UNIVERSITY OF LJUBLJANA
FACULTY OF ECONOMICS

MASTER'S THESIS
**APPROACHING PROCESS ORIENTATION AND BUSINESS
PROCESS MANAGEMENT: THE CASE STUDY OF THE COMPANY
VIP MOBILE**

Ljubljana, April 2015   SANDRA SAGADIN

AUTHORSHIP STATEMENT

The undersigned Sandra Sagadin, a student at the University of Ljubljana, Faculty of Economics, (hereafter: FELU), declare that I am the author of the master's thesis entitled Approaching process orientation and business process management: the case study of the company Vip mobile, written under supervision of prof. dr. Mojca Indihar Štemberger.

In accordance with the Copyright and Related Rights Act (Official Gazette of the Republic of Slovenia, Nr. 21/1995 with changes and amendments) I allow the text of my master's thesis to be published on the FELU website.

I further declare

- the text of my master's thesis to be based on the results of my own research;
- the text of my master's thesis to be language-edited and technically in adherence with the FELU's Technical Guidelines for Written Works which means that I
  - cited and / or quoted works and opinions of other authors in my master's thesis in accordance with the FELU's Technical Guidelines for Written Works and
  - obtained (and referred to in my master's thesis) all the necessary permits to use the works of other authors which are entirely (in written or graphical form) used in my text;
- to be aware of the fact that plagiarism (in written or graphical form) is a criminal offence and can be prosecuted in accordance with the Criminal Code (Official Gazette of the Republic of Slovenia, Nr. 55/2008 with changes and amendments);
- to be aware of the consequences a proven plagiarism charge based on the submitted bachelor thesis / master's thesis / doctoral dissertation could have for my status at the FELU in accordance with the relevant FELU Rules on Master's Thesis.

Ljubljana, April 14th, 2015   Author's signature: _____

TABLE OF CONTENTS

TABLE OF TABLES

TABLE OF FIGURES

INTRODUCTION

It is nowadays more and more acknowledged that a business processes oriented company may have a great advantage over a classic, departmentalized company. As business process orientation is frequently described as a set of company's characteristics, the question of how these characteristics can be attained also poses itself.

The body of knowledge on the subject of process oriented company and business process management (hereinafter: BPM) is wide and diverse, and sometimes very theoretical. Harmon and Wolf (2011) describe the BPM tradition emerging as a result of the historical convergence of quality management, business management and information technology movements. Harmon also stresses the importance of business process architecture as a driver of process orientation (Harmon, 2003, p. 495).

In their 2011 study of Austrian companies, Kohlbacher and Gruenwald define the characteristics of a process oriented company by breaking them down into different aspects, those related to processes and their documentation, as well as those of management, organizational structure and culture in the company. In their maturity model, Jeston and Nelis (2006, pp. 201-203) address process orientation from yet a different perspective, that of a typical evolution of a company's characteristics through time - assuming the desire for and effort put into attaining the goal of process orientation.

The problem most companies face today is not the lack of knowledge about the above topics, but that of a clear picture of how the process orientation can be practically approached. Many companies have invested a substantial amount of money and time in order to develop the enterprise architectures and the processes management practices, which would allow them to continuously improve their services and customer satisfaction, attain operational excellence, replicate best practices across the company's entities and also respect international rules and laws. Although some of these companies' achievements are regarded as strategic knowledge, intellectual property and comparative advantages, and therefore will not be shared, an example of such an approach can be obtained and should be examined.

This thesis looks at an approach to process orientation in a mobile telecommunications subsidiary of Telekom Austria Group (hereinafter: TAG). Placed in its particular environment and with a goal of process orientation, the company with its efforts over multiple years provides a valuable insight into how a particular approach looks in practice. The analysis of the company's evolution in combination with the theoretical body of knowledge, will aim to provide practical advice on an approach which can be used irrespective of the company's field of operation.

The aim of the thesis is to show in practice why and how business process orientation (hereinafter: BPO) can be achieved by an organization internally. It will do so by showing how different motivational factors influence the strategy of adoption, and how normal business issues influence it, on an example of a mobile operating company from the beginning of its operation.

This thesis will argue that attaining process orientation is a process in itself, which requires certain process orientation characteristics as a foundation for the others. It will also be argued that there are numerous frameworks or reference models that can be applied, and that the level of sophistication of the enterprise and its architecture is less relevant than the willingness and the ability of the owners and the management to systematically approach the process orientation with multiple goals, such as competitiveness, customer-friendliness and compliance with the authorities, to name a few.

Finally, practical advice will be given on how to adopt these concepts to an individual company's needs and abilities.

The research goals of this master's thesis are:

- to review the scientific literature in the field of business process management and explore the important concepts and terms,
- to describe a business case and associate the practical examples with the theoretical concepts and terms,
- to analyze the business case in terms of theory, focusing on its strengths and its weaknesses, with a focus on proposing a generic model or good practice.

The first, theoretical part of this work will be based on the analysis and the synthesis of definitions and interpretations of the terms associated with business process management and process orientation, as they appear in international research, educational and general literature.

The second, practical part of the work will describe the business case of a company based on the author's working experience, company documentation and generally available company information. Additionally, a brief deductive analysis of the case will be given in order to associate the practical examples with the theoretical concepts.

The third part will be based on an inductive analysis of the business case, with a focus on analysis of its benefits and shortfalls an the proposal of a general approach.

The master's thesis will be divided in three parts. The first part will explore the history, definitions and examples of selected process orientation topics. The second part will be based on a business case of a company, following its environment, goals, and business

process management efforts, in terms of the theoretical foundation built in the first part. Examples of the terms used in the theoretical models shall be given. The third part will again address the theoretical models and their shortfalls, and propose a generic approach (with suggested improvements and alternatives) based on the business case.

1 BUSINESS PROCESS MANAGEMENT AND PROCESS ORIENTATION IN MODERN THEORY

1.1 Process orientation and business process management - the history

Business process management (hereinafter: BPM) bridges the divide between strategic and operational management, which causes problems in many organizations, and ensures the foundation for business oversight and necessary corrective action, as shown in the Figure 1 (Kovačič & Bosilj Vukšić, 2006, p. 15).

Figure 1. The role and the position of BPM
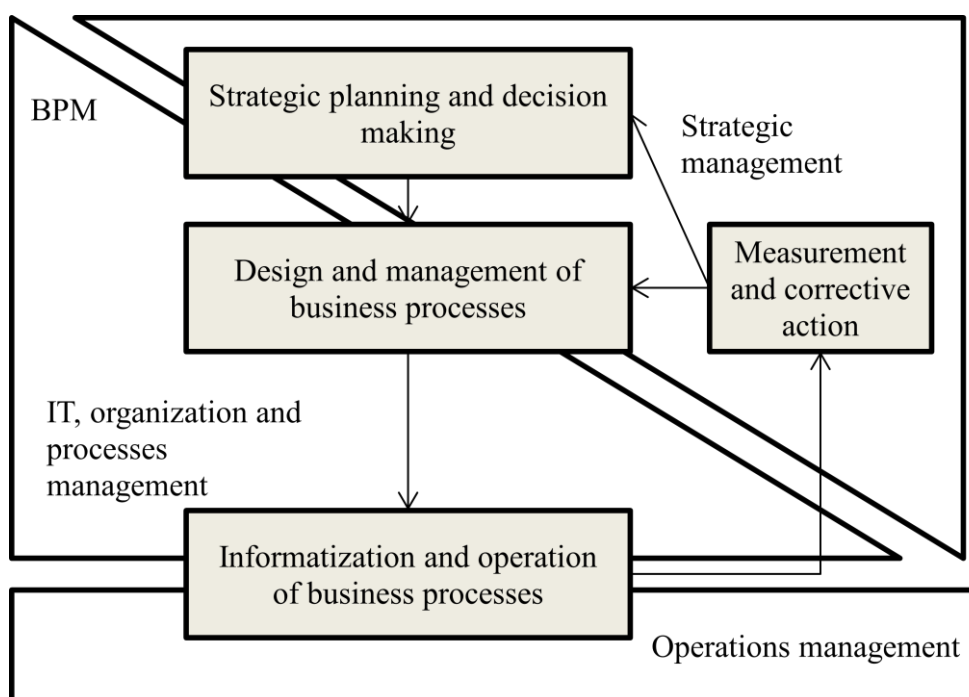
Source: A. Kovačič & V. Bosilj Vukšić, *Management poslovnih procesov,* 2006, p. 15.

The main characteristics of BPM are (Kovačič, Jaklič, Indihar Šemberger & Groznik, 2004, pp. 70-71):

- Analysis and modeling, application, integration, management, monitoring and control of business processes;

- Focus on the development of a platform for the integration of the business strategy, the business model and the business processes of an organization with the information model, architecture and solutions which are key for the business infrastructure;
- Focus on connectivity of processes and information systems among business partners.

Harmon and Wolf (2011, p. 31) describe three business process traditions, merging through time into the BPM movement, as shown in Figure 2.

The first includes the Quality control, the Six Sigma and the Lean schools. These are the descendants of the work simplification movement, which can be traced back to Frederick Taylor's development of modern industrial engineering and process improvement (Jeston & Nelis, 2006). The tradition emphasizes statistical process control, as well as training of all employees, which in turn are responsible for their respective process quality. The process improvements are thus continuous and smaller in size (often on the level of sub-processes and activities).

The second, Business Management trend, focuses on the overall performance of the firm, taking into consideration the costs of operations. It is based on a top-down approach to process analysis and redesign, usually starting with strategy, then moving to value chains, and only later to specific processes. The Business Process Reengineering movement, with its radical redesign and improvement of work, heavily relying on information technology, could be placed into this category (as well as in the IT tradition described below). The process improvements are not continuous and are larger in size (often on the level of cross-functional end-to-end processes).

The third, The Information Technology (hereinafter: IT) tradition relies on computers for automation as well as for communication, facilitating new business models. It revolves mostly around mid- to small-sized processes. It is the driver of outsourcing of processes and the worldwide integration of business activities. IT is not considered a supporting service, but is rather the essence of the company's strategy. Rather than reengineering a major process, this tradition champions the scrapping of a business model and its replacement by a new one in order to take advantage of the development in information or communication technology. E-commerce, ERP systems and BPM tools are some examples stemming from this tradition.

Figure 2. The Three Business Process Traditions
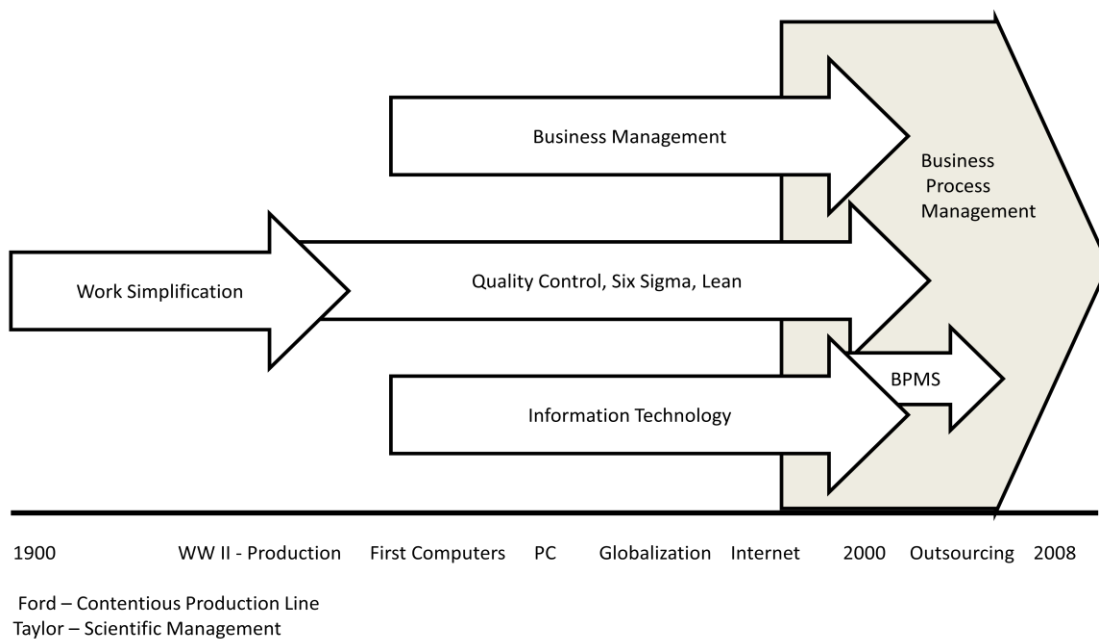
Sharp and McDermott (2008, pp. 45-46) describes the gradual merging of the first two traditions under BPM as the recognition that a reengineering of a process is done once or periodically, while improving it goes on forever, as shown in the Figure 3. The merging of IT and reengineering traditions came with the widespread use and recognition of the importance of information technology for business.   IT departments are frequently involved in forming new strategies and implementing new processes. Thus in improving business operations, application development and process redesign initiatives are usually referred to as projects (Sharp & McDermott, 2008).

Figure 3. Merging of process reengineering and continuous process improvement
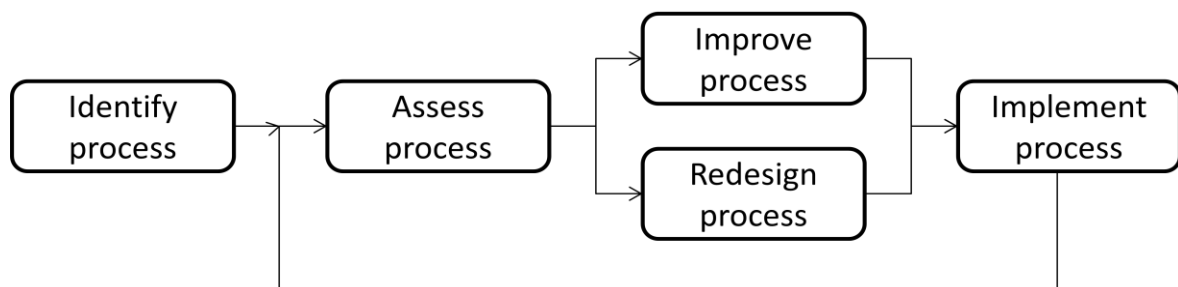
The Association of Business Process Management Professionals (2015) defines BPM as a disciplined approach to identify, design, execute, document, measure, monitor, and control both automated and non-automated business processes to achieve consistent, targeted results aligned with an organization's strategic goals.

Kovačič et al. (2004, pp. 8-11) stress the role of information technology as key to ensuring an organization's comparative advantages on the market. Long term success is directly dependent on the strategic role, as opposed to traditional, supportive role of information technology.

Kovačič and Bosilj Vukšić (2005, p. 61) also describe the development of BPM through time from the perspective of general orientation, gradually turning its focus from lower levels of company processes to company-wide processes, and eventually to processes of the chain of connected companies, as shown in the Figure 4.

Figure 4. Orientations and their influence on business change over time
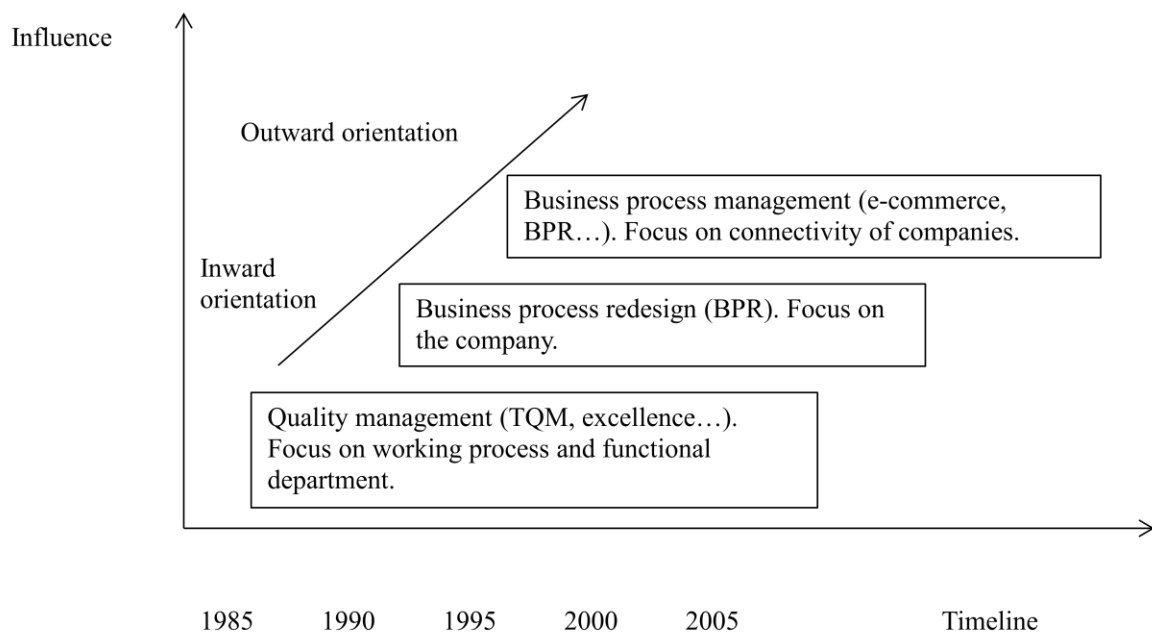
Source: A. Kovačič & V. Bosilj Vukšić, *Management poslovnih procesov*, 2006, p. 61.

1.2 Drivers of business process management and process orientation

There are many reasons for managing business processes at any level of detail (tasks, activities, processes and sub-processes, end-to-end processes or processes for introducing a new business model or a new IT application), efficiency and compliance with the organizations' policy to name but a few. In their empirical studies, McCormack and Johnson (2001) in the U.S.A. and Škrinjar, Bosilj-Vukšič and Indihar-Štemberger (2009)

in Croatia and Slovenia found a strong connection between business process orientation and company performance.

The size and the complexity of an organization seem to be historically essential for a strategic approach to process orientation, as championed by companies such as Toyota and Wall-Mart. Some of the drivers of BPM in terms of a holistic company-wide approach are (Jeston & Nelis 2006, pp. 17-19):

- High growth – difficulty coping with or proactively planning for high growth;
- Mergers and acquisitions – they cause the organization to 'acquire' additional complexity or require rationalization of processes. The need to retire acquired legacy systems could also contribute;
- Reorganization – changing roles and responsibilities;
- Change in strategy – deciding to change direction to operational excellence, product leadership or customer intimacy;
- Organization objectives or goals are not being met;
- Compliance or regulation – many organizations have initiated process projects to meet the Sarbanes Oxley requirements;
- Growing number of suppliers and /or clients (or other partners), or close relationship with a few of them, which demand harmonization of processes;
- The need for business agility to enable the organization to respond to opportunities as they arise;
- The introduction of new systems, for example CRM, ERP, billing systems;
- Phasing out of old application systems.

Hammer and Champy (1993, pp. 27-39) expose the following environmental factors as the motivation for BPM:

- Customers are taking over the innitiative,
- Competition is getting more intensive,
- Change is becoming a constant.

On the other hand, they see the following prolems that the BPM practice addresses (Hammer & Champy, 1993, pp. 18-19):

- Frequently, efficiency of the overall company is a victim of the optimization of efficiency of company's sub-processes,
- A source of problems are often the activities requiring cooperation among company's departments and the coordination of such activities,
- Even if a certain activity could significantly influence the overall performance, the companies often have no person or entity responsible for it.

1.3   Process architecture as a driver of process orientation

As argued by Harmon (2003, p. 495), "business process architecture provides everyone with an overview of how all the activities in the organization relate to one another and contribute to satisfying customers. A well-understood process shows how each activity relates to every other and where departments must interface in order for the process to be effective and efficient. The same process diagram provides the basis for defining measures and aligning those measures with organization strategies and goals, departmental goals, and process and activity measures. This, in turn, defines the responsibilities of individual managers and supervisors.

As enterprises become more mature in their understanding and use of processes, they learn to constantly adjust their processes and to align the activities within a process in response to changes in their external environment. As each strategy change results in a process change, it also results in changes in the management and measurement system and in all of the other support systems that are tied to the processes in activities. Thus the process architecture becomes the heart of enterprise alignment and organizational adaptation."

Pajk (2013, p. 35) defines process architecture as the description of the basic structure or the concept of organization of business processes. He distinguishes and analyzes process architectures used in reference models (further discussed below in section 1.3.1) according to the level of detail, presented in Tables 1 and 2, and summarizes the most frequent naming conventions of levels in process architecture, as shown in Table 3.

Table 1. Analysis of the levels of detail of process architecture

Type of process architecture	% of reference models
2 - level	33
3 - level	21
4 - level	3
5 - level	42

Source: D. Pajk,.*Uporaba referenčnih modelov pri prenovi in informatizaciji poslovanja,* 2013, p. 35*;* Tabela 14: Analiza nivojev podrobnosti procesne arhitekture.

Table 2. Average number of elements in process levels found in reference models

Level	Average number of elements
1st	7.7
2nd	45.1
3rd	248.9

Source: D. Pajk, *Uporaba referenčnih modelov pri prenovi in informatizaciji poslovanja,* 2013, p. 36.

Table 3. Most frequent naming of levels of process architecture

Level	Name
1st	Category
	Process Type
2nd	Process Group
	Process Category
	Processes
	Tasks
3rd	Process
	Process Element
4th	Activity
5th	Tasks

Source: D. Pajk*, Uporaba referenčnih modelov pri prenovi in informatizaciji poslovanja,* 2013, p. 36; Tabela 15: Najpogostejša poimenovanja nivojev procesne arhitekture.

Malinova, Mendling and Prescher (2012, p. 6) define process architecture as a collection of systematically organized process models within one organization, which defines, among other, process categories, modeling guidelines, process start and end, and process model granularity. In process modeling, they define process landscape as the first level of process architecture, and give an example as shown in Figure 5 (Malinova, Mendling, & Prescher 2012, p.8):

Figure 5. Example Process Landscape
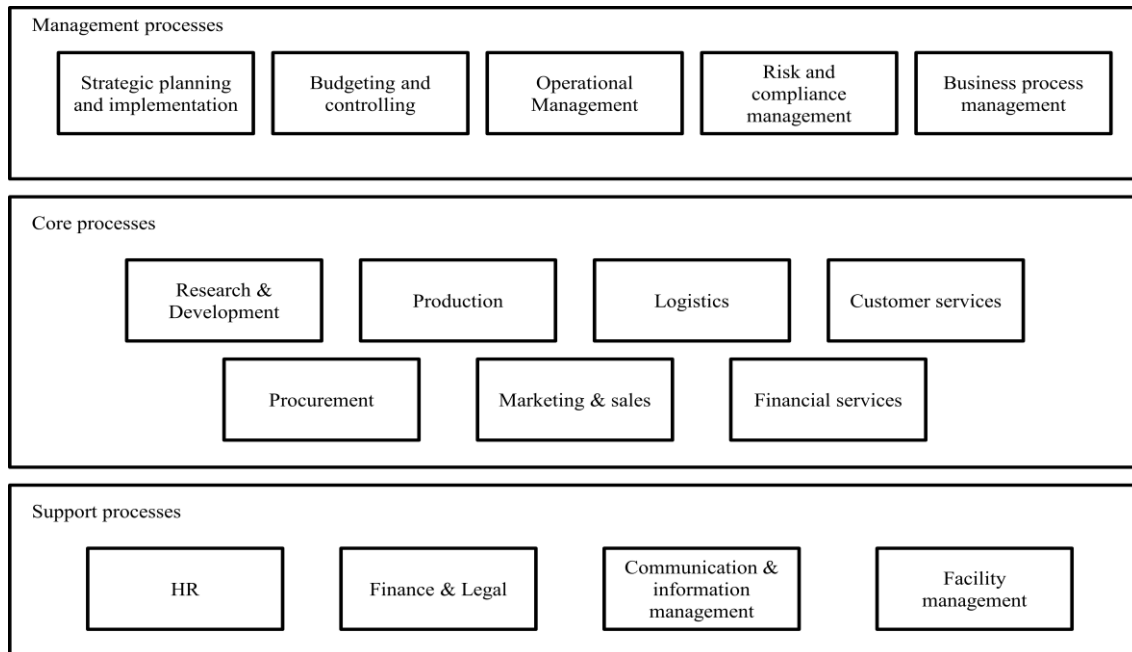
Source: M. Malinova, J. Mendling & J. Prescher, *Designing Process Architecture – Why, What and How,* 2012, p. 9

Malinova, Mendling and Prescher (2012, p. 17) also distinguish two types of process architectures by the respective approaches to their development:

- Decompositional process architecture (processes are hierarchically decomposed into sub-processes, according to departments, stakeholders, production phases, or communication channels),
- Service-Oriented Process Architecture (categorization of processes in different groups irrespective of functional units).

In the information technology environment, Service Oriented Architecture (hereinafter: SOA) is described as a solution to the problem of a lack of clear dependencies between changes in the processes and changes required in application systems, introducing the technologies and languages such as Business Process Modeling Notation (BPMN), Business Process Execution Language (BPEL), Enterprise Service Bus (ESB), services, rules engines, registries/repositories, and other to fulfill the objectives (Juric & Pant, 2008).

1.3.1 Reference models / frameworks

Organization for the Advancement of Structured Information Standards (hereinafter: OASIS) defines a reference model (hereinafter: RM) as an abstract framework for understanding significant relationships among the entities of some environment, and for

the development of consistent standards or specifications supporting that environment. A reference model is based on a small number of unifying concepts and may be used as a basis for education and explaining standards to a non-specialist. A reference model is not directly tied to any standards, technologies or other concrete implementation details, but it does seek to provide a common semantics that can be used unambiguously across and between different implementations (Organization for the Advancement of Structured Information Standards, 2014). The terms reference models and frameworks shall be used interchangeably throughout the thesis.

RMs are most frequently used for (Pajk, 2013, p. 43):

- modeling and redesign of business processes,
- comparisons of business processes,
- business standardization,
- introduction of ERP systems.

Components of RM frameworks provide (Pajk, 2013, pp. 37-42):

- standard processes, which determine process hierarchy, standard process naming conventions, and possibly the configuration, in other words the way processes connect (which processes are predecessors and which successors);
- best practices, which are the unique, established and proven way of modeling a process, and essentially comprise of the use of new methods, automation, the use of advanced technologies and new knowledge;
- metrics, which define the ways of measuring the efficiency of standard processes;
- maturity model; based on defined knowledge, tools, methods and metrics for each activity, companies can evaluate the current state of the process, define the desired state and measure the progress toward the goal.

The benefits of using the reference models are (Pajk, 2013, pp. 46-48):

- reduced time and cost (due to adaptation of existing models, defined scope of modeling, instructions for process and data architecture planning, education of employees with educational materials, faster gaining of support from senior managers and end-users);
- increased quality of business processes and decrease in risks, because of the quality of RMs and because their contents were tested by numerous companies;
- increase in structure and introduction of a common language (domain knowledge written in a structured way, improved communication within the company and with other companies).

The weaknesses of use of RMs are (Pajk, 2013, pp. 48-49):

- most of the RM contents are standardized, and may not bring any comparative advantages to the company;
- non-availability of RMs; most unique process models are companies' comparative advantage and are not published, and the RM market is not structured;
- necessary maintenance and adaptation of RM to company's needs;
- non-availability of knowledge, related to development and use of RM.

In Table List of Reference models in Appendix B, forty-two RMs are listed and summarized according to the name, supplier, year of development, access, type, industry or domain they address and (where available) the components they provide (Pajk 2013). Access is defined as limited or open, with limited access signifying either that the RM needs to be purchased or is available to members of issuing organizations, and open access signifying that the RM can be accessed free of charge.

For the purpose of this thesis, the eTOM, ITIL, COBIT and ARIS frameworks are further explained in the section below.

1.3.2 Description of selected frameworks

The frameworks described in this section were used by the Vip mobile and connected companies in the business case.

1.3.2.1 eTOM

The Business Process Framework (Enhanced Telecom Operations Map, hereinafter: eTOM), published by the TM Forum, is a reference model for the telecommunications industry. It represents an industry consensus on the service provider processes, which has been harmonized globally and is based on TM Forum Member contributions, and should be tailored and/or extended for use within an individual company (CISCO, 2009, p.10).

eTOM is widely used in the service provider industry because of the benefits it provides, among which are (CISCO, 2009, pp. 9-10):

- a standard structure, terminology and classification scheme for describing business processes and their building blocks,
- a foundation for applying enterprise-wide discipline to the development of business processes,
- a basis for understanding and managing portfolios of IT applications in terms of business process requirements,

- help with creation of consistent and high-quality end-to-end process flows, with opportunities for cost and performance improvement,
- its use across the industry increasing the likelihood that off-the-shelf applications will be readily integrated into the enterprise, at a lower cost than custom-built applications.

The levels of detail of eTOM are (CISCO, 2009, p. 9):

- Level 0: Business activities, distinguishing operational processes from management and strategic processes,
- Level 1: Process groupings including business functions and standard end-to-end processes,
- Level 2: Core processes combining together to deliver service streams and other end-to-end processes,
- Level 3: Tasks and associated detailed "success model" process flows,
- Level 4: Steps and associated detailed operational process flows, with error conditions and product and geographical variants (where required),
- Level 5: Further decomposition of operational process flows where required.

The three major process areas of eTOM are depicted in the Figure 6. The "Strategy, Infrastructure and Product" area covers planning and life-cycle management, the "Operations" area covers day-to-day operational management and the "Enterprise Management" area covers corporate or business support management (CISCO, 2009, p. 6). Level 1 Model is depicted in the Figure 7.

Figure 6. eTOM Level 0 Model (Copyright TM Forum)
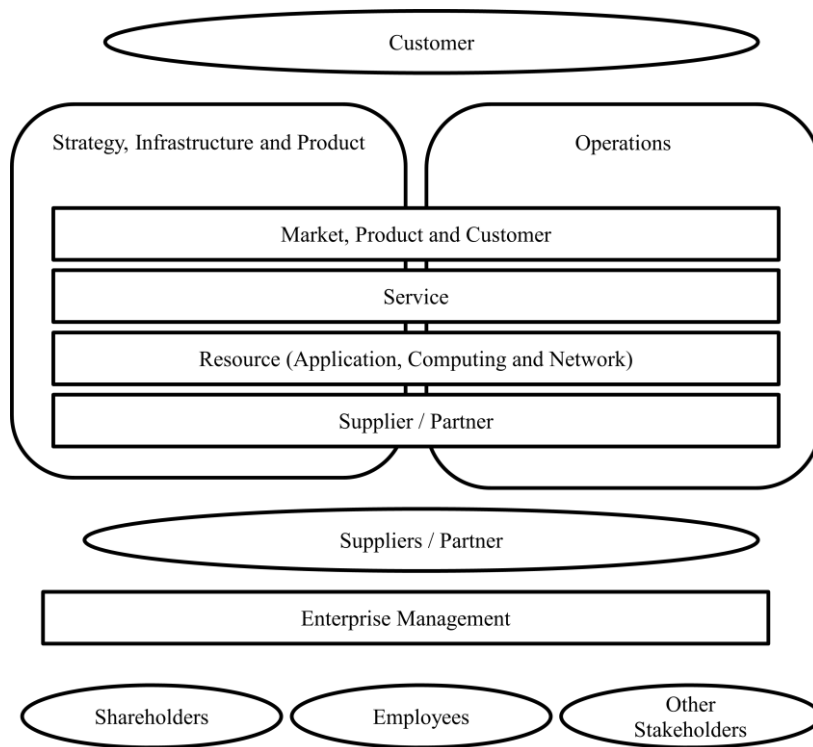
Source: CISCO, *Introduction to eTOM, Whitepaper,* 2009, p. 6.

Figure 7. eTOM Level 1 Model (Copyright TM Forum)

Strategy, Infrastructure and Product			Operations			
Strategy & Commit	Infrastructure Lifecycle Management	Product Lifecycle Management	Operations Support & Readiness	Fulfillment	Assurance	Billing & Revenue Management
Marketing & Offer Management			Customer Relationship Management			
Service Development & Management			Service Management & Operations			
Resource Development & Management (Application, Computing and Network)			Resource Management & Operations (Application, Computing and Network)			
Supply Chain Development & Management			Supplier / Partner Relationship Management			

Enterprise Management

Strategic & Enterprise Planning	Enterprise Risk Management	Enterprise Effectiveness Management	Knowledge & Research Management
Financial & Asset Management	Stakeholder & External Relations Management	Human Resources Management	

Source: CISCO, *Introduction to eTOM,Whitepaper,* 2009, p. 7.

1.3.2.2   ITIL

Information Technology Infrastructure Library (hereinafter: ITIL) is a framework for identifying, planning, delivering and supporting IT services to the business (What is ITIL,, 2014). It describes generic processes, procedures, tasks, and checklists. ITIL processess are listed in the Table 4.

Table 4. ITIL processes

Category	Type	Process/Function
Service strategy	Processes	Strategy Generation
		Financial Management
		Service Portfolio Management
		Demand Management
Service Design	Processes	Service Catalog Management
		Service Level Management
		Capacity Management
		Availability Management
		IT Service Continuity Management
		Information Security Management
		Supplier Management
Service Transition	Processes	Transition Planning and Support
		Change Management
		Service Asset and Configuration Management
		Release and Deployment Management
		Service Validation and Testing
		Evaluation
		Knowledge Management
Service Operation	Processes	Event Management
		Incident Management
		Request Fulfillment
		Problem Management
		Access Management
	Functions	Service Desk
		Technical Management
		IT Operations Management
		Application Management
Continual Service Improvement	Processes	7 Step Improvement Process
		Service Reporting
		Service Measurement

ITIL also defines operational roles to assign process owners to the various ITIL processes, and to illustrate responsibilities for the single activities within the detailed process descriptions (ITIL roles, n.d.).

1.3.2.3 COBIT

Control Objectives for Information and Related Technology (hereinafter: COBIT) is a framework for the governance and management of enterprise IT. It provides a set of recommended best practices for governance and control process of information systems and technology. It defines IT processes and activities according to stakeholder needs, and enterprise and IT goals, as depicted in Tables 5 and 6. It is based on generally accepted standards and good practices and supports establishment of clear roles and responsibilities (Control Objectives for Information and Related Technology Framework, n.d.).

Figure 8. COBIT Goals
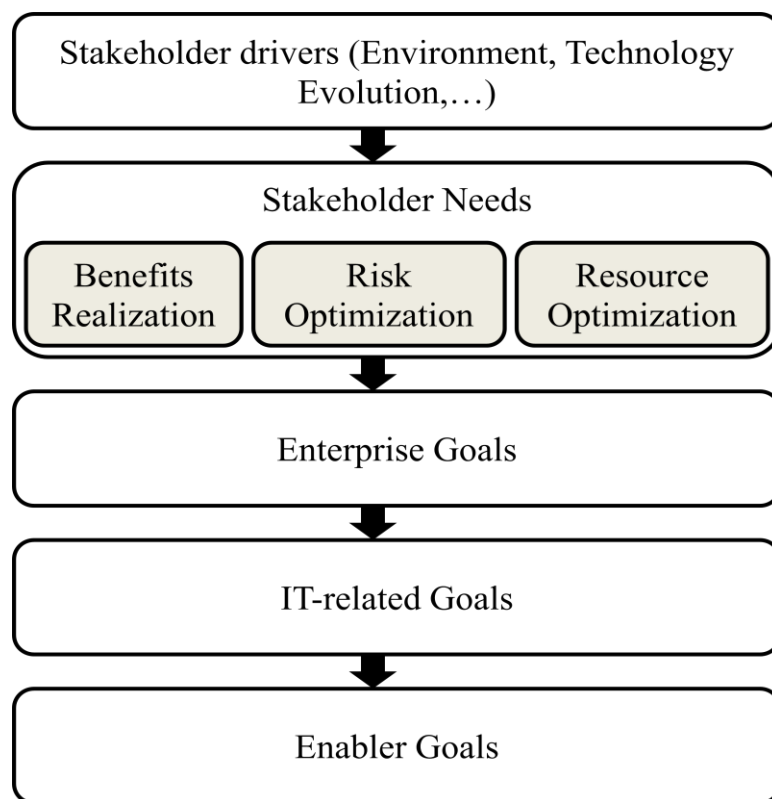
Source: *Control Objectives for Information and Related Technology Framework,* n.d.

Table 5. Enterprise goals

Financial	Stakeholder value of business investments
	Portfolio of competitive products and services
	Managed business risk (safeguarding of assets)
	Compliance with external laws and regulations
	Financial transparency
Customer	Customer-oriented service culture
	Business service continuity and availability
	Agile responses to a changing business environment
	Information-based strategic decision making
	Optimization of service delivery costs
Internal	Optimization of business process functionality
	Optimization of business process costs
	Managed business change programs
	Operational and staff productivity
	Compliance with internal policies
Learning and Growth	Skilled and motivated people
	Product and business innovation culture

Source: *Control Objectives for Information and Related Technology Framework,* 2014.

Table 6. IT related goals

Financial	Alignment of IT and business strategy
	IT compliance and support for business compliance with external laws and regulations
	Commitment of executive management for making IT-related decisions
	Managed IT-related business risk
	Realized benefits from IT-enabled investments and services portfolio
	Transparency of IT costs, benefits and risk
Customer	Delivery of IT services in line with business requirements
	Adequate use of applications, information and technology solutions
Internal	IT agility
	Security of information, processing infrastructure and applications
	Optimization of IT assets, resources and capabilities
	Enablement and support of business processes by integrating applications and technology into business processes
	Delivery of programs delivering benefits, on time, on budget, and meeting requirements and quality standards
	Availability of reliable and useful information for decision making
	IT compliance with internal policies
Learning and Growth	Competent and motivated business and IT personnel
	Knowledge, expertise and initiatives for business innovation

Source: *Control Objectives for Information and Related Technology Framework,* n.d.

COBIT defines seven categories of enablers:

- Principles, Policies and Frameworks,
- Processes,
- Organizational Structures,
- Culture, Ethics and Behavior,
- Information,
- Services, Infrastructure and Applications,
- People, Skills and Competencies.

COBIT further maps the IT goals to the enterprise goals, as well as the IT goals to the IT processes.

COBIT looks at information needed to support business objectives as the result of the application of the IT related resources managed by the IT processes. Information needs to conform to the following quality, fiduciary and security requirements, named categories

(Control Objectives for Information and Related Technology Audit Guidelines, 1998, p.14-15):

- effectiveness (information relevant to the business processes being delivered in a timely, correct, consistent and usable manner);
- efficiency (provision of information through the optimal use of resources);
- confidentiality (protection of sensitive information from unauthorized disclosure);
- integrity (accuracy, completeness and validity of information);
- availability (information bring available when required by the business process);
- compliance (complying with laws, regulations and contractual obligations to which business process is subject);
- reliability of information (provision of appropriate information for management to operate the entity and exercise its financial and compliance reporting responsibilities).

COBIT provides detailed guidelines on how to assess risks, set controls and audit business processes, systems and roles and responsibilities.

1.3.2.4 ARIS

ARIS is described as both BPM methodology and a framework for designing enterprise architecture, which in turn combines business models (process models, organizational models) with IT models (IT architecture, data models). (Juric & Pant, 2008, pp. 63-65)

The views it represents are depicted in the Figure 9. The process view is in the center and shows the behavior of the processes, how the processes relate to products and services, organization, functions and data (Juric & Pant, 2008, pp. 63-65).

Figure 9. The ARIS House
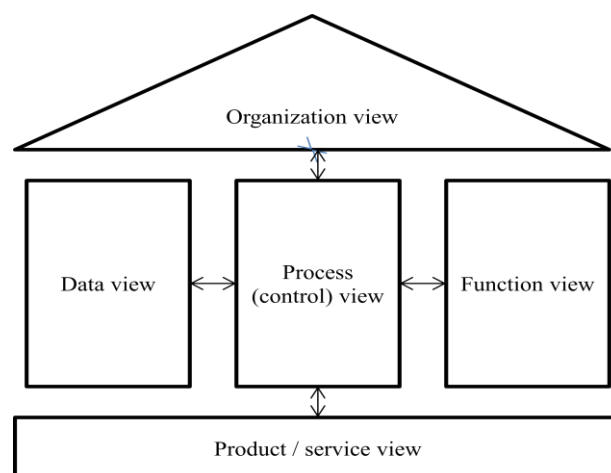
Source: M. B. Juric & K. Pant, *Business Process Driven SOA using BPMN and BPEL,* 2008, p.65.

ARIS is also a process modeling tool, using event-driven process chains (hereinafter: EPC) modeling language and supporting business process model and notation (hereinafter: BPMN). It may be used to design and analyze processes into desired level of detail (process level), to collaborate on and publish them, as well as for process simulation and reporting.

1.4 Process orientation model

McCormack and Johnson (2001) credit the authors Deming, Porter, Davenport, Short, Hammer, Byrne, Imai, Drucker, Rummler-Brache and Melan with the establishment of the term "business process orientation (BPO)", which they describe as a new way of thinking and of viewing the organization. They summarize the authors' common points in terms of a corporate "business process culture" which is cross-functional, customer oriented and with process and systems thinking, and in terms of a process oriented organization as the one characterized by empowered employees and integrated with the entities outside of the formal organization (McCormack & Johnson, 2001). In the model chosen for the purpose of this thesis, Kohlbacher and Gruenwald (2011) define process orientation of a business with the following elements:

- design and documentation of business processes,
- management commitment towards process orientation,
- the process owner role,
- process performance measurement,
- a corporate culture in line with the process approach,
- application of continuous process improvement methodologies,
- process-oriented organizational structure,
- other.

These elements and their characteristics are further explained below.

Design and documentation of business processes:

- Design and documentation of processes,
- Definition of processes' customers and suppliers,
- Definition of processes' inputs and outputs,
- Update of process documentation,
- Existence of macro process model,
- Existence of process variants.

Some of the tools for business process design and documentation are (Indihar Štemberger, 2012):

- iGrafx,
- ADONIS ,
- ARIS,
- BizAgi,
- SIMPROCESS,
- Savvion,
- System Architect,
- Visio,
- Casewise,
- IBM WebSphere,
- Ultimus,
- Oracle BPEL Process Manager.

Some of the techniques of business process modeling are (Indihar Štemberger, 2012, p.14):

- Process diagrams,
- Data flow diagrams,
- EPC diagrams,
- IDEF diagrams,
- Petri nets,
- UML,
- Business Process Modeling Notation (BPMN).

Management commitment towards process orientation:

- Active engagement of senior executive team in the process program,
- Existence of a senior executive who has taken leadership and responsibility of the process program,
- Existence of an instance coordinating and integrating process projects,
- Management's perception of process management as a way of managing the business.

The process owner role:

- Existence of process owners,
- Process owners are experienced leaders/managers,
- Process owners' influence over personnel assignments,
- Process owners' responsibility for continuous improvement of their processes and proactive execution of this task,

- Process owner's responsibility for budget,
- Process owners' power to be able to act for the process interest.

Jeston and Nelis (2006) raise an important question of how to assign process ownership, also making a clear distinction between process owners and end-to-end process owners. Process ownership could be assigned in different ways, with each type of ownership associated with challenges and risks:

- functional managers can be appointed as their respective sub-process owners; the main risk with this approach is that the focus of owners is only on their part of process or sub-processes, which may lead to changes in sub-process that may negatively impact the end-to-end process;
- functional mangers can be appointed as end-to-end process owners, the main risk with this approach being the conflict of interest - and possible outcomes the hesitation to implement end-to-end process changes that impact functional efficiency or profitability, and use of the authority for functional goals purposes;
- managers with no functional responsibilities can be appointed as end-to end process owners; the challenges of this approach are the ones of managers' authority and respect within the organization in order to gain consensus among functional managers and counter the sub-optimization efforts of functional managers. The authors' recommendation for this type of process ownership is that the managers report directly to chief officers.

The authors also argue that end-to-end process responsibility can only be achieved in extremely BPM mature organizations (Jeston & Nelis, 2006).

Process performance measurement:

- Presentation of process performance metrics to employees,
- Continuous collection of process performance data,
- Action initiation by process performance indicators,
- Derivation of process performance indicators from enterprise goals,
- Existence of process performance indicators for processes,
- Use of process benchmarking,
- Use of activity-based costing,
- Existence of incentive systems emphasizing the process' objectives.

A corporate culture in line with the process approach:

- Customer-focused attitude of employees,
- Employees' accountability for firm results,
- Existence of teamwork,

- Workers' knowledge towards how processes are executed,
- Use of process language.

Application of continuous process improvement methodologies:

- Use of process improvement methodologies,
- Existence of process redesign, project management and change management experts.

Harmon and Wolf (2011) list some of the process (improvement) methodologies according to the improvement approach, as described in the Figure 10.

Figure 10. Types of Business Process Methodologies

Top-Down: Focus on making major improvements in the performance of the entire organization

Methodologies:
Rummler PDL,
BPTrends,
Hammer

Methodologies:
Lean,
Six Sigma

IT-Based Process Work: Focus on automating business processes, usually mid-to small sized processes

Methodologies:
Rational Unified Process,
ARIS

Bottom-Up: Focus on making incremental improvements in the performance of specific activities

Source: P. Harmon & C. Wolf, *Business Process Modeling Survey, 2011*, p.14.

Process-oriented organizational structure:

- Employees' attitude towards change,
- Derivation of the organizational structure from process design (defined as the ability of the organization to align the structure with the processes which is accompanied by the ability to implement organizational changes without major resistance of the employees).

Other:

- Existence of an open and collaborative leadership style,
- Process workers' skills in decision, process improvement and problem solving techniques,
- Conformance of the organization's business processes with its organizational structure,

- Role definitions and job descriptions derived from process design.

1.5   Business process maturity

Business process maturity models indicate how an organization typically evolves in terms of BPM over time. Although companies have different approaches to BPM and will not fit into stages and states described by various multi-dimensional models, the cumulative characteristics attained at the last stage tend to be similar for all models. Two internationally acclaimed models are the Capability Maturity Model Integration (hereinafter: CMMI) of the Carnegie Mellon University and the Business Process Maturity Model (hereinafter: BPMM) of the Object Management Group, an open membership technology standards consortium. They both represent approaches to BPM, supported by maturity stages, the processes to be managed at each stage, and the certification or compliance mechanisms. Both define process management maturity stages that initially foresee the management of functional process, then focus on organizational (company-wide) processes management and finally optimization and change management. Also widely used and cited is the maturity model proposed by McCormack and Johnson (2001). The latter describes the first process definitions and documentation at the departmental level, followed by strategic company-wide process management accompanied by the process based organizational positions in the subsequent stage, followed by process integration with the external companies in the last stage. For the purpose of this thesis, I have chosen the five-stage multi-dimensional model proposed by Jeston and Nelis (2006, pp.301-303).

Stage 1: Initial state:

- Ad hoc approaches,
- Individual efforts (IT or business),
- Various and non-consolidated approaches to methodology, tools and techniques,
- Limited scope of BPM initiatives,
- Minimal employee involvement,
- Low reliance on external BPM expertise,
- High levels of manual interventions and work-arounds.

Stage 2: Repeatable:

- First documented processes,
- Recognition of the importance of BPM,
- Increased involvement of executives and top management,
- One main purpose for exploring BPM,
- Extensive use of simple process modeling with simple repositories,

- First attempts with a structured methodology and common standards,
- Increased reliance on external BPM expertise.

Stage 3: Defined:

- Focus on the management of the early phases of the process life-cycle,
- Use of elaborate tools (e.g. dynamic modeling, server-based applications, multiple and distributed users),
- A combination of different process management methods and tools (e.g. process redesign, workflow management and process-based risk management),
- More extensive use of technology for delivery and communication of BPM (e.g. process designs available to users via an intranet site),
- Comprehensive and formal BPM training sessions,
- Less reliance on external expertise.

Stage 4: Managed:

- An established Process Management Center of Excellence that maintains standards,
- Exploration of business process controlling methods and technologies,
- Merging of IT and business perspectives on process management (e.g. workflow management and activity-based costing),
- Formal, designated process management positions,
- Widely accepted methods and technologies,
- Integrated process management purposes,
- Process orientation as a mandatory project component,
- Continuous extension and consolidation of process management initiatives,
- Minimal reliance on external expertise.

Stage 5: Optimized:

- Process management is a part of managers' activities, accountabilities and performance measurements,
- Wide acceptance and use of standard methods and technologies,
- One organization-wide approach to business process management that incorporates customers, suppliers, distributors and other stakeholders,
- Established business process lifecycle management,
- Business Process Management Center of Excellence reduces in size as process management becomes simply the way business is done.

1.6 Critical failure factors of business process re-engineering projects

Whereas process orientation models address characteristics of BPM in general, summarizing characteristics of companies that successfully manage everything from sub-process optimization to business process re-engineering projects, maturity models have a tendency to address the characteristics from a perspective of BPM complexity over time. For example, if "first documented processes" in stage two of the above model may be a good support for the optimization of those processes or automation of individual tasks within them, they are less likely to significantly contribute to success of a major business process re-engineering or redesign (BPR) project, whereas "wide acceptance and use of standard methods and technologies" and "one organization-wide approach to business process management that incorporates customers, suppliers, distributors and other stakeholders" are more likely.

Important for companies' agility and innovation, BPR projects are complex by nature and benefit most from high level of process orientation and process maturity. Eftekhari and Akhavan (2013) argue however that certain characteristics are more important for the success of BPR projects than other. They list organizational culture and structure, technical and functional, supportive and leadership, and organizational planning factors as the critical ones. The BPR project failure factors are depicted in more detail in the Figure 11 below.

Figure 11. Critical failure factors of BPR project

		Fear of changes (Hlupic et al. 2000)
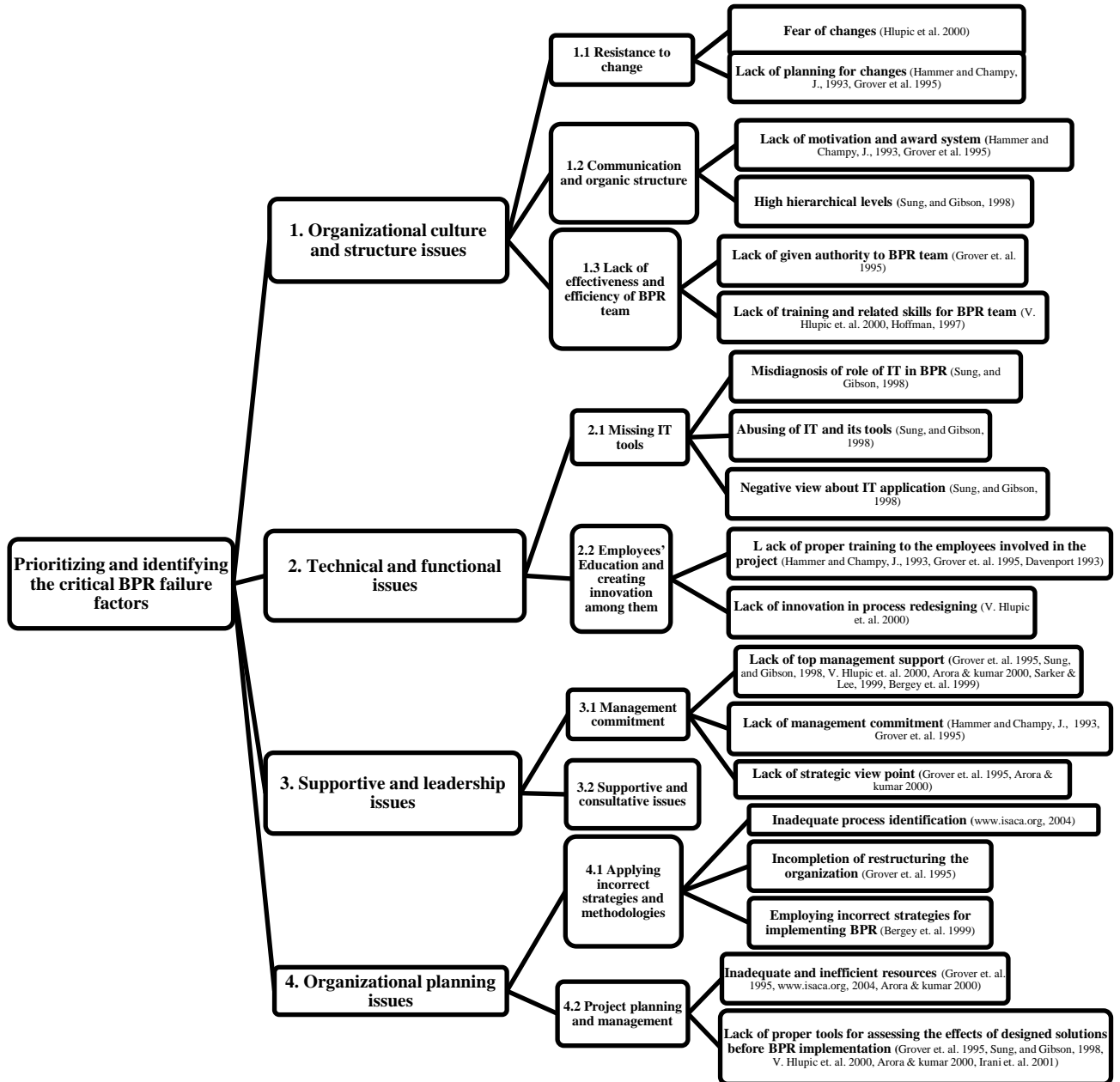
Source: N. Eftekhari & P. Akhavan, *Developing a comprehensive methodology for BPR projects by employing IT tools,* 2013.

1.7   Business process risk management

Risk management is identification, analysis, assessment, control, and avoidance, minimization, or elimination of unacceptable risks (Risk management description, 2015).

The strategies to manage threats (uncertainties with negative consequences) typically include transferring the threat to another party, avoiding the threat, reducing the negative effect or probability of the threat, or even accepting some or all of the potential or actual consequences of a particular threat. The International Organization for Standardization (hereinafter: ISO) identifies the following principles of risk management (International Organization for Standardization 31000:2009, 2014). Risk management should:

- create value – resources expended to mitigate risk should be less than the consequence of inaction,
- be an integral part of organizational processes,
- be part of decision making process,
- explicitly address uncertainty and assumptions,
- be systematic and structured process,
- be based on the best available information,
- be tailorable,
- take human factors into account,
- be transparent and inclusive,
- be dynamic, iterative and responsive to change,
- be capable of continual improvement and enhancement,
- be continually or periodically re-assessed.

For a better understanding of the types of business risk in management practice, Knight and Pretty (2003) propose the following risk classification scheme:

- Financial risks: Markets/hedging, Liquidity/credit, Capital structure, Reporting (includes regulatory, compliance, accounting and tax issues);
- Operational risks: Process, Innovation;
- Strategic risks: Business environment, Transaction (includes mergers and acquisitions, spin-offs, alliances and joint ventures), Investor relations.

Teixeira (2003), describing the evolution of trends in corporate business risk management, states that risk management used to be driven by industry regulations, but is more and more embraced strategically due to the incresing perception of its importance by the stakeholders. He states that corporate risk management is becoming more professional, more holistic in approach and more focused on preventing risk rather than insuring against it.

Teixeira (2003, p. 32) argues that risk management offers the opportunity for improved company performance through the provision of information that enables better decisions by all of the organizatuion's stakeholders. As critical, he sees:

- Risk exposure controlled through shared organizational goals and the coordination of objectives through an empowered team supported by an overall organizational strategy;
- Assignment of roles and responsibilities at all organizational levels, enabling improved accountability and awareness and, ultimately, improved management and control;
- Appropriate organizational structure.

Singh (2003, p.27) elaborates on the organizational governance structure embraced by the leading organizations, as the one comprising:

- the board (defines the strategy and sets objectives, determines risk appetite, allocates ownership, delegates authority to management);
- management (sets plans and forecasts, manages risks, establishes processes and controls, delivers and reports on performance);
- assurance function (provides an independent view to management on how effectively the business is managing its risks, and confidence to the board that management actions are aligned with and contribute to furthering shareholder value); assurance can be preventive (eg risk-based internal audit functions) or detective (eg external audit or traditional internal audit).

Business process based risk management seems to be one of the ways of how to apply risk management in a structured and a holistic way. Frigo and Anderson (2011, p. 3) point out that whether a risk management unit exists or not, a key to success in enterprise risk management (hereinafter: ERM) is linking or embedding the ERM process into the core business processes and structures of the organization.

Various authors mention business process risk management in connection with the COSO ERM and COBIT frameworks (Frigo & Anderson, 2011; Rikhardsson, Best, Green, & Rosemann, 2006). As the latter was described previously, the Enterprise Risk Management framework of the Committee of the Sponsoring Organisations of the Treadway Comission (hereinafter: COSO) is briefly discussed below.

The COSO ERM Framework has eight components and four objectives categories. (Risk management, n.d.). The eight components are:

- Internal Environment,
- Objective Setting,
- Event Identification,
- Risk Assessment,

- Risk Response,
- Control Activities,
- Information and Communication,
- Monitoring.

The four objectives categories are:

- Strategy - high-level goals, aligned with and supporting the organization's mission,
- Operations - effective and efficient use of resources,
- Financial Reporting - reliability of operational and financial reporting,
- Compliance - compliance with applicable laws and regulations.

Rikhardsson, Best, Green and Rosemann (2006, p.10) define a control system as a system aimed at assessing, minimizing and controlling risk associated with company business processes, business transactions, information technology applications and information dissemination to internal and external decision makers. They also point out that the integration between business processes, risk management and controls is not advanced as of yet and is often "learning by doing" in companies (Rikhardsson et al., 2006, p.9). The authors also mention the major issues with integrating risk management, compliance and internal controls in the context of business processes as the following (Rikhardsson et al., 2006, p.11):

- Integrating risk assessment of control, intentional and unintentional failures in business processes leading to incorrect data entering the system
- Considering the possibility of automated controls in ERP systems, replacing or supplementing manual controls
- Considering more preventive controls, replacing or supplementing detective controls.
- Focusing on documentation of controls as a crucial ingredient in control assessments.
- Considering the role of internal auditors and external auditors regarding, for example, testing of controls.

2 BUSINESS CASE OF VIP MOBILE AND MOBILKOM AUSTRIA

The following chapter describes the business case of the telecommunication company Vip mobile in Serbia.

2.1 Mobilkom Austria History

Mobilkom Austria (hereinafter: Mobilkom) was founded in 1995 and was the leading Austrian mobile services provider. Between the years 1998 and 2007 it acquired or founded telecommunication companies (initially mobile operators) in Bulgaria, Belarus,

Croatia, Liechtenstein, Macedonia, Serbia and Slovenia, forming the Mobilkom Austria Group (Telekom Austria, n.d.-b). In 2010, following the global trend of convergence of fixed, mobile and internet communication services providers, Mobilkom merged with Telekom Austria and rebranded itself as the A1, and the group became known as the Telekom Austria Group (hereinafter:TAG). Throughout this work, the A1 will be referred to as Mobilkom, and the group as TAG.

2.1.1 Drivers of the process orientation

Mobilkom's implementation of its process driven architecture was primarily driven by compliance and regulation factors (Sarbanes-Oxley act), although proactively planning for high growth (expansion and growth in Eastern and South-Eastern Europe) and ERP system implementation could be argued to have been contributing factors as well.

As TAG does today (Telekom Austria, n.d.-a), Mobilkom also placed corporate governance and compliance with rules and standards on a par with long-term business results, and above short-term results. The mechanisms addressing corporate governance and compliance, which have been motivated by the introduction of the Sarbanes-Oxley act (SOX) remained in use, even though Mobilkom delisted from the New York Stock Exchange and was therefore no longer required to comply with the SOX. Corporate integrity can be said to have dominated Mobilkom's and subsidiaries' BPM efforts. Well before the founding of Vip Mobile subsidiary in 2006, the corporate governance code, code of conduct and compliance guidelines were in use in Mobilkom, along with the respective overseeing bodies, excellence centers and internal control systems.

Perhaps the role of the BPM and the internal control systems (ICS, referred to also as risk assessment and planning) for the corporate governance and compliance efforts of the group, can best be seen in the Figure 12 depicting the risk-oriented compliance management system, which extends across the group of companies, shown in the Figure 13. In the corporate literature business processes and internal control systems are frequently mentioned together.

Figure 12. Telekom Austria Compliance Management System

Strategy	
Culture and Attitude	Compliance Goals
Compliance/ Management Reporting	Continuous Improvement/ Audit/ Certification

Prevention			**Reaction**			
Risk Assessment/ Planning	Business Conduct	Business Process	Tip-off Portal	Detection Audit	Case Handling	Remedia tion

Infrastructure		
Compliance - Organization	Compliance - HR	Compliance - IT
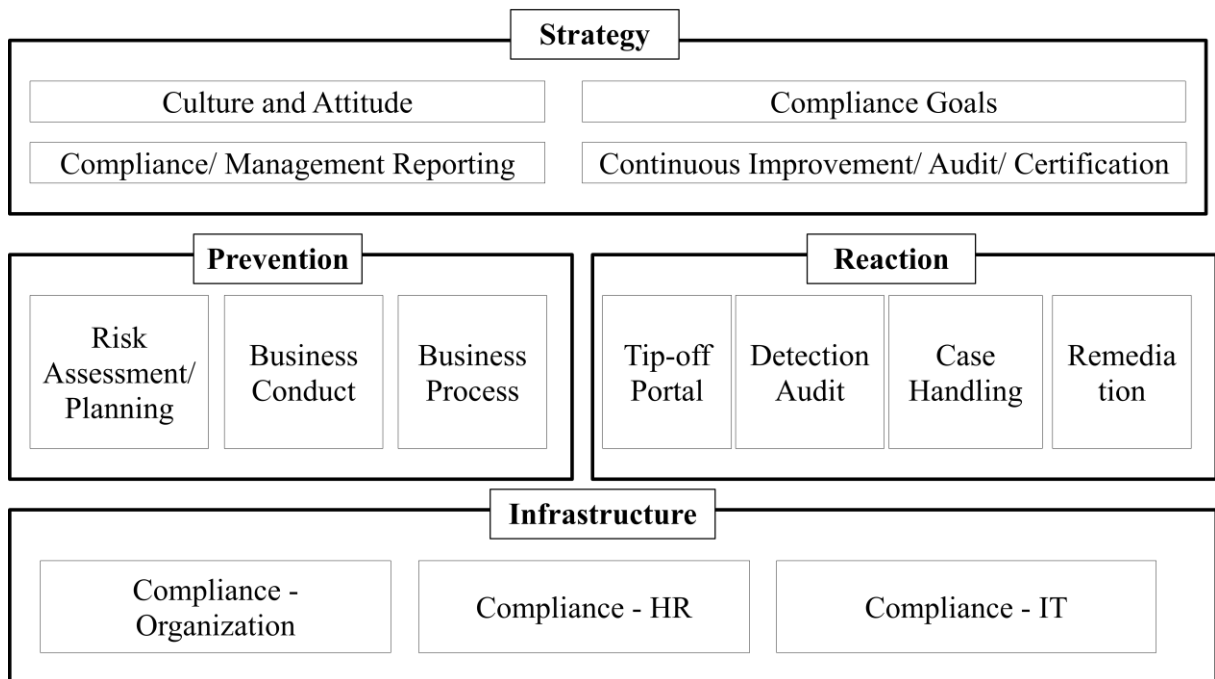
Source: Telekom Austria, *Compliance CMS description,* 2014, p. 4.

Figure 13. The Scope of Telekom Austria's Compliance Management System
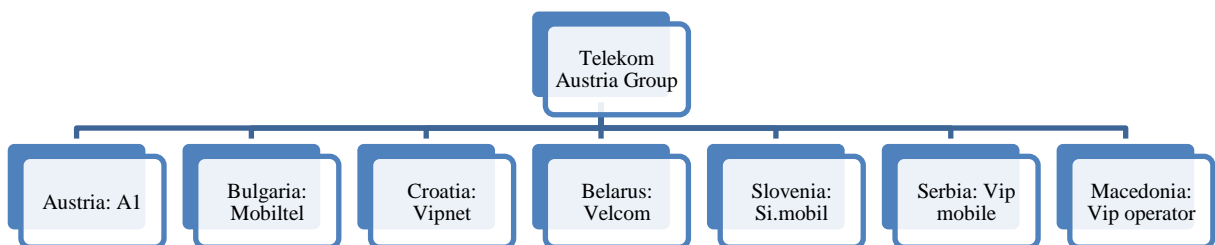
Source: Telekom Austria, *Compliance CMS description,* 2014, p. 5.

The corporate values of TAG, which are "quality", "innovation", "diversity" and "integrity and responsibility", can help explain the process architecture and use of BPM frameworks through time.

Quality and integrity can be seen as the main reasons for use of numerous BPM frameworks, a few of which are addressed in this thesis, as well as for strict adherence to standards, rules and regulations, which are not addressed here. Mobilkom joined the TM Forum in 2005 and to date the group, across its subsidiaries, has seventy-two "Certified Professionals" in eTOM (TM Forum, 2014). ARIS tool, PMBOK, ITIL and COBIT frameworks were in use prior to the establishment of Vip Mobile in Serbia.

As briefly mentioned earlier, processes and best practices found in BPM frameworks may be innovative at the outset, but they eventually become standard practice and therefore may not bring comparative advantages to the organizations implementing them. Thus, I see Mobilkom's striving as well as need for innovation as the main reasons for its particular use of frameworks.

Mobilkom's business processes (BP) and internal control system (ICS) framework is its own proprietary formulation and it is branded as such. If Mobilkom's organizational structure and some of internal working instructions, guidance and policies correlate well with the majority of eTOM framework, the core (end-to-end) processes do not. ICS may be influenced by frameworks such as COSO, but it directly follows Mobilkom's core processes and is a generic company framework that needs to be adapted to particularities of every subsidiary's processes. Similarly, processes and ICS related to IT may lean heavily on COBIT, ITIL and PMBOK, but follow the same pattern as BP.

Whereas the three values discussed above are related to the building of the foundation of the Mobilkom's BPM orientation, diversity builds on top of that foundation. Once subsidiaries reach a certain level of BPM maturity, its experts are included into international project teams, thus leveraging the diversity to nurture the innovation in the group. Also, new business models are tried out in one of the relatively mature subsidiaries and if proven successful, they are implemented on a group level.

2.1.2   Mobilkom and the relationships within the group of companies

Mobilkom (and as of 2010 Telekom Austria Group) acts as the head office for its subsidiary companies, which financially report to its consolidated financial statements. Subsidiaries depend considerably on the headquarters for their IT infrastructure. Executive staff is also appointed by the group.

Mobilkom mandates that its subsidiaries be process oriented and provides policies, frameworks, models, whitepapers, catalogues, and support of centers of excellence, while requiring reporting on different BPM initiatives.

2.2   The history of Vip mobile

According to the company's website, Vip mobile in Serbia started its operations in June 2007, after the acquisition of a mobile operating license in November 2006 (Vip mobile, n.d.). Vip mobile was a third mobile operator entering the Serbian market. To date nearly 818 milion euros in capital investments were made in the company, making it the largest greenfield investment in Serbia. Vip mobile in Serbia has a proprietary mobile network with more than 2 million users and holds a 22% market share. It has a network of 300 sales

points, of which 78 proprietary (Vip centers). The company employs more than 900 people, with an average age of 32 years.

2.3   A phased approach to process management in Vip mobile

In terms of operations, business maturity and BPM initiatives, Vip mobile in Serbia can be seen as having gone through three phases lasting roughly a year each, and a final, optimization phase which is on-going. The phases and relevant milestones are as follows:

- operations establishment phase;
    - organizational and infrastructure mapping,
- growth phase;
    - description of basic processes and their alignment with the group model,
    - ERP introduction (finance, sales areas),
- stabilization phase;
    - process optimization and systems' adjustment according to priorities,
    - (core) end-to-end processes implementation, modeling of all processes,
    - introduction of operational risk management and ICS,
    - introduction of an IT governance framework,
- optimization phase;
    - BPM and ICS become normal business practice,
    - IT governance framework continuation,
    - process based project management,
    - participation in group-wide projects.

2.3.1   Operations establishment phase

The first six months between mobile operating license acquisition and the launch of operations, as well as roughly the six months that followed, were mostly devoted to employment of cadres and setting up of operations. Functional units as well as their duties were based on a group-wide model. The whole mobile network needed to be built, tested and put into operation. Sales units needed to be opened and sales and support employees trained. The support organizational units, such as IT, finance & accounting, purchasing, logistics and human resources were doing their best to follow through with improvised tools.

In this phase processes were improvised and task based, and in large part following internal policies, work descriptions and guidelines, or simply managers' directives. The success of initial operations could be attributed to individual efforts and a relatively small workforce, with employees knowing each other and each other's tasks very well.

From the company orientation perspective, the company was oriented towards the customer, following the product leadership goal. As the third entrant to the Serbian mobile operations market, its offer of products had to be better and cheaper, and the service and treatment of the customers impeccable. The principal goal of all of the company's departments was a satisfied customer.

From the process management perspective, perhaps the most important in this phase was the organizational structure. A result of many years of experience in telecommunications' operations from the group experts, it could be mapped to the processes of the eTOM framework. During the set-up phase not all of the processes that would later on constitute usual business processes were covered, but the essential level 2 eTOM processes could be linked directly to functional departments, teams or individuals. An example of how level 2 eTOM processes link to organizational units can be found in the Figure 14 below.

Figure 14. Linking of eTOM level 2 processes with organizational units
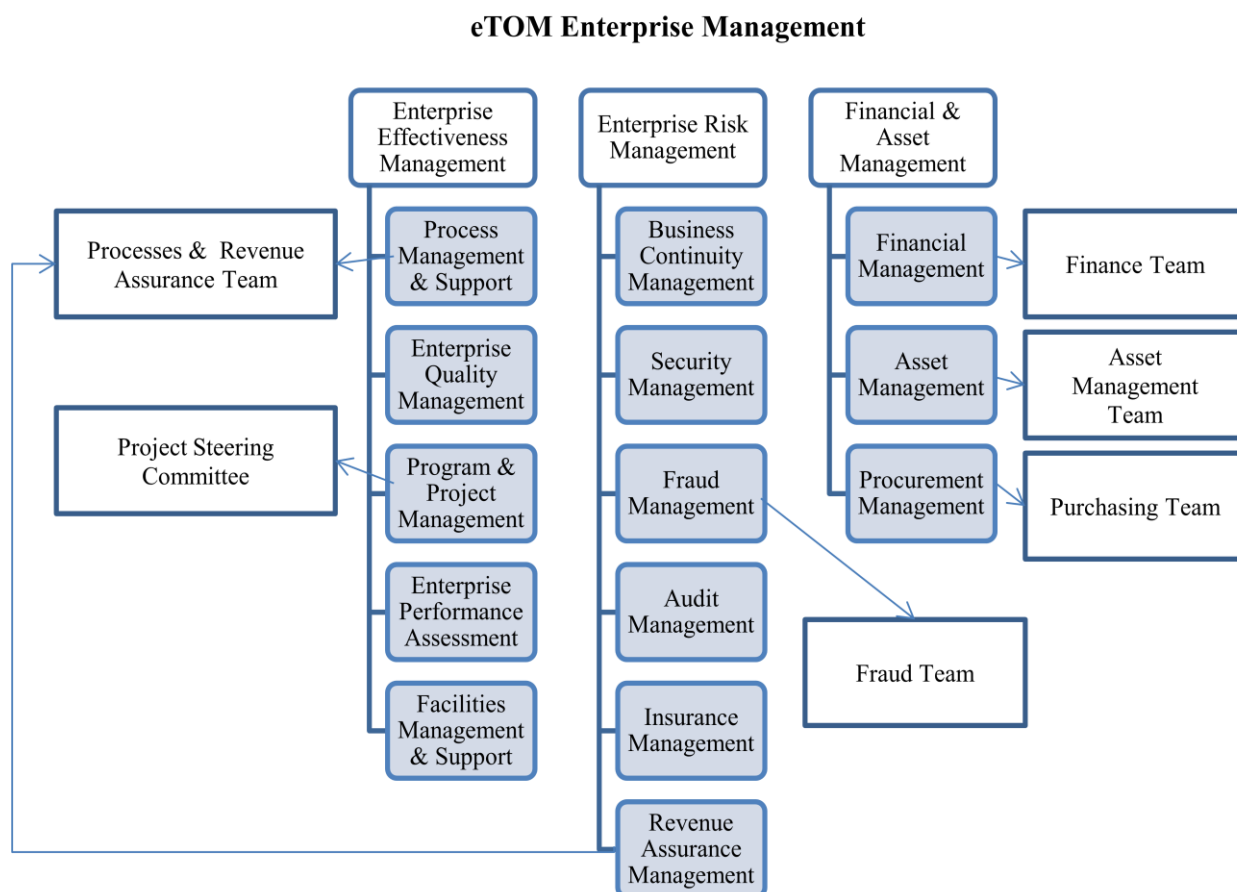

Source: CISCO, *Introduction to eTOM, Whitepaper,* 2009.

Another characteristic of the organizational structure, that can be found in the process orientation model in section 1.4 , is the existence of an open and collaborative leadership style, reflected in a relatively flat organizational structure, with three executive directors

responsible for sales, finance and technology areas, overseeing managers of functional departments and accessible to the members of functional teams.

In my opinion of extreme importance for the (eventual) effective BPM of the company was the existence of the processes team, foreseen as part of the "Processes & Revenue Assurance Team" in the finance area, in the organizational chart. Corresponding to the "existence of an instance coordinating and integrating process projects" characteristic under the management commitment criteria of the process orientation model, the process team would be responsible for the company's BPM, including process mapping, introduction of best practices and support with process automation and redesign. It would also be responsible for the company-wide ICS program, from introduction of risk based management, to evaluation of risks and implementation of controls, along with monitoring and reporting to the executive management and the group. Its role would be also to educate the teams in the finance area on internal policies and international laws and regulations. Another role the process team would take on is that of a facilitator of communication among teams, departments and areas. Finally, the team members would form an essential part of any major project initiative in the company, and would act as consultants on IT change requests. The "Processes and Revenue Assurance Team" would report directly to the company's CFO, which provided the team with substantial amount of authority, particularly in the finance area. The placement of the team in the organizational chart is shown in the Figure 15. The team was formed, trained and started with the initial operations towards the end of this (operations establishment) phase.

Figure 15. Placement of Processes & Revenue Assurance (P&RA) Team in Vip Mobile's organizational chart
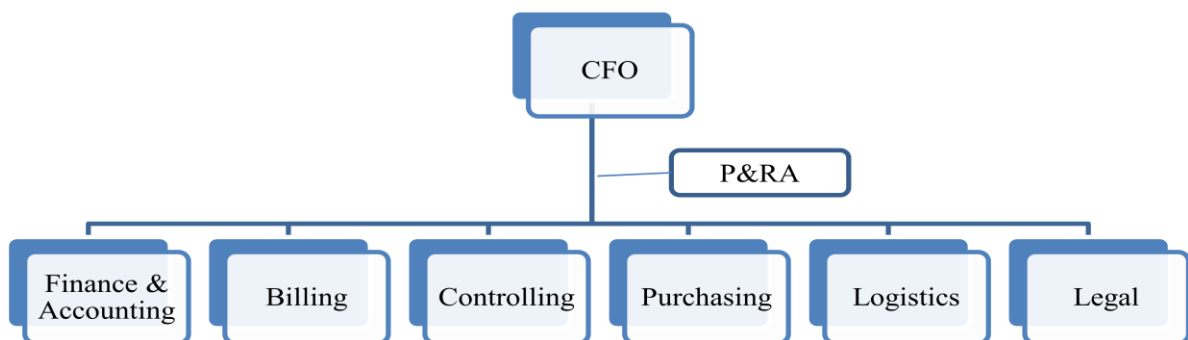
The first assignments of the process team were mapping of the full organizational and infrastructure architecture and listing of the company-wide (functional) processes and their basic interactions, using the ARIS tool with Mobilkom process models as a reference and for unified terminology purposes. The process team was constituted of sales, technology (mobile network) and finance specialists, which could assist functional managers with their experience in and knowledge of the regulations, benchmarks and best practices, which in

turn contributed to functional departments' and teams' internal documentation and policies. A characteristic of process team's initial assignments was interaction uniquely with higher level of management.

In terms of business process (hereinafter: BP) maturity model in section 1.5, the company corresponded best with the "Initial state" stage.

2.3.2 Growth phase

In the growth phase, the company was seeing a fast growth in customer base as well as in the number of employees. Company's functional units were consolidating, matching the staff with the tasks that needed to be performed, with new teams forming and employees changing teams. In turn, the company grew more functionalized and employees' job descriptions more narrow.

The technology area continued with network building and working on interconnectivity (signing agreements with mobile operators in other countries), and resolving network operation issues. The majority of the sales area was introducing a substantial amount of new products and services to the market, and the concern for quality of services and customer satisfaction became the main driver of cross-departmental processes adjustments. Critical processes, such as new product introduction and customer support, were standardized, described and modeled, and measured with the process performance indicators.

The majority of the finance and a part of the sales area were preparing for the ERP system introduction. For this purpose, an ERP IT support team was founded within the finance area. ERP system trainings were organized and the process and ERP IT support teams, with the help of outside consultants, worked on consolidation of processes with the software. For this purpose, the relevant functional processes were modeled to great detail in ARIS (up to the fifth, task level), and then consolidated with the group process models, which in turn were already consolidated with the adopted ERP system modules. Note should be taken, that whereas the group's process models were end-to-end ones (level one or two), for the consolidation, lower (functional) levels of processes were used. Although some cross- and intra-departmental aligning did take place, the initiative can be said to have been very functional, with participation of either functional teams or individual employees in the final process design. For everyday use, the new working processes were summarized in the functional teams' documentation.

The characteristics of this phase in terms of the process documentation were, as mentioned, modeling in more detail, which also introduced more standard business process modeling elements. Processes, sub-processes, activities and tasks received triggering and resulting

events, and gateways. Activities were connected and equipped with organizational units, process owners, inputs and outputs and supporting systems.

Another company-wide characteristic were frequent needs for adjustments of systems, performed in an informal manner.

In terms of the BP maturity model in section 1.5, the company corresponded best with the "Repeatable" stage.

2.3.3 Stabilization phase

In terms of client base the company was still in high growth, organizationally, however, it stabilized.

In the very beginning of this phase, a company-wide "Operational Excellence" initiative was launched. Amply introduced to all of the employees, it was sponsored by the CFO and supported by both the CEO and the CTO, and would require cooperation of all of the organizational units. The whole initiative would be managed by the process team, and its progress closely monitored and discussed weekly at executive meetings.

The role of the process team was to model four of the company's core end-to-end processes and virtually all of the processes in the company to the greatest level of detail possible. Processes would be optimized and automated wherever possible. Once the processes modeled, the inherent operational risks would be assessed, prioritized and managed. Vip mobile would also start reporting to the group on its process and operational risk management. For this purpose, the processes team was reorganized, with prior team members absorbed in the areas of their expertise, and new members with broader expertise employed. The skills and knowledge sought in each team member were those of company-wide processes and best practices, change and project management, international financial rules, regulations and standards, and IT standards.

2.3.3.1 Business processes

The process team members started with Mobilkom's end-to-end process models, and identified the functional managers and team leaders involved in them. Initially, lower levels of processes were discussed and mapped daily with functional team managers and individual employees. Where possible, existing processes were mapped in advance according to internal documentation (policies and guidelines), the focus of the meetings being confirmation of the processes and clarification of the process details, notation of any problems and operational risks, as well as work on suggestions on how to improve and automate the processes. The same was done with the processes which were not part of the end-to-end processes.

The end-to-end processes were mapped on regular weekly meetings, where functional managers and team leaders, the leaders of supporting IT systems teams and a process team member were present. At the outset, the overall process ownership was discussed and assigned to one of the functional managers, as well as the sub-process ownerships. The goals of the meetings were to collaborate on optimization of end-to-end processes, taking into account all the issues, risks and suggestions found on lower levels of process mapping. The lower level improvements were evaluated and prioritized, and postponed or rejected from the final end-to-end process. During the mapping process, a lot of cross-departmental issues were discovered, which were either the result of poor or missing communications, and involved missing clear assignment of responsibility or undefined performance expectations. The issues were resolved with assigning of the responsibilities and setting of the relevant process performance indicators with the mediation and authority of the P&RA team manager.

Once the core processes were finalized, they were published for use by the process owners and departments participating in them. Any further amendment to the published processes would need to be updated in cooperation with the process team. One core process, notably the asset life-cycle management process was deemed not sufficiently aligned and under-automated and a new revision cycle was scheduled. This was mostly due to the process involving all of the company's areas, many IT applications and a number of external subcontractors. Note should be taken that the IT department contributed to the efforts with the area solutions based support teams or individuals.

2.3.3.2 Risk management

With the end-to-end business processes finalized, and the questions of why and how operations should be executed answered, the company went on to assure that they are executed as planned. Risk management in Vip mobile followed the group-wide framework, that principally addressed the risks to its financial statements, with the main effects of:

- misrepresentation (inaccuracy) of the financial statements,
- loss of revenue,
- loss of assets.

These could be caused by human mistakes, negligence or fraud, or simply a lack of instruction, process or oversight. The group's risk catalogues for end-to-end processes were at process team's disposal to aid with risk identification. Risks to be identified were the ones not remediated by the processes themselves or by the supporting systems. For the purpose of risk identification, all of the end-to-end processes were reviewed to the last level of detail with the employees performing the tasks and with the owners of processes. Risks were then listed according to the damage type and evaluated according to their probability of arising and the estimated financial impact. The risks were further evaluated

for the possibility of their prevention by systems or processes. They would then be put into categories of:

- preventable by system or process change,
- preventable with prevention postponed and controlling required,
- detectable with controlling required.

The latter two categories required remediation by human controls, in some cases assisted by customized reports.

Risks were then reviewed together with the process owners, and the following control details agreed to:

- the controller (position, organizational unit),
- the scope (tasks),
- objective (fail/pass),
- the frequency,
- the escalation procedure in case of a failure.

Examples of the risks are shown in the Table 7 below.

Table 7. Examples of risks

Process mapping	Brief description	Risk(s)	Damage	Remediation
IT- Service Operation - Application management - ERP Access management	Access to ERP (modules) and information should be granted to employees that require access for fulfillment of their working objectives upon request by their managers.	Due to workforce fluctuation (internal, external) and changes in processes and functions, confidential information is available to employees who don't need it to perform their tasks; idle licenses for end-users.	Information security; loss of company resources due to overpayment.	Process: Human resources department notifies ERP support team upon departures from the company. A list of ERP users with their access rights is sent quarterly to corresponding managers (licenses owners) for confirmation.
Interconnection - Interconnectivity charges settlement	Monthly, the clearing company X sends an invoice/credit note for each interconnection partner with the final settlement amount.	The amount of monthly invoice/credit note from the clearing company does not match the internal interconnectivity records.	Loss of company resources due to overpayment, unaccounted for revenue.	Until clearing house and internal systems are connected, accounting officer performs the control of internal and clearing house records.
Procure-to-pay process - procurement - choice of best offer and purchase order placement - tender placement and choice of best offer	For POs in value of over X Euros and not subject to a long-term contract, a tendering procedure needs to be performed as specified in Y policy, published at Z.	1. Tender is not performed 2. Tender is not performed according to the company policy 3. The best offer is not chosen	Loss of company resources due to overpayment.	Control: Monthly, purchasing manager controls the tender documentation of all the POs over the amount of M Euros, and 5 random POs subject to control.

Controls were then put into effect with controllers signing them off, and process team monitoring and reporting on them to the company management and the group ICS Center. A semi-annual overview of controls was agreed to, introducing new controls and discarding the obsolete ones, although the controls could be introduced and discarded on a need (event) basis.

2.3.3.3 Information Technology processes and risk management

Although based on other frameworks and following the COBIT risk classification, the IT governance initiative was performed in a very similar way as the business one. The major difference between the adoption of the two process management models was the dependence of Vip mobile on the group's IT infrastructure and services, as well as the outsourcing of the services. The main problem with assuming the responsibilities while following the goals was that the company's employees often could not control the processes or influence their performance indicators. Another issue was a lack of human resources to enable the COBIT and ITIL best practices and assume the governance roles. The initial steps were therefore the ones of modeling of the existing processes and drafting of a long-term compliance plan. The framework was adopted partially, with a set of internal roles assigned and controls implemented, but most importantly, with a quarterly compliance plan for the following four quarters.

Above all, to Vip mobile the project served as an introduction of IT processes and best practices and as a reminder of the lack of delineated responsibilities within its processes. The company addressed the latter by delimiting the responsibilities into predominantly internal and external ones. Internally, additional responsibilities were assigned to the existing employees and the risk of those that could not be assigned because of lack of staff accepted. Externally, service level agreements needed to be revisited or created, and internal responsibility for them assigned. Moreover, the authority needed to be assumed for the general IT business infrastructure and consolidation of the business applications' support teams.

In this phase several of the process orientation model criteria, mentioned in section 1.4, were addressed. Design and documentation of the processes was complete, but more importantly, the plans and norms for the future process versions were set, contributing vastly to fulfillment of continuous process improvement criteria, along with the existence of the experts in the process team (but not within the departments). Management commitment was equally convincing. The process owner role was established, although the initiative needed the authority of the impartial and authoritative "Processes and revenue assurance manager", particularly when cross-departmental and KPI issues were to be overcome, and especially for internal control introduction. In terms of process performance management, process and quality goals were added to the existing task based and company

performance KPIs, practically fulfilling the criteria. In terms of the corporate culture, accountability, knowledge of processes and use of process language were added to the previously existent customer-focused attitude of employees. Teamwork can be said to have been introduced. Because employees were contributing towards improvements in the processes, the attitude towards change was mostly positive; on the other hand the organizational structure itself had not been modified in any way. The criteria found under "other" were also addressed, with new members of the process team skilled in end-to-end process improvement and problem solving skills. Role definitions and job descriptions were now easier to derive from the process design, although a minority of positions were not process specific.

In terms of the BP maturity model, the company in this phase best fits the third, "defined" stage, with some elements of the fourth, "managed" state also present.

2.3.4 Optimization phase

The beginning of the optimization phase is perhaps most marked by the company's launch of a vast amount of new products and services and by the introduction of new business models. The company's core client base was slowly settling, and growth was due mostly to introduction of new services. Organizationally, the phase is marked by the introduction of process and project based positions in the company's departments and teams. The information technology (IT) department also filled its ranks in order to assume the group prescribed governance roles and to play a strategic role in the company's decision making.

The remaining process automation requests from the previous phase were being implemented. Internal trainings by IT support teams were organized on system functionalities and automation options available by configuration and smaller changes to the systems, which encouraged employees to place new requests to the point where requests were compiled by the IT system support teams and jointly prioritized on quarterly meetings among the process owners, functional managers and the project office staff. Interdepartmental and cross-area process optimization initiatives, although not as numerous, were also taking place, signaling that BPM became normal business practice.

Scheduled revision of the asset lifecycle management (end-to-end) process was under way, requiring inter-departmental and external consolidation of processes, along with implementation of new controls. Although supported by the management, the initiative took a considerable amount of time to implement and was scarcely supported by the IT department, and therefore the processes less automated, because of other projects enjoying higher priority.

A new, top priority, innovative and company-unique business model, running across end-to-end processes and requiring changes and additions to processes and multiple supporting

systems put additional strain on the functional department's resources. Initially, each department put forward a project team member. However, a need for managers trained in project management and able to represent functional departments, areas and processes soon became apparent. The new management positions created were split between project management and functional duties, one for each area, and were filled with functional managers enjoying high respect within their areas. The presence of area project managers on all project meetings and the presence of functional team members on selected ones brought the advantage of freeing the human resources when they weren't needed, while drawing on their problem-solving ideas and knowledge of issues resulting from the impact on the existing processes and system configurations when needed. Important from the process management perspective is that the end-to-end processes gradually (at first unofficially and later officially) received the owners who were able to act in the processes' interest. This was also the introduction of process based project management, which would become the standard in the company, with ad-hoc as-is and to-be process variants mapped for every project, and implications on core processes carefully studied. Another important new introduction was systems integration, managed by the company's IT department. If core processes each had one main supporting software, the new business model ran across systems, and required integration and automation, due to the high amount of transactions it was to support. Similar to business areas, the IT department consolidated its efforts and produced a manager that would be responsible for all of its processes, and all of the IT services provided either by the headquarters or by external providers.

The eventual success of the complex business model introduction project provided the company with the confidence required for the many new projects that would come in the future. It also signaled to the group that the Vip mobile company had reached a certain level of maturity of its BPM. Soon, its experts would provide assistance in their fields of expertise to the companies in the group, participate in international projects and champion other projects that would subsequently be implemented on the group level.

Soon after the end of the project the ERP support team, until then one of the teams in the finance area, organizationally and physically transferred to the IT department, showing organizational adaptation to IT's rising strategic role. In the years that followed, the IT department would lead or significantly contribute to the replacement of one of the core business applications and integration of applications internally and externally, also further automating the business processes. It also evaluated new applications for business users and helped support new business models and processes.

In terms of the maturity model, during this phase the fourth, "managed state" level was confidently assumed and progress made to reach the last, "optimized state" level.

3   ANALYSIS AND RECOMMENDATIONS

3.1   Analysis of the business process management approach in Vip mobile in terms of theoretical models

Vip mobile benefited from the research and adaptation of the BPM frameworks by its parent company. As a result, its process oriented organizational structure and management style, along with the business process architecture foundation were in place at the outset of its operations. However, in order for BPM to function, it needs to be embraced by the company's entire workforce. Processes and responsibilities need to be understood and placed in a wider, company-wide context. Frameworks along with the best practices, roles and risks equally need to be understood and adapted to the company's needs and abilities.

The Vip mobile BPM model follows the trends of historical BPM development, as described by Kovačič and Bosilj-Vukšić (2006). It starts by narrowing down on functional processes with quality and responsibility concerns at the level of team or department. Subsequently, processes are harmonized and optimized company-wide, by finding and bridging the gaps among its departments. Business redesign and outward orientation are eventually pursued. In terms of information technology, Vip mobile starts its operations with its IT teams in a completely supportive role, evolving from problem solving to consulting on and enabling the lower-level process improvements. Subsequently, Vip mobile consolidates, educates and empowers its IT department to take on a strategic role, to help create new business processes and models, and plan new core company solutions.

Although keeping its organization fairly functional, Vip mobile pursues a low hierarchy of its organizational levels and, according to Malinova et al. (2012), a service-oriented process architecture.

In terms of the process orientation model in section 1.4 (Kohlbacher & Gruenwald, 2011), Vip mobile addresses the most of its criteria in the third, stabilization phase. Although building on a solid foundation (the criteria fulfilled in the previous phases), the phase exhibits mapping and automation of processes of the entire company, clarifying processes and responsibilities to virtually the entire company's workforce, while also empowering the employees to contribute to the improvements. In parallel, end-to-end processes and risk and control management are introduced, placing the processes and employees' roles into context. Better understanding of processes is provided to employees, along with a platform for communication and bridging of the differences among the departments, while further defining individual responsibilities. In the fourth, optimization phase, Vip mobile practically fulfills the criteria by transferring the effective end-to-end process ownership from the process office to the business management, and by introducing project and change management expertise to its areas, departments and teams.

Vip mobile's successful BPR (business process re-engineering / redesign) efforts can be safely assumed to have started in the optimization phase. Although other achievements from the process orientation model should not be overlooked, the BPR critical failure factors model in section 1.6 (Eftekhari & Akhavan, 2013) points to the full extent of the progress the company has made on its BPM and IT management path. While the first BPR project's management support and consequently the BPR team authority have been pointed out previously and relatively low hierarchical levels present in the company as of its beginnings, other failure factors under the "organizational culture and structure issues" have been resolved prior to the project's start. Namely, the issues relating to the fear of changes and the lack of planning for changes have been addressed, as were the lack of motivation and award system, and the lack of training and related skills for the BPR team issues. The "technical and functional issues" under the "missing IT tools section" were addressed not only by the acknowledgment of the importance of the IT and its tools, but also by the availability of such resources representing a unified IT architecture. The issues involving the lack of training and lack of innovation of project's participants were resolved mostly by finding and further training experienced internal resources and by practice during the previous phases, respectively. The "organizational planning issues" were bridged by process identification, restructuring of the organization in terms of IT and project management, and by thorough assessment of the effects of designed solutions before BPR implementation.

As the maturity model in section 1.5 (Jeston & Nelis, 2006) is explored and found to represent a rough fit with Vip mobile's BPM development phases, it is perhaps best worth addressing the topics not mentioned thus far, pointing out the differences between the two models and stating the other activities that took place during the phases.

External expertise has not been explored previously, although Vip mobile relied on help from the parent company, "sister companies", external IT, as well as business and audit consultants. As the relationships among the companies are too complex to explore, the trends should be noted instead. If the beginning of Vip mobile's operations could be described as overwhelmed by external influence and the external expertise viewed as a replacement of the missing internal expertise, this influence began diminishing with the company's BPM efforts, in accordance with the Jeston and Nelis (2006) maturity model. For example, business processes were adapting to the parent companies' models, and according to external ERP and CRM experts, as well as according to auditors' advice during the first phases of Vip mobile's BPM. The BPM process itself was largely initiated and scheduled by the parent company. The subsequent phases saw a gradual reversal of this trend, with internal experts leveraging the external consultants in order to best satisfy the desired future processes. With the ICS system in place, external auditors were optimizing their processes by following Vip mobile's ones. Last but not least, in the last phase Vip mobile's BPM and governance program, although subject to the vigorous

reporting requirements of the TAG, was managed entirely according to the company's needs.

On the topic of the use of elaborate tools (e.g. dynamic modeling, server-based applications, multiple and distributed users), the company was increasing the use of such tools throughout the examined periods. Although the BP modeling and control program tools were used uniquely by the process experts, they became mandatory components of every project or initiative. Although not very sophisticated, unified server based documents and project plans, amendable by all of the project's stakeholders, became a normal business practice during the beginning of the last BPM phase.

In the category of one organization-wide approach to BPM that incorporates customers, suppliers, distributors and other stakeholders, Vip mobile cannot be said to be an example of good practice. Although the need for such an approach was acknowledged in earlier phases of the company's BPM, the ability of the company to implement it was only demonstrated during the last BPM phase, with the first structured attempt during the new business model introduction. Perhaps because of the characteristics of its IT department structure and the varying level of sophistication of its business partners, this category only received full attention in the later periods of the last BPM phase, causing additional revisions of processes and controls, and additional amendments to application systems, and therefore sub-optimized processes during the period examined.

In terms of established business process lifecycle management, during the observed period the company exhibited the capability of determining and addressing the operational issues through scheduled process revisions, however a more systematic and company-wide approach was only adopted in the later periods, mostly due to the inevitability of the strategic IT support for such undertakings.

The model's characteristic of BPM mature companies, that of BPM Center of Excellence reducing in size as process management becomes simply the way business is done, cannot be observed in Vip mobile company. With a partially dedicated manager and with an average of (but not more than) two operational employees during the first phases, and a dedicated manager with two operational employees at present, Vip mobile's BPM office remains fairly constant.

As the topic of corporate communication was not specifically addressed previously, the company's communication efforts accompanying other BPM efforts should be pointed out. If individual departments' plans were somewhat secretive at the very outset of the company's operations, they were much less so during the last two BPM phases. This was particularly noticeable with the marketing and sales area's innovative services, as well as the technology area's introductions of new technological infrastructure and services. If the rest of the departments were forced to adapt to the new and unknown terms, processes and

equipment "post festum" during the first two BPM phases and had to be innovative and persistent to obtain the information in order to satisfy legal and internal policy standards, the communication was improved in the stabilization phase to the point where departments concerned were notified and educated about the important novelties well in advance. Such communication was further improved in the optimization phase with major plans regularly presented to all of the employees and the departments subject to new processes invited to raise their concerns early and to actively contribute to new process creation. Day-to-day communication among the teams and departments was equally improved during the stabilization phase due to frequent end-to-end process meetings. Furthermore, Vip mobile introduced other initiatives, such as area- and company-wide team buildings, as well as turned its corporate offices into open-space ones, signaling that inter- and intra-departmental communication was encouraged.

In the enterprise risk management field, Vip mobile employs a process based risk management strategy and addresses the opportunities pointed out by Rikhardsson, Best, Green and Rosemann (2006) in section 1.7. Vip mobile focuses on preventive and automated controls inside its systems wherever possible, considers documentation of controls as crucial, and collaborates with external auditors on control testing.

3.2 Analysis of the strengths and the weaknesses of the Vip mobile approach and proposition of a generic model

The strengths and the weaknesses of the Vip mobile BPM approach are summarized in Table 8.

Table 8. The strengths and the weaknesses of the Vip mobile BPM approach

Strengths	Weaknesses
Structured effort	Numerous changes in orientation
Clear goals	Late cooperation with external partners on process level
Full management support	Late empowerement of the IT department
Independent process office dedicated to BPM	
Consistence with pursued orientations	
Risk management embedded in BPM	

The strengths of Vip mobile's approach are a well thought out and structured BPM effort with clear goals and full management support. The effort can be termed well thought out and structured because the group used the knowledge of best practices and their implementation accumulated in various frameworks where and as it deemed suitable for its needs. In other words, not only did the TAG carefully study the reference models available, it also took what it found best from each model and adapted it to the group's

environment. While realizing the full benefits of the efforts, the goals it set were compliance with the law and internal policies, and quality of its processes (following the mutually agreed-to process performance indicators). With fairly simple goals, efficiency, agility and innovation, along with the increased customer, employee and partner satisfaction accompanied the efforts seamlessly. Whereas the former strengths were a product of the company's and the group's cumulative expertise, the management support was the company's own, day-to-day unconditional effort. If many BPM theorists and practitioners, Tregear (2013) among others, stress management support as the number one factor of success of the BPM efforts, a note should be taken of the example Vip mobile can set. It was the ability of the management to not only support the BPM initiatives, but also motivate the employees on a daily basis at the time when the BPM efforts had not yet produced results and seemed to many of the employees a mere purpose of themselves, or a management whim making their jobs more difficult, that contributed significantly to the eventual BPM success.

Another strength of the approach was to use the process management initiatives as a non-conflict way to resolve the accumulated issues in a fairly functional organization, focusing on the to-be processes rather than bringing to front past mistakes and accusations, with the help of an independent process office. This independent view and the authority the process office possessed helped it mediate the conflicting goals and delimit assignments of departments and teams, and thus take on the effective end-to-end process ownership at a time when the term was too new to be understood by the functional management.

A strength particular to the newly established Vip mobile company was its clear focus on the orientation(s) it followed, namely the departmental, the internal and the outward ones. Whereas the employees' knowledge of the company's processes was high in the first phase of the operations, the company grew more functional and the employees' knowledge more narrow at the time when Vip mobile was focusing on the quality of its basic processes. The company reversed this trend in the later phases when consolidating the processes within the company and with its partners. This transition was helped by the employment of risk management at all organizational levels, not only reinforcing the view of the processes rather than the tasks performed, but also encouraging strategic thinking of its employees, which could be deemed as another strength.

The changes in orientation, however, might not be optimal for another newly established company, or a company well into its operations in particular, because of the many changes required in employees' attitudes, processes and systems supporting them. Therefore, the numerous orientation changes can be deemed a general weakness of Vip mobile, perhaps connected in its case with the size (along with the focus) of the process team, as suggested by the maturity model of Jeston and Nelis (2006). Should the process team have been increased in the beginning of the operations, the three orientation goals could have been pursued more simultaneously, reducing the need for subsequent adjustments. Connected

with this topic is a further shortcoming of Vip mobile's model, namely that of the late cooperation with its external partners on the process level, causing numerous process changes and systems' adjustments, as well as requiring extensive manual controls.

Another weakness of the Vip mobile approach was the delay of the IT governance and the IT empowerment program compared with the general business (process management) programs, as the end-to-end processes would have benefited from a strategic architectural IT advice, allowing for more business automation via systems' connectivity.

A general good practice model of approach, independent of the industry and the maturity of the operations takes into consideration the fact that BPM is a learning process. It is based on McCormack and Johnson (2001) maturity model, gradually developing process expertise at first in the functional departments, then organizationally and finally with suppliers, vendors and other partners, with the difference of including the organization-wide or core end-to-end processes aspect, as Vip mobile in most part did, and the external partners' aspects, as Vip mobile in most part didn't, in the very beginning of the efforts, in order to optimize company and service performance rather than departments' performance. The model follows the advice of Hammer and Champy (2001, p. 125), that (company-wide) processes need to be well understood before they try to be redesigned, as proved successful in the Vip mobile company, thus the model places the redesign efforts last. The general model would constitute of the steps depicted in Figure 16 and further explained below.

Figure 16. The steps of the generic model with the key decision-makers, milestones and characteristics
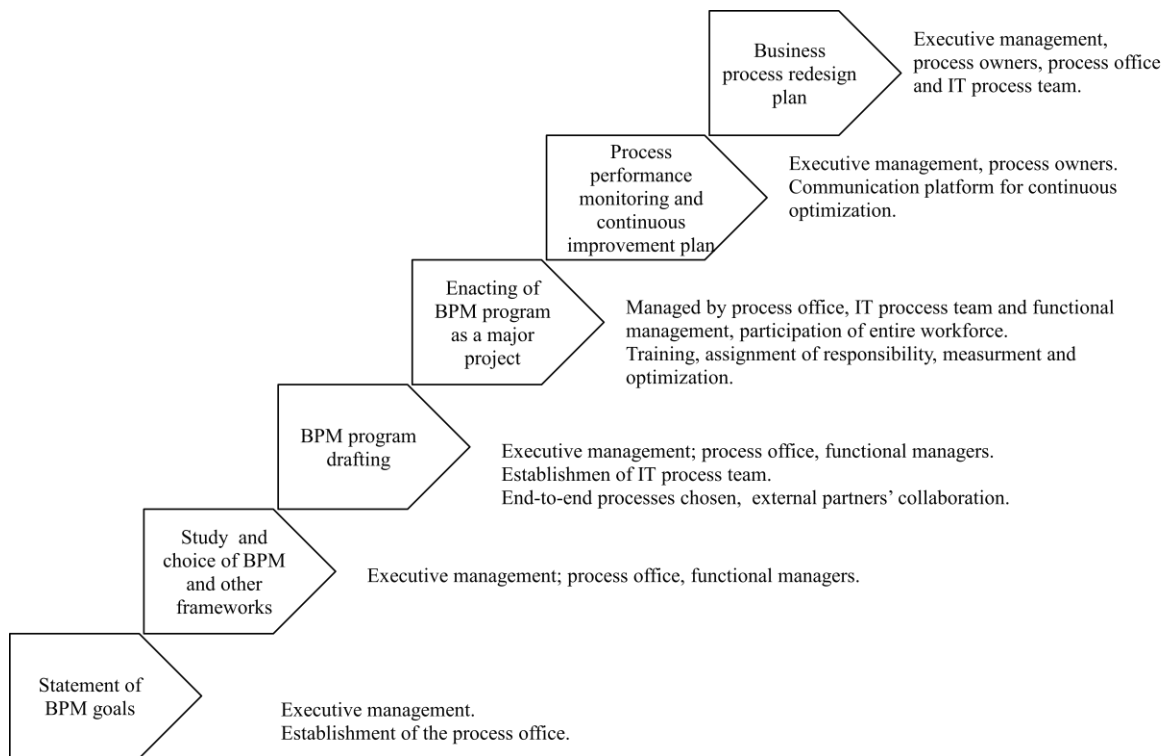
The steps and associated characteristics are:

- Clear statement of the company's goals or the shortcomings in the current goal achievements;
- Establishment of a process office and the study and choice (of parts) of the BPM frameworks and models that correspond with the company's environment and plans;
- Drafting of a program of process management, that ideally:
  - Follows one or two principal goals,
  - Focuses on a few core (end-to-end) processes,
  - Includes external partners where needed,
  - Includes stages, such as the existing and future (integrated and optimized) process mapping, planning for the time needed for education of the employees in best practices and optimization options, as well as for communication for alignment and responsibility and measurement definition purposes,
  - Incorporates the process office as an independent team skilled in process and change management, which is to enact the plan and assume the end-to-end process ownership,
  - Envisions project and process management as a needed skill in the company's departments,

- Includes an IT architect in every stage of the program drafting, and envisions a long term project team, made up of existing application experts and an architect, who can decide about the possible introduction of new applications,
- Incorporates management of the major risks to the company, including those within its existing processes,
- Contains an introduction to the program for all of the employees;
- Enacting of the BPM plan as a major project, fully supported by the executive management, that lasts as long as it takes for the core processes to be aligned;
- Preparation of the process performance monitoring and continuous improvement policy and plan, and transfer of the end-to-end process ownership, supported by the reward system, to the business,
- Preparation of a business process redesign (program or projects) plan once major process deficiencies have been established and new opportunities identified.

In general, after completing the steps of the above model, a company should have its processes optimized, or rather in a process of continuous optimization, and therefore work efficiently towards the pursued goals. It should also be very agile and thus able to respond to the changes in its environment relatively fast and without major disruptions to the business processes. Seizing of new business opportunities, be it by introduction of a new business model and/or by introduction of a new IT application would thus be supported by the organizational infrastructure. A company should also be able to make the external providers of innovative IT solutions explain their products and services in terms of the company's processes and the improvements they bring, and measure the benefits, decide and implement such solutions very fast.

CONCLUSION

Through the three chapters of the master's thesis, business process orientation as a goal was explored. With the goal of finding a general approach to the BP orientation, theoretical definitions and a practical example were studied.

The first, theoretical part of the thesis at first focuses on the history of the BPM and explains the general trends of the BPM objectives in the fairly recent history. We see that due to the merging of different schools of thought BPM has many disciplines and goals it follows. The most common reasons for BPM initiation are then listed, indicating which issues process management initiatives can help resolve. The chapter continues with the factor common to all of the BPM initiatives, regardless of their purpose, namely the BP architecture as a theoretical BPM plan. Reference models, as examples for orientation are pointed out, along with the benefits and the pitfalls of their use. Next, the process orientation, BP maturity and the BPR failure factors are explored, focusing on the necessary skills accompanying the enactment of the BPM architecture, each presenting a different view of the subject matter. The orientation model lists the characteristics of a

process oriented company, while the maturity model shows how these characteristics typically develop over time. The BPR, as the most complex discipline of the BPM, failure factors point to the characteristics a company should develop in order to practice it, while also signaling a high BP maturity level reached.

In the second, practical part, an example of a company's BPM approach is given, pointing out a process dimension of the BPM. The example first describes the company's environment and the BPM particularities in the group of connected companies, explaining much of the company's BP architecture. It goes on to show how different goals are followed through time, and is for that purpose broken into phases. Each phase is described in terms of the company's environmental factors, and in terms of the goals followed and actions taken, with focus on the process orientation characteristics acquired during that phase. The exploration of phases also demonstrates the BPM initiative as a learning process, requiring adjustments when needed.

The third chapter is devoted to the analysis of the practical example. We see that the company compares well with the theoretical models and but hasits strengths and weaknesses. Finally, a model of BP orientation approach is proposed, leaning on the theoretical models and promoting the practices of the company's examples that yielded good results, while also correcting for the practices with shortfalls. While the generic model proposes a high-level of orientation, hopefully the details of the examples and the analysis can help other companies fulfill their approach.

The shortcomings of this thesis are the analysis of a single company's approach through the chosen simplified theoretical models. The proposed model of BPM approach would have benefited much from a study of diverse companies with a multitude of approaches, methodologies and tools. Likewise, it would have benefited from application of more complex and holistic theoretical models.

REFERENCE LIST

1. Association of Business Process Management Professionals. (n.d.). *BPM Profession.* Retrieved April 20, 2015 from http://www.abpmp.org/?page=BPM_Profession
2. *Control Objectives for Information and Related Technology Framework.*. Retrieved September 2, 2014 from https://cobitonline.isaca.org/l3-main?book=framework#framework
3. COBIT Steering Committee and the Information Systems Audit and Control Foundation. (1998). Audit Guidelines in *COBIT : governance, control and audit for information and related technology* (2nd ed.). Rolling Meadows: COBIT Steering Committee and the IT Governance Institute.
4. CISCO. (2009). *Introduction to eTOM, Whitepaper.* Retrieved October 9, 2014 from http://www.slideshare.net/Billy82/microsoft-word-whitepaperc11541448docpdf?utm_source=slideshow02&utm_medium=ssemail&utm_campaign=share_slideshow_loggedout
5. Eftekhari, N., &Akhavan, P. (2013). Developing a comprehensive methodology for BPR projects by employing IT tools. *Business Process Management Journal*, *19*(1), 4-29.
6. Frigo, M. L., & Anderson, R. J. (2011). Embracing Enterprise Risk Management: Practical Approaches for Getting Started. *Committee of Sponsoring Organizations of the Treadway Commission*. Retrieved November 17, 2014 from http://www.coso.org/documents/EmbracingERM-GettingStartedforWebPostingDec110_000.pdf
7. Hammer, M., & Champy, J. (1993). *Preurejanje podjetja: Manifest revolucije v poslovanju* [Re-engineering the corporation: A manifesto for business revolution]. Ljubljana: Gospodarski vestnik.
8. Harmon, P. (2003). *Business Process Change*. s.l.: Morgan Kaufman Publishers.
9. Harmon, P., & Wolf, C. (2011). *Business Process Modeling Survey*. Retrieved February 25, 2012 from www.bptrends.com.
10. Indihar Štemberger, M.(2012). *PIP1112_Stemberger_predavanja.pptx. "Process change and automation"* (class presentation materials). Ljubljana: Ekonomska Fakulteta.
11. International Organization for Standardization. (n.d.). *ISO 31000:2009, Risk management - Principles and guidelines.* Retrieved December 3, 2014 from https://www.iso.org/obp/ui/#iso:std:iso:31000:ed-1:v1:en
12. ITIL v3 System Center 2012. (2012.). Retrieved December 4, 2014 from http://myitforum.com/myitforumwp/2012/06/22/itilv3-system-center-2012/
13. *ITIL roles*. (n.d.). In *Wikipedia*.Retrieved December 3, 2014 from http://wiki.en.it-processmaps.com/index.php/ITIL_Roles

14. Jeston, J., & Nelis, J. (2006). *Business Process Management: Practical Guidelines to Successful Implementations* (1ˢᵗ ed.). s.l.: Butterworth-Heinemann/ ElsevierLinacre House.

15. Juric, M.B., & Pant, K. (2008). *Business Process Driven SOA using BPMN and BPEL.* (s.l.). Packt Publishing.

16. Knight, R. F., &Pretty D.J. (2003), Risks that matter. In *Managing Business Risk* (pp. 5-9). (s.l.). Kogan Page Limited.

17. Kohlbacher, M., & Gruenwald, S. (2011). Process orientation: Conceptualization and Measurement. *Business Process Management Journal, 3*(2), 267-263.

18. Kovačič, A. (2012). *Strateška izhodišča – procesna usmerjenost poslovanja in MPP* (class presentation materials). Ljubljana: Ekonomska Fakulteta.

19. Kovačič, A., & Bosilj Vukšić, V. (2006). *Management poslovnih procesov*. Ljubljana: GV Založba.

20. Kovačič, A., Jaklič, J., Indihar Štemberger, M., & Groznik, A. (2004). *Prenova in informatizacija poslovanja*. Ljubljana: Ekonomska Fakulteta Založništvo.

21. Malinova, M., Mendling, J., & Prescher, J. (2012). *Designing Process Architecture – Why, What and How* (Conference presentation materials). *Wienna:* Wirtschaftsuniversität Wien.

22. McCormack, K. P., & Johnson, W.C. (2001): *Business Process Orientation: gaining the e-business comparative advantage*. (s.l.). St. Lucie Press.

23. Organization for the Advancement of Structured Information Standards. (n.d.). *Reference model*. Retrieved December 5, 2014 from https://www.oasis-open.org/committees/soa-rm/faq.php

24. Pajk, D. (2013). *Uporaba referenčnih modelov pri prenovi in informatizaciji poslovanja* (doktorska disertacija). Ljubljana: Ekonomska Fakulteta.

25. Rikhardsson, P., Best, P.J., Green, P., & Rosemann, M. (2006). Business Process Risk Management and Internal Control: A proposed Research Agenda in the context of Compliance and ERP systems. Retrieved November 17, 2014 from http://eprints.qut.edu.au/5192/1/5192.pdf.

26. Risk management description.(n.d.). In *Business dictionary*. Retrieved April 21, 2015from http://www.businessdictionary.com/definition/risk-management.html

27. Sharp, A., & McDermott, P. (2008). *Workflow Modeling: Tools for Process Improvement and Applications Development* (2ⁿᵈ ed.). (s.l.). Artech House.

28. Singh, A. (2003). Change programmes. In *Managing Business Risk* (pp. 26-31*).* (s.l.). Kogan Page Limited. (27).

29. Škrinjar, R., Bosilj-Vukšić, M., & Indihar-Štemberger, M. (2008). The impact of business process orientation on financial and non-financial performance. *Business Process Management Journal*, *14*(5), 738 – 754.

30. Teixeira, T. (2003).Enterprise risk management. In *Managing Business Risk* (pp.32-39)*.* (s.l.). Kogan Page Limited.

31. Telekom Austria. (n.d. *-a*). *Compliance CMS description*. Retrieved September 13, 2014 from

http://cdn1.telekomaustria.com/final/en/media/pdf/compliance_cms_description_en.pdf

32. Telekom Austria. (n.d. *- b*). *History*. Retrieved December 2, 2013 from

http://www.telekomaustria.com/group/history.php

33. TM Forum. (n.d.). *Membership*. Retrieved September 9, 2014 from

https://www.tmforum.org/CurrentMembers/737/home.html?memberid=1473

34. Tregear, R. (2013). Practical Process. Retrieved March 2, 2014 from

http://www.bptrends.com/publicationfiles/04-02-2013-COL-Practical%20Process-Tregear.pdf

35. Vip mobile. (n.d.). *O nama*. Retrieved September 4, 2014 from

http://www.vipmobile.rs/o-vipu/o-nama-.1083.html

36. *What is ITIL*. Retrieved September 9, 2014 from http://www.itil-officialsite.com/aboutitil/whatisitil.aspx

APPENDIXES

TABLE OF APPENDIXES

ii

Appendix A: Slovene summary of the master's thesis

PRISTOP K PROCESNI USMERJENOSTI PODJETJA: ŠTUDIJA PRIMERA PODJETJA VIP MOBILE

Povzetek

V zadnjem desetletju postaja procesno vodenje podjetja vse bolj poznano in priznano. Kljub množici argumentov in definicij pa vodilnim v podjetjih ni zmeraj znano kako pristopiti k načinu vodenja, katerega rezultati so najmanj vzpodbudni. Ta naloga obravnava procesno usmerjenost kot cilj podjetja.

Cilji te naloge so pregled literature na področju upravljanja poslovnih procesov, pregled primera uspešnega pristopa k upravljanju procesov v luči izbranih teortičnih modelov in analiza praktičnega primera ter predlog pristopa k procesni usmerjenosti, ki upošteva tako teoretične dobre prakse, kot tudi prednosti in slabosti izbranega primera.

V ta namen je delo razdeljeno na tri poglavja, na teoretični, praktični in analitični del. Prvi del obravnava kratko zgodovino upravljanja procesov, utemeljitve izbora procesno usmerjenega vodenja in izbrane modele povezane s procesno usmeritvijo. Drugi del sledi večletnemu prizadevanju telekomunikacijskega podjetja Vip mobile na poti k procesni usmerjenosti z vidika poslovnega okolja, v katerem je, in ciljev, za katere si prizadeva, preko praktičnih primerov, razdeljenih v časovna in tematska obdobja. Praktični primeri se navezujejo na pojme opisane v teoretičnem delu. Tretji del je namenjen analizi primera, kot tudi predlogu pristopa k upravljanju procesov v podjetju.

V prvem delu so skozi zgodovino razvoja procesnega upravljanja izpostavljene predvsem disciplinarne lastnosti le-tega, ki morajo delovati v soskladju. Prvi del obravnava tudi procesno arhitekturo kot načrt procesnega upravljanja, in ponudi uporabo referenčnih modelov kot pomoč pri snovanju podjetju lastnega načrta. Značilnosti, ki jih podjetje mora razviti pri prizadevanju za procesno usmerjenost, so prikazane z večih vidikov, s splošnega, z razvojnega kot tudi z vidika prelomne točke, ko je podjetje pripravljeno na najzahtevnejšo disciplino upravljanja poslovnih procesov, ki hkrati pomeni relativno procesno zrelost podjetja in nudi največ pri pridobivanju konkurenčnih prednosti na tržišču – na temeljito prenovo procesov. Prvi del se zaključi s pregledom upravljanja rizika v podjetju, s poudarkom na potrebnem celovitem pristopu, ki smiselno združuje procesno upravljanje z upravljanjem z riziki v podjetju.

V drugem delu je predstavljen primer praktičnega pristopa k upravljanju s procesi, ki skozi leta izpostvlja procesno dimenzijo procesnega vodenja, ki je učni proces temelječ na

izgradnji in nadgradnji značilnosti zaposlenih in poslovnih praks. Prizadevanja podjetja so predstavljena v tematskih sklopih, ki se navezujejo na izbrana teoretična modela.

Tretji del povzema praktični primer z vidika teoretičnih modelov, izpostavljajoč poglavitne razlike med njima. Prizadevanja podjetja, ki so prinesla dobre rezultate, kot tudi alternative za prakse, ki jih niso, so združene s teoretičnimi predložki v oblikovanje splošnega modela, ki prikaže korake, ki naj jih podjetja s ciljem procesne usmerjenosti predvidijo na poti do želenega cilja. Ob namenoma jedrnatem predloženem modelu, predstvljenem kot usmeritev na poglavitne aktivnosti, naj podrobna študija primera pomaga podjeju najti svojo pot do procesne usmerjenosti.

Appendix B: Table List of reference models

Table 1. List of reference models

No.	Name	Description
1	Accenture Process reference Model for BMP	Supplier: Accenture Year of development: 2011 Access: Limited Type: Domain Domain: Business Process Management Components: Standard processes
2 - 14	Process Classification Framework	Supplier: APQC Year of development: 1998-2012 Access: Open Type: Industry and cross-industry Industries: General (cross-industry) and Aerospace & Defense, Automotive, Banking, Broadcasting, Consumer Products, Education, Electric Utilities, Petroleum Upstream, Petroleum Downstream, Pharmaceutical, Retail, Telecommunications Components: Standard processes
15	AUTomotive Open System Architecture	Supplier: AUTOSAR Year of development: 2003 Access: Open Type: Industry Industry: Automotive Components: Standard processes
16	Retail-H model	Supplier: Becker, Schuette Year of development: 1996 Access: Open Type: Industry Industry: Retail
17	ITIL Service	Supplier: Cabinet Office

table continues

continued

No.	Name	Description
	Management	Year of development: 1989 Access: Limited Type: Domain Domain: Management of Informatics Components: Best practices, Metrics, Maturity model
18	Government of Canada Strategic Reference Model	Supplier: Government of Canada Year of development: 2005 Access: Limited Type: Industry Industry: Public services
19	Health Level Seven Reference Model	Supplier: HL7 Year of development: 1987 Access: Limited Type: Industry Industry: Health
20	IBM Industry Models for Banking	Supplier: IBM Year of development: No data Access: Limited Type: Industry Industry: Banking
21	IBM Insurance Application Architecture	Supplier: IBM Year of development: 1990 Access: Limited Type: Industry Industry: Insurance Components: Best practices, Metrics
22	Business Analysis Body of Knowledge	Supplier: IIBA Year of development: 2005 Access: Limited Type: Domain (Business Analysis) Components: Standard processes, Best practices
23	Control Objectives for Information and Related Technology (COBIT)	Supplier: IT Gov. Ins. & ISACA Year of development: 1996 Access: Open Type: Domain (Management of Informatics) Components: Configuration, Best practices, Metrics, Maturity Model
24	VAL IT Framework	Supplier: IT Gov. Ins. & ISACA Year of development: 2006 Access: Open Type: Domain (Management of Informatics) Components: Metrics, Maturity Model
25	Microsoft Operations Framework	Supplier: Microsoft Year of development: 2008 Access: Open Type: Domain (Management of Informatics) Components: Best practices

No.	Name	Description
26	Reference Model for Service Oriented Architecture	Supplier: OASIS Year of development: 2006 Access: Open Type: Applications
27	Microsoft Dynamics NAV Process Reference Model	Supplier: Pajk D. Year of development: 2013 Access: Open Type: Applications
28	Project Management Process Reference Model	Supplier: PMOLink Llc Year of development: 2004 Access: Open Type: Domain (Project Management)
29	Project Management Body of Knowledge	Supplier: PMI Year of development: 1983 Access: Open Type: Domain (Project Management) Components: Standard processes, Best practices
30	SAP R/3 Reference Model	Supplier: SAP AG Year of development: 1990 Access: Limited Type: Applications
31	Y-CIM Model (Computer Integrated Manufacturing)	Supplier: Scheer, A.-W. Year of development: 1980 Access: Limited Type: Domain (Manufacturing)
32	Customer Chain Operations Reference Model	Supplier: Supply Chain Council, Inc. Year of development: 2004 Access: Limited Type: Domain (Sales) Components: Standard processes, Configuration, Metrics
33	Design Chain Operations Reference Model	Supplier: Supply Chain Council, Inc. Year of development: 2006 Access: Limited Type: Domain (Product Design) Components: Standard processes, Configuration, Metrics
34	Product Lifecycle Operations Reference Model	Supplier: Supply Chain Council, Inc. Year of development: 2009 Access: Limited Type: Domain (Product Lifecycle) Components: Standard processes, Configuration, Metrics
35	Supply Chain Operations Reference Model	Supplier: Supply Chain Council, Inc. Year of development: 1996 Access: Limited Type: Cross-industry Components: Standard processes, Configuration, Metrics
36	The Business Process Framework	Supplier: tmforum Year of development: 2000

continued

No.	Name	Description
	(eTOM)	Access: Limited Type: Industry Components: Standard processes
37	Information Framework	Supplier: tmforum Year of development: 2000 Access: Limited Type: Industry
38	Application Framework	Supplier: tmforum Year of development: 2000 Access: Limited Type: Industry
39	Federal Enterprise Architecture Reference Model	Supplier: US Federal Government Year of development: 1999 Access: Open Type: Industry Components: Best practices, Metrics
40	Value Reference Model	Supplier: Value Chain Group (VCG) Year of development: 2005 Access: Limited Type: Cross-industry Components: Standard processes, Configuration, Best practices, Metrics
41	eXtensible Reference Model	Supplier: Value Chain Group (VCG) Year of development: No data Access: Limited Type: Cross-industry
42	Collaborative Planning, Forecasting and Replenishment	S upplier: VICS Year of development: 1998 Access: Open Type: Domain (Production Planning)

Source: D.Pajk, *Uporaba referenčnih modelov pri prenovi in informatizaciji poslovanja,* 2013, pp. 40-42, Table Priloga 2: Zbirka referenčnih modelov.