

REFINING THE OPERATING MODEL CONCEPT TO ENABLE SYSTEMATIC GROWTH IN OPERATING MATURITY

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ABSTRACT

To stay competitive, enterprises of today need to rely on a sound *foundation for execution* that incorporates the infrastructure and digitised processes for automating a company's core capabilities. Once this foundation has been established, management could move their attention away from focusing on lower-value activities to innovative ways to increase profits and growth. The Business-IT Alignment Framework (BIAF) defines business-IT alignment in terms of a paradigm of alignment, three dimensions for alignment, and mechanisms and practices. The BIAF could provide a business-IT alignment perspective on the *foundation for execution* approach. Using the BIAF perspective, this paper comments on some of the deficiencies related to the *foundation for execution* approach regarding the systematic identification of opportunities for enterprise-wide process standardisation. The goal is to define a list of requirements that should direct the design of appropriate mechanisms and practices to address the identification of process re-use opportunities for multiple levels of operating maturity.

OPSOMMING

Om kompetend te bly, benodig organisasies vandag 'n goeie *fondasie van uitvoering*. Hierdie *fondasie van uitvoering* behels die infrastruktuur en gedigitaliseerde prosesse wat die onderneming se kern bekwaamhede outomatiseer. Eers wanneer die fondasie gevestig is, kan bestuur hul aandag verskuif van laer-waarde aktiwiteite en fokus op innoverende wyses om winste en groei te verhoog.

Die Besigheids-IT Belyningsraamwerk (BIBR) definieer die besigheids-IT belyning in terme van 'n paradigma van belyning, drie dimensies van belyning, en meganismes en praktyke. Die BIBR sou 'n besigheids-IT belyningsperspektief kon gee vir die *fondasie van uitvoering* benadering. Hierdie artikel maak gebruik van die BIBR perspektief om kommentaar te lewer op die tekortkominge van die *fondasie van uitvoering* benadering rakende die sistematiese identifisering van ondernemingswye prosesstandaardisasie geleenthede. Die doel is om 'n lys van behoeftes te identifiseer wat sal lei tot die ontwerp van geskikte meganismes en praktyke vir die identifisering van proses her-gebruikgeleenthede vir veelvuldige operasionele volwassenheidsvlakke.

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1. INTRODUCTION

According to the 2007 survey by Luftman and Kempaiah [1], both *IT and business alignment* and *attracting, developing, and retaining IT professionals* have consistently been the major IT management concerns since 1994. Since the early 1980's, *Business-IT alignment* has been an important challenge in both private and public/non-profit sectors (Knoll and Jarnvenpaa, [2]). According to Luftman's definition of business-IT alignment [3], there is strong evidence of a link between business-IT strategy alignment and organisational performance (Luftman and Kempaiah, [4]). However, Luftman and Kampaia [4] point out that organisations still face significant challenges in aligning business with IT. Still an art form rather than a science (Wegman, [5]), there is still no silver bullet for aligning business with IT.

The Business-IT Alignment Framework (BIAF) (De Vries, [6]) defines business-IT alignment in terms of a paradigm of alignment, three dimensions for alignment, and mechanisms and practices. The BIAF could provide a business-IT alignment perspective on *the foundation for execution* approach of Ross, Weill and Robertson [7]. Using the BIAF perspective, Ross et al. [7] have a specific approach towards business-IT alignment. This approach has two key artefacts: the operating model (OM) and core diagram (CD), which are used in combination with four stages of operating maturity. The OM and CD communicate the enterprise-wide vision for process standardisation and data centralisation, with the aim to define long-term process and data rationalisation decisions that may be implemented enterprise-wide. These decisions direct the evolution of the IT landscape only up to the third (optimised core) of the four levels of operating maturity. Once the third level of maturity has been achieved, companies typically implement a core set of systems to support standard enterprise processes, whilst the unique needs of business units are not accommodated. The fourth level of operating maturity should enable an enterprise to preserve global standards, while enabling local differences. The fourth level of operating maturity thus requires a business modularity architecture, which accommodates the unique needs of business units. In addition, previous action research revealed deficiencies in deriving the key artefacts (OM and CD) of the *foundation for execution* approach.

At present, there are no requirements for the set of practices and mechanisms that are needed to address the identification of process re-use opportunities for both the third and fourth levels of operating maturity. The goal of this paper is therefore to extract such a list of requirements for the identification of *process standardisation opportunities* in an organisation. These requirements should direct the design of appropriate mechanisms and practices that enables systematic identification of opportunities for enterprise-wide *process standardisation*.

The paper is structured as follows: In Section 2 we provide some background on the Business-IT Alignment Framework (BIAF) and the *foundation for execution* approach. Section 3 relates the foundation of execution approach with the BIAF to highlight alignment deficiencies. Additional deficiencies are also identified through an action research approach executed. In Section 4 the operating model concept is extended and the set of requirements are identified that should address the systematic identification of opportunities for enterprise-wide process standardisation/replication. The paper is concluded in Section 5.

2. BACKGROUND

There are various alignment theories, each with its own alignment paradigm, combination of alignment dimensions, mechanisms, and illustrative case studies. Yet there are very few case studies to demonstrate the integrated use of these theories. De Vries [6] introduced a BIAF to unpack business-IT alignment in terms of generic approaches, dimensions,

mechanisms and practices. This section discusses the use of the BIAF to provide a business-IT alignment perspective on the *foundation for execution* approach of Ross et al. [7]. From this perspective, various deficiencies of the *foundation for execution* approach will be discussed. The deficiencies provide the rationale for the identification of a list of requirements that could address the deficiencies.

2.1 The Business-IT Alignment Framework

Alignment endeavours/programmes/projects are usually founded on defensible value propositions. These value propositions are based on certain belief systems about value-creation in an organisation and the capability of marketing the propositions to the owners/funding parties of the organisation. With reference to Figure 1, the BIAF starts with the foundation part (*alignment belief/paradigm of creating value*), which determines the business-IT alignment approach with reference to the other BIAF parts (De Vries, [6]).

A selection of *alignment mechanisms and practices* (e.g. methodologies, processes, methods, tools, governance structures) are required to facilitate change/evolution to re-align business with IT. The selected alignment mechanisms and practices are related to one or more BIAF *dimensions*. The framework contains three key alignment dimensions, represented by three panes in Figure 1:

- Architecture abstraction layers;
- Perspectives/stakeholder viewpoints; and
- Organising scope.

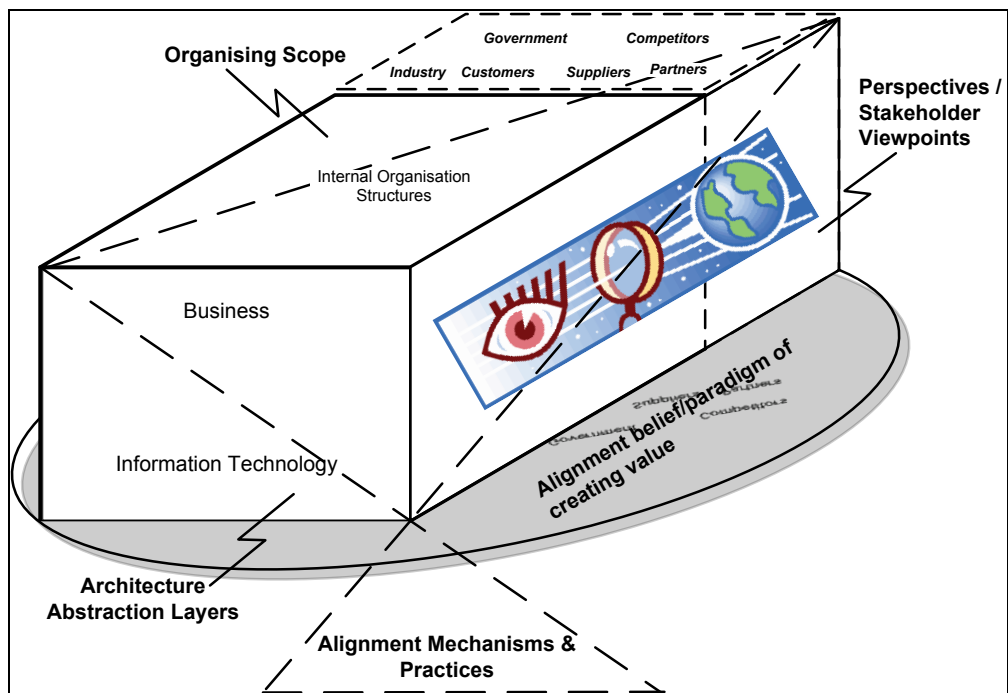


Figure 1 - BIAF (De Vries, [6], adapted)

The *dimensions* part provides the context of alignment, answering the questions, ‘What needs to be aligned?’, ‘To what extent?’ and ‘From which perspective(s)?’. The *alignment mechanisms and practices* part provides the means for alignment.

In support of the value-creation paradigm and scope of alignment, the mechanisms and practices that are selected could be further classified according *additional classifiers*. The additional classifiers relate to (1) the version or versions of alignment (current state / future state), (2) the starting point for doing architecture work (top-down, bottom-up or middle in), (3) the alignment frequency (periodic vs continuous) and, (4) different ways of addressing the changing/dynamic nature of the alignment components.

De Vries [6] used BIAF to demonstrate the interpretation of the framework for four prominent Enterprise Architecture (EA) models: the Zachman Enterprise Framework (ZEF), The Open Group Architecture Framework (TOGAF), the Federal Enterprise Architecture (FEA), and the Gartner Enterprise Architecture Framework (GEAF). Each of the analysed models has its own paradigm of value-creation and different demarcations of the three BIAF dimensions, if demarcated at all. The alignment mechanisms and practices are supposed to support the value-creation paradigm and the extent of alignment, as defined and demarcated by the specific EA model.

It is possible to compare the different EA models in terms of various factors, such as the efficiency of demarcating the three dimensions, or the ability of the EA models to address the scope defined by the demarcated dimensions via the alignment mechanisms and practices. Zachman for example, believes that contrary to most other EA models; his ontology provides a scientific approach in defining architecture abstraction layers (inventory sets, process transformations, network nodes, organisation groups, timing periods and motivation reasons) and perspectives (scope contexts, business concepts, system logic, technology physics, component assemblies and operations instance classes) (Zachman [8]:20). Scrutiny of other models reveals considerable overlap between the different abstraction layers, which emphasises the need for an ontology that provides one fact in one place. Although the ZEF provides an ontology for defining suitable mechanisms and practices for doing EA work, Zachman [8] is not prescriptive about a required set of mechanisms and practices. These depend on the project team using the ZEF (O'Rourke, Fishman and Selkow [9]). On the contrary, the Architecture Development Method (ADM) of the Open Group Architecture Framework (TOGAF) defines a rich set of mechanisms and practices that support enterprise-wide business-IT alignment (The Open Group [10]). Although the Open Group defined their own Content Framework to demarcate the three BIAF dimensions, the ADM could also apply the dimensions defined by the Zachman Enterprise Framework (The Open Group [10]:56).

2.2 The foundation for execution approach

The *foundation for execution* approach [7] aims to rationalise and digitise both the routine, everyday processes and competitively distinctive capabilities of an organisation. Ross et al. [7] recommend eight steps in creating a *foundation for execution*. During the first three steps, key artefacts are defined, which should be used to establish technology, data, and process rationalisation objectives for and organisation. The authors used BIAF to contextualise and evaluate the *foundation for execution* approach in terms of business-IT alignment and identify deficiencies inherent in the approach and its artefacts.

3. THE FOUNDATION FOR EXECUTION APPROACH RELATED TO BIAF

The *foundation for execution* is “the infrastructure and digitised processes automating a company’s core capabilities” (Ross et al., [7]:4). In terms of the BIAF, the *value-creation paradigm* of this approach is that an enterprise requires a foundation for execution to digitise operational processes. This will free up management time to focus on strategic issues.

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Relating to the *additional classifiers* of an approach, the foundation for execution approach focuses mainly on the *future state* architecture. Ross et al. ([7]:44) believe that a company needs to articulate a vision (future view) of *how the company will operate*, called the operating model (OM). This vision needs to provide direction for building a foundation for execution. Once a vision is created, business and IT leaders define *key architectural requirements* of the foundation for execution, which may be communicated via a core diagram (CD). The OM and CD are used in combination with four stages of operating maturity to elevate an organisation to a higher level of operating maturity. An IT engagement model is used to ensure that new business initiatives contribute to the foundation for execution. *Continuous alignment* takes place to evolve the architecture. A *top-down* approach (starting at the contextual perspective, translating through subsequent perspectives) is followed in terms of architecture development, emphasising the contextual perspective (see Figure 2). Although the foundation for execution approach aims at reducing architectural complexity by rationalising data and processes according to the OM requirements, the mechanism and practices do not explicitly address the problems associated with the *changing/dynamic nature* of architecture components.

3.1 Dimensions of alignment

Ross et al. [7] do not stipulate different architecture abstraction layers, perspectives or organisation entities to demarcate the three BIAF dimensions. Hence using the ZEF as an ontology for defining the architecture abstraction layers and perspectives/stakeholder viewpoints, the foundation for execution approach emphasises two main architecture abstraction layers: data (WHAT: inventory sets) and process (HOW: process transformations), and one perspective: scope contexts (see Figure 2).

The main contribution of Ross et al. [7] is to define on a contextual level the data (WHAT: inventory sets) that could be shared and the processes (HOW: process transformations) that could be replicated across different business units (shaded in Figure 2). Ross et al. purposefully omit alignment with the motivational aspects (WHY: motivation reasons) of the business (see Figure 2). The rationale is that strategic initiatives, derived from the strategic direction, often lead to IT-enablement for each strategic initiative. This creates the delivery of piece-meal IT solutions that are not integrated (Weill & Ross [11]). The IT department constantly reacts to the latest strategic initiative and is always a bottleneck, operating in a reactive mode.

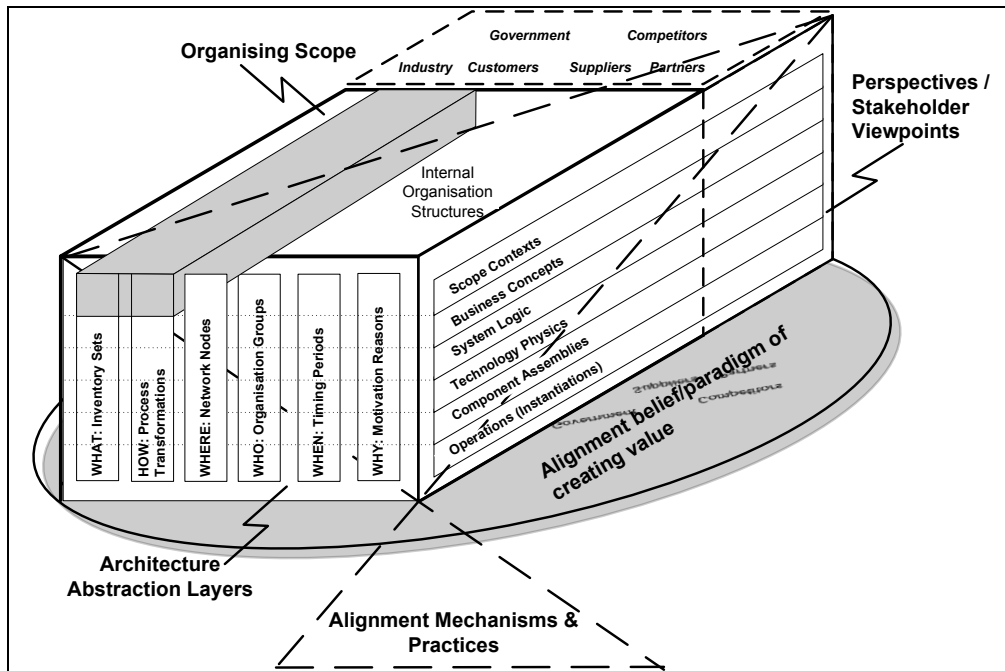


Figure 2 - The foundation for execution (Ross et al.[7]) alignment focus

3.2 Alignment mechanisms and practices

Building a *foundation for execution* requires mastery of three key disciplines, the operating model, Enterprise Architecture and operating maturity as well as the IT engagement model. In the following section, the three disciplines are discussed in context of the *foundation of execution* approach.

(1) The Operating Model

The OM is the “necessary level of business process integration and standardisation for delivering goods and services to customers” (Ross et al. [7]:8). The level of process integration relates to the extent to which business units share data. Process standardisation is used to create efficiencies across business units, but limits opportunities to customise services.

Based on the different levels of process standardisation and process integration, Ross et al. [7] define four types of OMs. These OMs are not only dependent on the levels of process standardisation and integration, but are defined based on a group of characteristics. Figure 3 gives an overview of these characteristics.

Business process integration	High	<p>Coordination</p> <ul style="list-style-type: none"> • Shared customers, products, or suppliers • Impact on other business unit transactions • Operationally unique business units or functions • Autonomous business management • Business unit control over business process design • Shared customer/supplier/product data • Consensus processes for designing IT infrastructure services; IT application decisions made in business unit 	<p>Unification</p> <ul style="list-style-type: none"> • Customers and suppliers may be local or global • Globally integrated business processes often with support of enterprise systems • Business units with similar or overlapping operations • Centralised management often applying functional/process/business unit matrices • High-level process owners design standardised processes • Centrally mandated databases • IT decisions made centrally
	Low	<p>Diversification</p> <ul style="list-style-type: none"> • Few, if any, shared customers or suppliers • Independent transactions • Operationally unique business units • Autonomous business management • Business unit control over business process design • Few data standards across business units • Most IT decisions made within business units 	<p>Replication</p> <ul style="list-style-type: none"> • Few, if any, shared customers • Independent transactions aggregated at a high level • Operationally similar business units • Autonomous business unit leaders with limited discretion over processes • Centralised (or federal) control over business process design • Standardised data definitions but data locally owned with some aggregation at corporate • Centrally mandated IT services
		Low	High
Business process standardisation			

Figure 3 - Characteristics of four operating models (Ross et al. [7]:29)

(2) Enterprise Architecture and Operating Maturity

According to Ross et al. ([7]:9) EA is the “organising logic for business processes and IT infrastructure, reflecting the integration and standardisation requirements of the company’s operating model”. A core diagram (CD) is used to provide a graphical representation of the required enterprise architecture (EA). The CD should be used to:

- Facilitate discussions between business and IT managers to clarify requirements for the company’s foundation for execution, and
- Communicate the vision (high-level business process and IT requirements of a company’s operating model).

An example of the unification OM is given in Figure 4. As a unification OM requires high levels of process standardisation and process integration (data sharing), the standard (core) and linked processes, and shared data are depicted on the diagram. The diagram also depicts key customer types and automating technologies.

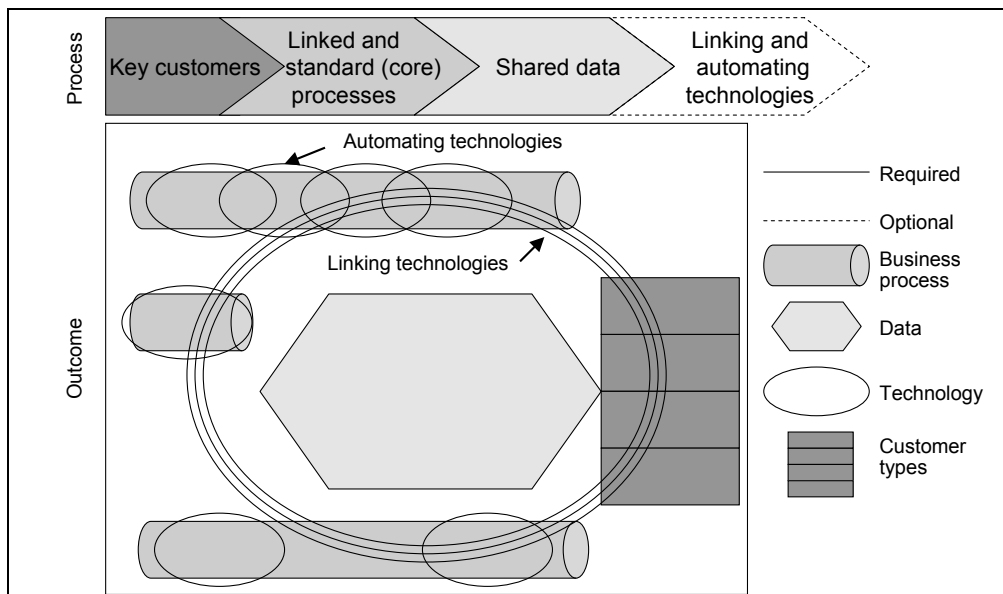


Figure 4 - Core diagram template for a unification OM (Ross et al., [7]:54)

Ross et al. ([7]:71) believe that organisations need to follow a systematic transformation process in changing towards the future EA, as required by the OM. Companies should build out their enterprise architectures through four stages of operating maturity:

1. *Business Silos architecture*: where companies maximise individual business unit needs or functional needs.
2. *Standardised Technology architecture*: gaining IT efficiencies through technology standardisation and increased centralisation of technology management.
3. *Optimised Core architecture*: providing companywide data and process standardisation, appropriate for the OM.
4. *Business Modularity architecture*: where companies manage and reuse loosely coupled IT-enabled business process components to preserve global standards while enabling local differences.

(3) IT Engagement Model

The IT Engagement model portrays the set of governance mechanisms that are required to ensure that business and IT projects achieve both local and companywide objectives. Ross et al. [7] state that top performing companies provide the following mechanisms and practices as part of their IT Engagement Model:

1. Company-wide IT governance, defined as the “decision rights and accountability framework to encourage desirable behaviour in using IT” (Ross et al. [7]:119). Company-wide IT governance should be based on five types of interrelated IT governance decisions (Weill & Ross [12]). The OM has profound influence on one of these decision types: the IT principle decisions. IT principles decisions need to delineate how IT will support the desired OM.
2. Project management, which requires a formalised project methodology with clear deliverables and checkpoints.
3. Linking mechanisms, which incorporates processes and decision-making bodies that need to align incentives and connect the project-level activities to the companywide IT governance.

3.3 Partial validation of the foundation for execution approach

In order to receive feedback on the perceived practicality of the two key artefacts, the OM and CD, we were engaged in an action research activity (also reported on in [13]). The purpose was to receive qualitative feedback on the difficulties experienced in defining the current OM and CD for an organisation / sub-division. The following interpretations of difficulties with the OM and CD were identified (De Vries, [13]):

- Difficulty in selecting a single operating model is linked to the identification of the degree of process standardisation / integration for the analysed organisation/business unit. Extensive implicit/explicit knowledge is implied during the evaluation of the OM characteristics that define the degree of process standardisation / integration.
- Difficulty in finding the correct information to perform an OM classification or select core diagram components. Identification of OM characteristics and core diagram components require knowledge about the strategic choices (markets, products/services), operating/organising logic, business processes and main databases & technologies of the organisation. Some baseline architectures are thus required and this knowledge is not necessarily available or in an explicit format.
- Respondents experienced difficulty in selecting the main components of the core diagram & understanding the core diagram templates. This may be related to the limited set of examples provided in the textbook. Case studies would be required to demonstrate inputs that would be required (e.g. baseline architectures) to define the core diagram components.

3.4 Identifying additional deficiencies

Based on the qualitative feedback received from the action research effort, the authors revisited the purpose/use of the operating model, summarised as follows:

- Senior managers need to debate and select an appropriate OM to establish a vision for how the company will operate (Ross et al. [7]).
- The OM is also a “choice about what strategies are going to be supported”. The choice of an OM drive the implementation of a whole set of strategic initiatives (Ross et al. [7]:26).
- The OM should be used to direct IT principles decisions (Weill & Ross [11], Weill & Ross [12]).
- Each OM enables different strategies for achieving growth and profits (Weill & Ross [11]).
- The enterprise OM should be used to establish interoperability requirements. According to The Open Group ([10]:331), the corporate OM “will normally indicate what type of interoperability approach will be appropriate” and should be determined during the Architecture Vision or Business Architecture phases of the Architecture Development Method (ADM). The OM provides a vision of what needs to be shared.

If senior managers are to use the OM to guide them during the strategic decision-making processes, the artefacts should be based on a more rigorous approach in attaining the artefact outputs. The author consequently revisited the OM and made some critical evaluations. In our evaluations there were significant deficiencies related to method and *elevating to a fourth level of operating maturity*. These deficiencies are discussed further in 3.4.1 and 3.4.2 respectively.

3.4.1 Method deficiency

The characteristics of the OM (see Figure 3) could be classified according to different categories, which imply different timings. The characteristics relate to:

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- Current business architecture configurations that pose opportunities for sharing data and replicating similar processes/functions (e.g. shared customers/products/suppliers; operationally unique business units or functions).
- Shared data and standardised processes (e.g. shared customer/supplier/product data; standardised processes).
- Suggestions in terms of business and IT governance arrangements that go hand-in-hand with the other characteristics (e.g. autonomous business management; IT decisions made centrally).

An implicit process is thus suggested to derive a required OM (see Figure 5).

- The organisation needs to analyse certain business architecture parameters to establish rationalisation opportunities.
- Rationalisation opportunities could be identified within two main areas: (1) Data (sharing data across organisational entities), and (2) Process (replicating/re-using processes across organisational entities). The levels of data sharing and process replication will provide opportunities for sharing certain technologies. A pure coordination OM could use common portals and middleware technology; a replication OM could use common system components; while a unification OM could use common application systems (Weill & Ross [11]).
- Once rationalisation opportunities have been established an organisation needs to derive a future OM that would exploit these opportunities.
- The future OM then needs to direct the design of appropriate governance mechanisms.

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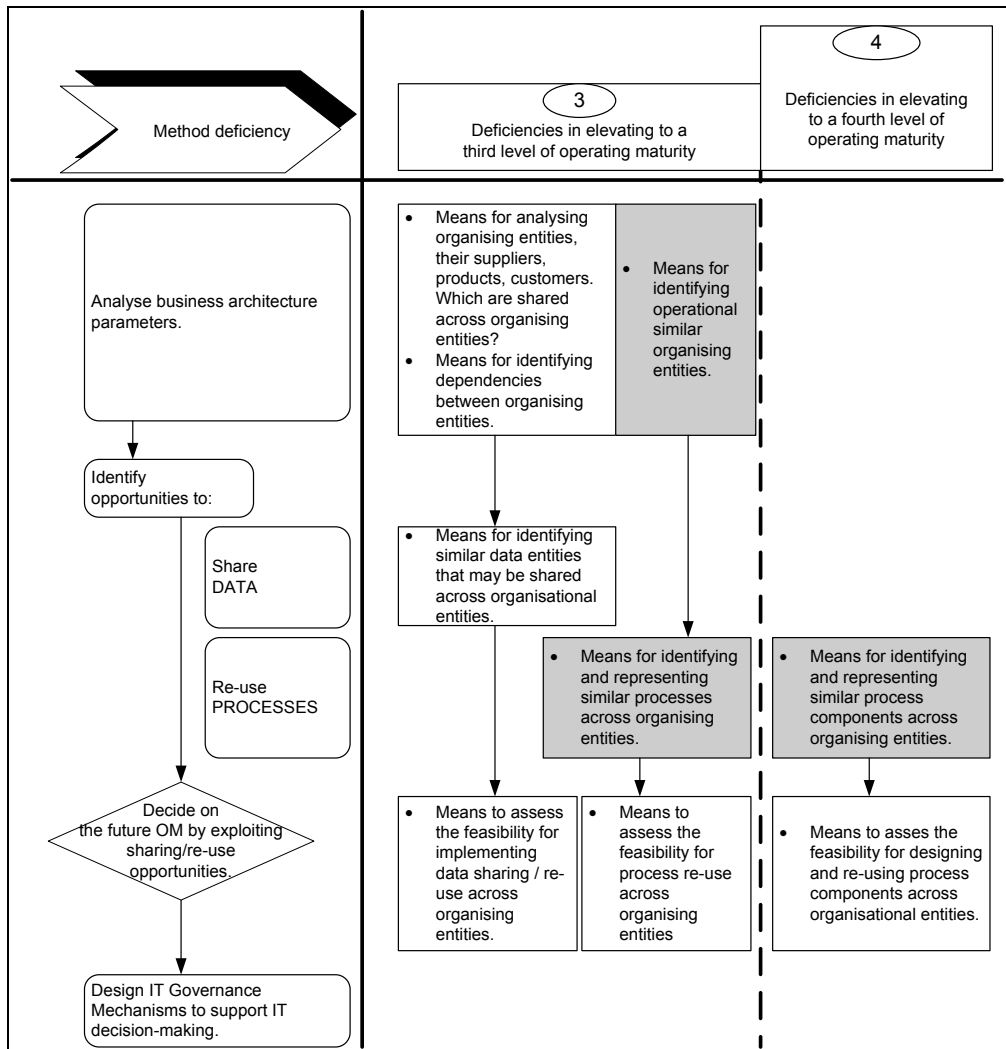


Figure 5 - Current deficiencies in defining and using the OM

3.4.2 Deficiency in elevating to a fourth level of operating maturity

Ross et al. ([7]:26) believe that the choice of an OM is a critical decision for a company and that “it’s the first step in building a foundation for execution”. Re-visiting the role of the OM in transforming an organisation through different levels of operating maturity however revealed insightful results. Section 3.2 indicates that the OM is only required to elevate a company from a second level of operating maturity to a third level of operating maturity, which is also supported by a more recent publication of Weill & Ross [11], where standardisation objectives are defined for each type of OM as differentiators. The four OMs all require ‘shared services’ and common ‘infrastructure technology’ objectives (objectives for level two operating maturity). Data sharing and process replication objectives differentiate the four OMs from one another and are objectives for reaching the third level of operating maturity. While the third level operating maturity objectives are derived from the OM and exploit rationalisation opportunities across the enterprise, the fourth level of operating maturity acknowledges the unique needs of business units and need to be

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supported via IT-enabled process components. The OM however does not facilitate the identification of process components that may be IT-enabled and re-used across the organisation (see Figure 5).

4. EXTENDING THE OPERATING MODEL CONCEPT

The left-hand side of Figure 5 portrays the process that could be followed in defining and using the OM. The deficiencies discussed previously are indicated on the right-hand side. Smith & Fingar [14] believe that many companies already seized the opportunity of implementing centralised data management systems (sharing data). Based on the deficiencies highlighted in Figure 5, a set of requirements were derived (see Table 1) to define the scope of supplementing mechanisms and practices. The following requirement categories were addressed:

1. User(s) of the practices and related mechanisms
2. Generality
3. Process categories included
4. Current architecture capabilities
5. Process representation
6. Replication constraints
7. Feasibility analyses

The requirements that have been identified depict the scope for developing applicable mechanisms and practices.

No	Category	Requirement Detail	Motivation
1	User(s) of the practices and related mechanisms	Any EA practitioner who wants to use the OM specified by Ross et al. [7] and needs to collaborate with other stakeholders in defining the required level of process standardisation/replication.	The practices and mechanisms are created for the purpose of enhancing the OM concept as defined by Ross et al. [7].
2	Generality	The practices and mechanisms should be generic in their application to different types of industries. An EA practitioner should be able to apply the practices and mechanisms to either a profit-driven, not-for-profit/government organisation within any industry, in combination with the foundation for execution approach.	The foundation for execution approach is generic in its application.
3	Process categories included	The practices and mechanisms may be applied to all processes in the organisation.	The foundation for execution approach is based on the paradigm of creating a foundation for execution, which not only focuses on competitive distinctive capabilities, but also rationalising and digitising everyday processes that a company requires to stay in business (Ross et al., [7]:4).
4	Current architecture capabilities	The practices and mechanisms need to take current work in terms of Enterprise Architecture, Business Architecture and Process Architecture into account, but also need to provide sufficient detail if none of these architectures have been explicated.	According to Ross et al. ([7]:26), the first step in building a foundation for execution is to define the OM for the organisation. No pre-conditions are defined for defining this model. The ability to define this model however is dependent on current architecture capabilities and documented/explicated architectures. Immature architecture capabilities may require additional architecture work, such as defining enterprise-wide process management standards and a centralised process repository (Smith & Fingar ([14]:177).

No	Category	Requirement Detail	Motivation
5	Process representation	<p>The practices and mechanisms should encourage consistent process representation to ensure re-use. The extent of re-use includes the following:</p> <ul style="list-style-type: none"> • It should be possible to add process measures if required for the purpose of performance measurement and/or process improvement. • The process representations should support end-to-end views of processes. • Process representations should not hamper the transition from the third to fourth levels of operating maturity. • The representations that are used to communicate process replication opportunities should be understandable to business users (from the contextual and conceptual viewpoints). 	<p>A consistent representation may enhance communication about how the business operates, enable efficient hand-offs across organisational boundaries and allow for consistent performance measurement across organisation entities or similar competitors (Davenport [15]). In addition, transitioning from a third to fourth level of operating maturity (as defined by Ross et al., [7]) requires the identification of business services that may be shared among different organisational entities. Heinrich et al. [16] believe that the identification of business services requires a consistent representation of the enterprise's processes.</p>
6	Replication constraints	<p>The mechanisms and practices should identify process/functional similarities across different type of entities. The practitioner should receive guidance in deciding on the type of demarcation used.</p>	<p>Weill et al. ([11] mention that replication opportunities may be defined across various types of entities (business units, regions, functions and market segments).</p>
7	Feasibility analyses	<p>The mechanisms and practices should not suggest the means for assessing or measuring the feasibility of process replication/rationalisation. Feasibility analysis, e.g. operational, cultural, technical, schedule, economic and legal feasibility (Whitten [17]) that may be associated with process rationalisation solutions are therefore excluded.</p>	<p>Although a feasibility analysis may direct the required level of process standardisation, this set of mechanisms and practices will merely propose a way of identifying replication opportunities, based on process similarity.</p>

Table 1: Requirements for addressing the deficiencies highlighted in Figure 5

4. CONCLUSION AND THE WAY FORWARD

The BIAF was used to provide a business-IT alignment perspective on the foundation for execution approach of Ross et al. [7]. From this perspective, the main contribution of Ross et al. [7] is to define on a contextual level the data that could be shared and the processes that could be replicated across different business units. Within this context, current deficiencies have been highlighted. This paper focused on process replication, rather than data sharing, and defined a set of requirements for the systematic identification of opportunities for enterprise-wide process standardisation/replication.

Based on the requirements identified in this paper, a method-building approach will be used to define a set of mechanisms and practices that may be used in combination with the foundation for execution approach. The proposed set of mechanisms and practices will be based on research within the disciplines of Enterprise Architecture, Business Architecture, Process Architecture and Service Oriented Architecture. The added mechanisms and practices should ultimately enhance the practical use of the OM concept.

5. REFERENCES

- [1] Luftman, J. & Kempaia, R. 2008. Key issues for IT executives 2007, *MIS Quarterly Executive*, 7(2), pp 99-112.
- [2] Knoll, K. & Jarvenpaa, S., *Information Technology alignment or fit in highly turbulent environments: The concept of flexibility*, in *Computer Personnel Research Conference on Reinventing IS*. 1994: Alexandria. p. 1-14.
- [3] Luftman, J. 2003. *Competing in the Information Age - Align in the Sand*, Oxford: Oxford University Press.
- [4] Luftman, J. & Kempaia, R. 2007. An update on Business-IT alignment: 'A line' has been drawn, *MIS Quarterly Executive*, 6(3), pp 165-177.
- [5] Wegmann, A. 2002. *The Systematic Enterprise Architecture Methodology (SEAM): Business and IT Alignment for Competitiveness*, Technical Report, EPFL/I&C/No. 200265, Lausanne: LAMS/EPFL.
- [6] De Vries, M. 2010. A framework for understanding and comparing Enterprise Architecture models, *Management Dynamics*, 19(2), pp 17-29.
- [7] Ross, J.W., Weill, P., & Robertson, D.C. 2006. *Enterprise Architecture as Strategy: Creating a Foundation for Business Execution*, Boston: Harvard Business School Press.
- [8] Zachman, J.A. 2009. *Z101 MasterClass: Framework Foundations*, Zachman International.
- [9] O'Rourke, C., Fishman, N., & Selkow, W. 2003. *Enterprise Architecture using the Zachman Framework*, Boston: Thomson Course Technology.
- [10] TheOpenGroup. 2009. *TOGAF Version 9.0, Enterprise Edition*, [Online] [accessed 1 June 2009], available from: <https://www.opengroup.org/online-pubs>.
- [11] Weill, P. & Ross, J.W. 2008. *Implementing your Operating Model via IT Governance*, Center for Information Systems Research Briefing, 8(1D), USA: CISR.
- [12] Weill, P. & Ross, J.W. 2004. *IT Governance: How Top Performers Manage IT Decision Rights for Superior Results*, Boston: Harvard Business School Press.
- [13] de Vries, M. & van Rensburg, A.C. 2009. Evaluating and refining the 'enterprise architecture as strategy' approach and artefacts, *South African Journal of Industrial Engineering*, 20(1), pp 31-43.
- [14] Smith, H. & Fingar, P. 2003. *Business Process Management: The Third Wave*, Florida: Meghan-Kiffer Press.
- [15] Davenport, T.H. (2005) *The coming commoditisation of processes*. Harvard Business Review Volume,
- [16] Heinrich, B., et al. 2009. The process map as an instrument to standardise processes: design and application at a financial service provider, *Information Systems and E-Business Management*, 7(1), pp 81-102.
- [17] Whitten, J.L. & Bentley, L.D. 2007. *Systems Analysis and Design for the Global Enterprise*, 7th ed., New York: McGraw-Hill/Irwin.