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The Six Core Elements of Business Process Management

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Abstract The previous chapters gave an insightful introduction into the various facets of Business Process Management. We now share a rich understanding of the essential ideas behind designing and managing processes for organizational purposes. We have also learned about the various streams of research and development that have influenced contemporary BPM. As a matter of fact, BPM has become a holistic management discipline. As such, it requires that a plethora of facets needs to be addressed for its successful und sustainable application. This chapter provides a framework that consolidates and structures the essential factors that constitute BPM as a whole. Drawing from research in the field of maturity models, we suggest six core elements of BPM: strategic alignment, governance, methods, information technology, people, and culture. These six elements serve as the structure for this BPM Handbook.

1 Why Looking for BPM Core Elements?

A recent global study by Gartner confirmed the significance of BPM with the top issue for CIOs identified for the sixth year in a row being the improvement of business processes (Gartner 2010). While such an interest in BPM is beneficial for professionals in this field, it also increases the expectations and the pressure to deliver on the promises of the process-centered organization.

This context demands a sound understanding of how to approach BPM and a framework that decomposes the complexity of a holistic approach such as Business Process Management. A framework highlighting essential building blocks of BPM can particularly serve the following purposes:

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- *Project and Program Management*: How can all relevant issues within a BPM approach be safeguarded? When implementing a BPM initiative, either as a project or as a program, is it essential to individually adjust the scope and have different BPM flavors in different areas of the organization? What competencies are relevant? What approach fits best with the culture and BPM history of the organization? What is it that needs to be taken into account “beyond modeling”? People for one thing play an important role like Hammer has pointed out in his chapter (Hammer 2010), but what might be further elements of relevance? In order to find answers to these questions, a framework articulating the core elements of BPM provides invaluable advice.
- *Vendor Management*: How can service and product offerings in the field of BPM be evaluated in terms of their overall contribution to successful BPM? What portfolio of solutions is required to address the key issues of BPM, and to what extent do these solutions need to be sourced from outside the organization? There is, for example, a large list of providers of process-aware information systems, change experts, BPM training providers, and a variety of BPM consulting services. How can it be guaranteed that these offerings cover the required capabilities? In fact, the vast number of BPM offerings does not meet the requirements as distilled in this Handbook; see for example, Hammer (2010), Davenport (2010), Harmon (2010), and Rummler and Ramias (2010). It is also for the purpose of BPM make-or-buy decisions and the overall vendor management, that a framework structuring core elements of BPM is highly needed.
- *Complexity Management*: How can the complexity that results from the holistic and comprehensive nature of BPM be decomposed so that it becomes manageable? How can a number of coexisting BPM initiatives within one organization be synchronized? An overarching picture of BPM is needed in order to provide orientation for these initiatives. Following a “divide-and-conquer” approach, a shared understanding of the core elements can help to focus on special factors of BPM. For each element, a specific analysis could be carried out involving experts from the various fields. Such an assessment should be conducted by experts with the required technical, business-oriented, and socio-cultural know-how.
- *Standards Management*: What elements of BPM need to be standardized across the organization? What BPM elements need to be mandated for every BPM initiative? What BPM elements can be configured individually within each initiative? A comprehensive framework allows an element-by-element decision for the degrees of standardization that are required. For example, it might be decided that a company-wide process model repository will be “enforced” on all BPM initiatives, while performance management and cultural change will be decentralized activities.
- *Strategy Management*: What is the BPM strategy of the organization? How does this strategy materialize in a BPM roadmap? How will the naturally limited attention of all involved stakeholders be distributed across the various BPM elements? How do we measure progression in a BPM initiative (“BPM audit”)?

A BPM framework that clearly outlines the different elements of BPM has the potential to become an essential tool for such strategy and road-mapping exercises as it facilitates the task of allocating priorities and timeframes to the progression of the various BPM elements.

Based on this demand for a BPM framework that can be used for project and program management, vendor management, complexity management, standards management, and strategy management, we propose a framework that can guide BPM decision makers in all of these challenges. In the following section, we outline how we identified these elements. We then introduce the six core elements by first giving an overview and second presenting each element and its subcomponents in more detail.

2 How to Identify Core Elements of BPM?

The framework to be identified has to comprehensively structure those elements of BPM that need to be addressed when following a holistic understanding of BPM, i.e., BPM as an organizational capability and not just as the execution of the tasks along a process lifecycle (identify, model, analyze, improve, implement, execute, monitor, and change). This standpoint requires an organization-wide perspective and the identification of the core capability areas that are relevant for successful BPM. We, thus, base our work on BPM maturity models that have been subject to former research.

Recently, a number of models to decompose and measure the maturity of Business Process Management have been proposed as shown in Fig. 1.

The basis for the greater part of these maturity models has been the *Capability Maturity Model* (CMM) developed by the Software Engineering Institute at Carnegie Mellon University, Pittsburgh, PA. This model was originally developed in order to assess the maturity of software development processes and is based on the concept of immature and mature software organizations. The basis for applying the model is confirmed by Paulk et al. (1993) who stated that improved maturity results “*in an increase in the process capability of the organization*”. CMM introduces the concept of five maturity levels defined by special requirements that are cumulative.

Among others, Harmon (2004) developed a BPM maturity model based on the CMM (Harmon 2003). In a similar way, Fisher (2004) combines five “levels of change” with five states of maturity. Smith and Fingar (2004) argue that a CMM-based maturity model, which postulates well-organized and repeatable processes, cannot capture the need for business process innovation. Further, BPM maturity models have been designed by the Business Process Management Group (BPMG) and the TeraQuest/Borland Software (Curtis et al. 2004) that is now supported by the OMG (OMG 2008).

Model	Subject	Source
Process Condition Model	Effectiveness and efficiency measurement to rate a process' condition	DeToro and McCabe (1997)
Strategic Alignment Maturity Model	Maturity of strategic alignment	Luftman (2003)
BPR Maturity Model	Business Process Re-engineering Programmes	Mauil et al. (2003)
Harmon's BPM Maturity Model	BPM maturity model based on the CMM	Harmon (2003, 2004)
Rummler-Brache Group's Process Maturity Model	Success factors for managing key business processes	Rummler-Brache (2004)
OMG's BPM Maturity Model	Practices applied to the management of discrete processes	Curtis et al. (2004); OMG (2008)
Rosemann and de Bruin's BPM Maturity Model	Maturity of Business Process Management capabilities	Rosemann; de Bruin (2005); de Bruin (2009)
Capability Maturity Model Integration (CMMI)	Maturity of software development processes	SEI (2006a, 2006b)
Hammer's BPM Maturity Model (Process Audit)	Defining process and enterprise competencies	Hammer (2007)

Fig. 1 Selected maturity models in BPM

Curtis and Alden (2006) take a prescriptive approach to process management. This model combines a number of process areas by either applying a staged or a continuous approach. Progress through the stages is dependent on all requirements of preceding and completed stages. Some discretion is allowed at lower stages using the continuous approach but it largely evolves around the order in which the process areas are addressed. Hammer (2007), likewise, adopts a prescriptive approach (the "Process Audit") defining a number of process and enterprise competencies. Hammer also demands that all aspects of a stage are to be completed before progressing to higher stages of maturity.

A recognized shortcoming of the universalistic approaches adopted by Curtis and Alden (2006) and Hammer (2007) is that they seem to be more appropriate for relatively narrow domains and do not capture various aspects of an organization sufficiently (Sabherwal et al. 2001). A further critique of these BPM maturity models has been the simplifying focus, the limited reliability in the assessment, and the lack of actual (and documented) applications of these models leading to limited empirical validations.

A proposal to divide organizations into groups with regard to their grade and progression of BPM implementation was made by Pritchard and Armistead (1999). The Rummler–Brache Group commissioned a study, which used ten success factors gaging how well an organization manages its key business processes (Rummler–Brache 2004). The results have been consolidated in a Process Performance Index. Pritchard and Armistead (1999) provide a proposal for how to divide organizations into groups depending on their grade and progression of BPM implementation.

In an attempt to define maturity of BPR programs, Maull et al. (2003) encountered problems in that they could not use objective measures. They define BPM by using two dimensions, an objective measure (time, team size, etc.) and a “weighting for readiness to change” (Maull et al. 2003). This approach, however, turned out to be too complex for measurement. Therefore, they chose a phenomenological approach assessing the organization’s perception of their maturity, using objective measures as a guideline. Another example of how to define maturity (or in their case “process condition”) is provided by DeToro and McCabe (1997), who used two dimensions (effectiveness and efficiency) to rate a process’ condition. These models show that a clear distinction should be made between process maturity models and Business Process Management maturity models.

In addition to these dedicated process and BPM maturity models, a number of models have been proposed that study and structure the maturity of single elements of BPM in a more general way. An example is Luftman’s (2003) maturity model for strategic alignment.

As our base for identifying the core elements of BPM, we have used Rosemann and de Bruin’s (2005) BPM maturity model (de Bruin 2009). This BPM maturity model was selected for a number of reasons:

- First, it was developed on the contemporary understanding of BPM as a holistic management approach.
- Second, it is based on a sound academic development process. Starting with an in-depth and comprehensive literature review, the experiences and preliminary versions of three previous BPM maturity models have been consolidated. The model has been validated, refined, and specified through a series of international Delphi studies involving global BPM thought leaders (de Bruin and Rosemann 2007). A number of detailed case studies in various industries further contributed to the validation and deeper understanding of the model (de Bruin 2009).
- Third, the model distinguishes factors and capability areas on two levels of abstraction. This hierarchical structure allows different types of granularity in the analysis. As a result, definitions of the factors and capability areas are available and provide a basis for consistent interpretation (Rosemann et al. 2006; de Bruin 2009).
- Fourth and finally, the model has been applied within a number of organizations by means of documented case studies including embedded surveys and workshops (Rosemann and de Bruin 2004; Rosemann et al. 2004; de Bruin and Rosemann 2006; de Bruin 2009). Hence, the core elements have been validated and proven to be of practical relevance in real life projects.

For all these reasons, we are using this maturity model to identify the six core elements of BPM. That said, we use the model in a slightly modified way: We do not explicitly elaborate on the maturity assessment process and the various maturity stages of this model. Rather we take a static view and simply discuss the factors and corresponding capability areas of this BPM framework.

3 Introducing the Six Core Elements of BPM

3.1 Overview

The consolidation of related literature, the merger of three existing BPM maturity models, the subsequent international Delphi studies and the case studies led to a set of well-defined factors that together constitute a holistic understanding of BPM (de Bruin 2009). Each of the six core elements represents a critical success factor for Business Process Management. Therefore, each element, sooner or later, needs to be considered by organizations striving for success with BPM. For each of these six factors, the consensus finding Delphi studies (de Bruin and Rosemann 2007) provided a further level of detail, the so called *Capability Areas*. Both factors and capability areas are displayed in Fig. 2.

Our model distinguishes six core elements critical to BPM. These are strategic alignment, governance, methods, information technology, people, and culture.

- *Strategic Alignment*: BPM needs to be aligned with the overall strategy of an organization. Strategic alignment (or synchronization) is defined as the tight linkage of organizational priorities and enterprise processes enabling continual and effective action to improve business performance. Processes have to be

Strategic Alignment	Governance	Methods	Information Technology	People	Culture	Factors
Process Improvement Planning	Process Management Decision Making	Process Design & Modelling	Process Design & Modelling	Process Skills & Expertise	Responsiveness to Process Change	Capability Areas
Strategy & Process Capability Linkage	Process Roles and Responsibilities	Process Implementation & Execution	Process Implementation & Execution	Process Management Knowledge	Process Values & Beliefs	
Enterprise Process Architecture	Process Metrics & Performance Linkage	Process Monitoring & Control	Process Monitoring & Control	Process Education	Process Attitudes & Behaviors	
Process Measures	Process Related Standards	Process Improvement & Innovation	Process Improvement & Innovation	Process Collaboration	Leadership Attention to Process	
Process Customers & Stakeholders	Process Management Compliance	Process Program & Project Management	Process Program & Project Management	Process Management Leaders	Process Management Social Networks	

Fig. 2 The six core elements of BPM

designed, executed, managed, and measured according to strategic priorities and specific strategic situations (e.g., stage of a product lifecycle, position in a strategic portfolio; Burlton 2010). In return, specific process capabilities (e.g., competitive advantage in terms of time to execute or change a process) may offer opportunities to inform the strategy design leading to process-enabled strategies.

- *Governance*: BPM governance establishes appropriate and transparent accountability in terms of roles and responsibilities for different levels of BPM (portfolio, program, project, and operations). A further focus is on the design of decision-making and reward processes to guide process-related actions.
- *Methods*: Methods in the context of BPM are defined as the set of tools and techniques that support and enable activities along the process lifecycle and within enterprise-wide BPM initiatives. Examples are methods that facilitate process modeling or process analysis and process improvement techniques. Six Sigma is an example for a BPM approach that has at its core a set of integrated BPM methods (Conger 2010).
- *Information Technology*: IT-based solutions are of significance for BPM initiatives. With a traditional focus on process analysis (e.g., statistical process control) and process modeling support, BPM-related IT solutions increasingly manifest themselves in the form of process-aware information systems (PAIS) (Dumas et al. 2005). Process-awareness means that the software has an explicit understanding of the process that needs to be executed. Such process awareness could be the result of input in the form of process models or could be more implicitly embedded in the form of hard-coded processes (like in traditional banking or insurance applications).
- *People*: People as a core element of BPM is defined as individuals and groups who continually enhance and apply their process and process management skills and knowledge in order to improve business performance. Consequently, this factor captures the BPM capabilities that are reflected in the human capital of an organization and its ecosystem.
- *Culture*: BPM culture incorporates the collective values and beliefs in regards to the process-centered organization. Although commonly considered a “soft-factor,” comparative case studies clearly demonstrate the strong impact of culture on the success of BPM (de Bruin 2009). Culture is about creating a facilitating environment that complements the various BPM initiatives. However, it needs to be recognized that the impact of culture-related activities tends to have a much longer time horizon than activities related to any of the other five factors.

The six identified factors in this BPM maturity model are heavily grounded in literature. A sample summary of literature supporting these factors is shown in Fig. 3.

In the following, we will elaborate on the capability areas that further decompose each of these six factors. Here, we particularly draw from the results of a set of international Delphi Studies that involved BPM experts from the US, Australasia, and Europe (de Bruin and Rosemann 2007). We can only provide a brief overview

Factor	Source
Strategic Alignment	Elzinga et al. 1995; Hammer, 2001; Hung, 2006; Jarrar et al. 2000; Pritchard and Armistead, 1999; Pua K.Y. and Tang K.H, 2000; Zairi, 1997; Zairi and Sinclair, 1995
Government	Braganza and Lambert, 2000; Gullledge and Sommer, 2002; Harmon, 2005; Jarrar et al. 2000; Pritchard and Armistead, 1999
Methods	Adesola and Baines, 2005; Harrington, 1991; Kettinger et al. 1997; Pritchard and Armistead, 1999; Zairi, 1997
Information Technology	Gullledge and Sommer, 2002; Hammer and Champy, 1993; McDaniel, 2001
People	Elzinga et al. 1995; Hung, 2006; Llewellyn and Armistead, 2000; Pritchard and Armistead, 1999; Zairi and Sinclair, 1995; Zairi, 1997
Culture	Elzinga et al. 1995; Llewellyn and Armistead, 2000; Pritchard and Armistead, 1999; Spanyi, 2003, Zairi, 1997; Zairi and Sinclair, 1995

Fig. 3 The six BPM core elements in the literature

about each of the six factors in the following sections and refer to the chapters in this Handbook for deeper insights per factor.

3.2 *Strategic Alignment*

Strategic alignment is defined as the tight linkage of organizational priorities and enterprise processes enabling continual and effective action to improve business performance. Five distinct capability areas have been identified as part of an assessment of strategic alignment in BPM.

- A strategy-driven *process improvement plan* captures the organization's overall approach towards BPM. The process improvement plan should be directly derived from the organization's strategy, and outline how process improvement initiatives are going to meet strategically prioritized goals. This allows a clear articulation of the corporate benefits of BPM initiatives. The process improvement plan also provides information related to how the BPM initiative relates to underlying projects such as the implementation of an Enterprise System.
- A core element of strategic alignment, in the context of BPM, is the *bidirectional linkage between strategy and business processes*. Do the business processes directly contribute to the strategy? Do organizational strategies explicitly incorporate process capabilities? By way of example, do we know which processes

are impacted by a change of the strategy? Which processes could become a bottleneck in the execution of the strategy? Is the strategy designed and continually reviewed in light of current and emerging process capabilities? How should scarce resources be allocated to competing processes? Which processes are core to the organization and should be executed in-house (core competency)? Which processes are candidates for process outsourcing or off-shoring (Bhat et al. 2010)? Common methodologies such as Strategy Maps (Kaplan and Norton 2004) play an important role in linking strategy and process design.

- *An enterprise process architecture* is the highest level abstraction of the actual hierarchy of value-driven and enabling business processes (Aitken et al. 2010; Spanyi 2010). A well-defined enterprise process architecture clearly depicts which major business processes exist, describes the industry-/company-specific value chain, and captures the enabling processes that support this value chain, for example, finance, human capital management, or IT services. A well-designed process architecture provides a high level visualization from a process view and complements, and not replicates, organizational structures. In addition, it serves as the main process landscape and provides a starting point for more detailed process analyses and models.
- In order to be able to evaluate actual process performance, it is important to have a clear and shared understanding of *process outputs* and related key performance indicators (KPIs). A hierarchy of cascading, process-oriented, and cost-effectively measured KPIs provides a valuable source for the translation of strategic objectives to process-specific goals and facilitates effective process control. Relevant KPIs can differ in their nature, including financial, quantitative, qualitative, or time-based data, and will be dependent on the strategic drivers for the specific enterprise process (vom Brocke et al. 2010). As far as possible, such KPIs should be standardized across the various processes and in particular across the different process variants (e.g., in different countries). Only such a process performance standardization allows consistent cross-process performance analysis (e.g., what processes can explain a drop in the overall customer satisfaction?). Often equally important, but more difficult to measure, are those KPIs related to characteristics of an entire process, such as flexibility, reliability or compliance.
- Strategies are typically closely linked to individuals and influential stakeholder groups. Thus, a strategic assessment of BPM has to evaluate the actual priorities of *key customers and other stakeholders such as senior management, shareholders, government bodies, etc.* For example, it can be observed that a change of a CEO often will have significant impact on the popularity (or not) of BPM even if the official strategy remains the same. The consideration of stakeholders also includes an investigation of how well processes with touch-points (“moments of truth”) to external parties are managed, how well external viewpoints have been considered in the process design, and what influence external stakeholders have on the process design. Such a view can go so far that organizations consciously design processes the way they are perceived by their business partners, and then start to position their services in these processes.

3.3 Governance

BPM governance is dedicated to appropriate and transparent accountability in terms of roles and responsibilities for different levels of BPM (portfolio, program, project, and operations). Furthermore, it is tasked with the design of decision-making and reward processes to guide process-related actions.

- The clear definition and consistent execution of related BPM *decision-making processes* that guide actions in both anticipated and unanticipated circumstances is a critical challenge for BPM governance. In addition to *who* can make *which* decision, the speed of decision-making and the ability to influence resource allocation and organizational responses to process change is important. This requires alignment with related governance processes such as IT change management or Business Continuity Management.
- A core element of BPM governance is the definition of *process roles and responsibilities*. This covers the entire range of BPM-related roles, from business process analysts to process owners up to potential chief process officers (CPO). It also encompasses all related committees and involved decision boards, such as Process Councils and Process Steering Committees. The duties and responsibilities of each role need to be clearly specified, and precise reporting structures must be defined.
- Processes must exist to ensure the direct linkage of process performance with strategic goals. While the actual process output is measured and evaluated as part of the factor strategic alignment, accountabilities and the process for *collecting the required metrics* and linking them to performance criteria is regarded as being a part of BPM governance.
- *Process management standards* must be well-defined and documented. This includes among others the coordination of process management initiatives across the organization, and guidelines for the establishment and management process measures, issue resolution, reward, and remuneration structures.
- *Process management controls* as part of BPM governance cover regular review cycles to maintain the quality and currency of process management principles (e.g., “process reuse before process development”). Appropriate compliance management forms another key component of process management controls (Spanyi 2010).

3.4 Methods

Methods, in the context of BPM, have been defined as the tools and techniques that support and enable consistent activities on all levels of BPM (portfolio, program, project, and operations). Distinct methods can be applied to major, discrete stages of the process lifecycle. This characteristic, which is unique to the “methods” and “information technology” factors, has resulted in capability areas that reflect the

process lifecycle stages rather than specific capabilities of BPM methods or information technology. An advantage of associating the method capability with a specific process lifecycle stage is that a method can be assessed with regards to a specific purpose. For example, it is possible to assess the specific methods used for designing processes as distinct from those used for improving processes. Therefore, the methods dimension focuses on the specific needs of each process lifecycle, and considers elements such as the integration of process lifecycle methods with each other and with other management methods, the support for methods provided by information technology, and the sophistication, suitability, accessibility, and actual usage of methods within each stage.

- *Process design and modeling* is related to the methods used to identify and conceptualize current (as-is) business processes and future (to-be) processes. The core of such methods is not only to process modeling techniques but also to process analysis methods.
- *Process implementation and execution* covers the next stages in the lifecycle. Related methods help to transform process models into executable business process specifications. Methods related to the communication of these models and escalation methods facilitate the process execution.
- The *process control and measurement* stage of the process lifecycle is related to methods that provide guidance for the collection and consolidation of process-related data. These data can be related to process control (e.g., risks), or could be process performance measures (e.g., time, cost, and quality).
- The *process improvement and innovation* stage includes all methods which facilitate the development of improved business processes. This includes approaches that support the activities of process enhancement (e.g., resequencing steps in a process), process innovation (e.g., creative thinking techniques), process utilization (better use of existing resources such as people, data, or systems), and process derivation (reference models, benchmarking, etc.).
- The assessment component *process project management and program management* evaluates the methods that are used for the overall enterprise-wide management of BPM and for specific BPM projects. The latter requires a sound integration of BPM methods with specific project management approaches (e.g., PMBOK, PRINCE 2).

3.5 Information Technology

Information technology (IT) refers to the software, hardware, and information systems that enable and support process activities. As indicated, the assessment of IT as one of the BPM core elements is structured in a similar way to that of BPM methods, and also refers to the process lifecycle stages. Similar to the methods dimension, the IT components focus on the specific needs of each process lifecycle stage and are evaluated from viewpoints such as customizability, appropriateness of

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