corporations and organizations must always seek ways to change and improve their operations and business functions so that they satisfy their customers (citizens in the public sector domain) and their stakeholders and maintain their optimal survival and capability to compete in their own market and socio-economic environment.

The design, development and deployment of an enterprise architecture enables them to study all elements of their operational functions and align their IT systems and operations with their business processes in a more integrated and aligned way.

In a recent study of over 150 companies (see details at: http://www.amazon.com/Enterprise-Architecture-Strategy-Foundation-Execution/dp/1591398398) the authors and researchers found that many companies didn't have the architecture they wanted.

According to this study and its findings, to get the right architecture, companies should focus on enterprise architecture, not IT architecture. Almost all of the companies surveyed had an "architect", usually in IT, whose job was to design and improve the architecture of the company. Yet their efforts usually focused on IT architecture, and had little impact.

Top performing companies define how they will do business (an operating model), and design the architecture of the processes and systems critical to their current and future operations. They use this architecture to guide the evolution of their core foundation of systems and processes.

Also in a latest online survey (as per Forrester Research, September 2009, Global Annual State of Enterprise Architecture Online Survey) of enterprise architects in large enterprises, among several interesting findings, found that the following key drivers to enterprise architecture implementations were reported to be predominately strategic and business-focused ones. These drivers were:

1. 'enable better planning',
2. 'improve business agility', and
3. 'enable better Business-IT alignment'.

The more technical and tactical ones were generally placed lower in priority.

It is clear that board and senior management should concentrate on introducing strategic flexibility in their organizations in lieu of the traditional focus on strategic fit which has tended to be rigid and inappropriate in the ever-changing business environment.

Using the enterprise architecture to build a stable foundation gives a company greater agility, strategic flexibility, faster time to market, lower risk, and lower costs.

Enterprise architecture is the organizing logic for business processes and IT infrastructure of a company.

The enterprise architecture provides a long-term view of a company's processes, systems and technologies, so that individual projects can build capabilities, and not just satisfy immediate needs.

The enterprise architecture is the explicit design of the systems and processes in a company that help it fulfil its operating model.

One work of caution may be relevant here. When implementing enterprise architecture for your own company and business environment remember that the most important issue for success is to manage the human aspects (so called 'soft controls') permeating any such difficult and cumbersome effort, and my experience has taught me that the EA effort is close to that.

All of these soft controls relate to tone at the top, understanding of the organization by the board, culture, structure of reporting relationships, morale, integrity and ethical values, operational philosophy, trust, ethical climate, empowerment, etc., and are directly linked to the emotional contracting issue, also referred to as 'the psychological contract'.

This is the crucial and powerful link between the organizational performance intent (board and management planning to implement enterprise architecture), and the motivations, values and aspirations of the people (EA coordinator, enterprise architect, IT staff, etc.) instructed to carry out all implementation tasks.

Enterprise architecture (approach, processes, controls and components) can enable and facilitate the role and duties of the board in ensuring that the company's IT systems and technology (and EA is part of this) are aligned very well to serve, resolve and satisfy, in a cost-benefit manner, all of the above, with concrete and practical benefits and results to the company, its stakeholders and wider society.

I must emphasize again that you should tailor the aspects of EA implementation contained in this book to your own company's needs and requirementss. 'One-size does not fit all' is my guidance in EA development and implementation. For example, in smaller organizations, multiple EA roles and responsibilities may have to be assumed by one individual, segregation of duties may be replaced by compensating controls, etc.

The EA itself, the architecture products, and the associated repository should be developed as appropriate for that individual organization, i.e., your business.

AS A LAST action I would like to offer the following **seven recommendations** in planning and implementing the EA approach for your business in a more efficient and effective way:

1. **Vision**: Craft a vision for your EA efforts to bind your people to a common cause and mission.
2. **EA Framework**: Research the market and try a standard EA framework before you adopt it for your business.
3. **Sponsorship**: Ensure continuous board and senior management sponsorship for your EA efforts.
4. **Training**: Educate and train all resources (management and staff) before and during your EA implementation process.
5. **Communication**: Communicate your EA progress constantly and inform all parties concerned.
6. **Monitoring**: Monitor and resolve all EA problems.
7. **Improvement**: Review and improve all your EA elements to ensure IT-Business alignment.

FINALLY, considering all of the above, I sincerely hope that this book will prove to be of a certain value, somewhat beneficial and informative to all managers, board members, auditors as well as all other readers.

About the Author

John Kyriazoglou obtained a B.A. (Honours) from the University of Toronto, Canada, also earning a Scholastic award for Academic Excellence in Computer Science. John has worked in Canada, England, Greece and other countries for over 35 years, as a Senior IT manager, Managing Director, IT auditor and consultant, in a variety of clients and projects, in both the private and the public sectors. He has published several books and articles in professional publications, has served in numerous scientific committees and is a member of several professional and cultural associations.

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SSRN Free Publications: http://ssrn.com/author=1315434

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