Business Process Management Value Map

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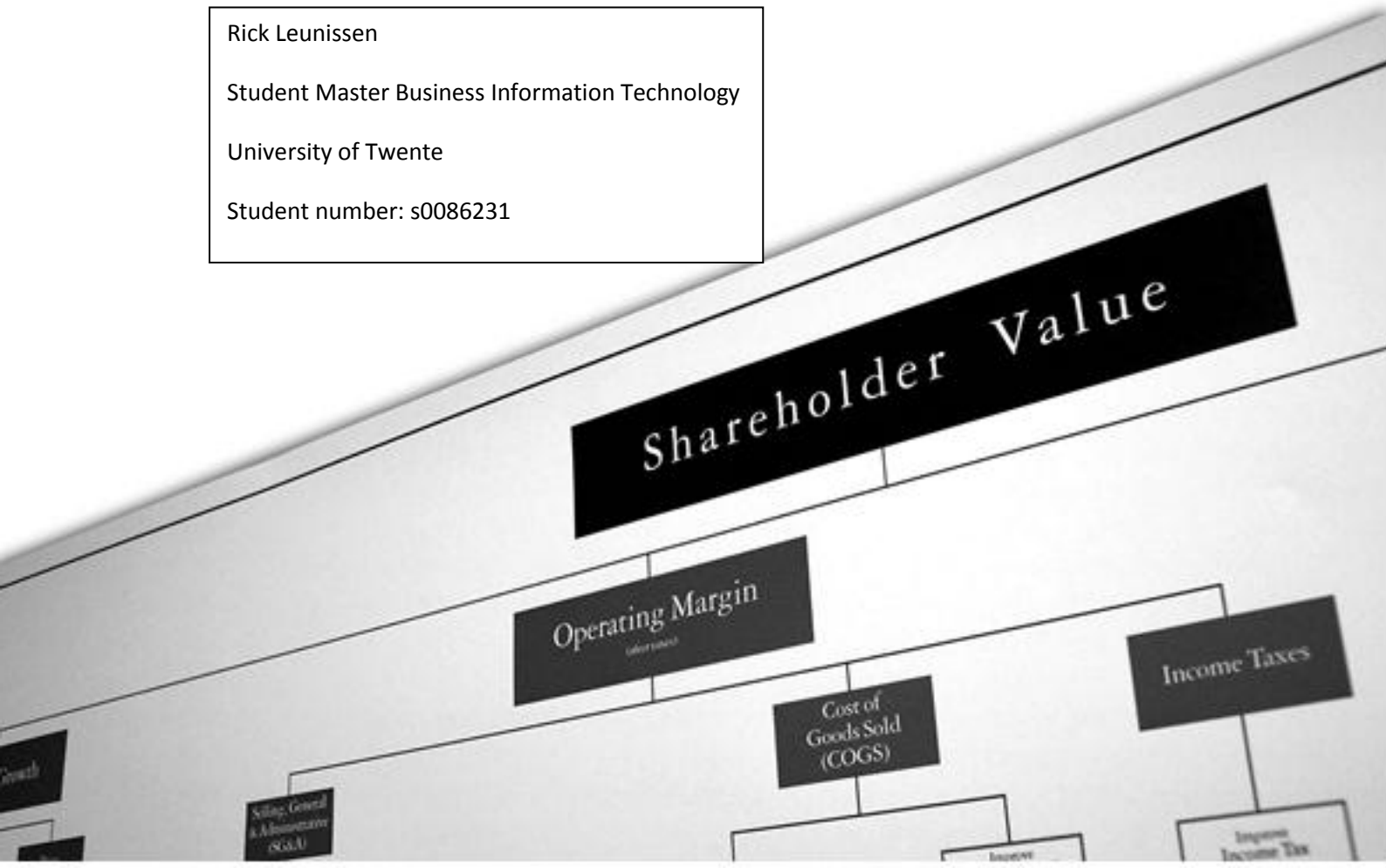

Master thesis

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Preface

This thesis marks the end of my studies at the Twente University where I have studied for the past years. A period that was highly educational, very enjoyable and extremely interesting. During my thesis I had the pleasure to sink my teeth into the world of Business Process Management, a world where I will also continue my further career. I have been guided, supported and motivated by several people who I would sincerely like to thank.

First of all I would like to thank my supervisors at Twente University, Luís Ferreira Pires and Maria-Eugenia Iacob. They have supported me through the entire thesis process, providing me with their insights and guiding me in the right direction.

I have carried out my research at Deloitte Consulting. I would like to thank Edward van Meeuwen for his support, feedback and insights. We have had several discussions helping me to structure my thesis, guided me in the right direction and fill in the details. I would also like to thank all the colleague´s at Deloitte who have always been available for questions, feedback and discussion.

Apart from my direct supervisors I also want to thank my family and friends for their support. Special thanks go out to my parents who have supported me throughout my entire student life and thesis in particular.

Rick Leunissen

Contents

1. Introduction

This chapter presents the motivation, objectives, relevance and research approach of this thesis.

This chapter is structured as follows:

- Section 1.1 presents the motivation of this thesis
- Section 1.2 presents the objective and relevance of this thesis
- Section 1.3 presents the research questions of this thesis
- Section 1.4 presents the research approach of this thesis
- Section 1.5 presents the document structure

1.1 Motivation

The main objective of most organizations is to maximize their shareholder value over time (McTaggart, Kontes, & Mankins, 1994).To achieve this objective organizations are engaged in assessing ways in which their processes can be improved (Elzinga, Horak, lee, & Bruner, 1995). For six years in a row Gartner identifies the improvement of business processes as the most important issue for CIO's and Business Process Management (BPM) is the latest thinking on how to best achieve improving business processes (Michele Cantara, 2010).

To optimize the shareholder value through process optimization, organizations adopt BPM as a holistic approach. The typical adoption process starts with the awareness of organizations that BPM can improve shareholder value and their desire to adopt BPM to improve their shareholder value. After some individual projects have proven the success of BPM, organizations capture the BPM projects in a more centralized BPM program (Rosemann, 2008).

Instead of streamlining one process and unknowingly sub optimizing others, organizations are looking for a way to structure and prioritize their BPM projects to relate their BPM activities in a BPM roadmap. This process is also known as BPM portfolio management. In this portfolio management process the challenge is to provide a consolidating view of the complete business process landscape of the organization (Rosemann, Process Portfolio Management, 2006). By relating the BPM life cycle to the business process landscape organizations can identify possible BPM improvement opportunities.

To discuss and prioritize these BPM improvement opportunities, organizations position the opportunities in a portfolio with two dimensions. The first dimension is the impact the BPM improvement opportunity has on shareholder value. The second dimension is the capability of the organization to achieve the BPM improvement opportunity (Rosemann, 2008). The capability of an organization to achieve a BPM improvement opportunity can be related to the BPM Maturity of the organization. (Lee, Lee, & Kang, 2007). However this method doesn't provide the consolidated view of the BPM improvement opportunities and does not take the relationships between these opportunities into account.

This can be solved by applying a framework that contains all possible BPM improvement opportunities and directly relates them to shareholder value and organizational capability. Such a framework would help organizations to identify, discuss and prioritize all possible BPM improvement opportunities to develop their BPM Roadmap.

1.2 Research objectives & relevance

The main objective of this thesis is *"to develop a framework to identify, discuss and prioritize possible BPM improvement opportunities related to shareholder value and organizational capability to support organizations in their BPM portfolio management process"* . This framework is based on relevant literature in the field of shareholder value, BPM and BPM maturity models.

The scientific relevance of this thesis entails the proposed framework for identifying, discussing and prioritizing possible BPM activities based on organizational capability and shareholder value. As described in the motivation there is no scientific method that consolidates all possible BPM improvement opportunities related to shareholder value and organizational capability. This thesis provided such a scientific method and established a starting point for further research.

The thesis is relevant in practice as it helps organizations in their BPM portfolio management process by providing a tool to identify, discuss and prioritize their possible BPM improvement opportunities. This results in a better BPM roadmap and improves the value creation of the organization.

Scientist, practitioners and vendors have no common body of language (Olding, 2007) and this also reflects in the way organizations apply BPM (Elzinga, Horak, lee, & Bruner, 1995). Relating the BPM theory and application of BPM to BPM improvement opportunities organizations helps organizations to better understand BPM. By relating the same BPM theory to shareholder value and organizational capability the framework also helps in becoming more aware of the potential benefits of BPM.

1.3 Research questions

To reach the objective of the thesis the following research question is answered:

How can organizations identify, discuss and prioritize all possible BPM opportunities in a single framework based on shareholder value and organizational capability?

The research question is divided into the following sub-questions:

Q1: What is shareholder value?
Q2: What is Business Process Management?
Q3: What is Business Process Management Maturity?
Q4: How can we relate Business Process Management, Business Process Management Maturity and shareholder value in a framework?
Q5: How can we populate the framework?
Q6: How can organizations apply the framework in practice?
Q7: How can we validate the framework?

1.4 Research approach

The approach used in this research is shown in Figure 1. The research approach is based on the design science framework for IS research (Hevner, March, Park, & Ram, 2004) which uses both input from the knowledge base (green blocks) and the business environment (blue blocks) of the research field. The research approach describes how the research questions and sub-questions are answered.

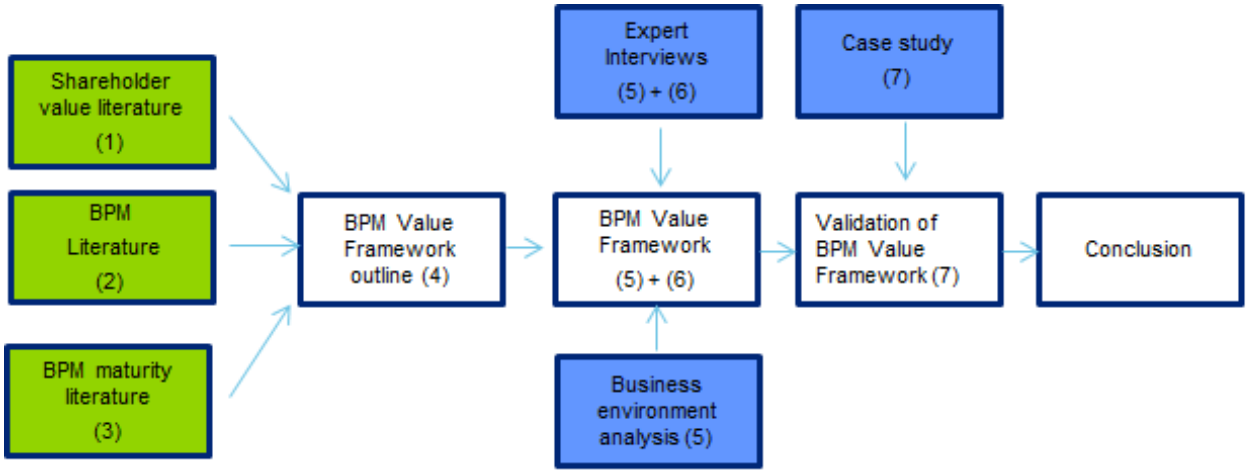


Figure 1: Research approach

Q1: "What is shareholder value?" is answered by performing a literature study on shareholder value. Based on the literature a definition of shareholder value and a method to measure shareholder value is presented.

Q2: "What is Business Process Management?" is answered by performing a literature study on Business Process Management. Based on the literature study the history, definition and application of BPM is presented.

Q3: "What is Business Process Management Maturity?" is answered by performing a literature study on Business Process Management Maturity. Based on the literature study the history of maturity and business process maturity model is presented and a number of business process management maturity models are compared to select an appropriate maturity model.

Q4:" How can we relate Business Process Management, Business Process Management Maturity and shareholder value in a framework?" is answered by relating the findings of the literature studies in the first three sub-questions. This relation resulted in a framework outline that relates shareholder value, BPM and BPM maturity.

Q5: "How can we populate the framework" is answered by applying a reference business process model from the business environment to the framework outline and performing expert interviews to relate business processes to the BPM life cycle. Experts for the interviews are selected on their BPM and/or process expertise.

Q6: "How can organizations apply the framework in practice? "is answered by performing expert interviews. Based on the framework and the expert interviews a methodology to use the framework is described.

Q7: “How can we validate the framework” is answered by performing a case study at an organization. The goal of the case study is to validate the applicability of the framework in practice.

Finally the research question is answered by concluding the findings of this thesis.

1.5 Document structure

This report is further structured as follows:

Chapter 2 (Shareholder value) answers the first research question by giving a definition of shareholder value and value drivers

Chapter 3 (Business Process Management) answers the second research questions by giving a definition of BPM and an overview of BPM activities

Chapter 4 (Business Process Management Maturity) answers the third research question by giving a definition of BPMM and describing relationship between BPMM and BPM activities

Chapter 5 (Framework outline) answers the fourth research question by defining the outlines of the framework used to relate shareholder value and BPM activities

Chapter 6 (Populated framework) answers the fifth research question by populating the framework

Chapter 7 (Application of the framework), answers the sixth research question by describing how the framework can be applied in practice

Chapter 8 (Validation of the framework), answers the seventh research question by validating the framework

Chapter 9 (Conclusion) answers the research question by evaluating the results of the thesis. This chapter also gives suggestions for further research.

2. Shareholder value

This chapter presents a definition of shareholder value, discusses different generations of performance measures used to balance short- and long term investment and describes a methodology to relate improvement actions directly to shareholder value.

This chapter is structured as follows:

- Section 2.1 presents a definition of shareholder value
- Section 2.2 presents performance measures
- Section 2.3 presents the balanced score card
- Section 2.4 presents the strategy map
- Section 2.5 presents the value map
- Section 2.6 summarizes the chapter

2.1 Definition

After the market exuberance of the dotcom bubble in the late 90's, the burst brought a renewed interest in the concept of shareholder value. Since then, all kinds of companies have been publicly proclaiming their commitment to increasing long-term value for their stakeholders. The philosophy of managing for shareholder value is also knows as value-based management (VBM). Like other management concepts, VBM has been adapted by companies to suit their circumstances and there is no best practice model (Starovic, Cooper, & Davis, 2004).

McTaggart defines VBM as "*a formal systematic approach to managing companies to achieve the objective of maximizing value creation and shareholder value over time"* (McTaggart, Kontes, & Mankins, 1994).

A measure for Shareholder Value from an investor's perspective is the Total Shareholder Return (TSR). TSR can be calculated as followed, TSR = ((Share Price EndofPeriod - Share Price BeginOfPeriod) + Dividents) / Share Price BeginOfPeriod).

Creating shareholder value is not about applying a set of tools or processes but about creating competitive advantage as part of an organizations strategy. Understanding value drivers and their interactions is one of the difficulties of developing strategy. A management survey found that 69% of executives reported that they had attempted to demonstrate empirical cause-effect relations between the different categories of value drivers and value creation and future financial results. However less than one third felt they had successfully completed this task (DiPiazza & Eccles, 2002). To optimize shareholder value organizations apply performance measures to balance short and long-term investments. (Kaplan & Norton, 1996).

2.2 Performance measures

Organizations use performance measures to assess their business performance. Performance can be referred to as "*A general term applied to part or all of the conduct or activities of an organization over a period of time, often with a reference to some standard such as past or project costs, an efficiency base, management responsibility or accountability, or the like*" (Kohler, 1985). Performance is measured based on efficiency and effectiveness. Efficiency means "doing things right" and refers to the ability to get things done in the right manner. Effectiveness means "doing the right things" (Drucker, 1981).

Traditional performance measures focus entirely on cost efficiency and effectiveness. Examples of such measures are the Earning per Share (EPS), Return on Capital employed (ROCE), return on net worth, net profit margin etc. The concept of Shareholder Value has changed the performance appraisal criteria of organizations from cost efficiency and effectiveness to new value based performance measures. These new performance measures measure both tangible and intangible value. Examples of new performance measures are Market value Added, Economic Value Added, Cash Value Added, Total Quality management and the Balanced Score Card (BSC) (Agarwal & Agarwal, 2003). The main difference between traditional performance measures and value based performance measures is that traditional performance measures focus on short-term performance whereas value based performance also take long-term performance into account.

As the BSC not only balances financial and non-financial measures but also links performance to rewards and gives recognition to the diversity of organizational goals, it also links performance to the organizations strategy.

2.3 Balanced Score Card

The balanced score card is "*an approach which provides information to the management and assist them in formulation of organization's mission and strategy"* (Arveson, 1998). The purpose of a BSC is to provide the management with information which reveals all relevant areas of performance in an objective and unbiased way. It assists organizations to assess overall performance, improve operational processes and enable organizations to formulate plans for improvement.

The BSC generally has four perspectives to measure an organizations performance. These four perspectives are (Agarwal & Agarwal, 2003) (Kaplan & Norton, 1996).

1. Customer perspective

This perspective focuses on customer satisfaction and the customer perspective of the organization

2. Internal business perspective

This perspective focuses on the key internal processes driving the organization

3. Learning and growth perspective

This perspective focuses on the potential future improvements

4. Financial perspective

This perspective focuses on the result the organization delivers to its stakeholders

The balanced scorecard relies on four processes to bind short-term activities to long-term objectives, as depicted in Figure 2:

1. Translating the vision
2. Communicating and linking
3. Business planning
4. Feedback and learning

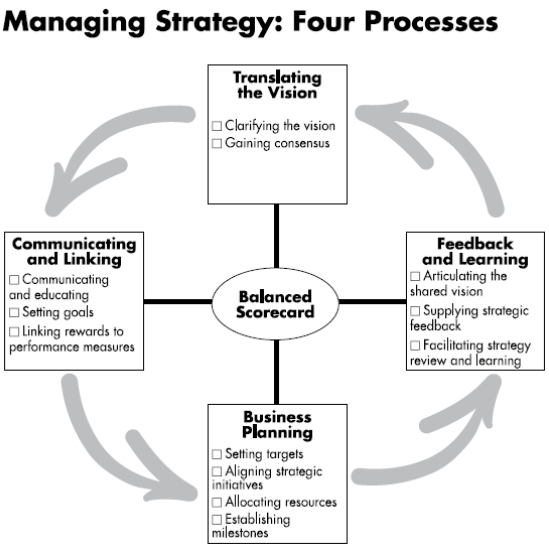


Figure 2: Four processes of the Balanced Score Card

2.4 Strategy maps

To facilitate discussion among executives, the creators of the BSC have created a general representation of the four perspectives in a so-called strategy map. This is a visual representation of the linked components of an organization's strategy and can serve as a checklist. If an organizations strategy is missing a perspective it is likely its strategy is flawed. The BSC strategy map is shown in Figure 3.

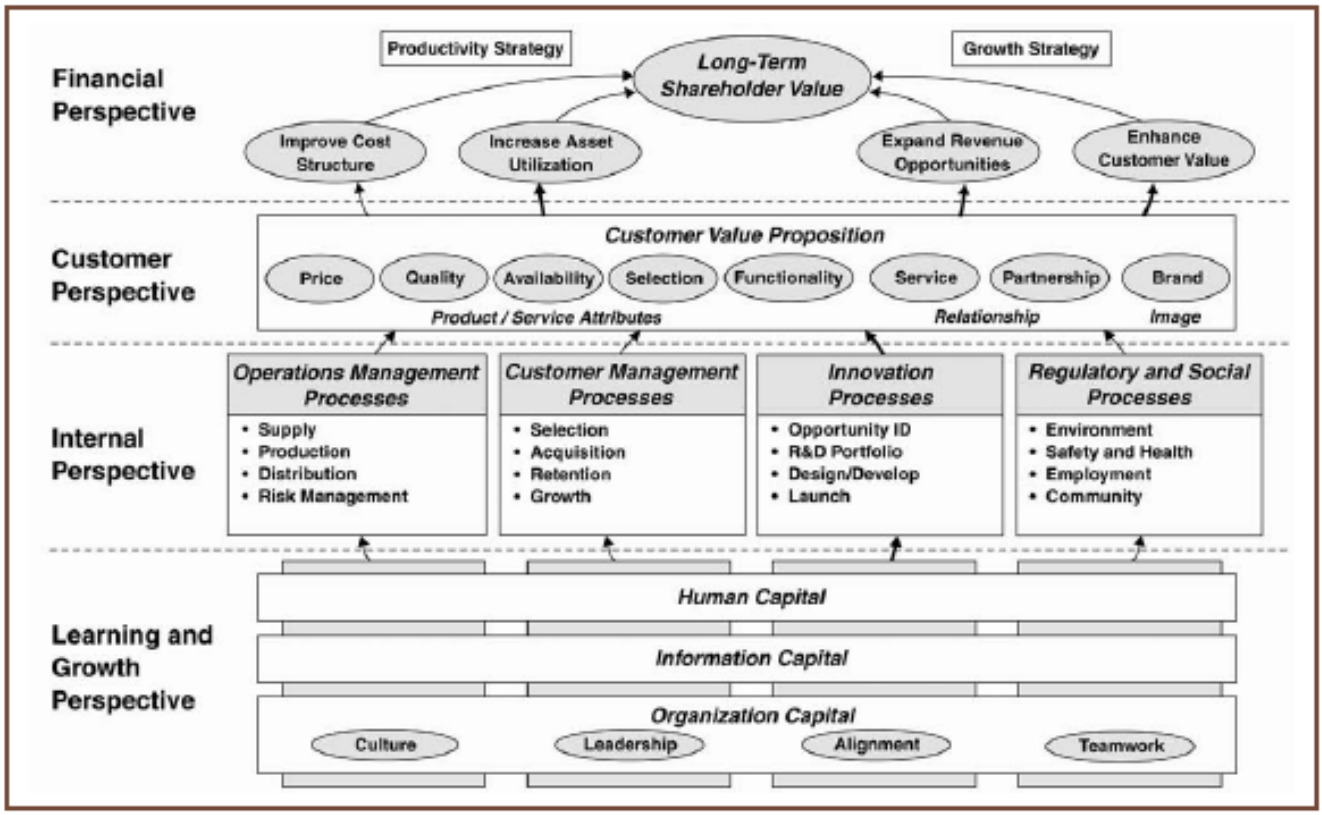


Figure 3: Balanced Score Card strategy map

The BSC strategy map is based on five principles:

1. Strategy balances contradictory forces

The starting point in describing the strategy is to balance the short-term financial objectives for cost reduction and long-term objectives for profitable growth.

2. Strategy is based on differentiated customer value proposition

The value proposition is the most important dimension in strategy as it is essential to attract and retain customers.

3. Value is created through internal business processes

Processes drive the strategy as they describe how the organization will implement the strategy. Effective and aligned processes determine how value is created. The BSC identifies internal processes into four clusters:

I. Operations management
II. Customer management
III. Innovation
IV. Regulatory and social

4. Strategy consists of simultaneous complementary themes

By enhancing processes in all the four clusters organizations realise sustainable growth

5. Strategic alignment determines the value of intangible assets

The fourth perspective of the BSC strategy map, learning and growth, describes the intangible assets of an organisation. The BSC distinguishes three categories:

I. Human capital
II. Information capital
III. Organizational capital

The strategy map framework enables human, information and organizational capital to be represented as assets that eventually get converted into cash through higher sales and lower spending.

2.5 Value Map

The Enterprise Value Map (EVM) is a tool developed by Deloitte Consulting, based on the strategy map, which enables organizations to relate shareholder value and the steps companies can take to improve their operations. The structure of the EVM is shown in Figure 4 and contains the following three levels:

1. Shareholder value

Shareholder value is the top of the EVM and refers to the ultimate goal of organizations to optimize shareholder value. Shareholder value is driven by the lower-level value drivers.

2. Value drivers

Deloitte distinguishes four main value drivers that drive Shareholder value. These value drivers are revenue growth, operating margin, asset efficiency and expectations as shown in Appendix A. Typically this means that if three value drivers are held constant and one driver improves this will result in increased shareholder value. However according to the first principle of strategy maps these drivers will have substantial influence on each another and a balance should be found.

Three of the value drivers are related to the four financial perspectives of the BSC strategy map.

- Revenue growth is derived from the expand revenue opportunities perspective and enhance customer value perspective
- Operating margin is derived from the improve cost structure perspective
- Asset efficiency is derived from the improve asset utilization perspective

These three value drivers relate to the dividend part of the definition of shareholder value. However shareholder value is also based on the share price, which results in a fourth value driver “expectations”. According to the EVM expectations, which is the confidence of shareholders and analysis in the organizations ability to perform well in the future, is the key driver for share price.

To relate the value drivers to level-lever improvement levers the value drivers are broken down into sub-value drivers.

3. Improvement levers

Improvement levers are high level steps an organization can take to improve value driver performance. These improvement levers are based on the customer perspective; internal process perspective and learning and growth perspective form the strategy map. These improvement levers have been optimized by Deloitte internal shareholder value experts, analytical framework, stock analysts and CFO’s of Deloitte’s clients to the current framework.

The EVM enables organizations to relate shareholder value and the steps companies can take to improve their operations. These steps are referred to as improvement actions, which are related to the different improvement levers.

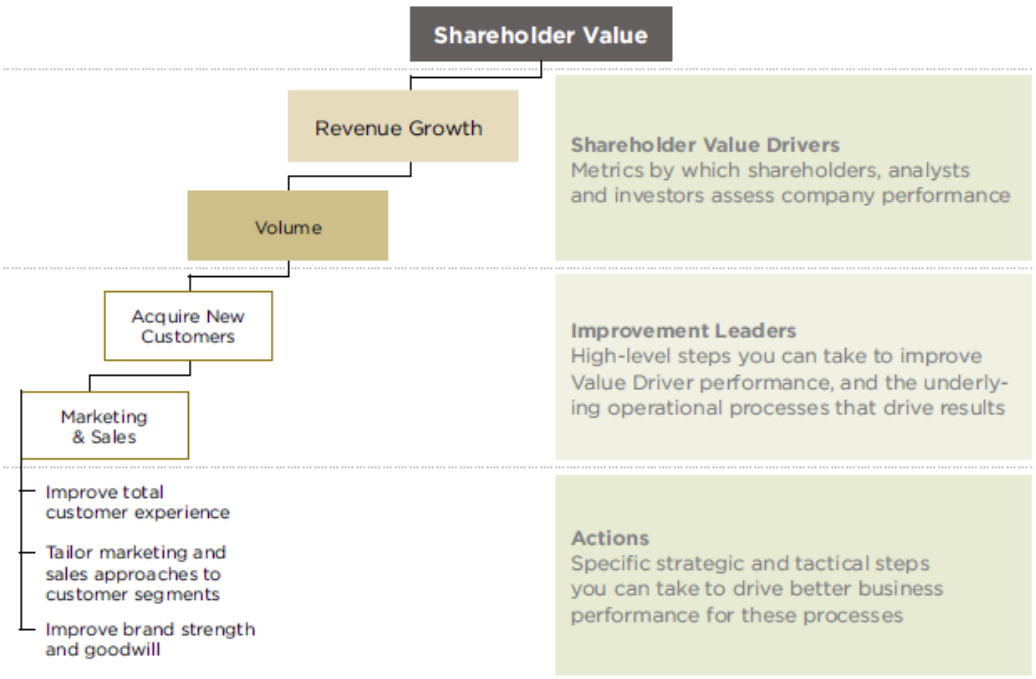


Figure 4: Enterprise Value Map structure

2.6 Summary

After the market exuberance of the dotcom bubble in the late 90's, the burst brought a renewed interest in the concept of shareholder value. Since then organizations started with value based management, which is defined as "*a formal systematic approach to managing companies to achieve the objective of maximizing value creation and shareholder value over time"* (McTaggart, Kontes, & Mankins, 1994). However, less than one third of the managers felt they had successfully related cause-effect relations between value drivers, value creation and future results.

To optimize shareholder value organizations can apply performance measures to assess the business performance. The first performance measures focused on cost efficiency and effectiveness. The next generations of new performance measures also measure both tangible and intangible value. The balanced score card does not only balance financial and non-financial measures but also links performance to organization goals.

Based on the balanced score cards strategy maps are created to facilitate discussion among management. This is a visual representation of the components of an organization and can serve as a checklist. The Deloitte Enterprise Value Map, which is based on the BSC strategy map, enables organizations to relate shareholder value and the steps companies can take to improve their operations.

3. Business Process Management

This chapter presents the history, definition and characteristics of business processes and Business Process Management. After the concept of BPM is presented the chapter describes how organizations typically apply BPM and why organizations should apply BPM.

This chapter is structured as follows:

- Section 3.1 presents a definition of business processes
- Section 3.2 presents a definition of BPM
- Section 3.3 presents the stages of BPM adoption
- Section 3.4 presents the BPM life-cycle
- Section 3.5 presents the benefits of BPM
- Section 3.6 summarizes the chapter

3.1 Business processes

Before we can define Business Process Management it is important to agree on the term "business process". There is no precise and commonly agreed definition about business processes that can ground them as a unique research area (Vergidis, 2008). This does not mean there is no common ground on the subject.

A definition of business processes that is shared by a large number of authors and is precise enough to work with (Gulledge & Sommer, 2002) is the definition of Armistead & Machin. They define business process as *"concept of a series of interrelated activities, crossing functional boundaries, with specific inputs and outputs"* (Armistead & Machin, 1998). This definition of business processes is used in this research, with the notion that business processes are dynamic (Gulledge & Sommer, 2002).

3.2 Definition

Despite the fact that BPM is ranked as a top priority by organizations, there is no common understanding of BPM (Bandara, Harmon, & Rosemann, 2010) and no commonly agreed definition is available (Vergidis, 2008). Each definition might differ from the perspective of the stakeholder, for instance practitioners might define BPM in a different way than academics (Lusk, Paley, & Spanyi, 2005).

A high-level and common used definition of BPM is the definition of Elzinga, Horak, Lee & Bruner (1995) who define BPM as "*A systematic, structured approach to analyze, improve, control and manage processes with the aim of improving the quality of products and services*". This definition of BPM is used in this research, with the notion that BPM is regarded as a holistic management discipline (Michele Cantara, 2010) and is a continuous process (Zairi, 1997).

3.3 Stages of BPM adoption

Organizations typically go through five stages when adopting Business Process Management (Rosemann, 2008). This section describes these five phases.

1. Awareness

An awareness of the benefits and methodologies of BPM has to occur within the organization. In many cases the adoption of BPM fails because of a lack of a deeper understanding of BPM (Rosemann, The Service Portfolio of a BPM Center of Excellence, 2008). Lack of awareness is one of the biggest barriers to success (Hill, Cantara, Olding, Rosser, & Sinur, 2010).

2. Desire

The awareness and understanding of BPM has to convert to the desire to adopt BPM. An enthusiastic business sponsor is important in this stage of adoption as investing in organizational readiness is a success factor for adopting BPM. (Hill, Cantara, Olding, Rosser, & Sinur, 2010). As BPM has no classical home in an organization it remains an ongoing challenge to find a business sponsor in the organization (Rosemann, 2008).

3. Individual BPM Projects

When there is awareness individual BPM projects have to be set up, executed, and monitored that can then be used to market and expand the BPM ideas. In this phase the organization builds up BPM capabilities and credibility.

4. BPM program

Assuming that individual BPM projects have been successful, organizations should shift from multiple BPM projects to a governing and more centralized BPM program. In this stage an overall BPM methodology needs to be designed.

5. BPM portfolio

After a centralized BPM group is formed a roadmap for BPM projects is required. All services offered by the BPM group can be positioned in a portfolio with two dimensions, demand and capability. Demand reflects the current organizational appetite for the BPM service and capability describes the readiness of the BPM group to provide a certain service. In such a two-dimensional portfolio there are four possible quadrants as shown in Figure 5.

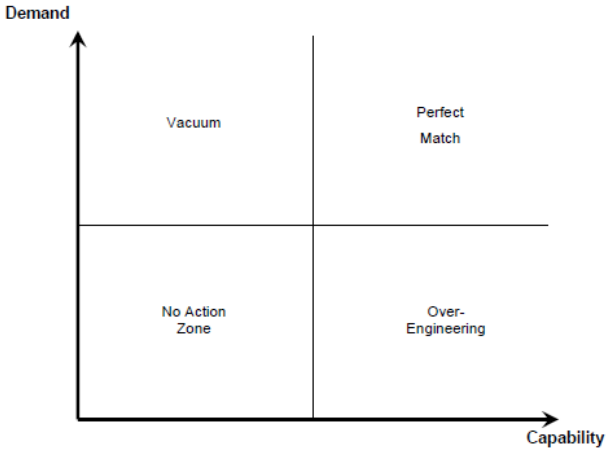


Figure 5: Portfolio quadrants

3.4 BPM Life Cycle

Now we have characterized BPM and described the stages of BPM adoption in organization we go into the type BPM activities an organization can perform. Regarding the definition of business processes and BPM we have already concluded that there is no common body of knowledge (Olding, 2007) . We also see the lack of common body of knowledge in the description of BPM services.

In the BPM literature a number of common BPM activities can be identified, referred to in a different ways. Academics refer to these activities in a so called “BPM life-cycle”. (Aalst, Hofstede, & Weske, 2003) (Harrington, 1995) (Smith & Fingar, 2003). In this research we use the BPM life-cycle as shown in figure 6 summarizing common used BPM life-cycles. This BPM life-cycle is shown in Figure 6. To justify this choice we compare the life cycle with the life cycles of Aalst, Hofstede & Weske and Smith & Fingar (Aalst, Hofstede, & Weske, 2003) (Smith & Fingar, 2003). After this justification we go into the six phases described in the BPM life cycle.

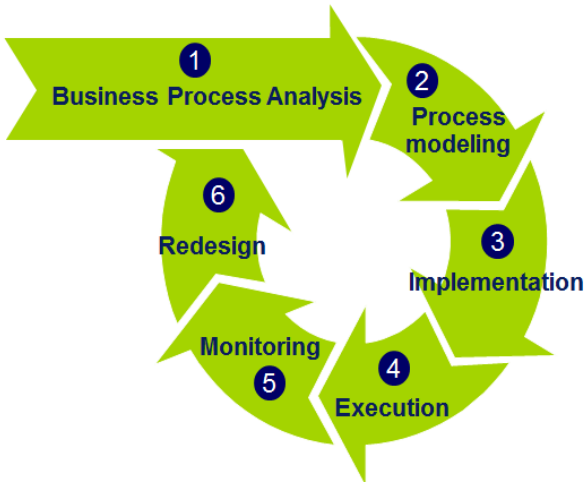


Figure 6: BPM Life Cycle

The BPM life cycle of Aalst et al describes the various phases in support of operational business processes as shown in Figure 7 (Aalst, Hofstede, & Weske, 2003).

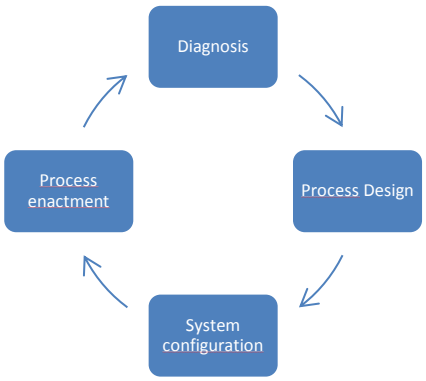


Figure 7: BPM Life Cycle Aalst et al.

The four phases of the life cycle by Aalst et al. can be found in the proposed life-cycle.

- Diagnosis: Business Process Analysis in the proposed life-cycle
- Process design: Process modeling in the proposed life-cycle
- System configuration: Implementation and execution in the proposed life-cycle
- Process enactment: Monitoring in the proposed life-cycle

The difference between the proposed life cycle and the life cycle by Aalst et al is that the proposed model contains redesign explicit in the life cycle where in the life cycle of Aalst et al this is implicit in the life cycle.

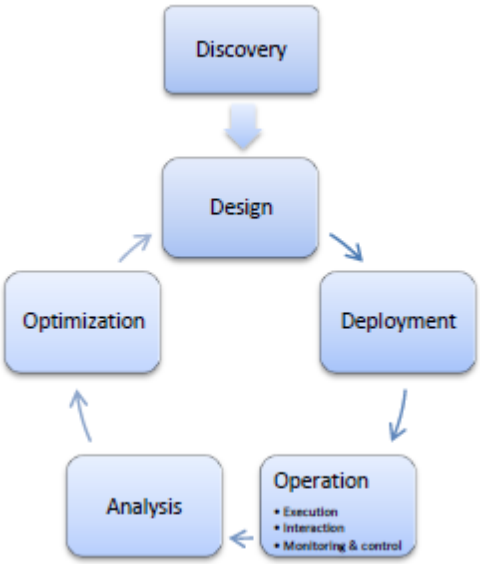


Figure 8: BPM Life Cycle Smith and Fingar

The model of Smith and Fingar (Smith & Fingar, 2003) starts with a discovery phase and then contains a cycle with five phases as shown in Figure 8. These five phases can also be found in the proposed lifecycle.

- Discovery: Business Process Analysis in the proposed lifecycle
- Design: Process Modeling in the proposed lifecycle
- Deployment: Implementation in the proposed lifecycle
- Operation: Execution in the proposed lifecycle
- Analysis: Monitoring in the proposed lifecycle
- Optimization: Redesign in the proposed lifecycle

3.4.1 Process analysis

The goal of the business process analysis phase is to get insights in the current business processes of an organization. These business processes can be derived from the current work patterns of employees and existing applications supporting or executing the business processes. Deriving the business processes from current work is usually done manually and is also known as process mapping. Deriving business processes from existing applications can be done automatically and is also known as process mining.

After the business processes are derived by process mapping and/or process mining the relationships between business processes has to be identified to represent the processes in process architecture.

3.4.2 Process modeling

Business process modes represent the way organizations conduct their business processes. A business process model typically describes in a graphical way at least the activities, event/states and control flow logic that constitute a business processes. A process model might also include data, resources and other artifacts such as external stakeholders, goals, risks and performance metrics (Indulska, Recker, Rosemann, & Green, 2009).

To ensure that a process model is unambiguous a model is described in a formal language to guarantee that alternative interpretations are ruled out. As business models can be quite complex it is important that all stakeholders reach consensus on the process model. Business process models are an important instrument for analysis of current processes and design of to be processes as they represent the way an organization conducts their business processes and create their value. Figure 9 gives an example of a process model.

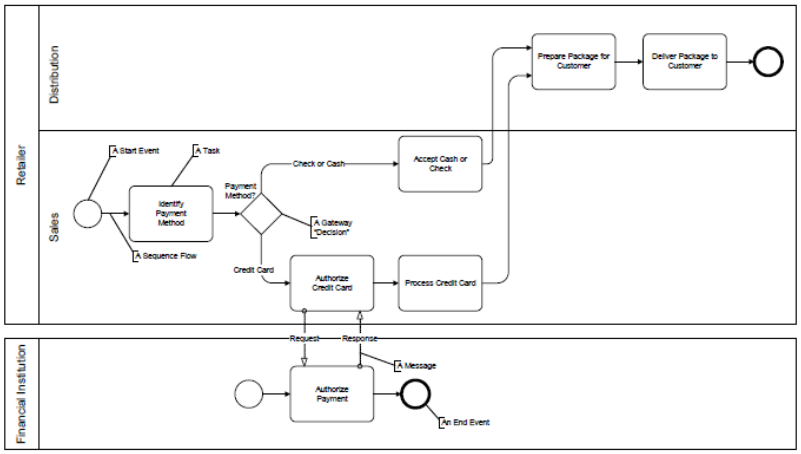


Figure 9: An example Business Process Model in BPMN (Muehlen & Recker, 2008)

3.4.3 Process implementation

In the implementation phases the business process model is translated into an executable business process model. Some business process model languages can automatically be translated into an executable business process model. Other business process models should be manually translated into an executable business process model. In the implementation phases the user interfaces are also created. BPM aims to integrate different systems from both inside and outside the organizational, integrated these systems is also part of the implementation phase.

3.4.4 Process execution

In the execution phase the executable business process model becomes operational by transferring the process definition to the workflow engine. This phase does not only contain process definition data but also context data about the environment with which the BPM system interacts. This context data is captured and related to the specific instances of the process.

3.4.5 Process monitoring

In this phases the business processes instances are monitored to be able to give feedback on the status specific status of a business process instance and aggregate data to get insights in the performance of the business processes. Mostly the monitoring phase uses key performance indicators (KPI's) to provide insights in the business processes performance. Information on improvement points and bottlenecks can be used in the redesign phase.

3.4.6 Process redesign

In this phase the information of the monitoring phase is used to optimize the business process en and BPM system. Weaknesses in the process are redesigned in the process model and implemented and executed in the BPM system.

3.5 Benefits

The common thought behind the benefits of BPM is that better processes produce lower costs, higher revenues, motivated employees and happier customers. There are a number of companies that have shown quite a dramatic improvement of economic value driven by process improvement. Even without process redesign Gartner indicates that companies can still expect operational improvement for any process by making the process explicit (Michele Cantara, 2010).

The basic value proposition of BPM is that an organization can process more work while improving quality and reducing the effort. The business case for BPM can be based on three main benefits (Rudden, 2007):

1. Efficiency

The BPM solution eliminates manual data entry, reduces process cycle time and reduces manual analysis and routing.

2. Effectiveness

The BPM solution provides better and faster exception handling, supports in the decision making process and ensures a consistent execution of processes

3. Agility

The BPM solution provides a platform to adapt to change faster and in a more controlled fashion and support for new business models as they require new processes.

3.6 Summary

Despite the fact that BPM is ranked as a top priority by organizations there is no common understanding of BPM. In this research BPM is defined as "*A systematic, structured approach to analyze, improve, control and manage processes with the aim of improving the quality of products and services"* (Elzinga, Horak, lee, & Bruner, 1995) with the notion that BPM is a holistic management discipline (Michele Cantara, 2010) and a continuous process (Zairi, 1997). A business process is defined as *"concept of a series of interrelated activities, crossing functional boundaries, with specific inputs and outputs"* (Armistead & Machin, 1998) with the notion that they are dynamic.

Organizations typically adopt BPM in a five stage starting with awareness of BPM, developing the desire to apply BPM, starting individual BPM projects, shift to a BPM and eventually develop a BPM portfolio. The business case for BPM is based on three main benefits; efficiency, effectiveness and agility. When applying BPM to a business processes a BPM life-cycle can be applied. The BPM Life-cycle used in this research contains the following six steps.

1. Business process analysis
2. Process modeling
3. Implementation
4. Execution
5. Monitoring
6. Redesign

4. Business Process Management Maturity

This chapter presents the Business Process Management Maturity model by describing the history of the maturity model, how a maturity model is developed and comparing a number of important BPMM models. After the introduction of the BPMM model the chapter describes the relation between BPMM and the BPM life cycle and the impact BPMM has on value creation.

This chapter is structured as follows:

- Section 4.1 presents the history of Maturity Models
- Section 4.2 presents how Maturity Models are developed
- Section 4.3 presents a comparison of BPMM models
- Section 4.4 presents the impact BPMM has on value creation
- Section 4.5 presents the relationship between BPMM and the BPM Life cycle
- Section 4.6 summarizes the chapter

4.1 History of Maturity Models

Organizations are continually facing pressure to gain and retain competitive advantage. Therefore identifying ways of cutting costs, improving quality, reducing time to market and so on have become increasingly important. Maturity models have been developed to assist organizations in these goals by assessing the organizations maturity of a selected domain based on a set of criteria. The most popular way to represent the maturity is a five-point Likert scale (Bruin, Freeze, Kalkarni, & Rosemann, 2005).

The concept of a maturity model has been introduced with the Capability Maturity Model (CMM) for software from the Software Engineering Institute (SEI). The CMM provides software organizations with guidance on how to gain control of their processes for developing and maintaining software and how to evolve toward a culture of software engineering and management excellence (Paulk, Paulk, Chrissis, & Weber, 1993).

According to the SEI continuous improvement is based on many, small evolutionary steps rather than revolutionary innovations. The CMM provides a framework that organizes these steps into five maturity levels that lay the foundation for continuous improvement. This framework defines an ordinal scale for measuring the maturity of the software development process of an organization and also helps an organization prioritize its improvement efforts. The five levels of software process maturity are shown in Figure 10.

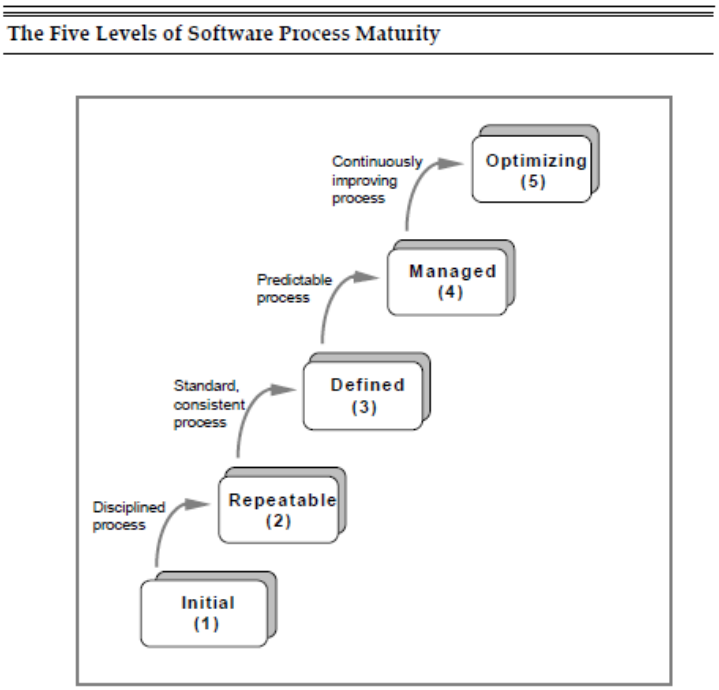


Figure 10: The five levels of software process maturity

In the CMM a maturity level is well-defined evolutionary stage toward achieving a more mature software development process. Each level is decomposed into a number of key process areas an organization should focus on to improve their software maturity. The goal of these key process areas is to identify the issues that must be addressed to achieve the desired maturity level.Figure 11 shows the structure of the maturity levels and key process areas.

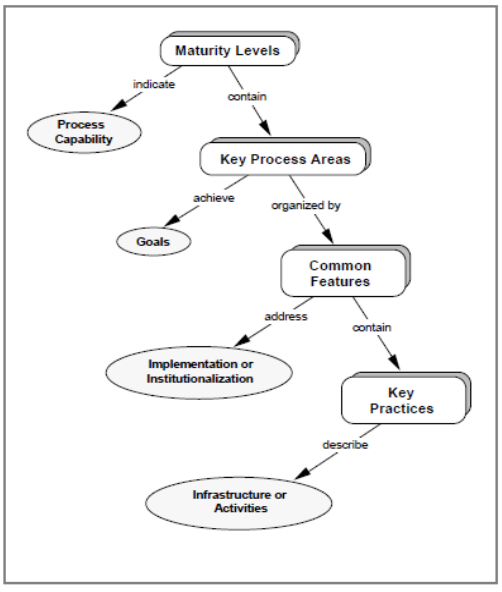


Figure 11: Decomposition of maturity levels

4.2 Developing a Maturity Model

Even though there are a high number of maturity assessment models in several domains there is little documentation on how to develop such a maturity assessment model that is theoretically sound and accepted. Bruin, Freeze, Kalkarni & Rosemann (Bruin, Freeze, Kalkarni, & Rosemann, 2005) introduce a development framework that summarizes the phases in developing a maturity assessment model. This model is shown in Figure 12.

Figure 12: Phases in developing a maturity assessment model

1. Scope

In the first phase the scope of the desired model is determined. The main criterion for determining the scope is the focus of the model.

2. Design

In the second phase the basis for the model is designed. The main criteria for the design are the audience, the method of application, driver of application, respondents and the application. The main aspect of this phase is to design the maturity stages of the model. In most cases these maturity stages are similar to the CMM in Figure 10: The five levels of software process maturity.

3. Populate

In the third phase the content of the model has to be established. To establish this it is necessary to identify what needs to be measured (Key Process Area's) in the maturity assessment and how this can be measured (Goals). Identifying the right domain components is an essential step and can be achieved through an extensive literature review.

4. Test

In the fourth phase the model is tested for relevance and rigor. It is important to test both the construct of the model and the instruments for validity, reliability and generalizability.

5. Deploy

In the fifth phase the model must be made available for use and to verify the extent of the generalizability of the model.

6. Maintain

In the sixth phase the model has to be maintained. Evolution of a model will occurs as the domain knowledge and model understanding broadens and deepens. To ensure the model remains relevant it is important to continuously maintain the model.

4.3 Business Process Management Maturity Models

A Business Process Maturity Model (BPMM) model is a maturity model designed to assess the organizations Business Process Management maturity. There are a number of models to measure the maturity of Business Process Management and the majority of these models are based on the CMM described in section 4.1 (Rosemann & Bruin, 2005) (Fisher, 2004) (Smith & Fingar, 2003) (Sinur & Hill) . However they tend to agree on the use of their BPMM models. They state organization should use BPMM models to:

- Provide a baseline for determining BPM maturity in your organization
- Provide insights into areas of weakness
- Identify opportunities for improvement
- Benchmarking to organizations in industry

The different BPMM models use different criteria for assessing the BPMM of an organization. The BPMM Model used in this research is the model of Bruin & Rosemann which extends and updates earlier maturity models (Bruin & Rosemann, 2006). This maturity model uses six criteria to determine five maturity levels and can be applied in organizational divisions at different points of time. The five levels the maturity model distinguishes are:

1. Initial state
2. Defined
3. Repeated
4. Managed
5. Optimized

The six factors used to determine the maturity level of an organization are the factors Bruin & Rosemann identify as critical success factors for BPM. Later these factors have also been introduced as the six core factors of BPM (Rosemann & Brocke, 2010). The factors and the definition of Rosemann & Brocke are:

1. **Strategic Alignment**:

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 designed, executed, managed, and measured according to strategic priorities and specific strategic situations. 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.

2. **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.

3. **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.

4. **Information Technology**:

IT-based solutions are of significance for BPM initiatives. With a traditional focus on process analysis and process modeling support, BPM-related IT solutions increasingly manifest themselves in the form of process-aware information systems.

5. **People**:

People defined as individuals and groups who continually enhance and apply their process and process management skills and knowledge in order to improve business performance. This factor captures the BPM capabilities that are reflected in the human capital of an organization and its ecosystem.

6. **Culture**:

BPM culture incorporates the collective values and beliefs in regards to the process-centered organization. Culture is about creating a facilitating environment that complements the various BPM initiatives. It however 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.

4.4 Impact on shareholder value

This section describes the impact the BPM maturity level has on shareholder value. From a Business Process Management Maturity perspective the expectation is that an increase of maturity results in an increase of organizational performance. Higher levels in maturity in any business process can result in (McCormack, et al., 2009):

- Better control of results
- Improved forecasting of goals, costs and performance
- Greater effectiveness in reaching defined goals
- Improving management ability to propose new and higher targets for performance.

Even though higher levels in maturity results in the benefits described above the industry and enterprise strategy determines if it is appropriate or desirable to attain the highest level of maturity. It is a challenge to identify the most appropriate BPM maturity level based on context, objectives, related constraints and possible business cases (Rosemann & Bruin, 2005). Another important aspect of maturity is that it can vary across the organization at a single point in time (Sinur & Hill).

The limited available numbers of empirical research also suggests a correlation between BPM maturity and performance (Batenburg & Versendaal, 2008) (Hoffman & Reiner, 2006) (Raschke & Ingraham, 2010). The authors however state that further research is necessary to determine when organization should try to improve their BPM maturity.

4.5 Relationship with BPM Activities

One of the six aspects of the BPMM of Rosemann is methodology. It is possible to relate the BPM activities with the methodology aspect in the BPMM and thereby linking the BPM activities to maturity levels. Below we describe how these methodologies and BPM activities can be related.

1. Process Design & Modeling: Relates to Business Process Analysis and Process modeling in the proposed life cycle
2. Process Implementation & Execution: Relates to Implementation and Execution in the proposed life cycle
3. Process Monitoring & Control: Relates to monitoring in the proposed life cycle
4. Process Improvement & Innovation: Relates to Redesign in the proposed life cycle
5. Process program & project management: Relates to the continuous aspect of the proposed life cycle.

This relationship is also identified by Forrester (Moore, 2008) in Figure 13 and Pesic (Pesic) but their relationship shows minor differences. Pesic relates the Define, Measure, Analyze, Implement and Control (DMAIC) cycle of six sigma to a five-level maturity model. Forrester maps process modeling, execution, monitoring and optimization to both BPM adoption maturity and Value to shareholders.

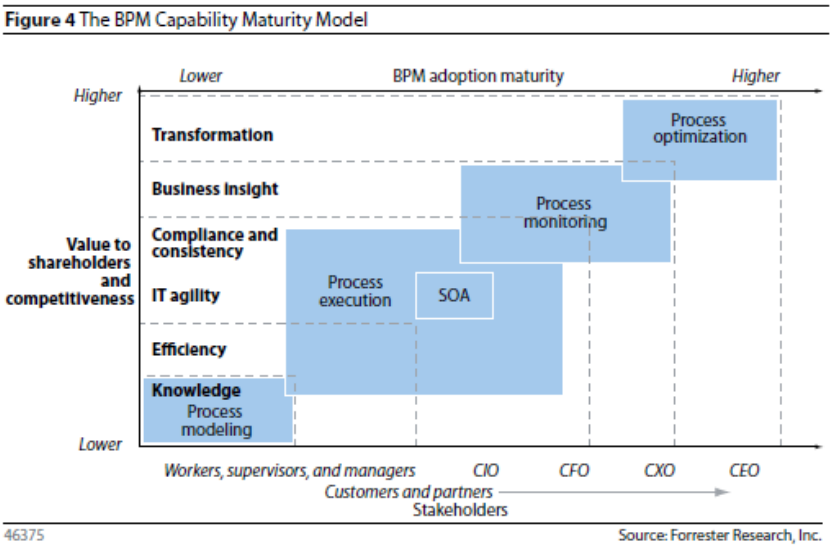


Figure 13: Relationship between BPMM, BPM and Value according to Forrester

If we adopt the representation of Forrester and add the maturity levels of Rosemann we come to the following model as shown in Figure 14.

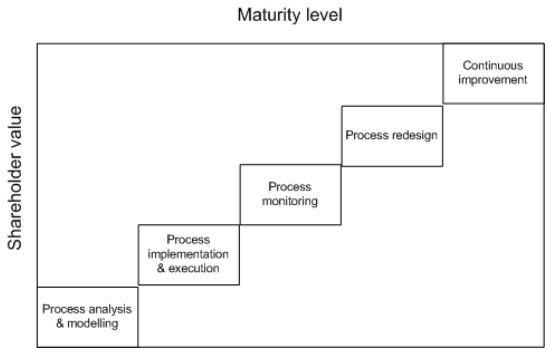


Figure 14: Relationship between BPM and BPMM

Important to note is that a higher maturity level facilitates the opportunity to apply the BPM phases mentioned in the model above. However only applying the BPM phases does not result in increasing a higher maturity model as the other five aspects of the maturity model should also match the maturity model of the applied method.

4.6 Summary

Maturity models have been designed to assess the organizations maturity of a selected domain based on a set of criteria. The most popular way to represent the maturity is a five-point Likert scale. The concept of maturity model has been introduced with the Capability Maturity Model (CMM) for software from the software engineering institute. There are six phase in developing a maturity assessment model:

1. Scope
2. Design
3. Populate
4. Test
5. Deploy
6. Maintain

Business Process Maturity Models is a maturity model designed to assess the organizations BPM maturity. These models are used to:

- Provide a baseline for determining BPM maturity in an organization
- Provide insights into areas of weakness
- Identify improvement opportunities
- Benchmark to organizations in the same industry

The BPMM used in this thesis uses six criteria to determine the five maturity levels. These criteria are: Strategic alignment, governance, methods, information technology, people and culture. By relating the methods from the BPMM to the BPM life cycle phase the maturity level can be related to BPM activities.

From a BPMM perspective the expectation is that an increase of maturity results in an increase of organizational performance. The limited available empirical research suggest a correlation between BPM maturity and performance, however it is not clear whether organizations should strive to achieve level five maturity or should be satisfied with a lower maturity level for some processes

5. Framework outline

This chapter presents the framework outline, how it is constructed and how the framework outline helps organizations to identify, discuss and prioritize all possible BPM opportunities in a single framework based on shareholder value and organizational capability.

- Section 5.1 presents the starting point of the framework
- Section 5.2 presents how BPM opportunities can be identified
- Section 5.3 presents how BPM opportunities can be related to shareholder value
- Section 5.4 presents how BPM opportunities can be related to organizational capability
- Section 5.5 presents summarizes the chapter en describes the framework outline to identify, discuss and prioritize all possible BPM opportunities in a single framework based on shareholder value and organizational capability

5.1 Identify business processes

In order to increase shareholder value throughout business process management an organization should adopt BPM as a holistic approach. To do so it is important that an organization has a holistic view of their business processes. In order to achieve this holistic view an organization should identify both their operational and supporting business processes. These business processes are the main element of the framework as they can be related to BPM, BPMM and Shareholder value. The next section describes these relationships.

5.2 Identify possible BPM opportunities

As described in chapter 3 organizations can apply BPM to improve their business processes which results in lower costs, higher revenues, motivated employees and satisfied customers. A business process can be improved by applying the BPM-life cycle to this business process. Each step of the BPM life cycle can be regarded as a possible BPM opportunity.

If an organization for instance wants to improve their sales processes, the organization can apply the six steps from the BPM life cycle to the sales process. This results in six different improvement opportunities, which are depicted in Figure 15.

Figure 15: Improvement opportunities Sales Process

Instead of streamlining one process and unknowingly sub optimize others, organizations need a holistic view of their business processes and BPM opportunities. To identify all possible BPM opportunities an organization relates the different business processes throughout the organization to the BPM life cycle. These business processes can be both operational and supporting business processes. Operational business processes are the core business of an organization, whereas supporting business processes support these core processes. By relating all business processes to the BPM life cycle an organization gets a holistic view of all possible BPM opportunities.

5.3 Relate business processes to shareholder value

As described in chapter 2 shareholder value from an investor's perspective is called Total Shareholder Return and is based on the stock price appreciation and dividends of an organization. Managing for value is also known as Value Based Management and is defined as "*a formal systematic approach to managing companies to achieve the objective of maximizing value creation and shareholder value over time"* and is concerned with understanding value drivers and their interactions to develop an organizations strategy to achieve competitive advantage. To assess the business performance, organizations use performance measures. Traditional performance measures focus entirely on cost efficiency and effectiveness, however current performance measures balance financial and non-financial measures and link performance to the organizations strategy (Kaplan & Norton, 1996).

Deloitte has developed a framework to relate improvement actions to shareholder value and the organizations strategy. This framework, the Enterprise Value Map (EVM), is a practical one-page management framework that shows the relationship between shareholder value and business operations. The original EVM helps organizations organize, discuss and prioritize improvement opportunities that deliver maximum value in terms of revenue growth, operating margin, asset efficiency and market expectations of future growth. The improvement actions defined by the original EVM are divided in two types.

1. Change what you do

The improvement actions within this category address strategic actions such as altering competitive strategies, changing the products and service portfolio and changing the assignment of operational processes to internal and external teams.

2. Do what you do best

The improvement actions within this category address tactical actions for improving a company's process effectiveness and efficiency, asset productivity and underlying company capabilities.

To relate these improvement actions to shareholder value the EVM uses the following tree structure:

1. Shareholder value

Shareholder value is the top of the three and the goal of an organization.

2. Shareholder value drivers

Shareholder value drivers are metrics by which shareholders, analysts and investors asses a company's performance. Shareholder value drivers are divided in main value drivers and sub value drivers.

3. Improvement leaders

Improvement leaders are high-level steps an organization can take to improve the performance for a sub value driver. Sub improvement leaders describe the underlying processes, assets or organizational capabilities that drive results for the improvement lever. The two types of improvement levers are directly related to the improvement leaders.

Figure 16 shows the relationship between Shareholder value, value drivers, improvement leaders and improvement actions and give an example of value drivers, improvement leaders and improvement actions.

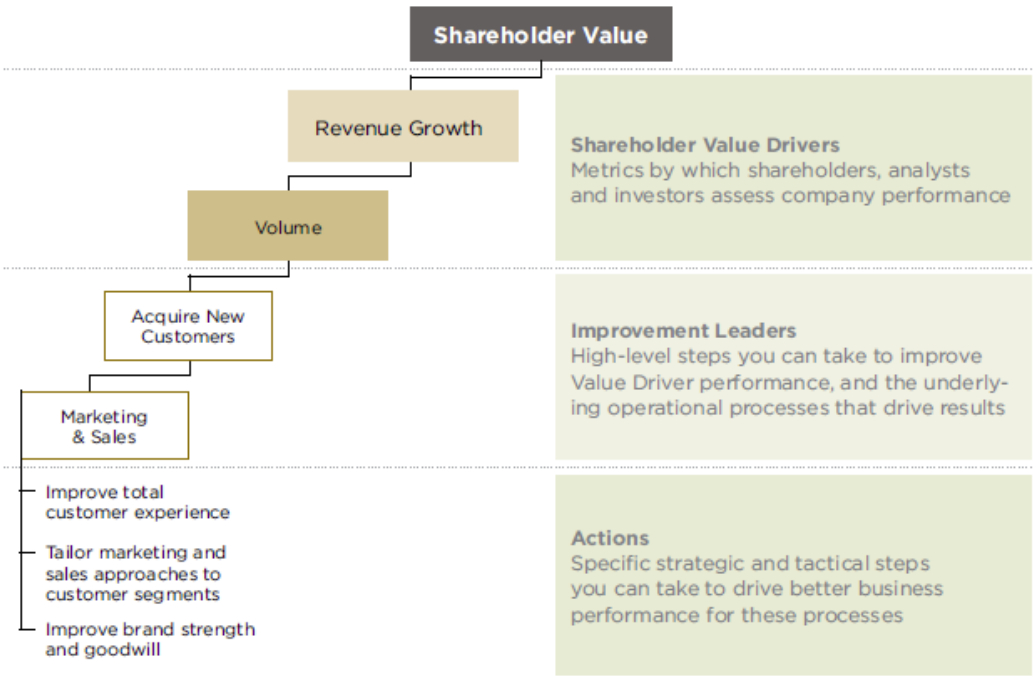
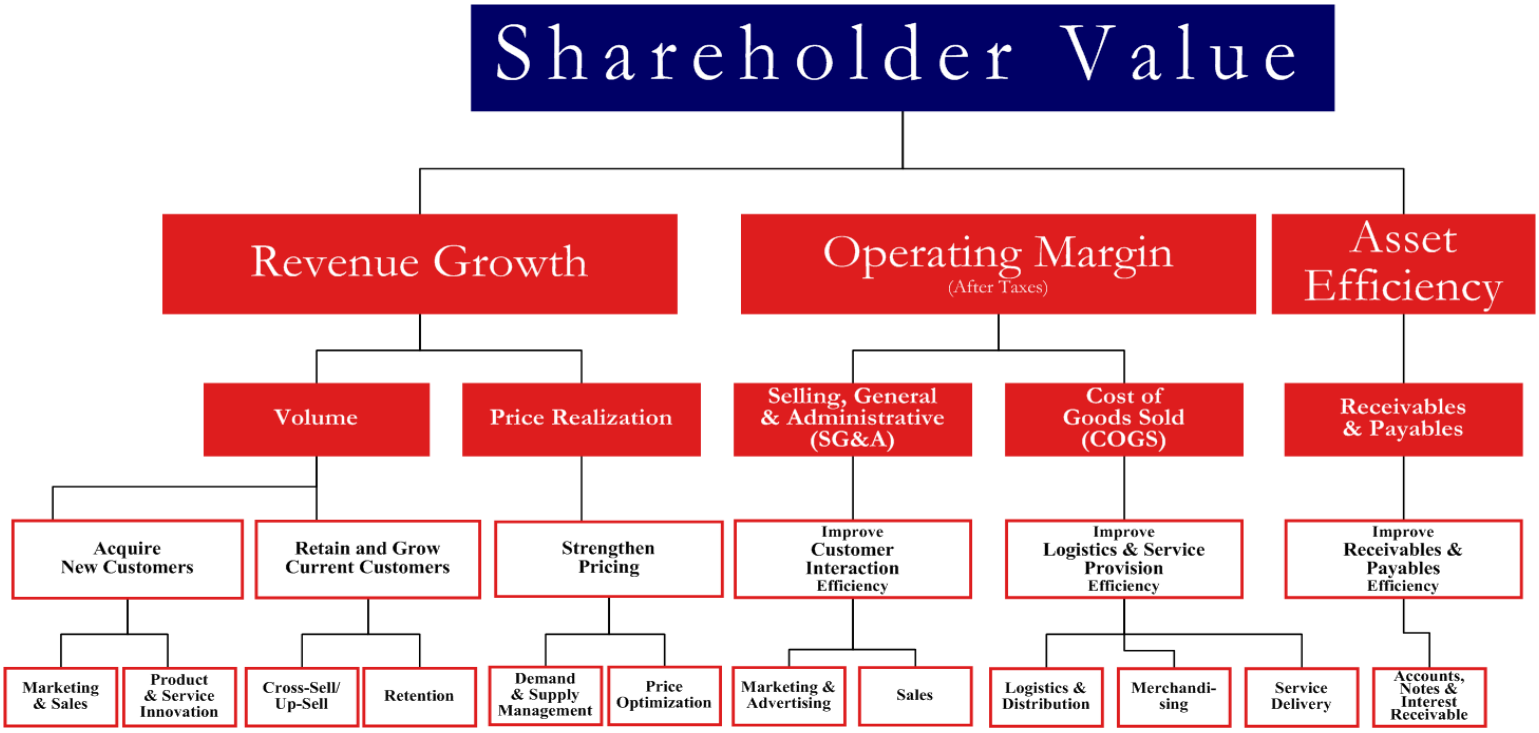


Figure 16: Enterprise Value Map structure example

The EVM does not claim to be a framework that is mutual exclusive and collectively exhausting, but is a starting point and is intended to be improved and tailored to the needs of organizations and/or technologies. The improved and/or tailored maps are also known as a derivative value maps and it is suggested to maintain as much of the high-level structure and general look and feel of the original map for the derivative value maps.

The framework and structure of the EVM can also be tailored to BPM opportunities. The identified business processes can be related to the improvement leaders of the organization. As business processes are cross-functional a specific business process can be related to multiple improvement leaders. By relating the identified business processes to the improvement leaders and applying the six steps of the BPM life cycle to these business processes all BPM opportunities are related to improvement leaders. This direct relation between the BPM opportunity and one or more improvement leaders indicates how this specific BPM opportunity can influence Shareholder value.

For example the sales process can be related to more than one improvement leaders and thereby influencing shareholder value in a number of ways. Figure 17 shows an example of the improvement leaders of the EVM the sales process could possibly be related to. Note that all improvement leaders of the EVM that are not impacted by the sales process are removed in this example.



The previous example shows the relationship from a process perspective and shows how a specific process can influence shareholder value. However the relationship between business process and improvement leaders can also be applied the other way around. Figure 18 gives an example of the improvement leader "Marketing & Sales" and the business process that can be related to this specific improvement leader. The figure shows the first three steps of the BPM life cycle applied to the business process to give an impression; however the next three steps of the BPM life cycle are applied to the business process in the same way.

After an organization has related the business processes to the improvement leaders they influence and related the BPM life cycle to these business processes an organization has a holistic overview of all the BPM opportunities and the different ways they can influence shareholder value and can discuss and prioritize BPM opportunities based on shareholder value.

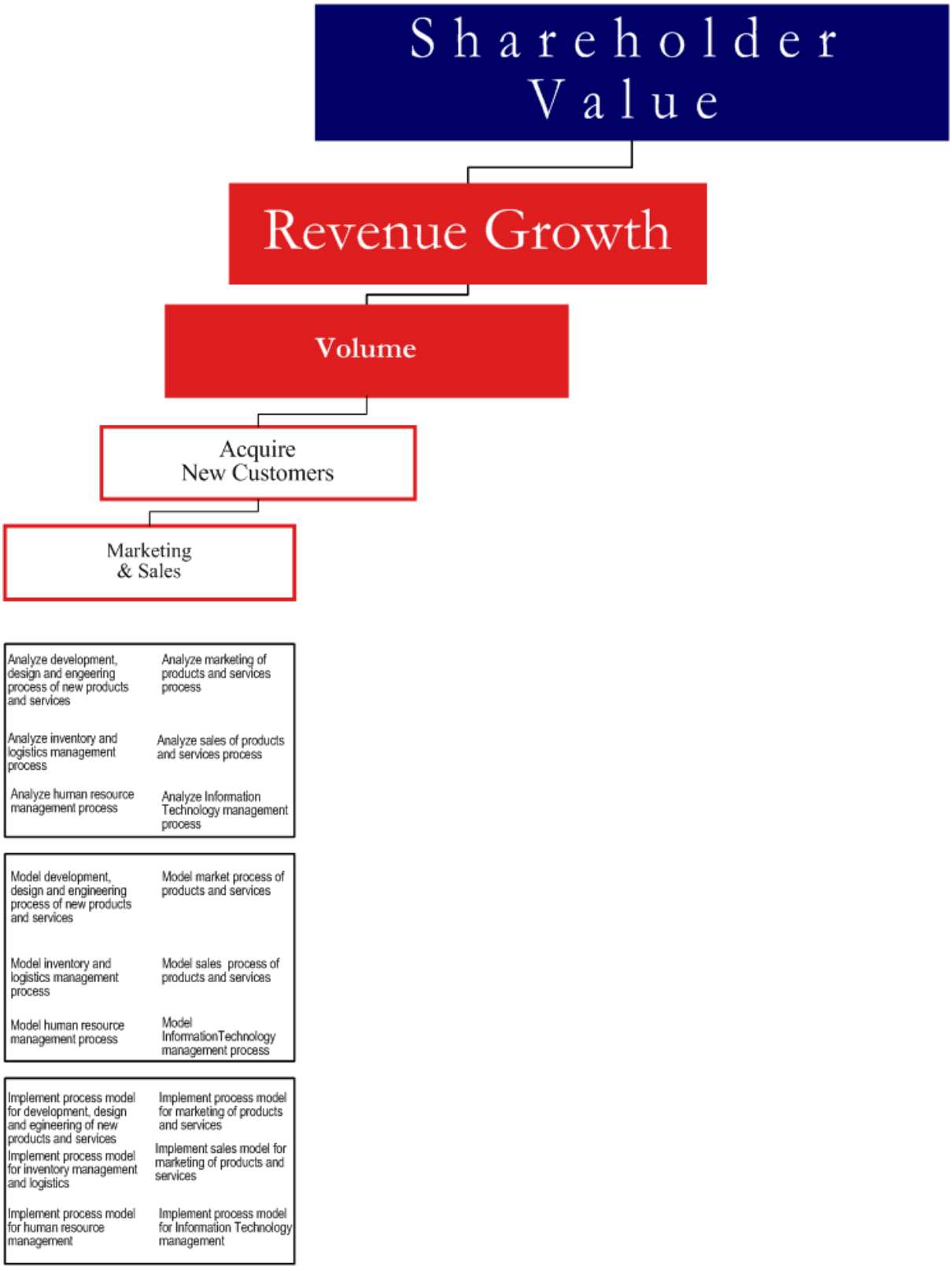


Figure 18: improvement leader "Marketing & Sales" and related business process

5.4 Relate business processes to organizational capability

Once the BPM opportunities are identified and related to shareholder value an organization can discuss and prioritize their BPM opportunities based on shareholder value. However as described in chapter 4 the activities of the BPM life cycle are related to the BPM maturity of an organization. As maturity models suggest that improvement should be made steps of one maturity level and are based on the current maturity of a process not all described BPM opportunities are possible.

To relate the BPM opportunities to the BPM maturity of the organization an organization has to analyze the BPM maturity of all of the identified business processes. Identifying this maturity is based on the following six factors and their corresponding capability areas which are described in chapter 4.

1. Strategic alignment
2. Governance
3. Methods
4. Information Technology
5. People
6. Culture

Taking the example of an organization that wants to improve their sales process by monitoring the process, the organization first needs to know their current maturity level of this business process. If the organization only has a business model of the business process they first have to make two steps (implement the business process and execute the business process) before they can make the step to monitor the business process. The organization also has to make sure that while taking these steps the corresponding capability areas are aligned with the maturity.

Analyzing the maturity of all the business processes and thereby also providing a holistic overview of the maturity of the business processes can give an organization other insights. For example if an organization wants to acquire new customers by improving their marketing and sales improvement leader it can be interesting to have insight in the maturity of all the processes influencing this improvement leader. Figure 19 again shows the marketing and sales improvement leader and the related improvement actions (only life cycle steps one till three). The figure also indicates the maturity of the business processes. The green text indicates that the organization has already reached that specific maturity for the business process. The black text indicates that the organization can perform this step to improve the maturity for the business process. The red text indicates that the organization first has to perform other steps to reach the specific maturity for the business process.

Based on this overview an organization can identify that the maturity levels of the marketing process and IT management process are far lower than the other processes that influence the marketing and sales improvement leader. Especially as the marketing process is an operational process that influences this improvement leader an organization can decide that it has to improve the maturity of this process which results in a project to model the marketing process.

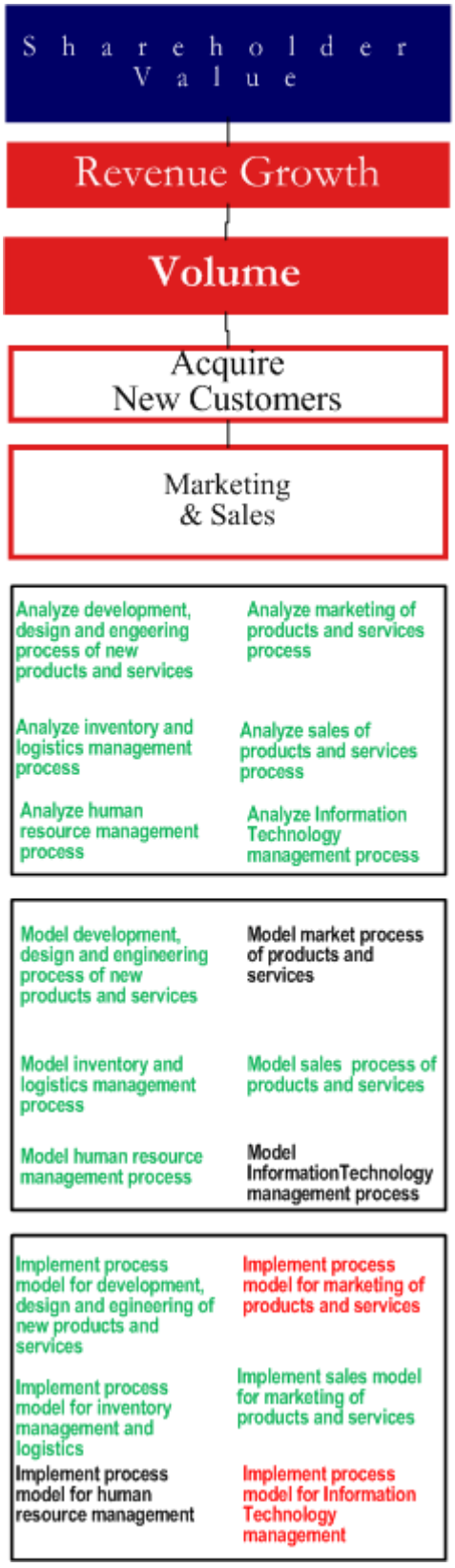


Figure 19: Marketing & Sales business process maturity

5.5 Summary

The framework shows all the business processes for an organization and relates these processes to BPM, BPMM and shareholder value. Based on these relationships the possible BPM opportunities are identified by capturing all the operational and supporting business processes of an organization and relating these business processes to the BPM life cycle. This provides an organization with a holistic overview of all BPM opportunities.

To relate these BPM opportunities to shareholder value the methodology of the EVM is used. This methodology divides shareholder value into value drivers, which are influences by improvement levers. The business processes (and thereby BPM opportunities) are related to these improvement levers. This relation shows in what way a specific business process influences shareholder value, but also shows which business processes influence a specific improvement lever and value driver.

To relate the BPM opportunities to organizational capability the process maturity of all the operational and supporting business processes is identified. This analysis shows which BPM opportunities already have been performed, which opportunities an organization can and cannot perform based on the current maturity level of the business processes. An organization can use this relation to see which steps to take to improve a specific process, but also which business processes can be improved for a specific improvement lever and value driver.

6. Reference framework

The framework outline can be applied to a specific organization by tailoring the top part of the framework (the value drivers and improvement leaders) to the organizations strategy/context and by relating the business processes of the organization to the improvement leaders. To get a general impression of a populated framework this chapter will present a reference framework with reference value drivers and reference processes based on the original Enterprise Value Map and the Deloitte Industry Print processes.

- Section 6.1 presents the reference value drivers and improvement levers
- Section 6.2 presents the reference operational and supporting processes
- Section 6.3 presents the relationship between the improvement levers and business processes
- Section 6.4 presents the reference framework
- Section 6.5 summarizes the chapter

6.1 Reference value drivers

According to the EVM shareholder value is driven by four basic value drivers: Revenue growth, operating margin, asset efficiency and expectations. These value drivers are related to a number of sub-value drivers and improvement levers. For the reference framework the standard value drivers, sub-value drivers and improvement levers are used. This section describes the value driver, sub-value drivers and improvement levers.

Revenue growth

Revenue growth involves increasing the revenue received from the sale of organizations products, services and assets and is seen as the key measure of an organizations operational effectiveness because it shows how well an organization is able to identify and fill a need within its chosen markets. Combined with operating margin it measures an organizations performance around its core operating activities over a particular period. An organization can increase revenue growth by increasing the volume of products or services sold and by maximizing the price of those products and services. As these two drivers are tightly linked the challenge for most companies is to make improvements that drive value improvement on the whole. The sub-value drivers and improvement levers of revenue growth are shown in Figure 20

An organization can increase the volume by acquiring new customers, retain and grow current customers and leverage income-generating assets. Acquiring new customers can be achieved by improving the effectiveness of the marketing and sales efforts of the organization and by broadening and improving product and service offerings. Retain and grow current customers can be achieved by improving the effectiveness of customer and account management processes, selling additional and higher-end products and services to current customers, retain customers by incentives and creating barriers to switching. Leverage income generating assets can be achieved by generating income from the investment, sale or licensing of organizations assets.

An organization can maximize the price of products and services by strengthening the price to the maximum a customer is willing to pay. Strengthening the price can be achieved by balancing the demand for products and services by managing supply of products and services and by aligning product and service prices with the true value delivered to targeted customers and segments.

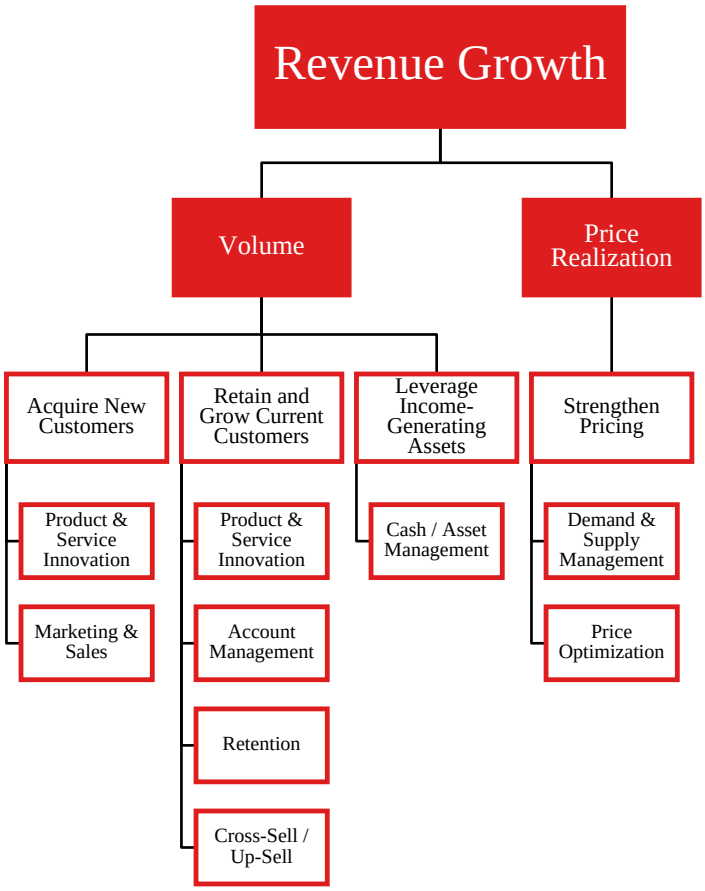


Figure 20: Sub-value drivers and improvement levers of revenue growth

Operating margin

Operating margin is the difference between the revenues received from the sale of products and services, and the costs of providing those products and services and is seen as the key measure of an organizations operational efficiency as it reflects how an organization is able to turn the demand for its products and services into profits. Combined with revenue growth it measures the organizations performance around its core operating activities. An organization can increase their operating margin by decreasing their selling, general and administrative costs, by decreasing the costs of goods sold and by effectively manage income taxes. The sub-value drivers and improvement levers of operating margin are shown in Figure 21

An organization can decrease their selling and administrative costs by improving customer interaction efficiency and improve corporate and shared service efficiency. Improving customer interaction efficiency can be achieved by reducing the costs for marketing, sales, customer support and order fulfillment by improving the efficiency of these processes. Improving shared service efficiency can be achieved by reducing the costs for IT, real estate, human resource, procurement, business management and financial management by improving the efficiency of these processes.

An organization can decrease their costs of goods sold by decreasing the costs of product development, materials management, and manufacturing and production processes to reduce product costs. The costs of product development can be reduced by improving the efficiency of product and service development efforts. The costs of materials can be reduced by improving the efficiency of materials procurement and receipt operation and by reducing the price for materials.

An organization can effectively manage income taxes by improving the incorporation of tax consequences and activities into business planning processes to utilize available opportunities and reduce tax liabilities. To achieve this, an organization should identify and manage tax consequences and opportunities.

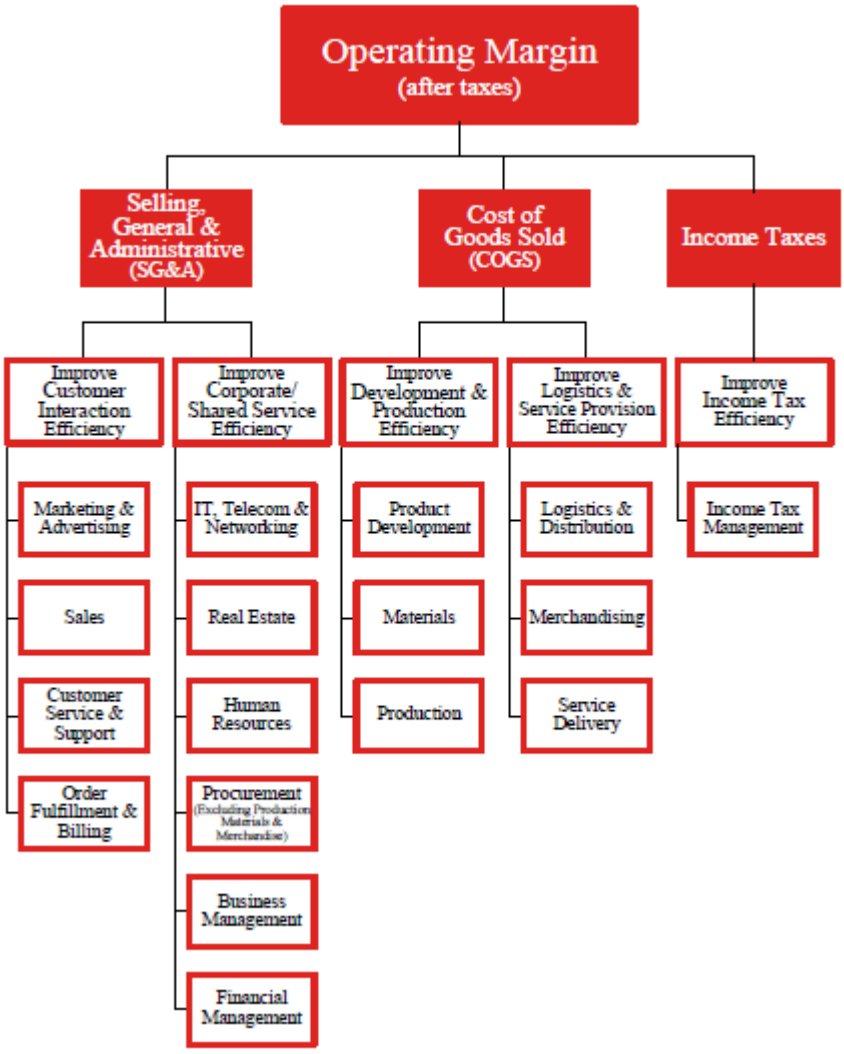


Figure 21: Sub-value drivers and improvement levers of operating margin

Asset efficiency

Asset efficiency is the value of assets used in running the business relative to the current level of revenues and reflects the company's investment efficiency by relating the invested resources to the revenues of the organization. Whereas revenue growth and operating margin are income concepts, asset efficiency is related to the balance sheet. However it does have ties to the income statement as asset efficiency is measured relative to the revenues and profit generated by the organizations assets. Asset efficiency is important as it reflects what investment is necessary to run the business. By minimizing the investment, an organization can reduce their need for debt and equity which results in a higher return for investors. An organization can increase their asset efficiency by efficiently handling property, plant and equipment, inventory and receivables and payables. The sub-value drivers and improvement levers of asset efficiency are shown in Figure 22: Sub-value drivers and improvement levers of Asset Efficiency.

An organization can improve the efficiency of property, plant and equipment by improving the efficiency with which real estate, infrastructure, equipment and systems are used. Improving the efficiency for assets, infrastructure, equipment and systems can be achieved by reducing the costs of these assets and by divesting low utilization assets.

An organization can improve the efficiency of their inventory by minimizing the level of inventory needed to run the business and thereby reducing working capital. This can be achieved by reducing the inventory levels required to support the business and by reducing the work in process and manufacturing materials levels required to support the business.

An organization can improve the efficiency of their payables and receivables by improving the efficiency on interest receivable and interest payable. This can be achieved by shorting the period for which accounts, notes and interest receivable are outstanding and lengthening the period for which accounts, notes, and interest payables are outstanding.

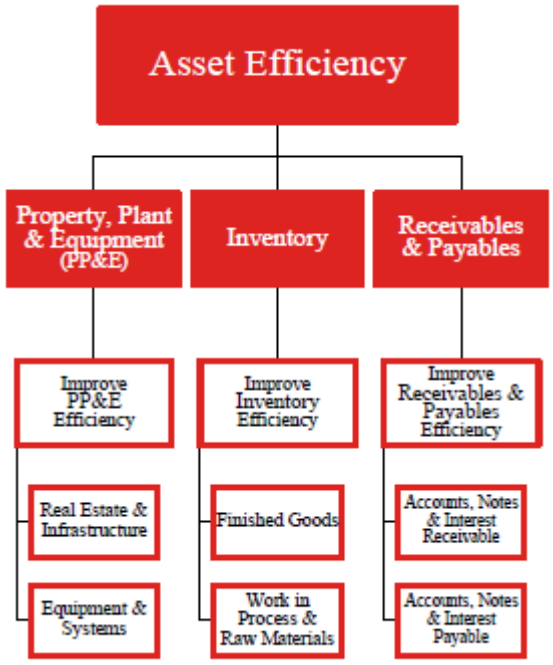


Figure 22: Sub-value drivers and improvement levers of Asset Efficiency

Expectations

Expectations refer to the factor that influence an organizations ability to produce solid income statement and balance sheets in the future and is a measure for the confidence of shareholders for the organizations future prospects. Whereas revenue growth, operating margin and asset efficiency look backwards, expectations focus on the future. The expectations are influenced by both internal and external factors. There are two categories of internal factors; managerial capabilities which address the organizations management team and execution capabilities which address the broader organization. The sub-value drivers and improvement levers of expectations are shown in Figure 23

An organization can improve their management's capabilities by effectively formulating business plans, monitor and manage current business operations and launch effective investment and improvement initiatives. This can be achieved by improving the ability of leaders to guide, monitor and control their organization, by improving the effectiveness of business planning activities, by improving the effectiveness of program planning and delivery activities and by improving the effectiveness of operational performance monitoring, management, and improvement activities.

An organization can improve their execution capabilities by Improve the ability of the broader organization to effectively execute current and future business plans. This can be achieved by improving the effectiveness and efficiency of business processes throughout the organization, by improving the effectiveness and efficiency with which the organization is able to partner and collaborate with other organizations, by strengthening the organization's relationships with customers, employees, partners, the public, and other stakeholders, by improving the ability of the organization to effectively and quickly adapt to new opportunities, threats, and other factors that require substantial change and by acquiring, developing, and using the company's strategic tangible and intangible assets.

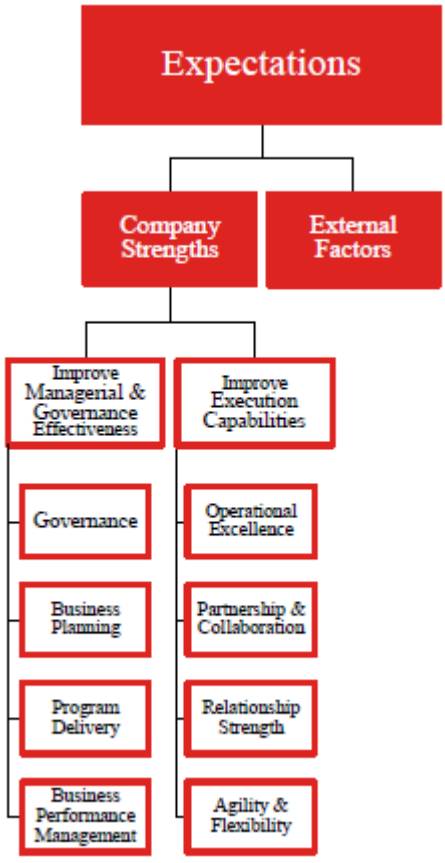


Figure 23: Sub-value drivers and improvement levers of expectations

6.2 Reference business processes

As described in chapter 5 the framework outline relates business processes to the BPM life cycle and the improvement levers. Within the EVM, Deloitte has already made the relation between business processes and the improvement levers; however this relationship has never been explicitly used in a value map.

The EVM is a high-level view that is not industry specific, these same goes for the business processes related to the EVM. These business processes can be seen as a high level reference framework for business processes throughout an organization. The EVM distinguishes the following business processes.

Operational business processes

1. Develop, design and engineer new products and services
2. Market products and services
3. Sell products and services
4. Perform order management
5. Procure materials and services
6. Manufacture products
7. Manage inventory and logistics
8. Provide Customer service
9. Manage intellectual property

Supporting business processes

1. Purchase goods and services
2. Manage human resources
3. Manage support services
4. Manage Information Technology
5. Manage plant, equipment and facilities
6. Manage capital programs/projects
7. Manage accounting and control data
8. Manage payables and receivables
9. Manage capital and risk
10. Ensure regulatory compliance

6.3 Relationship improvement levers and business processes

The reference framework is based on the relation between the reference value drivers and reference business processes. This relation is defined in the ValueLink application supporting the EVM and is shown in Table 1. Based on this relationship the reference framework can be derived.

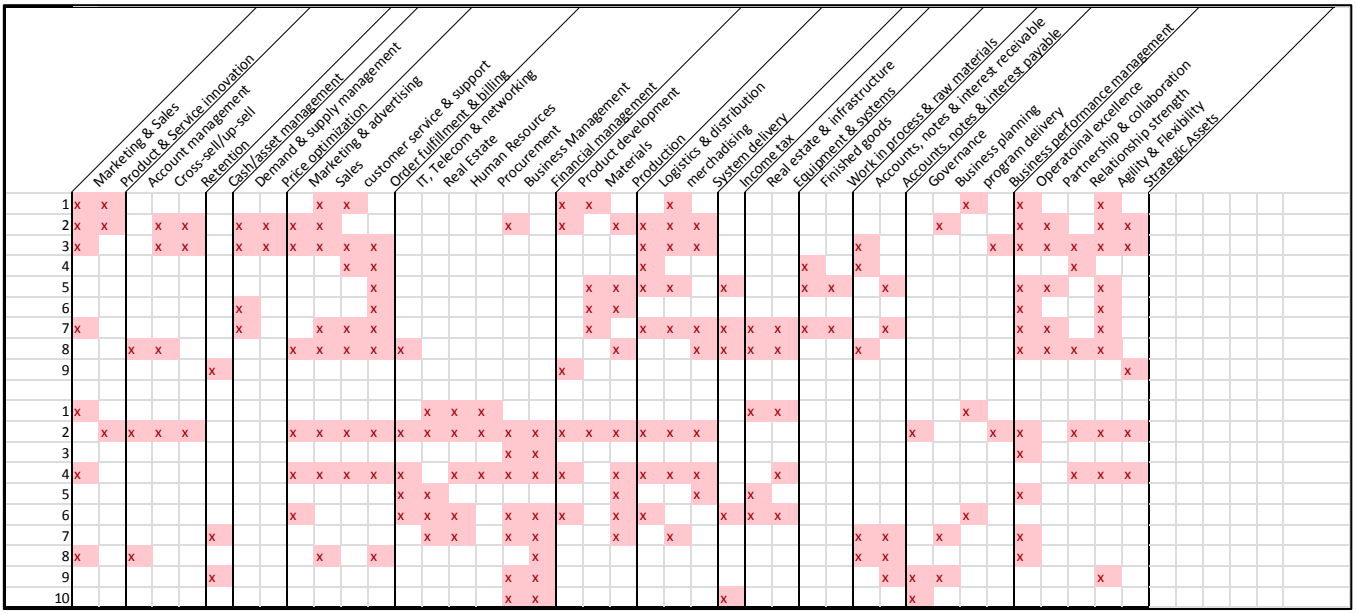


Table 1: Relationship improvement levers and business processes

6.4 Reference framework

A high level overview of the reference framework is shown in Figure 24. The reference framework can be used to explain the concept of the framework to organizations and can also be used as a starting point for organizations to tailor their own Value Map.

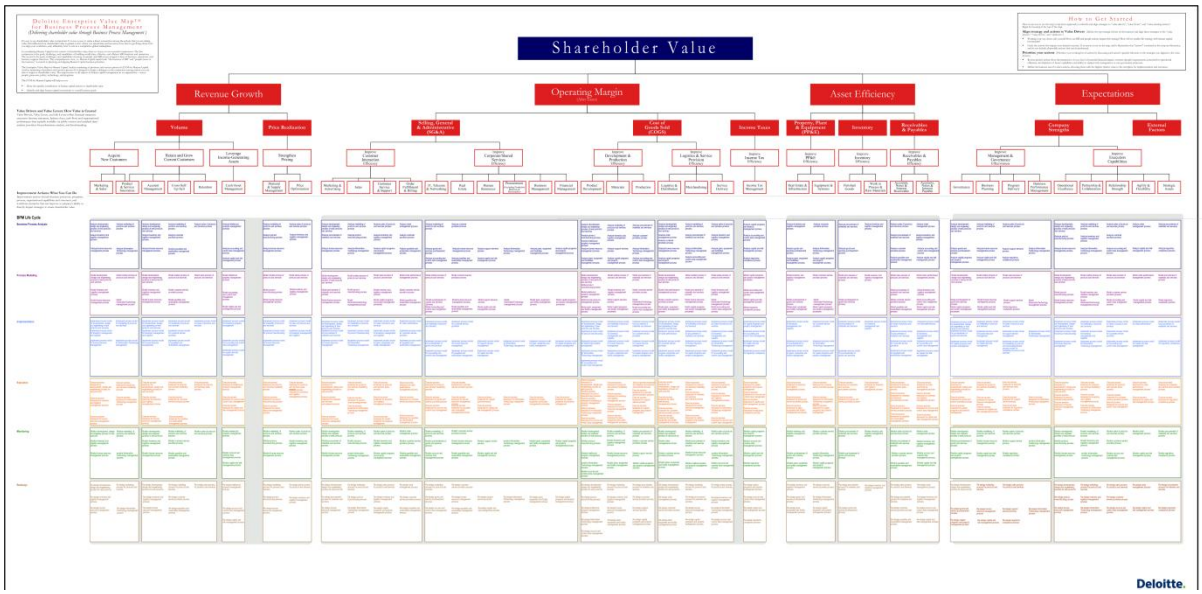


Figure 24: Enterprise Value Map Reference Framework

As stated earlier this reference framework is a high-level industry independent framework, however Deloitte has also developed a number of industry specific value maps with industry specific value drivers. Even though there are reference business processes for some of these industry specific value maps there is no relationship described between these industry specific value drivers and business processes like the relationship described in Table 1.

To explain the concept of the framework to organization developing industry specific reference frameworks might lead to a better understanding of the framework and a starting point to develop an organization specific framework.

6.5 Summary

Organizations can apply the framework outline to their specific organization by tailoring the value drivers and business processes to their business context. However to give an impression of a populated framework a set of high-level industry independent value drivers and business processes have been used to populate a reference framework. This reference framework can be used to explain the concept of the framework to organizations and as a starting point to tailor the framework to the specific organization.

A next step would be to develop industry specific reference models which might lead to a better understand of the framework for specific organizations and can be used as a better starting point ot develop an organization specific framework.

7. Application of the framework

To apply the framework in practice an organization has to apply seven steps. This section describes the seven steps an organization has to apply to determine their BPM portfolio. To give an indication how these steps are applied for each step an example is given based on a fictive organization.

- Section 7.1 presents the fictive organization that is uses as an example throughout this chapter
- Section 7.2 presents how an organization can adapt value drivers and improvement levers to the business context
- Section 7.3 presents how an organization can link business processes to improvement levers
- Section 7.4 presents how an organization can analyze business process management maturity of business process groups
- Section 7.5 presents how an organization can identify possible improvement actions
- Section 7.6 presents how an organization can develop business case for improvement actions
- Section 7.7 presents how an organization can map improvement actions to improvement levers
- Section 7.8 presents how an organization can prioritize improvement actions based on value and risk
- Section 7.9 summarizes the chapter

7.1 Example organization

Lorum Ipsum is a Dutch Commercial Bank that operates throughout Europe. As a Commercial bank the main business of Lorum Ipsum is divided into two categories:

1. Accepting deposits
2. Granting loans and advances

Beside the main business Lorum Ipsum also provides a number of other services

- Issuing letters of credit, travellers cheques, circular notes etc.'
- Undertaking safe custody of valuables, important documents, an securities by providing safe deposit vaults or lockers
- Providing customers with facilities of foreign exchange.
- Transferring money from one place to another; and from one branch to another branch of the bank.
- Standing guarantee on behalf of its customers, for making payments for purchase of goods, machinery, vehicles etc.
- Collecting and supplying business information;
- Issuing demand drafts and pay orders; and,
- Providing reports on the credit worthiness of customers.

The operating expenses of Lorum Ipsum are lower than their competitors however their market share is high enough, especially outside the Netherlands. Therefore Lorum Ipsum wants to use Business Process Management to achieve the volume growth that is part of their newest strategy to increase their operating income.

7.2 Adapt value map to business context

The EVM is intended to be as industry generic as possible. However for most organizations the value drivers driving shareholder value and the improvement levers to improve these value drivers will not be aligned with the value drivers and improvement levers in the original EVM. To effectively apply the framework an organization should start by adapting the value drivers and improvement levers to their specific business context.

For the most common industries Deloitte has also developed so called “industry specific” value maps. An organization can use the value drivers and improvement levers of such an industry specific value map as a reference structure. Examples of industry specific value maps are the retail value map, government performance map and the universal banking value map.

As a Commercial bank the value drivers and improvement levers of Lorum Ipsum are different to the industry generic value drivers and improvement levers of the EVM. Especially the lack of tangible physical assets and the nature of risk differentiate Lorum Ipsum as a commercial bank from traditional industries.

In line with the top level value drivers of the EVM, Lorum Ipsum identifies four main value drivers:

1. Operating income
2. Operating expenses
3. Capital
4. Expectations

The strategy of Lorum Ipsum is to increase operating income through volume growth. According to Lorum Ipsum operating income is based on:

1. Volume growth
2. Price realization
3. Credit risk management
4. Liquidity management

To increase volume growth Lorum Ipsum has identified two improvement levers:

1. New customers
2. Customer relationship management

An overview of all the value drivers and improvement levers for Lorum Ipsum is shown in Figure 25

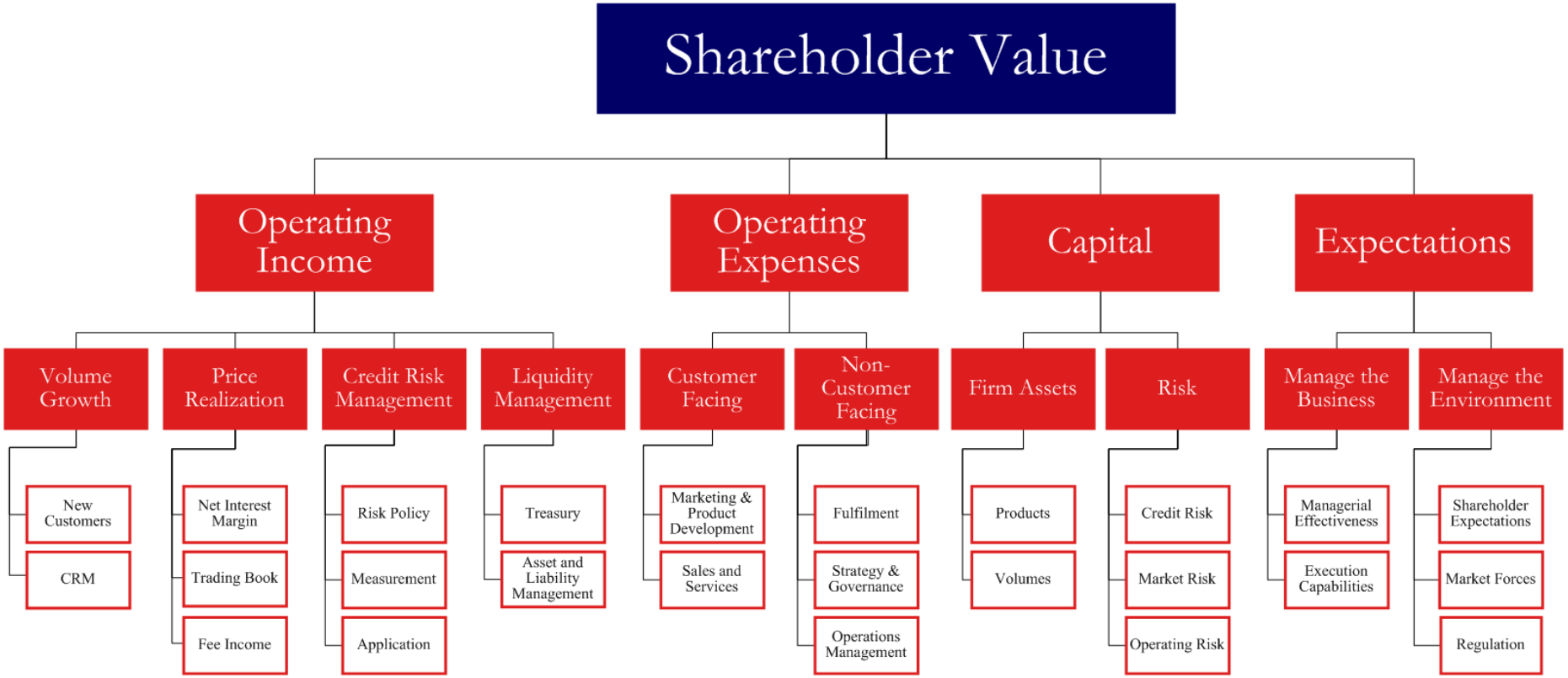


Figure 25: Value drivers Lorum Ipsum

7.3 Identify and relate business processes

Similar to the value drivers and improvement levers the business process are intended to be as industry generic as possible. After an organization has identified their value drivers and improvement levers they have to identify their main operational and supporting business process groups. For the most common industries Deloitte has developed a reference framework that can also be used as a reference for the operational and supporting business process groups. After an organization has identified these business process groups they have to relate these business process to the improvement levers they influence.

Based on their business context Lorum Ipsum identified the following operational and supporting business processes:

Operational business processes

- Perform Trading Activities
- Provide Cash Management Services
- Develop Products and Services
- Provide Purchasing Card (PCard) Services
- Provide Trade Finance Services
- Manage Investment Banking Needs
- Manage Lending Needs
- Market Products and Services
- Manage Secondary Market Activities
- Process and Clear Transactions
- Manage Customer Relationships
- Maintain Trust and Custody Operation
- Service Institutional Customers

Supporting business processes

- Manage Assets and Liabilities
- Manage Capital Projects
- Manage Accounting and Control Data
- Provide Decision Support
- Ensure Compliance
- Manage Human Resources
- Manage Information Technology
- Plan and Manage the Business
- Manage Risk
- Procure Materials and Services
- Manage Support Services

As Lorum Ipsum focuses on improving their volume growth, this example will only relate the business processes to the two related improvement levers. The relationship between the business processes and the related improvement levers is shown below.

New customers

- Market products and services
- Manage secondary market activities
- Manage human resources
- Manage Information Technology
- Manage support services

Customer relationship management

- Market products and services
- Manage secondary market activities
- Manage customer relationships
- Service institutional customers
- Ensure Compliance
- Manage human resources
- Manage Information Technology
- Manage support services

7.4 Analyze business process management maturity

In order to identify the possible improvement actions an organization first has to identify what the current maturity of all the business process groups is. For each of the business processes an organization should identify the maturity based on the strategic alignment, governance, information technology, people culture and the activities described in the BPM life cycle.

After the BPM maturity is analyzed the organization can map the maturity to the Value Map to determine their current BPM landscape. By providing such a landscape an organization gets a better insight in their processes, the maturity and relationship between the processes. Based on this landscape an organization can identify possible improvement actions.

Lorum Ipsum uses Business Process Management to improve their operational income by increasing their volume growth. However as Lorum Ipsum is also interested in their overall BPM maturity they decide not only to analyze the maturity of business processes related to increasing volume growth but to analyze the maturity of all business processes. The table below shows current maturity of the business processes of Lorum Ipsum by describing the latest method applied by Lorum Ipsum.

Operational business processes

- Perform Trading Activities (executed)
- Provide Cash Management Services (executed)
- Develop Products and Services (analyzed)
- Provide Purchasing Card (PCard) Services (executed)
- Provide Trade Finance Services (executed)
- Manage Investment Banking Needs (modeled)
- Manage Lending Needs (modeled)
- Market Products and Services (analyzed)
- Manage Secondary Market Activities (analyzed)
- Process and Clear Transactions (executed)
- Manage Customer Relationships (modeled)
- Maintain Trust and Custody Operation (executed)
- Service Institutional Customers (executed)

Supporting business processes

- Manage Assets and Liabilities (executed)
- Manage Capital Projects (executed)
- Manage Accounting and Control Data (executed)
- Provide Decision Support (analyzed)
- Ensure Compliance (modeled)
- Manage Human Resources (analyzed)
- Manage Information Technology (analyzed)
- Plan and Manage the Business (analyzed)
- Manage Risk (modeled
- Procure Materials and Services (monitored)
- Manage Support Services (executed)

Based on the maturity analyses of their business process Lorum Ipsum notices that the maturity of their operational business processes is higher than the maturity of the supporting business processes.

7.5 Identify possible improvement actions

There are two approaches to identify the possible improvement actions for your organization.

1. Top-down approach

In this approach the Value Map is used to identify improvement actions aligned with the organizations strategy. By focusing at the top of the map and working your way down an organization should ask themselves how we will enable this strategy with BPM projects. By selecting the possible improvement actions that are aligned with the organizations strategy an organization can identify a short list of possible improvement actions.

2. Bottom-up approach

In this approach the Value map is used to relate improving the maturity of a specific process impacts shareholder value of the organization. By focusing at the individual processes and relating them to improvement levers, value drivers and shareholder value an organization can identify if improving the maturity of the process is beneficial for the organization.

The result of both approaches is a short list with improvement actions an organization wants to perform as indicated in Figure 26.

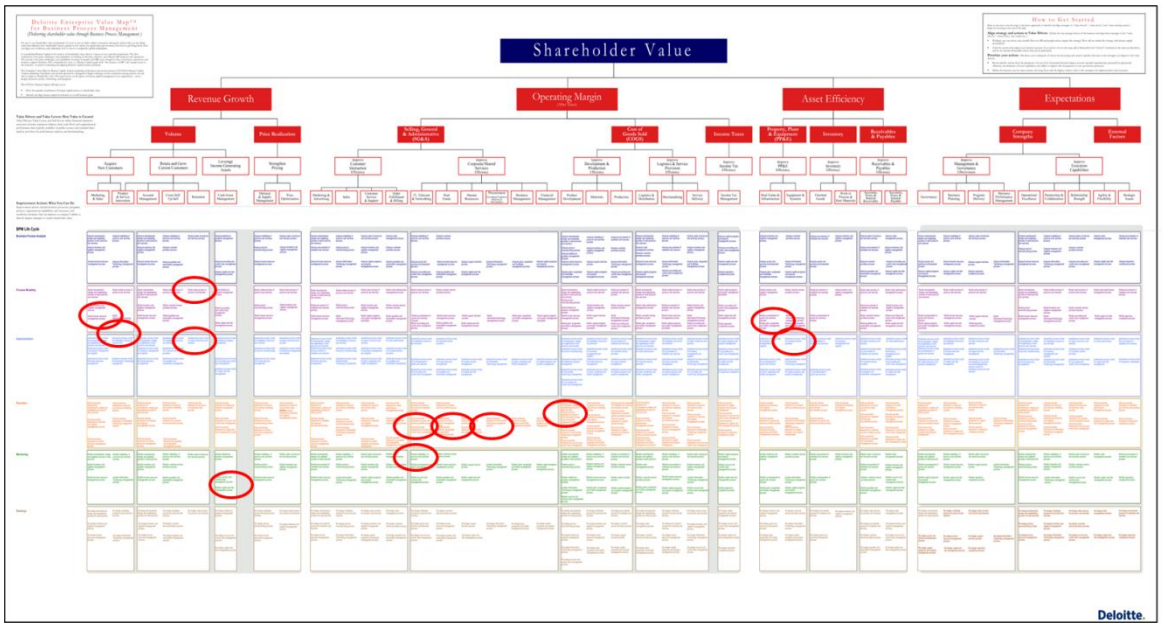


Figure 26: overview of possible improvement actions

Based on the results of the maturity analysis of the business processes of Lorum Ipsum they decide to use both the top-down and bottom-up approach to determine their shortlist of BPM opportunities. First the top-down approach is described, followed by the bottom-up approach.

Top-down approach

As Lorum Ipsum wants to improve their operating income through volume growth the top-down approach of Lorum Ipsum focuses on the improvement levers of volume growth (new customers and customer relationship management). Based on the maturity of these business processes the following improvement actions are possible that influence the volume growth:

- Model market products and services process
- Model secondary market activities management process
- Implement manage customer relationships process
- Monitor service institutional customers process
- Implement ensure compliance process
- Model manage human resources process
- Model manage Information Technology
- Monitor manage support services

Based on the difference in maturity of the related business processes Lorum Ipsum decided they want to start with improving the maturity of the business processes with the lowest maturity. Therefore the short list of improvement actions based on the top-down approach is:

- Model market products and services process
- Model secondary market activities management process
- Model manage human resources process
- Model manage Information Technology

Bottom-up approach

After the analysis of the maturity of their business processes Lorum Ipsum noticed that the maturity of their supporting business processes is lower than the maturity of their operating processes. As the supporting business processes also influence the operating processes they decide they want to improve the maturity of the supporting business processes. Based on the maturity of these business processes the following improvement actions are possible for the supporting business processes

- Monitor manage Assets and Liabilities process
- Monitor manage Capital Projects process
- Monitor manage Accounting and Control Data process
- Model provide Decision Support process
- Implement ensure Compliance process
- Model manage Human Resources process
- Model manage Information Technology process
- Model plan and Manage the Business process
- Implement manage Risk process
- Redesign procure Materials and Services process
- Monitor manage Support Services process

Lorum Ipsum decides they want at least a business model for each of the supporting business processes. Based on this decision they decide they want to perform the following improvement actions:

- Model provide Decision Support process
- Model manage Human Resources process
- Model manage Information Technology process
- Model plan and Manage the Business process

Short list

Based on the combination of the top-down and bottom-up approach Lorum Ipsum has developed the following short list of improvement actions.

- Model market products and services process
- Model secondary market activities management process
- Model provide decision support process
- Model manage human resources process
- Model manage Information Technology
- Model plan and manage the business process

7.6 Develop business case for improvement actions

After the organization has developed a short list with improvement actions it is necessary to analyze what the impact of the improvement action on shareholder value will be. For each improvement action on the short list a business case has to be developed to show the financial impact of the improvement of the business process. To support the business case development processes Deloitte provides financial impact templates. These templates provide a formula that shows the impact of changes in the process and also performs a sensitivity analysis. Figure 27 shows an example of such a template.

Benefit Financial Impact Template						Include in Consolidation :	Yes
Benefit FIT Title:	Increase average order value				Benefit FIT Number:		
Client Sponsor:		FIT Author:			Team Name:		
Core Process:		Subprocess:			Location:		
Description:	This FIT is about increasing order lines and order dollars by using better product information through integrated system capabilities, such as improved product and item searches. Improved item and product search capability increases the opportunity for cross sell/up sell.						
Financial Assumptions						**EVM Assumptions**	
Category:	(+) Sales	Year of Benefit / Starting Year:		Year 1		Improvement Sub Lever:	
One-Time/Recurring:	Recurring	If One-Time, split over how many years:					
				Projected		Change (should not = 0)	
Key Metric	Description (e.g. A = transactions/FTE)		Baseline	Low	High	Low	High
	A= % Increase in order lines and order dollars through ease of use		0,010	0,040	0,040	(0,030)	(0,030)
Fixed Variables	Description (e.g. B=yearly salary/FTE,		Baseline				
	B = Current Sales Revenue		3.000.000.000				
	C = Search access rate		0				
	D = Search Success rate		0				
				Projected		Change (should not = 0)	
Misc. Calculations	Description (e.g. describe interim equat		Baseline	Low	High	Low	High
						-	-
				Projected		Anual Improvement	
Annual Cash Flow Calc.	Description (e.g.D=C/A*B=$ to per		Baseline	Low	High	Low	High
	E= A*B Increased revenue due to increasing order lines and dollars		30.000.000	120.000.000	120.000.000	(90.000.000)	(90.000.000)
Projected Annual Improvement		Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Projection Option	**Realization for Year**	100%	25%	50%	75%	100%	100%
Low	**Yearly Improvement**	-	**(22.500.000)**	**(45.000.000)**	**(67.500.000)**	**(90.000.000)**	**(90.000.000)**
Projected Annual Improvement		Year 6	Year 7	Year 8	Year 9	Year 10	Sum of 10 Years
% of Annual Realization for Year		100%	100%	100%	100%	100%	
Projected Yearly Improvement		**(90.000.000)**	**(90.000.000)**	**(90.000.000)**	**(90.000.000)**	**(90.000.000)**	**(765.000.000)**

Figure 27: Financial impact template

Based on the KPI's of the business processes and the influence the business processes have on improvement levers Lorum Ipsum developed a business case for each of the business processes on the short list. Lorum Ipsum uses Cash Flow for their business case. The Cash Flow for each of the improvement actions is shown below.

Improvement actions	Cash Flow
Model market products and services process	€1.000.000
Model secondary market activities management process	€ 150.000
Model provide decision support process	€ 100.000
Model manage human resources process	€ 300.000
Model manage Information Technology process	€ 500.000
Model plan and manage the business process	€ 200.000

7.7 Map improvement actions

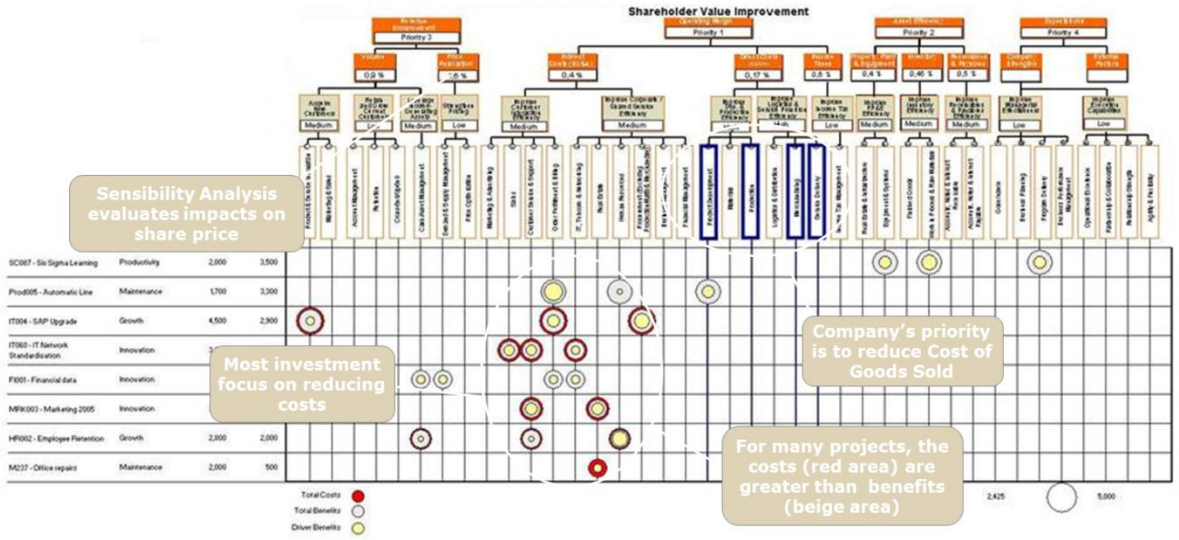


Figure 28: Improvement action mapping

After the financial impact of the improvement actions have been calculated in the business case the financial impact can be mapped to the improvement levers of the Value Map as shown in Figure 28. By mapping these improvement actions an organization gets an even better insight in the impact the specific improvement actions have on shareholder value and specific value drivers. This also helps organizations to better align the improvement actions to their organizational strategy.

Based on the business cases for each of the improvement actions Lorum Ipsum maps the financial results of the improvement actions to the related improvement levers. It shows that the improvement actions for the operational processes mainly influence operational income by customer growth, which is in line with the organizations strategy. The influence of the supporting business processes is divided among a number of improvement levers and leads to a higher operational income as well as lower operating costs and increased asset efficiency.

7.8 Prioritize improvement actions

To develop a roadmap for the BPM projects the financial impact and strategic alignment of the improvement actions are important to prioritize the improvement actions. Not all improvement actions are without any risk. Therefore organizations should also assess the risk of performing each individual improvement action and map it against the financial impact. In this relationship an organization can determine both a risk and a value threshold and determine which improvement actions should be part of the BPM roadmap. Figure 29 presents an example of an prioritization matrix.

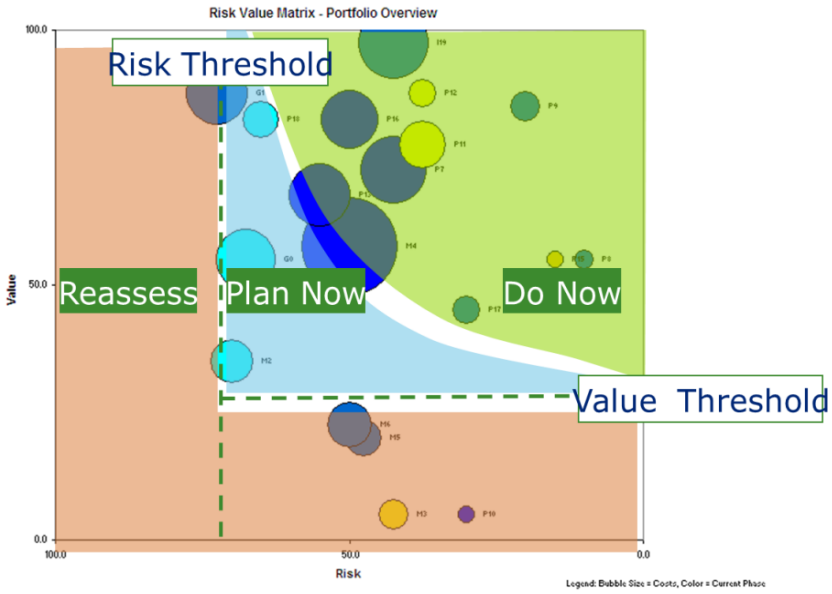


Figure 29: Prioritization matrix

To prioritize their BPM improvement actions Lorum Ipsum has performed a risk analyses to analyze the risk of performing the improvement actions. Based on the risk assessment they have decided they have to reassess the model provide decision support process. All the other improvement actions have a low risk. Based on the value of the improvement actions Lorum Ipsum has prioritized the improvement actions as followed:

1. Model market products and services process
2. Model manage information technology process
3. Model manage human resource process
4. Model plan and manage the business process
5. Model secondary market activities management process
6. Model provide decision support process

7.9 Summary

To apply the framework in practice an organization has to apply sevens steps to determine their BPM roadmap. These steps are:

1. Adapt value drivers and improvement levers to the business context

In this step the organization tailors identifies the performance measures of the organization and tailors the value drivers and improvement levers to their own performance measures, core processes and assets.

2. Link business process groups to improvement levers

In this step the organization identifies both their operational and business processes and relates them to the improvement levers which are developed in the previous step. This step shows the cross-relationship of the business processes as well as the impact business processes have on shareholder value.

3. Analyze business process management maturity of business process

In this step the maturity of the business processes is identified to analyze which steps of the BPM life cycle an organization can take.

4. Identify possible improvement actions

In this step the organization develops a long list of improvement actions an organization wants to take based on the possible opportunities. This analysis can be both top-down (based on the business strategy) or bottom-up (based on the impact of the improvement action). The result of this step is a long list of improvement actions

5. Develop business case for improvement actions

In this step the organization the organization develops a business case for the improvement actions on the long list. These business cases are based on the KPI's of the business processes and are used as input for the prioritization.

6. Map improvement actions to improvement levers

In this step the costs and revenue of the improvement actions are mapped to the improvement levers to get a better insight in the financial impact of the improvement actions

7. Prioritize improvement actions based on value and risk

Based on the value of the business cases and the risks of the improvement actions the organizations prioritizes the improvement actions which leads to a BPM roadmap.

8. Validation of the framework

The framework is based on research literature, input by BPM experts of Deloitte Consulting and expert session at Deloitte Consulting. To validate the framework two interviews at external organizations and a case study were performed. This chapter describes the interview setup, the questions used throughout the interviews and the results of the interviews as well as the case study. Finally the findings of the validation, the expert interview and the expert session at Deloitte Consulting and the case study are presented

- Section 8.1 presents the validation interviews
- Section 8.2 presents the case study
- Section 8.3 presents the findings of the validation

8.1 Validation interviews

8.1.1 Interview setup

The described BPM value map method has primarily been based on the literature study and the existing knowledge base. Although some scenario study results and expert opinions have been considered this does not give insights in the suitability of the framework in practice. This chapter assesses the suitability of the framework.

To validate the BPM value map a qualitative approach has been chosen. The most rigorous validation method for the BPM value map would have been a case study. However, it was not possible to perform such a case study in the limited time available for the research. Therefore a number of interviews have been performed to assess the suitability of the framework.

In the interviews BPM managers of two organizations were asked to answer questions from the question list described in the next section. To attain more feedback supplementary questions were asked to prevent vague or incomplete answers. The questions are based on the application steps described in chapter 7 as these steps describe how to apply the framework. Before attaining the face-to-face interviews the reference framework of chapter 6 and the application steps of chapter 7 were explained.

8.1.2 Questions list

For the interviews a semi-structured approach has been chosen, addressing the seven steps to apply the framework which are described in chapter 7. Additional questions have been posed to assess the overall methodology. As the interviews are semi-structured and focused on the seven steps to apply the framework the answers will also be summarized per step.

1. Adapt value drivers and improvement levers to the business context
    a. Do you relate current process improvement projects to shareholder value?
    b. Do you understand the concept to relate improvement actions to shareholder value using value drivers and improvement levers?
    c. Would you be able to identify the value drivers and improvement levers based on your business context?
    d. Do you think using value drivers and improvement levers offers added value for your organization?
2. Link business process groups to improvement levers
    a. Do you have an overview of all your operational in supporting business processes?
    b. Is it possible to relate your business processes to improvement levers?
    c. Does relating business processes to improvement levers offer new insights?
3. Analyze business process management maturity of business processes
    a. Do you have insights in the current maturity of your business processes?
    b. Do you think it is possible to measure the maturity of your business processes?
    c. Do you think measuring the maturity of business processes adds value?
4. Identify possible improvement actions
    a. How do you identify current process improvement projects?
    b. Do you think it is possible to identify possible improvement actions using the top-down approach from framework?
    c. Do you think it is possible to identify possible improvement actions using the bottom-up approach from the framework?
    d. Does the framework offer benefits in identifying possible improvement actions?
5. Develop business case for improvement actions
    a. How do you develop the business case for current process improvement projects?
    b. Can you use a similar approach to develop a business case for improvement actions identified using the framework?
    c. Do the improvement levers and value drivers help developing the business case?
6. Map improvement actions to improvement levers
    a. Does mapping the actions to improvement levers help prioritizing the improvement actions?
7. Prioritize improvement actions based on value and risk
    a. How do you currently prioritize improvement actions?
    b. Is it possible to identify the risk of an improvement action?
    c. Would you use the prioritizing methodology?

8.1.3 Interview results

Heineken International

Background

Heineken is one of the world's largest brewers and is committed to growth and remaining independent. The brand that bears the founder's family name – Heineken – is available in almost every country on the globe and is the world's most valuable international premium beer brand.

Their aim is to be a leading brewer in each of the markets in which they operate and to have the world's most valuable brand portfolio. Their principal international brand is Heineken®, but the Group brews and sells more than 200 international premium, regional, local and specialty beers and ciders. They have the widest presence of all international brewers, thanks to their global network of distributors and over 125 breweries in more than 70 countries in 2009. Marketing excellence and innovation are key components of their growth strategy. In everything they do, it is the consumers and their changing needs that are at the heart of their efforts. The goal of Heineken is to grow the business in a sustainable and consistent manner, while constantly improving profitability. The four priorities for action include:

1. to accelerate sustainable top-line growth
2. to accelerate efficiency and cost reduction
3. to speed up implementation
4. to focus on those markets where they believe they can win

Adapt value drivers and improvement levers to the business context

Heineken International BPM managers states they currently do not relate all process improvement projects to shareholder value. The main driver for process improvement projects are cost reductions in specific departments based on the budgets determined by top management. They understand the concept to relate improvement actions to value drivers and improvement levers. They state that because of their organizational size and multiple divisions it would be difficult to develop a holistic concept for their value drivers and improvement levers. However they also state this methodology could be used for a specific division and would use it to relate business process improvement projects but also other projects to identify their impact.

Link business process groups to improvement levers

Heineken International has insights in their business processes and has a business model of each of their business processes. They state that it would take quite some work to relate the business processes to the improvement levers as some of their business processes are very cross functional, but they also state that the insight it offers is worth the investment. By relating the business processes to the different improvement levers this cross functionality and the impact it has on shareholder value is made explicit, whereas in the current situation this isn't. Heineken International is very curious what impact this new insights might have on their selection of improvement actions.

Analyze business process management maturity of business processes

Heineken International currently only has assessed a limited number of business processes for their BPM maturity. These processes have been benchmarked with competitors from their industry; however despite this benchmark Heineken International did not use the maturity assessment or benchmark in further project plans. They have experience in assessing the BPM maturity of business processes and state the insight of the balance of maturity levels between different business processes offer a new insight compared to their current situation. Even though they state that they do not strive for a perfect balance between maturity levels and that not all business processes need to have a high maturity level they do think insight in maturity might show possibilities to reduce costs and accelerate efficiency.

Identify possible improvement actions

As described earlier by Heineken International the main driver for process improvement projects are cost reductions in specific departments based on the budgets determined by top management. Therefore they identify improvement actions by analyzing the KPI's of the core processes of a department. Because they already reduce costs in the departments that need cost reduction Heineken International states that the bottom-up methodology isn't very beneficial to their BPM practice as they already have their own methodology. Considering the top-down approach they state that this is a good methodology to analyze what process to optimize in order to gain competitive advantage. They main benefit they see is that beside the core processes for a specific improvement lever are made explicit but also other processes that might influence these core processes. In the current situation such processes are not likely to be identified as improvement actions for the competitive advantage.

Develop business case for improvement actions

For their current improvement actions Heineken International has their own methodology to develop their business case based on KPI's identified in the business processes. They state that using this methodology for identified improvement actions from the framework would not work as the added value of the framework is the cross functionality and the KPI's are not developed for the cross functionality. They state that the financial impact templates of Deloitte can be used as reference templates for their business case, however by defining KPI's for each improvement lever in the first step would improve the process of this step.

Map improvement actions to improvement levers

Heineken International states that mapping the improvement actions to improvement levers does not specifically help prioritizing improvement actions as the financial result stays the same. They state that mapping both the costs and revenues of an improvement action to the improvement levers could help Heineken International in determining which department has to pay for a specific improvement action as the improvement levers could be related to specific assets/departments. In the current situation only one department is responsible for paying for a specific project.

Prioritize improvement actions based on value and risk

Heineken International already prioritizes their improvement actions based on value and risk. However with the use of the BPM Value map it is possible to define the value in a structured process. However they state that the framework lacks a methodology to identify the risk of an improvement action.

MEE Zuid-Limburg

Background

MEE Nederland offers information, advice and support for individuals with an intellectual, physical or sensorial condition, individuals with a chronicle disease and autistic behavior regardless of their age or condition. MEE is experience with questions and problems regarding all kinds of conditions and know the possibilities for all facilities. MEE exist of 22 regional organizations offering easy accessible, independent advice for 100.000 clients. The interview was performed ad MEE Zuid-limburg, 1 of the 22 regional organizations.

Adapt value drivers and improvement levers to the business context

MEE does not gain income from treating their clients, but their income is based on grants. Therefore their main focus is not on increasing income but decreasing their costs and increasing their efficiency. However at the moment they only have limited insights in their cost structure. They state that using the methodology to determine their value drivers and improvement levers is a mainly process to create consensus and insights in their cost structure and is beneficial not only for process improvement projects. The focus of adapting the value drivers and improvement levers will therefore be on the operating margin and asset efficiency. These value drivers and improvement levers will be adapted for MEE Zuid-limburg, but can also be used for other regional organizations of MEE Nederland. MEE Zuid-Limburg also noticed that by adapting improvement levers to their value drivers they gain a better insight in their overall costs.

Link business process groups to improvement levers

Last year MEE Zuid-Limburg started identifying their business processes in order to start with process optimization. However in this identifying process they only identified and modeled their operational processes and did not take the supporting business processes into account. They state that by identifying all the business processes, including the supporting business processes, the organization will become more aware of their processes. By relating the business processes to improvement levers the impact of the business processes will increase this awareness of the organization. In the current situation the supporting business processes are not identified as important, by making their impact explicit the importance of the supporting business processes will be noticed by employees of MEE.

Analyze business process management maturity of business process groups

MEE Zuid Limburg has only recently started optimizing their business processes. They state that they have not performed an assessment of their business processes as they are aware that the maturity of their processes is low. However they state that they would want to know what maturity would be advised in their industry as a benchmark.

Identify possible improvement actions

MEE Zuid Limburg has limited resources to perform process improvement; therefore they state it is important to compare all possible projects to prioritize the projects based on the shareholder value they will deliver. For this reason they state the bottom-up approach is most suitable for MEE Zuid-Limburg to get an overview of all the possible projects. Based on the business case for these improvement actions they will distribute their limited resources. As MEE Zuid Limburg does not have any competitors they do not have to gain competitive advantage, reducing costs is more important to their overall strategy. Therefore they state that it is not likely they will use the top-down approach.

Develop business case for improvement actions

MEE Zuid Limburg does not have a standard methodology to develop a business case for their business process improvement projects. They state that the financial impact templates of Deloitte are a good starting point that describes how to develop the business case; however they have to define the KPI's in order to apply the financial impact template.

Map improvement actions to improvement levers

MEE Zuid-Limburg state that mapping the improvement actions to improvement levers can help them in the previous step, developing the business case for improvement actions as KPI's can be related to processes as well as to improvement levers. They state that relating the costs to improvement levers can be interesting, but is not a prerequisite as the costs for the projects are paid by a central budget.

Prioritize improvement actions based on value and risk

As stated earlier MEE Zuid-Limburg wants to prioritize the possible improvement opportunities based on the cost reduction of these opportunities. They think it is logical to prioritize the improvement actions both and value and risk. However they also state it is difficult for them to identify the risks for the improvement opportunities.

8.1.4 Findings interviews

The interview results have described the attitude of the two organizations towards the steps to apply the framework and the overall framework. In this section the overall findings are described for each step of the framework. These overall findings are based on the interviews with two organizations and interviews with BPM experts at Deloitte Consulting .

Adapt value drivers and improvement levers to the business context

For the most organizations it is possible to adapt value drivers and improvement levers to the business context, however having a reference model for a specific industry makes it easier to adapt value drivers and improvement levers to the specific business context. Large organization, such as Heineken International, might choose not to adapt value drivers and improvement levers to the holistic organization but instead adapt value drivers and improvement levers for a large department.

Most organizations might have insight in their main value drivers; however the impact of specific assets or processes is not always as clear. By relating the assets and processes using improvement

levers organizations can get a new insight in their cost en revenue structure. Another advantage of adapting value drivers and improvement levers to the business context is that the strategy can be mapped to these improvement levers to align strategy with improvement actions. Only by adapting the value drivers and improvement levers to the business context organizations can gain insights that can be used for portfolio management.

Link business process groups to improvement levers

As shown in the case of MEE Zuid-Limburg not all organizations have insights in their business processes. By identifying and defining the business processes, organizations can attain this insight which is prerequisite to perform BPM as a holistic approach. The validation also showed that the two organizations did not exactly know how business processes impact their shareholder value. By explicitly relating the business processes to improvement levers organizations become aware of this impact. Organizations especially get insight in the cross functionality of business processes and the relationship between supporting processes and operational processes.

Analyze business process management maturity of business process groups

Even though not all organizations strive to have maximum maturity for all business processes and a perfect balance might not be necessary the analysis of the current maturity is the main step to establish the base from which the portfolio management process starts. By determining the current maturity an organization can identify which process might lack maturity compared to other processes. This analysis can also be used to benchmark the maturity of the organization to peers. As organizations have limited experience with assessing the maturity they might need advice to assess their maturity.

Identify possible improvement actions

As described in the application of the framework an organization can identify the improvement actions in a top-down and bottom-up approach. The interview with Heineken International showed that organizations will choose to use the top-down approach if they want to gain competitive advantage with BPM. The interview with MEE Zuid-Limburg showed that if the goal of BPM is to reduce overall costs and increase efficiency the bottom-up approach is most suitable. The holistic approach of the framework is mentioned as a key benefit in both approaches. In the top-down approach not only the core processes are addressed, but other business processes that might influence an improvement lever are also made explicit. In the bottom-up approach the holistic view is even more important as all the business processes and their improvement actions are compared.

Develop business case for improvement actions

To develop a business case for improvement actions is seen as a logical step by both Heineken as MEE Zuid-limburg. The financial impact templates of Deloitte Consulting or existing methodologies within their own organization are a good reference point how to develop a business case. However the framework would work even more effectively if there were reference KPI’s for each industry that organizations could use to develop their business case.

Map improvement actions to improvement levers

Mapping the improvement actions to improvement levers does not add value in all cases for an organization. Only if an organization wants to allocate their costs and benefits to the value drivers or improvement levers, this step helps organizations prioritize their improvement actions. If they only want to know the overall costs and benefits organizations can skip this step.

Prioritize improvement actions based on value and risk

The representatives of the two organizations state that it is a logical step to assess the risk of the improvement actions and relate both value and risk in a matrix. However they state that the framework would improve if there was a clear methodology to determine the risk of an improvement action. They also state that risk is a precondition and the main prioritization will still be based on the value of the improvement actions.

8.2 Case study

The previous chapters described the framework developed in this thesis. This chapter describes a case study of the framework. For this case study the framework has been developed in a Business Process Management Tool to support usage of the framework. The tool used is Industry Print 5, the Deloitte's Business Process Management modeling conventions of ARIS. The first section describes the tooling, the second section describes the case study and third section describes the overall findings of the case study.

8.2.1 Modeling framework in Industry print 5

In Industry Print 5 the following diagram are used to model the framework in a BPM tool:

- Objective tree to model the value drivers of an organization in the Enterprise Value Map
- KPI allocation diagram to model the KPI's of an organization and a hierarchy of these KPI's.
- Process map to model the Processes of an organization

The relationship between the processes, value drivers and KPI's are modeled in a "Function Allocation Diagram". The following sections will describe how diagrams and functional allocation diagram are used to support the framework.

Objective tree

In Industry Print 5 value drivers can be modeled in an objective tree. In this model the hierarchy of value drivers can be modeled similar to the Enterprise Value Map. Modeling these value drivers creates an object that can be associated to process objects and KPI objects.

Figure 30: Enterprise Value Map IP5 shows an overview of the left side of the reference Enterprise Value Map. This starts with Shareholder value on top following revenue growth value drivers and improvement levers.

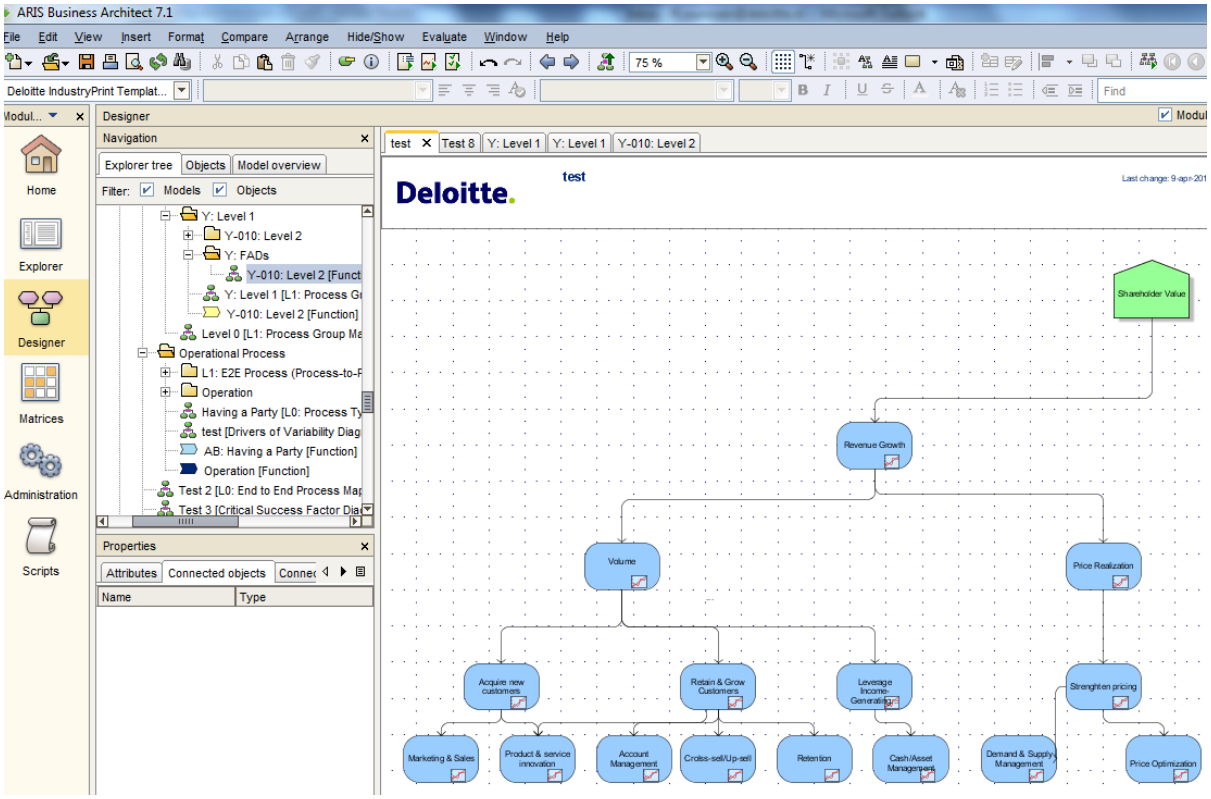


Figure 30: Enterprise Value Map IP5

KPI allocation diagram

In Industry Print 5 KPI's can be modeled in a KPI allocation diagram. In this model it is also possible to define the hierarchy of KPIs. KPI's can also be imported from an excel document and created in a KPI allocation diagram.

By modeling the KPI's in a KPI Allocation diagram and creating the hierarchy of KPI's this hierarchy will also be applicable when associating the KPI's to Value Drivers and processes.

Figure 31: KPI allocation diagram shows an example of the hierarchy of KPI's and the association with the Value Drivers.

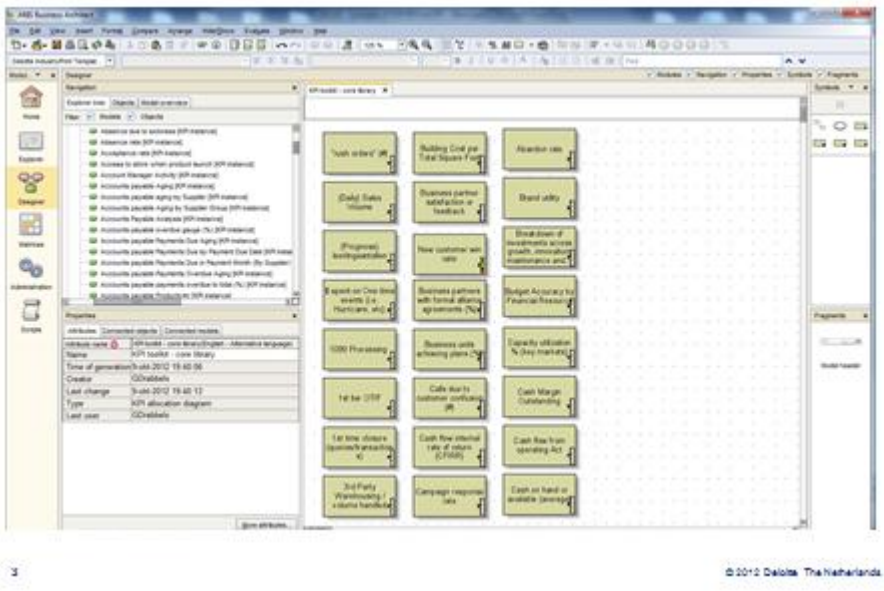


Figure 31: KPI allocation diagram

Process Diagram

In Industry Print 5 processes can be modeled in a process diagram. In this model there are five levels of Process. Figure 32: IndustryPrint 5 Process Diagram shows the five levels used in Industry Print 5 and the level of detailed related to these levels.

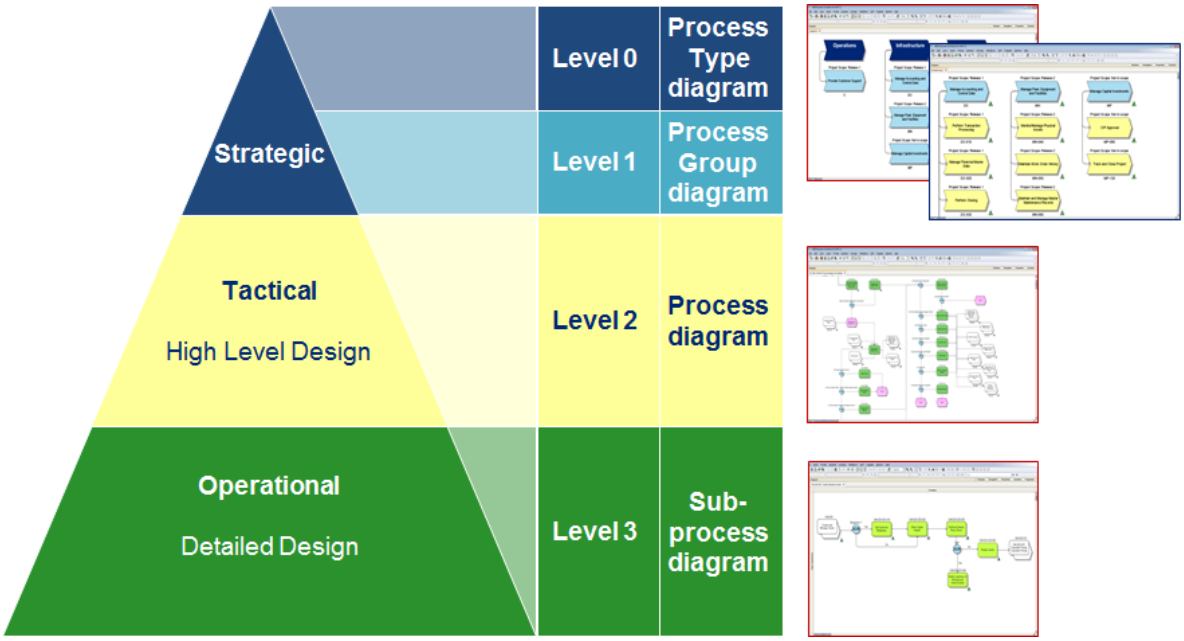


Figure 32: IndustryPrint 5 Process Diagram

The Level 1 (process group diagram) processes are the processes used in the framework to link processes to Improvement Levers. Additionally the lower level processes can be modeled in Industry Print 5 to provide a deeper level of detail. These processes and sub processes can also be linked to Improvement Levers to apply the framework on a more detailed level.

Figure 33: Reference processes shows how the reference processes form the reference framework are modeled in Industry Print 5.

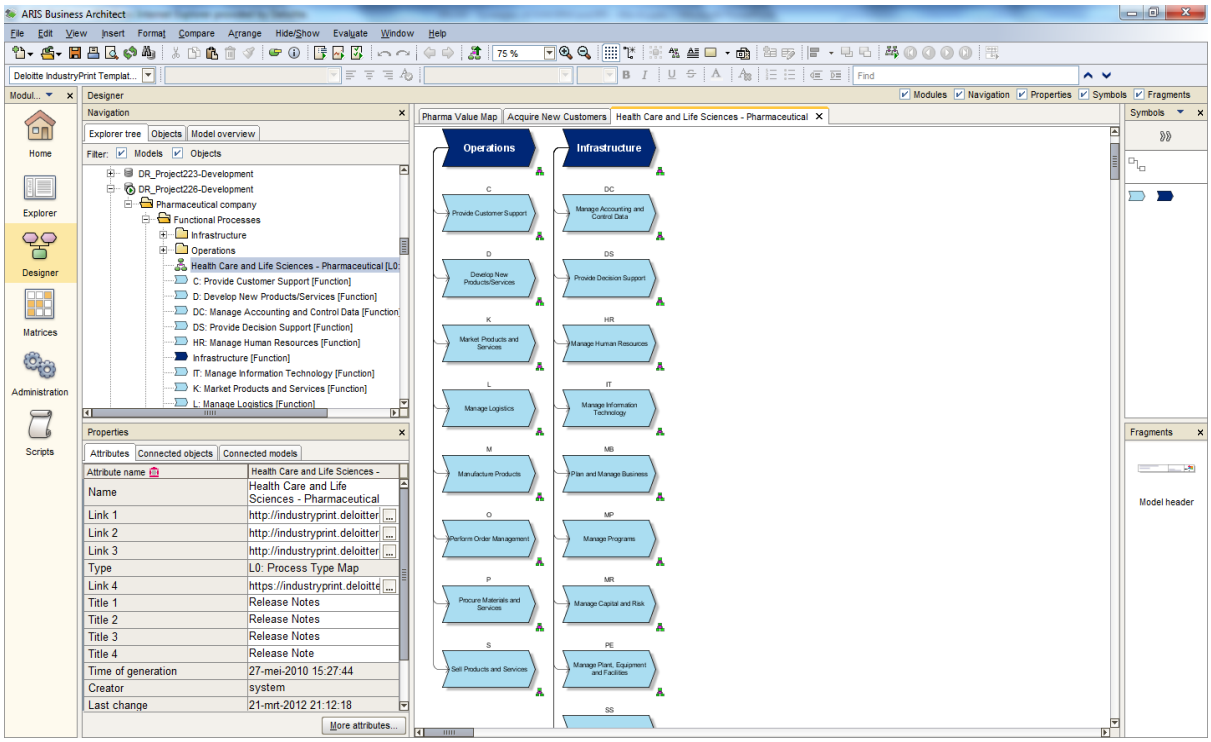


Figure 33: Reference processes

Relating objects in Industry Print 5

In Industry Print 5 the following relationships between objects can be modeled:

- Relationship between Value Drivers and KPI's
- Relationship between business processes and Value Drivers
- Relationship between business processes and KPI's

The relationship between value drivers and KPI's can be created in the KPI allocation diagram. By creating this relationship it shows that the KPI is applicable to a specific Value driver. When reviewing this Value Driver these KPI's need to be taken into account. Figure 34: KPI Allocation diagram including value driver shows the KPI allocation diagram including the link to the Value Driver.

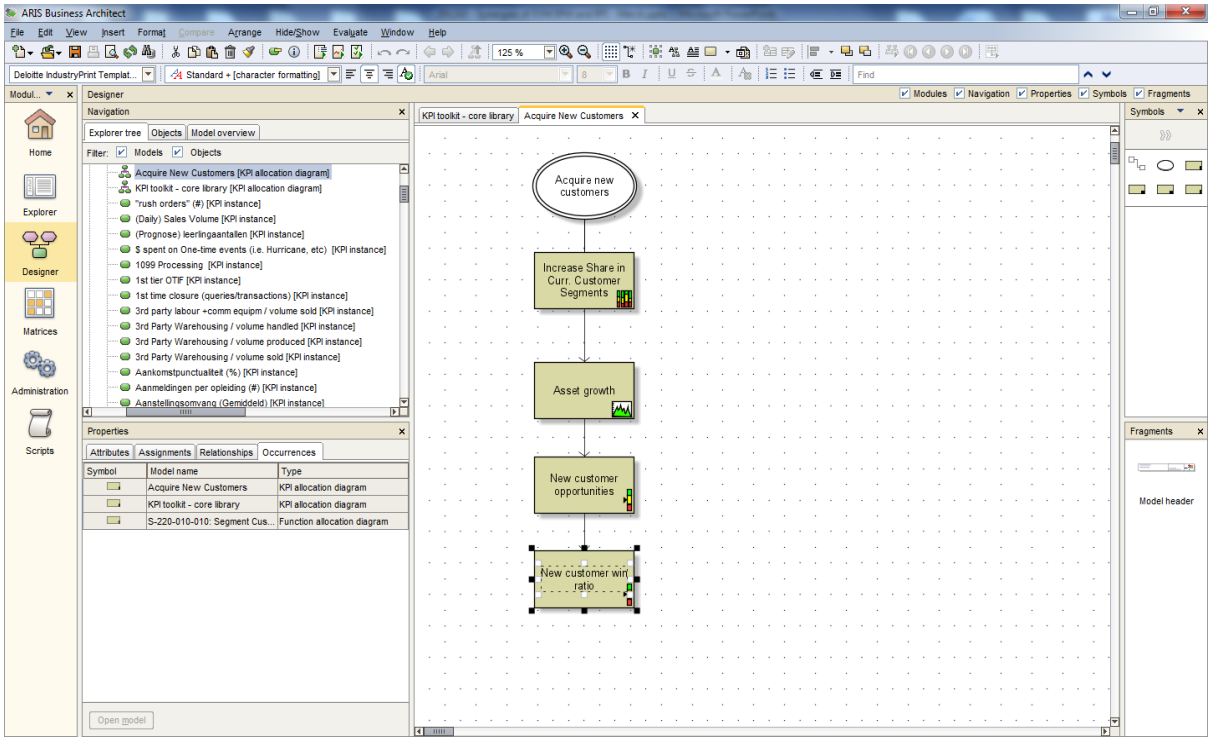


Figure 34: KPI Allocation diagram including value driver

The relationship between processes and KPI/Value drivers can be modeled in a “Function Allocation Diagram” (FAD). A FAD in IndustryPrint 5 is typically used to model the relationship of processes with:

- Requirements & other
- Applications & Software
- Leading Practices, KPI’s and Data
- People (Roles & Responsibilities)

For the Framework the FAD is used to model the relationship between the business process with the KPI’s and Value Drivers. The business process object is modeled in the center of the model. The KPI object is included in the left lower corner (used for Leading Practices, KPI’s and Data). The Value Driver object is included in the left upper corner (used for requirements & other).

By creating this association between business processes, Value Drivers and KPI’s the tool provides information of each association of an object. For instance if we would like to know which business processes and value drivers are linked to a specific KPI we can select this KPI object in the tools library and get an overview of all occurrences and links. This overview is highlighted in Figure 35: Industry Print 5 associations

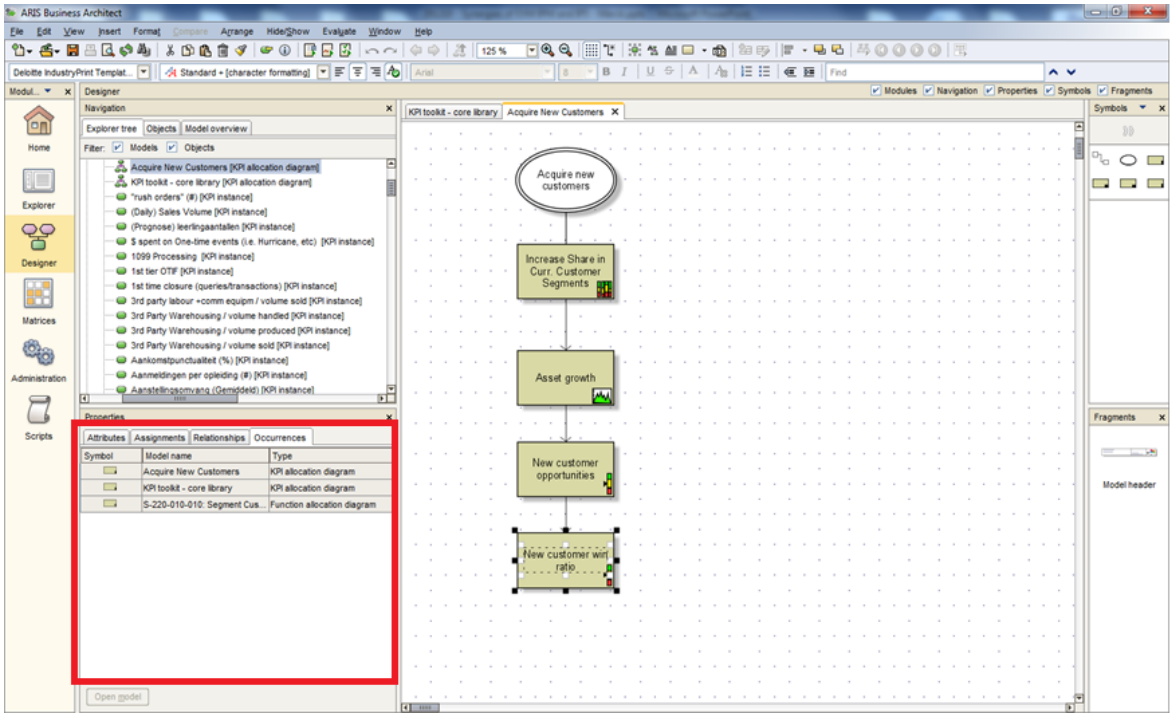


Figure 35: Industry Print 5 associations

8.2.2 Merck case study

To validate the way the framework is modeled we have used a case study. This case study is based on a Deloitte project where the Enterprise Value Map has been used to define a customized Value Map. As part of the projects also KPI's have been identified and linked to the Value Drivers. As part of the case study we have included the link with business processes based on the reference processes for this industry.

Background

Merck is an international health care company dedicated to providing leading innovations and solutions for tomorrow. Their mission is to discover, develop and provide innovative products and services that save and improve lives around the world. An ambitious market growth strategy and recent acquisitions forced Merck Animal Health to optimize commercial processes and commercial intelligence. The necessity to align commercial KPI's with their strategy was apparent as this would ensure the right corrective and stimulating actions from sales management.

Merck Enterprise Value Map

Based on the Deloitte Enterprise Value Map for the pharmaceutical sector and input from multiple workshops with Merck a customized Value Map has been proposed. The focus of this customized Value map is on the commercial margin and value driver impacting the commercial margin. Figure 36: Enterprise Value Map Merck shows the Enterprise Value Map of Merck

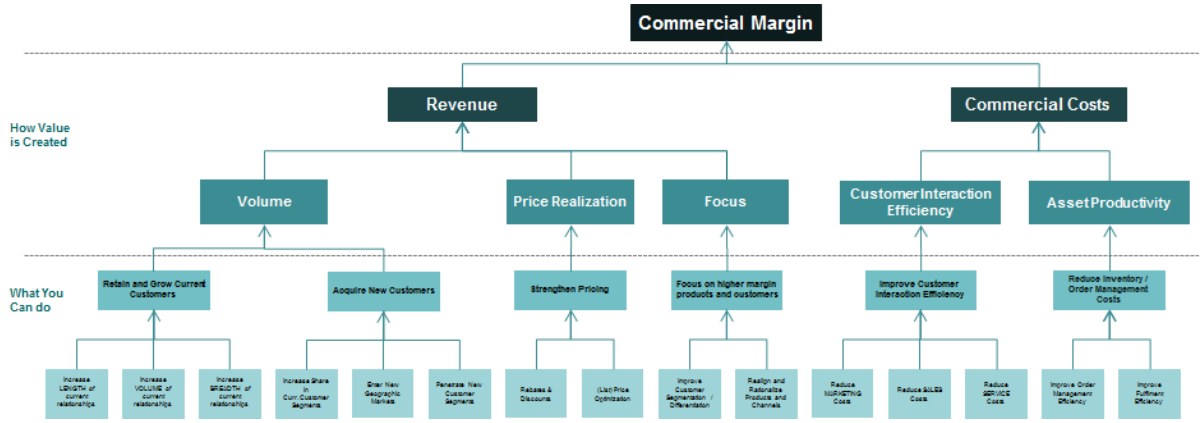


Figure 36: Enterprise Value Map Merck

Based on this customized Value Map the project has also linked business processes to the Improvement levers identified by Merck. Figure 37: Business processes Merck shows the link between the improvement levers and the business processes.

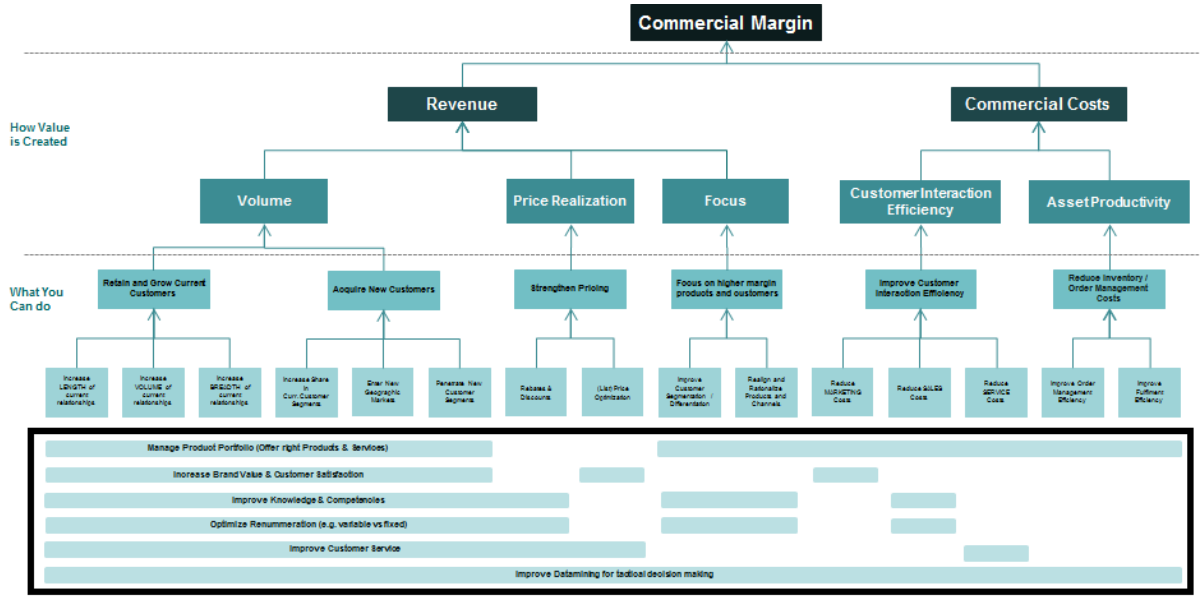


Figure 37: Business processes Merck

The project has also identified KPI's for each of the value drivers and has created a mapping between these KPI's and value drivers. This mapping has also been visualized in the Enterprise Value Map as shown in Figure 38: KPI's Merck.

Figure 38: KPI's Merck

Finally the project has also mapped the same KPI's to the identified business processes. This mapping has been visualized in a similar way as shown in Figure 39: KPI and business process mapping Merck.

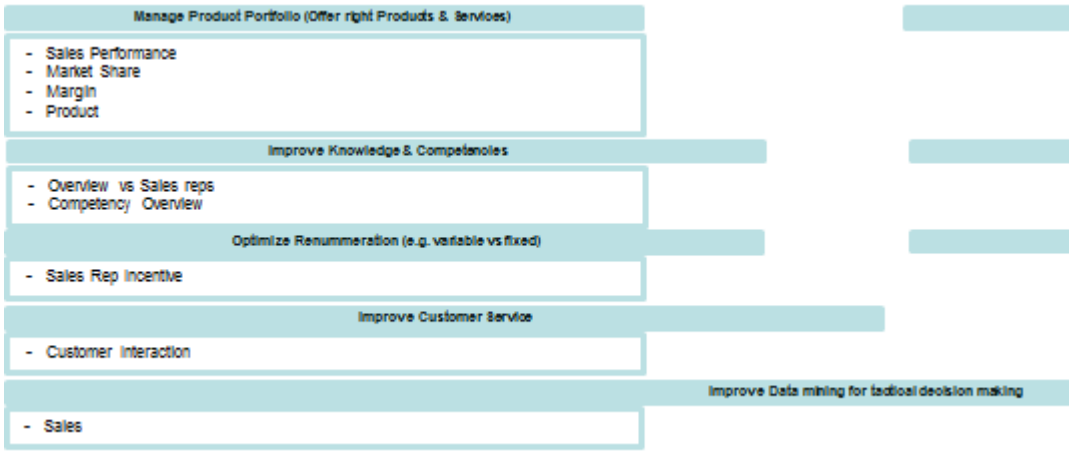


Figure 39: KPI and business process mapping Merck

Merck Value Map in Industry Print 5

As part of the case study the customized Value Map, KPI's and business processes developed/identified by the Merck project team has been created in Industry Print 5.

As described in the previous section the Value Map can be created in an Objective tree diagram. Figure 40: Merck Value Map Industry Print 5 shows Industry Print 5 model of the initial version of the Pharmaceutical Value Map, on which Merck based the Value map.

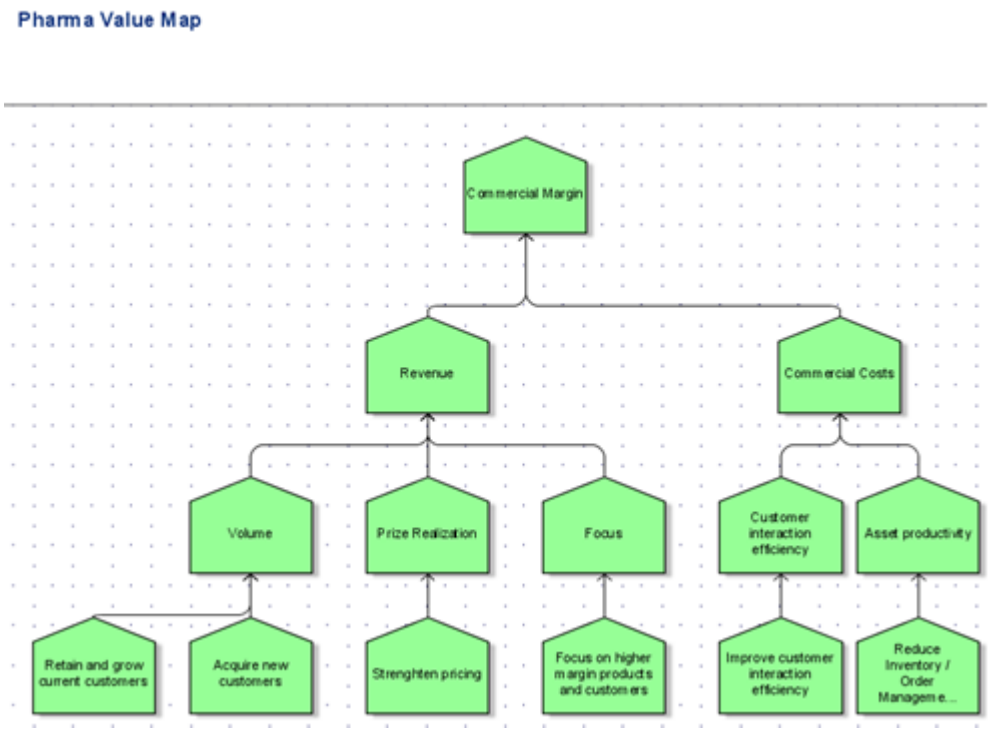


Figure 40: Merck Value Map Industry Print 5

For the KPI's and business processes identified by Merck we have created a number of example diagrams to validate the possibilities of modeling such a project in an Industry Print 5 model. Figure 41: Functional allocation diagram Merck shows the Function Allocation Diagram used for the KPI's and a Process identified by Merck.

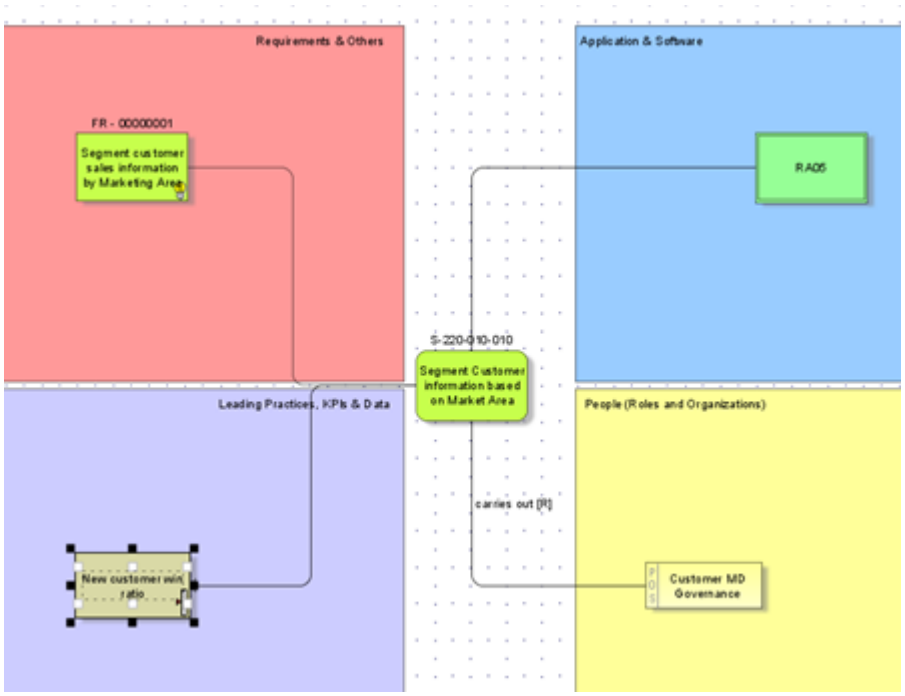


Figure 41: Functional allocation diagram Merck

KPI Dashboard

As part of the Business Intelligence & Analytics group within Deloitte a set of reference KPI's have been included in a "KPI dashboard". This KPI dashboard includes a set of 3000+ KPI's. For each of the KPI's the following relationships are part of the KPI dashboard:

- Industry
- Business processes
- Value Driver

The KPI's from the KPI dashboard are available in the KPI dashboard (web application) as well as an excel document. As part of the tooling for the BPM Value Map these KPI's including all details have been imported to Industry Print 5. Figure 42: KPI Dashboard shows an overview of all these KPI's in the KPI Allocation diagram for the KPI Dashboard. These KPI's has been used in step 5 of the framework "*Develop business case for improvement actions"* to build the business case for improvement actions.

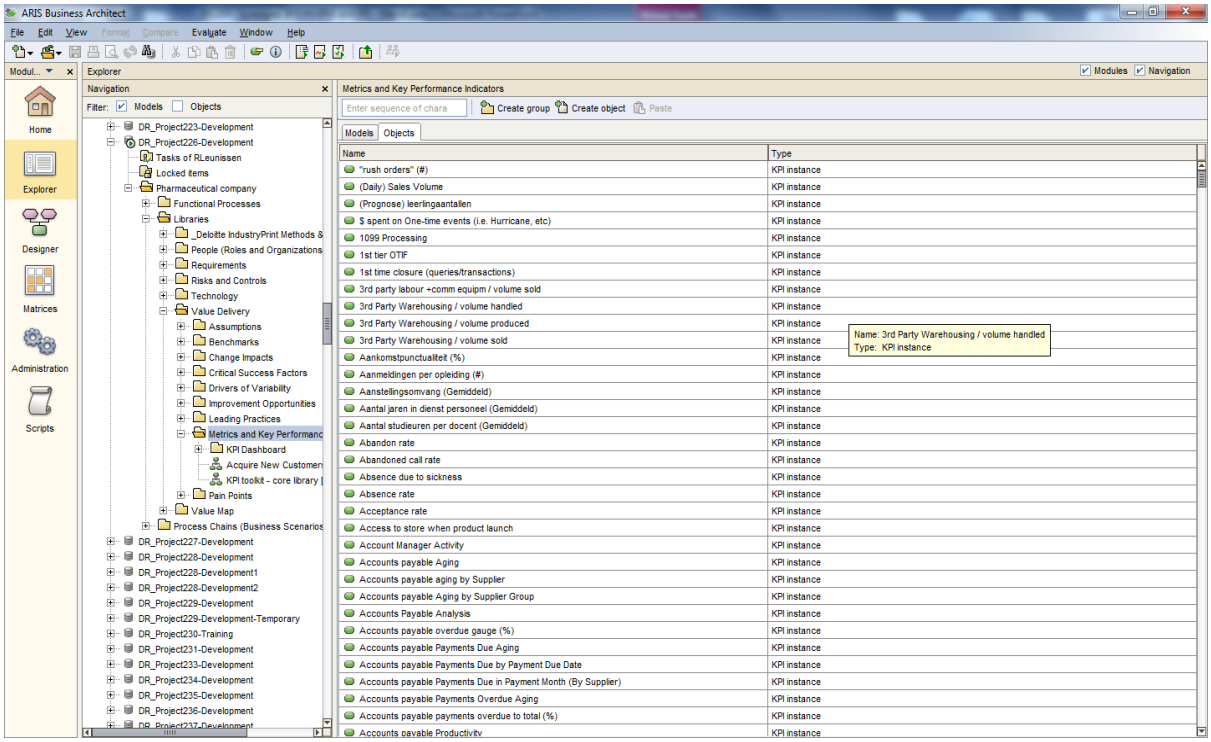


Figure 42: KPI Dashboard

8.2.3Findings case study

In the case study we found that it is possible to model the Enterprise Value Map created by Merck in the Objective tree as described in the previous section. Additionally the KPI's and Business processes can be linked to the value drivers following the KPI allocation diagram and FAD.

We found that in the project no hierarchy has been used for KPI's. Therefore this part of the tooling has not been used in the case study. Additionally we have not been able to assess the maturity of the processes of Merck which would be the next steps to determine improvement opportunities.

The case study has shown it is possible to develop a company specific Business Process Management Value map. This validates the basic concept of the framework. As creating the framework only is part

of the application of the framework we have not been able to validate the complete application of the framework.

8.3 Findings Validation

The interviews with two organizations has shown that organizations can and would apply the framework in practise . Both organizations indicated it is possible to complete all steps to apply the framework. They both indicated that by setting up the framework itself would already provide them useful information

However the interviews also showed that the way organizations apply the framework might be catered to their characteristics. Heineken has indicated they would apply the framework for a large department instead of the holistic organizations Additionally some organizations already know their business processes, however MEE showed that some organizations first need to identify their business process groups before mapping them to improvement levers.

The case study has shown the framework can be applied to a real organizations and that it is possible to include the value drivers, processes and KPI's in the framework. Unfortunately not all steps of applying the framework have been addressed in the case study.

Overall the interviews and case study have shown it is possible to model the framework in practice and organizations see both the benefit and feasibility of the application of the framework.

9. Conclusion

In the previous chapters this research introduced a framework to support the portfolio management process for BPM projects of organizations. This framework is based on literature, interviews with experts and an expert session at Deloitte Consulting and validated with two organization interviews and a case study. Based on the validation it is concluded that organizations would use the framework in practice. It thereby reached the goal of this research:

"To develop a framework to identify, discuss and prioritize possible BPM improvement opportunities related to shareholder value and organizational capability to support organizations in their BPM portfolio management process"

This chapter will present the answers to the research questions, the limitations of the research and give suggestions for further research.

- Section 9.1 presents the answers to the research questions
- Section9.2 presents the limitations of the research
- Section 9.3 presents suggestions for further research

9.1 Answers to the research questions

The main research questions of this research was "*How can organizations identify, discuss and prioritize all possible BPM opportunities in a single framework based on shareholder value and organizational capability?"*

This research questions is answered by answering a number of sub-questions. The sub-questions and their answers are presented below.

Sub-question 1: What is shareholder value?

As described in chapter 2 shareholder value from an investor's perspective is called Total Shareholder Return and is based on the stock price appreciation and dividends of an organization. Managing for value is also known as Value Based Management and is defined as "*a formal systematic approach to managing companies to achieve the objective of maximizing value creation and shareholder value over time"* and is concerned with understanding value drivers and their interactions to develop an organizations strategy to achieve competitive advantage. Organizations can relate improvement actions to shareholder value by dividing value drivers into so-called improvement levers and relating the improvement actions to specific improvement levers.

Sub-question 2: What is Business Process Management?

Despite the fact that BPM is ranked as a top priority by organizations there is no common understanding and definition of BPM. In this research BPM is broadly referred to as "*Managing, coordinating, prioritizing and monitoring an organization's process change resources and undertakings*". The main benefits of BPM are increasing efficiency, effectiveness and agility which results in lowers costs and higher revenues. BPM is typically applied using the BPM life-cycle which has the following six steps.

1. Analysis
2. Modeling
3. Implementation
4. Execution
5. Monitoring
6. Redesign

Sub-question 3: What is business process management maturity?

Maturity models are designed to assess the organizations maturity of a selected domain based on a set of criteria. Business Process Maturity models are maturity models designed to assess the organizations BPM maturity and are used to provide a base lining for determining BPM maturity in an organization, provide insights into areas of weakness, identify improvement opportunities and benchmark to organizations in the same industry. From a BPM maturity perspective the expectation is that an increase of maturity results in an increase of organizational performance. However it is not clear if organizations should strive to achieve the maximum maturity at all aspects.

The maturity model used in this research assesses the maturity of BPM using six criteria.

1. Strategic alignment
2. Governance
3. Methods
4. Information technology
5. People
6. Culture

Sub-questions 4: How can we relate BPM, BPMM and shareholder value in a framework?

To relate BPM, BPMM and shareholder value in a framework an organization has to relate their business processes to all three aspects. For each business process an organization can perform the six steps of the BPM life-cycle. However the maturity of the business process determines which steps have already been take, which steps can be taken en which steps cannot be taken yet based on the current maturity. To relate the possible steps to shareholder value the business processes have to be related to the improvement levers of the organization.

Sub-question 5: How can we populate the framework?

As each organization has its own value drivers, improvement levers and business processes it is not possible to develop one single framework for all organizations, instead all organizations have to populate their own framework. How this is done is answered by sub-question 6. To develop a single framework that can be used as a reference framework, reference value drivers, improvement levers and business processes are needed. Based on the standard value drivers and improvement levers of the Enterprise value Map of Deloitte and the reference business processes from Deloitte's value link a reference framework is populated be relating the business processes to the improvement levers and BPM life-cycle steps.

Sub-question 6: How can organizations apply the framework in practice?

Each organization has its own value drivers, improvement levers and business processes. Therefore the first two steps to apply the framework are:

1. Adapt value drivers and improvement levers to the business context
2. Link business process groups to improvement levers

To analyze which improvement actions are possible, an organization has to identify the BPM maturity of each business process, which results in the third step:

3. Analyze business process management maturity of business process groups

Based on the improvement actions that are possible an organization has to develop a long-list with improvement actions they want to perform. This long-list can be developed in two different ways, top-down and bottom-up. By using the top-down approach the focus is on improvement actions related to a specific value driver of improvement lever. By using the bottom-up approach the focus is on business processes and the framework shows how they impact shareholder value. These two approaches are part of the fourth step.

4. Identify possible improvement actions

Once the long-list has been developed, an organization has to reduce this long-list to a short list. This is done by calculating the business case for the improvement actions on the long list in fifth step.

5. Develop business case for improvement actions

To distribute the costs and revenues of the improvement actions to the related improvement levers they have to be mapped in the sixth step.

6. Map improvement actions to improvement levers

Based on the business case and the impact on value drivers the improvement actions have to be prioritized. However the risk of performing the improvement actions also has to be taken into account. This results in the seventh step which leads to a list of projects that will be performed.

7. Prioritize improvement actions based on value and risk

Sub-question 7: How can we validate the framework?

The framework is mainly based on a literature study, expert interviews at Deloitte Consulting and an expert session at Deloitte Consulting. To validate the framework a qualitative approach has been chosen, using interviews at organizations to assess the applicability and added value of the framework and a case study to further validate the usability of the framework. Based on the results of the interviews and case study we can assume that the framework can be applied by organizations and adds value for these organizations.

9.2 Limitations

Every research has its limitations and so has this research. First of all the most rigorous validation method for the framework would have been a more detailed case study including all steps to apply the framework. Also the number of organizations that are interviewed is limited and only gives an indication of the applicability and added value of the framework.

Second, the research has developed a reference framework for organizations based on reference value drivers, improvement levers and business processes. This reference framework is a high-level, industry independent framework and cannot be used for all industries and organizations. It is possible to develop reference frameworks for specific industries such as the public sector, by determining reference value drivers, improvement levers and business processes for these industries.

Third, even though the research describes a process to identify and prioritize BPM improvement opportunities the main focus of the research has been on the identification of the BPM improvement opportunities. The research describes a process how to prioritize BPM improvement opportunities by developing a business case and prioritizing the BPM improvement on value and risks. However as noticed in the validation the framework would work more effective if it would determine reference KPI's for improvement levers and/or business processes. The same goes for a methodology to determine the risk of a BPM improvement opportunity.

Finally, the focus in identifying the organizational capability using a BPM maturity model is mainly focused on increasing the methods, which are related to the BPM life cycle. The research does not describe how an organization should increase the maturity based on strategic alignment, governance, information technology, people and culture.

9.3 Further research

Further research can improve the framework by further researching concepts of this research or performing research to additional aspects of the framework.

First, as described in the research there is no common understanding of BPM. By developing a body of knowledge of BPM and a agreed BPM life cycle practitioners and researchers will come to a common understanding of BPM. This agreed BPM life cycle can be applied to business processes the same way as the BPM life cycle used throughout this research.

Second, there are numerous BPM maturity models. Alike BPM there is no commonly agreed model for BPM maturity and even less agreement on how to measure BPM maturity. By determining a commonly agree model and measurement methodology and relating this to the business processes benchmarking would be easier to perform.

Third, as stated in the previous section there is only a high-level reference model and no industry specific reference models. By performing research to the value drivers, improvement levers and business processes in a specific industry such industry specific reference frameworks can be developed. The reference model also does not include reference KPI's that can be used to develop the business case for an improvement action. By identifying the KPI's for the general reference framework or industry specific frameworks organizations can develop better business cases.

Fourth, the research does not describe a method to identify the risk of a BPM improvement action. Research to develop or identify such an method would make the steps to apply the framework more complete.

Finally, further validation of the research would give better insights in the applicability and the added value of the framework. Further validation could be achieved by performing a case study or interviewing more organizations. By further validating the research improvement opportunities for the framework can also be identified.

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Glossary

BPM	Business Process Management
BPMM	Business Process Management Maturity
EV	Enterprise Value
EVM	Enterprise Value Map

List of figures

Appendices

Appendix A: Enterprise Value Map base