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STRATEGY IMPLEMENTATION BY MANAGING BUSINESS PROCESSES: A CASE STUDY IN THE ELECTRONICS INDUSTRY IN FINLAND

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Abstract:

Purpose – This case study creates an economically and technically competitive operating management system to improve the efficiency and quality of performance in a mid-sized electronics manufacturing company. The research was carried out with the aim of increasing the economic value of the studied company by implementing a process management approach to its challenging and dynamic global business environment.

Design/methodology/approach – The action research method is used in this study to implement continuous improvement in business process management and increase customer closeness and perceived quality. A qualitative research method was applied. In-depth interviews and workshops were used to collect data. The study also applies some features of the constructive research method, as well as weak and strong market tests.

Findings – The continuous development of business processes can facilitate adaptation to changes in the environment, which is crucial for companies that hope to maintain their viability.

Practical implications – A project implementation approach, in which a concept is created, applied in practice through a pilot project, and then widely implemented, was found to be a good practice.

Originality/value – Business development and regeneration achieve better results when they are carried out proactively, before a company has been plunged into financial or operational difficulties.

Keywords: Perceived quality by the customer, competitive advantage, added value creation, strategic management, business process reengineering, business process management

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1. INTRODUCTION

World economic growth has been very moderate, and it is expected to remain moderate in the near future. The Finland Ministry of Finance's Economic Bulletin 1/2013 forecasts that the economy will remain in a state of moderate growth at least through 2013 and 2014 (Ministry of Finance, 2014). The world economic outlook and the moderate market growth rate force firms to create growth and differentiate themselves from their competitors by developing competitiveness.

This study examines process development, management, and implementation from a strategic point of view. The aim is to create ever-evolving processes in order to implement the strategic goals set by the company's senior management. The case company's strategic goal is to obtain a significant increase in market share. Achieving this goal requires the success of business process management. The case company identified the following critical success factors: enabling competitive advantage core competencies, developing critical resources, encouraging the organization's continuous learning, and as a result, maintaining and developing capabilities.

The case company identified the process management challenges as follows: The organization must better identify the customer's expectations and needs, create and capture additional value by developing the entire value chain, and engage in better strategic and business process management overall.

The research questions are as follows:

RQ1. What are the most important practical business process management measures needed to achieve the strategic goals?

RQ2. What are the practical benefits to a manufacturing company when the process management approach is used?

The research design is based on a study by Salmi and Jarvenpaa (2000). Scientific knowledge accumulates through empirical observations and conceptual clarifications. In the new study, the findings either confirm the existence of scientific knowledge or question it. Figure 1 presents the BPR concept created, and in this study, "BPR continuous improvement / BPR follow-up" is presented in more detail.
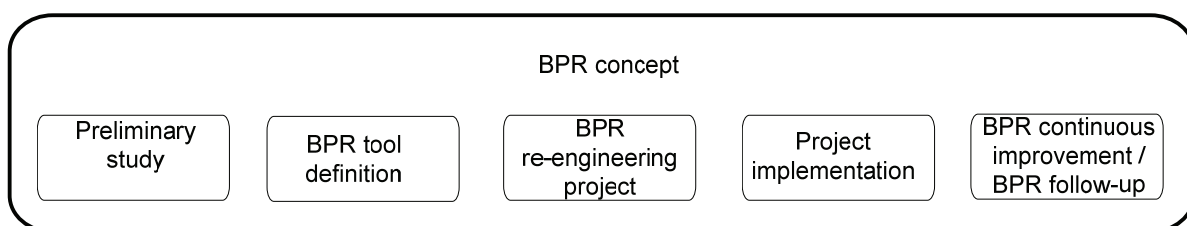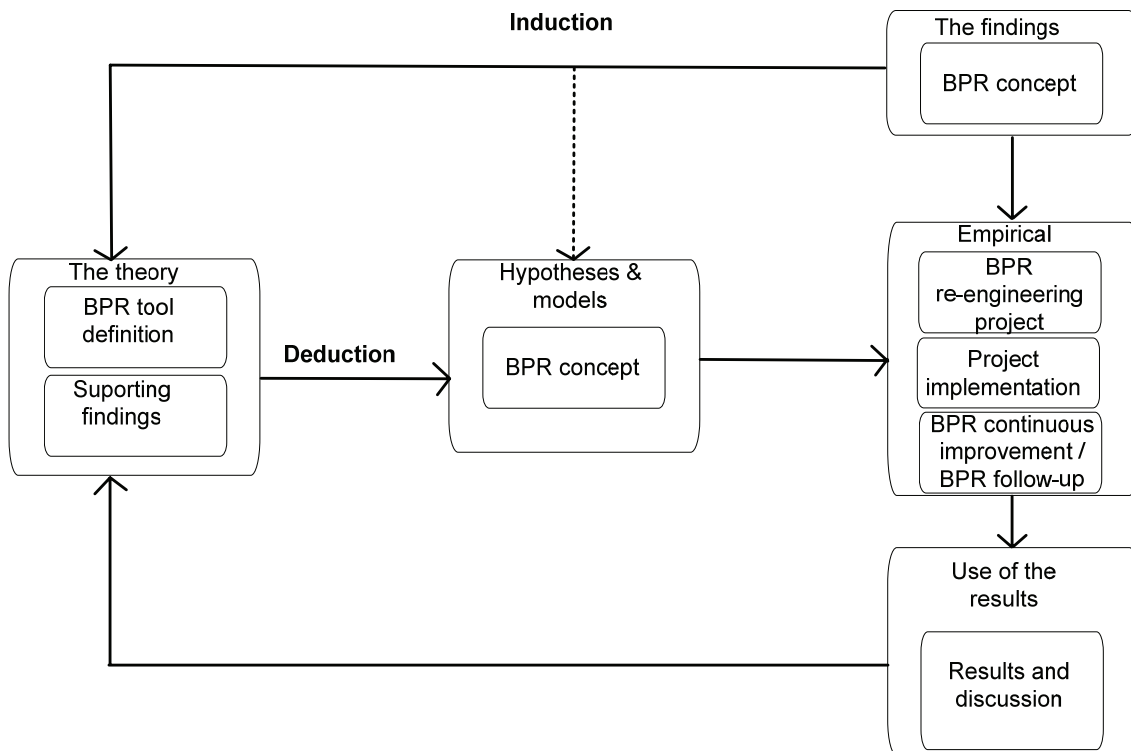
Figure 1: BPR concept

Figure 2 presents the interaction between deduction, induction, and new information based on the BPR concept, which is deployed to the modified model of Salmi and Jarvenpaa (2000).

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Figure 2: Modified model Salmi and Jarvenpaa, 2000

Source: Salmi and Jarvenpaa (2000).

The "BPR concept" (Figure 1) is deployed in the Salmi and Jarvenpaa model (Figure 2) as follows: The "BPR concept" (used in this study) is a key result of the study and represents the findings of the study; the "BPR tool definition" (Uusitalo, 2012) represents the theory that was used in the study; the "BPR concept" created (Uusitalo, 2011; Uusitalo, 2012; Uusitalo, 2013; this study) represents the hypotheses and models; the empirical section consists of the "BPR re-engineering project," "Project implementation" (Uusitalo, 2013), and "BPR continuous improvements / BPR follow-up" (this study); and "Results and discussion" (this study) represents the use of the results, which also closes the loop by returning to the theory.

The assumption underlying the study was the view that the development of business processes could significantly improve the company's performance. This was based on the idea that the company's activities focused too greatly on functional management culture.

2. LITERATURE REVIEW

The literature review considers the relationship between strategic management and process management in order to create a company-wide management practice. Initially, the literature review focuses on organizational learning; secondly, it focuses on considering strategic management; and thirdly, it considers the central question of process management. In the end, the areas of learning organization, strategic management, and process management are linked together in a company-wide management practice, which is capable of responding to the turbulent, challenging, and ever-changing demands of the environment.

Organizational learning

In his book, *The Fifth Discipline* Peter Senge describes a learning organization as a place "*where people continually expand their capacity to create the results they truly desire where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together*" (Garvin D.A., 1994, p.1).

Organizational learning is an essential part of a company's strategic processes in terms of organizational competitiveness, organizational innovation, and responding to dynamic business

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circumstances. Organizational learning, as a part of the strategic management perspective, is important for achieving and sustaining competitive advantage (Oh, 2012, p.3).

Organizational learning is also important for organizations' strategic renewal, which can be considered in terms of two dimensions: learning stocks and learning flows. Learning stocks are learning outcomes generated from changes in awareness, cognitions, and behaviors in the three levels of the organization: the individual, group, and organizational levels. Learning flows are learning outcomes in transition, in which learning and awareness move between the above-mentioned individual, group, and organizational levels. Both learning stocks and learning flows are considered to be a major key resource for strategic renewal, which can help achieve competitive advantage (Oh, 2012, p.3).

Garvin (1994) asks a simple question: What is a learning organization?

He considers organizational learning via the following definition: "*A learning organization is an organization skilled at creating, acquiring, and transferring knowledge and at modifying its behavior to reflect new knowledge and insights.*" Furthermore, he considers a learning organization to be one that engages in the following five main activities: systematic problem solving, experimentation with new approaches, learning from its own experiences and past history, learning from the experiences and best practices of others, and transferring knowledge quickly and efficiently throughout the organization (Garvin D.A., 1994, pp. 2-3).

Strategic Thinking

The Strategic Management Society was established in 1980 to promote strategic thinking. In the same year, Michael Porter released his famous five competitive forces strategies model (Santalainen, 2010, pp. 23-26).

Strategic thinking is seeing in five directions: seeing onwards, which is commonly referred to as being visionary; seeing backwards by utilizing experiences and tacit knowledge; deepening strategic thinking by looking at the big picture from the top down; understanding business and earnings logic via the interpretation of operational details from the bottom up; and looking to the side, which means the approaches and practices of learning, understanding, and implementing the strategies from the points of view of other sectors. Additionally, the sixth direction is seeing over the imaginable future vision, which means not only trying to predict the future but also actively acting in the process of creating the future (Santalainen, 2010, pp. 23-26).

In the 1990s, attention was paid to strategy management, the efficiency of internal processes, and organizational governance. At that time, there was a discussion of value creation and capturing, as well as resource management concepts. Strategic management emerged in two main directions: the structural analysis of industries and companies' positioning in the competition according to that analysis. Michael Porter has had a strong influence on this trend. The second main direction is resource management, which affected the evolution of strategic thinking, especially in the 1990s (Powell, 1995, pp. 2-4, Santalainen, 2010, pp. 23-26).

Resource management is seen as a way to obtain an important competitive edge over rivals in terms of positioning and customer-oriented operations. Resource management consists of the following factors: a diverse and inspiring vision; the creation of the necessary set of the core competencies; resource activation in the direction of the vision; and maintaining and strengthening the company's competitive position by updating developing resources (Santalainen, 2010, pp. 23-26).

Strategic management

In-depth multi-dimensional change is called transformation. In his book, Santalainen (2010) writes that strategic management that resembles a radical transformation includes elements such as the following: business management, organizational structures and processes, culture, and people and processes (Santalainen, 2010, pp. 265-266).

Teese et al. (1997) identify three existing strategic management paradigms:
1) The competitive forces approach, created by Porter (1980), whose approach emphasizes creating defensive positions against competitive forces.

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2) The strategic conflict approach, which pursues competitive advantage through strategic investments, pricing strategies, signaling, and the control of information.
3) A resource-based perspective, which emphasizes efficiency and effectiveness.

Teese et al. (1997) consider the question within the field of strategic management: What methods can a company apply in order to achieve and sustain competitive advantage? They answer this question through the dynamic capabilities approach, which emphasizes the development of management capabilities in the form of functional and technological skills in areas such as the management of R&D, product and process development, technology transfer, intellectual property, manufacturing, human resources, and organizational learning (Teece et al., 1997, p.2).

Hannus (2004) considers effective management strategy via the following five perspectives:

• Vision, which is a strategic goal that describes the organization's goal-oriented status over a given timespan.
• Strategic positioning, which consists of customer-product-channel selections, a competitive strategy, customer promise, and a revenue model.
• Strategic resources, which are composed of capabilities and intellectual and material resources.
• Critical success factors and strategic objectives and indicators that include the principles used by the organization to apply the strategy, concretization, setting objectives, and monitoring the implementation of the strategy.
• Strategic measures and development management include strategic-level projects and measures (Hannus, 2004, pp. 59-60).

Strategic competence

The best companies have created a successful strategy by successfully utilizing the core competencies they occupy. Prahalad and Hamel define the core competencies as the collective learning of the organization, especially those concerning the production of a wide range of skills, which is integrated into various technological streams (Prahalad et al, 1990, pp. 4-5, Santalainen, 2010, p. 134).

Strategic resources

Santalainen (2010) defines an organization's long-term competitive advantage based on dynamic resources, which are difficult to imitate, relocate, purchase, or reimburse (Peteraf et al, 1993, pp. 3-4, Santalainen, 2010, pp. 127-131).

The organization's competence and capability

Karami et al. (2008) highlight the importance of competencies, particularly HR's role, in increasing the core competencies of a firm. HR's active participation in the organization's business development and implementation improves the organization's efficiency in a holistic manner (Karami et al. 2008).

Figure 3 shows the interaction between resources and capabilities. Competencies are created by utilizing and combining resources. In this approach, the resources and competences are divided into four groups: the necessary resources are needed to meet the needs of the customer, the unique resources enable competitive advantage, the basic competencies are required for the exploitation of the necessary resources, and the core competencies are required for the exploitation of the unique resources. Figure 3 further explains how new competencies are created through organizational learning. The creation and maintenance of core competences and unique resource require exceptionally in-depth strategic thinking (Johnson et al, 1997, pp. 137-146, Santalainen, 2010, pp. 134-135, Oliver, 2013, pp. 3-7).

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Figure 3: Resources and competencies

	Same as those of competitors or easily retrievable	Better than competitors and difficult to track
Resources	The necessary resources	The unique resources
Competencies	The basic competencies	The core competencies

Source: Johnson et al, 1997, p.144, Santalainen, 2001, p.134.

Competitive advantage

In their article "Producing sustainable competitive advantage through the effective management of people," Pfeffer et al. emphasize that it is more important for a company to focus on staff capability instead of technology, patents, or strategic positioning to obtain long-term competitive advantage (Pfeffer et al., 1995 p. 1).

The company's performance

Santalainen (2010) holds that in order to reach peak performance, a company needs the following elements: intent, which includes the energy required and success culture; a vision that includes a strategic plan and direction for the business, as well as a business model; and dynamic focus, which includes the purposeful and concrete goal at which the company is aiming (Santalainen, 2010, pp. 21).

Achieving a high level of performance requires a strong intent (energy), vision (intent and target level), and purposeful action (Santalainen, 2010, p. 21). Let us consider peak performance through a sports-related example. Professional sports are a world of brutal competition. Finnish ice hockey coach Karri Kivi has twice steered his team to victory: first, in 2012, Pori Assat as Ice Hockey League Championship in Finland and, the following year, at the M20 men's Ice Hockey World Championship (Yle, 2014).

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Picture 1: Head coach of Finland M20 national ice hockey team Karri Kivi

Source: Yle, 2014.

Ice hockey coach Karri Kivi's coaching secret is a combination of a psychological eye, continuous learning, and careful statistical monitoring. Karri Kivi considers the following to be important key factors that help in winning championships: tactical managing, risk management, team spirit, team unity, visible management confidence, and the courage to make the right decisions under pressure (Yle, 2014).
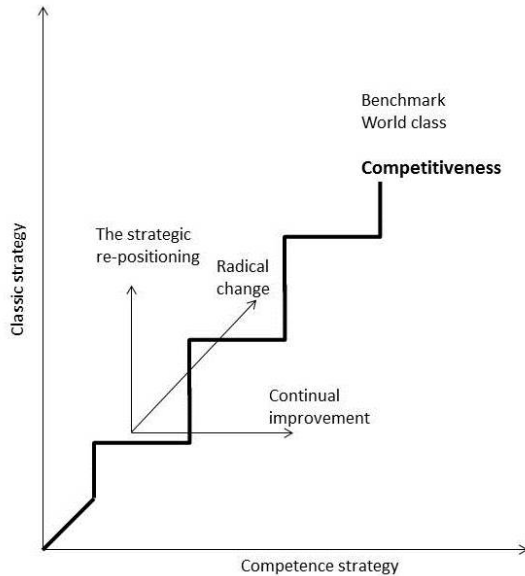
Process Management

Tinnila (1995) mentions three important BPR perspectives concerning the operational BPR project approach: IT as an enabler, the potential of BPR redesign, and the role of business processes as a unit of strategic planning (Tinnila, 1995, p. 1; Uusitalo, 2012, p. 5).

The strategy is the assumption (hypothesis) that under certain conditions, it is expected to achieve certain results (in an ideal world with no distractions). Often, business strategy includes development projects, such as improvements in productivity, streamlining the product portfolio and sales, and/or targeting new market segments. These development projects are commonly referred to as strategic development projects or priorities (Laamanen, 2001, p. 230).

Strategic management and process management capabilities are linked to one another through a strategic capability approach. The competitiveness of this approach is shown in the four fields of Figure 4:
• On the y-axis is the classic strategy, i.e., the right things to do, which is composed of the following factors: investment, core competencies, capacities, range of products, distribution channels, etc.
• On the x-axis is the capability of a strategy, i.e., doing things right, which consists of the following factors: the company's capability development, such as quality, productivity, speed, flexibility, learning ability, etc., as well as its priorities (Laamanen, 2001, p. 237).

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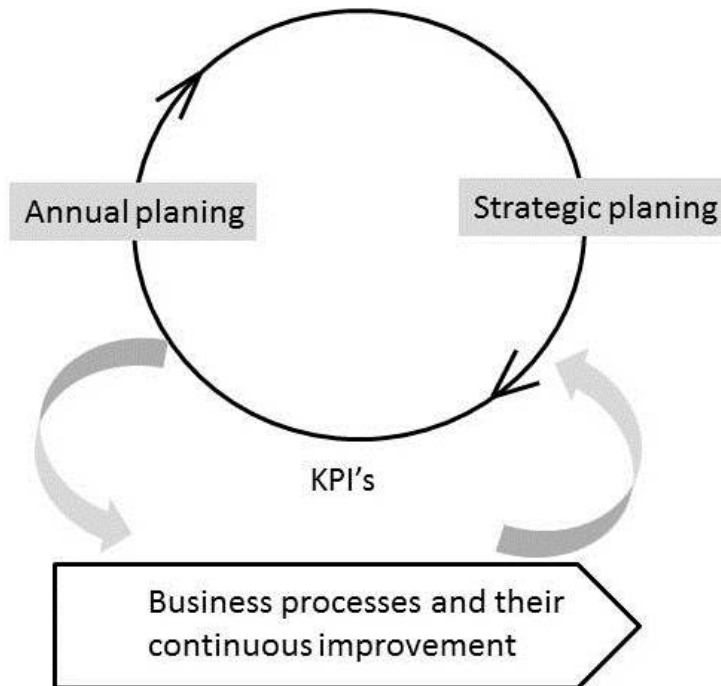**Figure 4:** Classic vs competence strategy

Source: Laamanen (2001, p. 237).

David Norton's study shows that nine out of ten companies fail in implementing their strategies. He has identified a variety of reasons for the failure of operational management: the directors' lack of genuine commitment to strategy implementation, only a small part of the personnel understanding the strategic objectives and the necessary means to achieve them, and the fees and budgeting not being sufficiently connected to the strategy.

Typically, organizations implement strategic objectives by setting goals, making plans, and implementing development projects. In practice, the implementation of a strategy means that the strategic objectives set by the management are communicated to the organization. Often, implementations of the strategic objectives are associated with setting up development projects in order to ensure the achievement of these strategic goals. Typically, the annual business strategy is planned at the beginning of the year, and correspondingly, the target design for the next year is accomplished at the end of the year, which will be the base for the following year's strategy.

The presented approach is not without problems, as Norton's research shows. Companies face challenges in implementing their strategies. In order to implement its strategy, a company needs operationalization, strategic objectives, and process indicators. The Key Performance Indicators (KPI) play an important role in the communication of strategic objectives. In practice, operationalization refers to a measuring system for the construction of processes that can be used to set development goals and monitor the development performance. Figure 5 illustrates how strategic planning and targeting are connected to processes in practice (Kaplan et al. 2009, pp. 23-34, Laamanen, 2001, p. 250).

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Figure 5: Connecting strategies to processes through key performance indicators
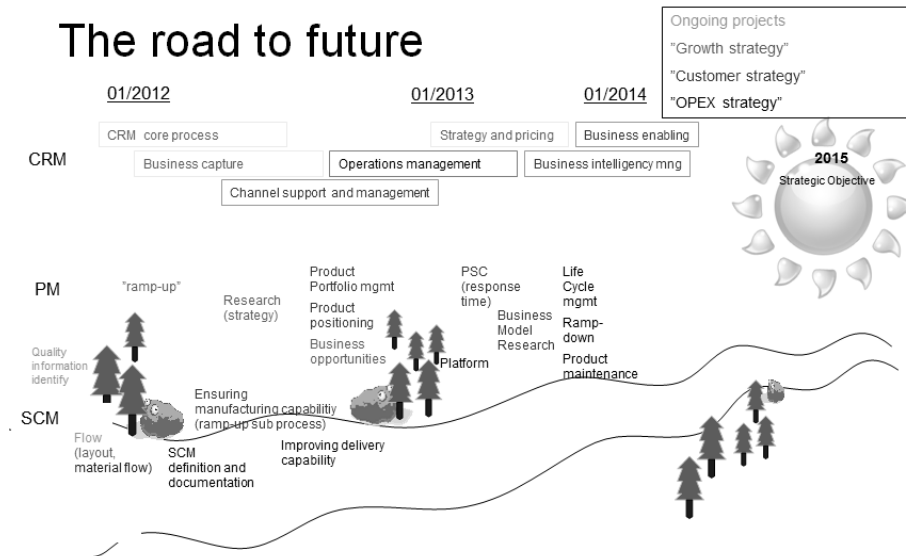

Source: Laamanen (2001, p. 250).

A strategy is realized through processes. Process management must be supported by guidance and reviews. Guidance is intended to ensure that certain matters are done properly, such as ensuring that quality remains at the desired level, ensuring agile and flexible working methods, and implementing learning organization practices, etc. The intent of the review is to ensure that the organization is doing the right things, such as that the organization possesses the correct and core competencies, that the investment is adequate and focused, and that capacity-related issues are sufficiently addressed (Kaplan et al. 2009, pp. 23-34, Laamanen, 2001, p. 250).

3. PROCESS MANAGEMENT IN THE CASE COMPANY

In the previous study (Uusitalo, 2013), a "BPR re-engineering project" was carried out that contained the deployment three core process, sub-processes, and their activities.

The starting point of the implementation of the development projects and the transition to the continuous improvement approach are shown in Figure 6. All identified sub-processes that require development activities are marked on the roadmap in order of priority.

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Figure 6: The road to future

The empirical portion of this study is a continuation of previous studies (Uusitalo, 2011; Uusitalo, 2012; Uusitalo, 2013). The BPR concept consists of the blocks shown in Figure 7.

Figure 7: BPR Concept
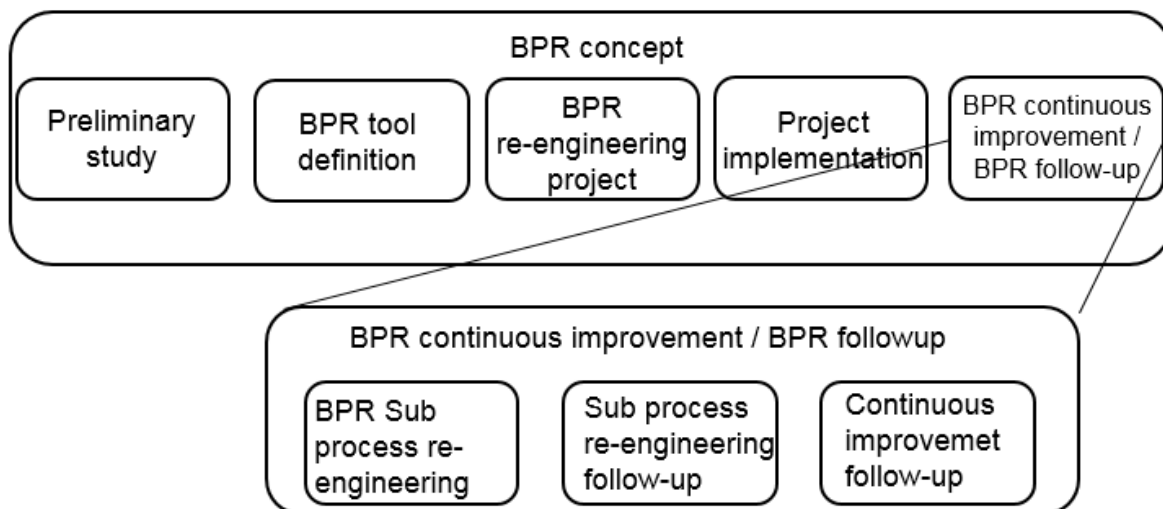
"Preliminary study" (Uusitalo, 2011) was the first study of the BPR concept, and the purpose of this study ws to find the most critical areas of the quality development that needed improvement. "BPR tool definition" (Uusitalo, 2012) was the second study, and the purpose of this study was to identify the most critical areas of the workflows and processes that needed improvement and to create an appropriate tool with which to implement a business process reengineering (BPR) project. "BPR re-engineering project" (Uusitalo, 2013) was the subject of the third study, and the purpose of this study was to define the business process reengineering (BPR) project in the case company. The third study also contained the "Project implementation," in which the ramp-up and business capture processes were renewed as pilot projects. In addition to the pilot projects, an IT development project was carried out in order to create an IT environment called Sharepoint Process Portal, which provides all necessary services for process description and operational process use.

This fourth study is the last part of the publication series, in entire the study is brought to a close by presenting the "BPR continuous improvement / BPR follow-up" steps and evaluating the results obtained throughout the entire study.

Figure 7 presents the work breakdown structure of the "BPR continuous improvement / BPR follow-up," and it contains three sub-entities: "BPR sub process re-engineering," "sub process re-engineering follow-up," and "continuous improvement follow-up."

3.1. BPR sub-process re-engineering

Based on the experience of the two pilot projects, each sub-process has been re-engineered according to the concept created during the piloting phase. The SIPOC tool was used to investigate the sub-processes on a detailed level. Thereafter, it was implemented via the

sub-process activity deployment. Every activity was examined in sufficient detail so that each activity was described in an appropriate manner. The appropriate key performance indicators were also identified at this stage.
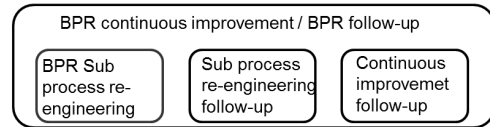
As a general rule, the key performance indicators (KPIs) were identified based on a sub-process's capability. In other words, KPIs show the capability of the process, such as on-time delivery (OTD), which indicates the percentage of deliveries that are delivered on time. In this context, the process metrics, which indicate the effectiveness of the processes, were also considered. This was viewed to be important, but it was left as a development idea to be implemented later, during the continuous improvement actions.

3.2. BPR sub-process re-engineering follow-up

Because of the many development actions, it was necessary to implement a sub process re-engineering follow-up procedure in order to control and monitor the progress of the sub-process development projects. The sub process re-engineering follow-up procedure is presented in Figure 8.
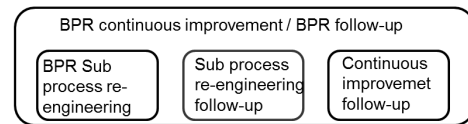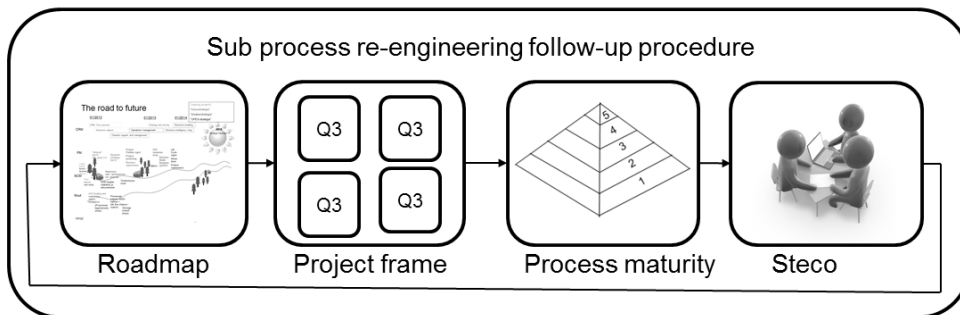
**Figure 8:** Sub-process re-engineering follow-up procedure

The roadmap is an overview presentation of the sub-process that must be re-engineered. It provides an estimated timeline in which the sub-process re-engineering is expected to be completed. It also helps to assess how many sub-process re-engineering projects can be performed in parallel.

Each sub-process re-engineering project is performed according to four-quadrant project frames. The Q1 phase contains information collecting regarding all important issues. Information collecting involves the following: the investigation of available measures, process descriptions, KPI results, etc. In the following phase, Q2, the gathered information from phase Q1 is analyzed in order to provide all necessary information for following phase, Q3. The most important tool in the Q2 phase is the SIPOC analysis tool, with which the process supplier, process inputs, process itself, process outputs, and customers of the process are investigated in a detailed manner. After that, the results of the SIPOC procedure are utilized in sub-process deployment, where each activity is defined and described in a swim line diagram. In the Q3 phase, the newly deployed process structure is put into practice. This phase contains a great deal of training in order to activate all the new work procedures and link them to other processes. Also, old and new KPI measures are activated, and follow-up is started. The Q4 phases assess the Q3 phase development actions and ensure that the changes are sustainable. This

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is an important part of change management. It is crucial to ensure that organizations genuinely introduce a new approach because given the absence of a strong intention in the consolidation phase, the organization may be tempted to return to the old way of working.

An effective and practical way to evaluate processes' capability is to use the maturity model, which describes processes' current capability in a descriptive and concrete way. The process maturity model is a five-step scale assessment method used to self-assess all of a company's processes (SEA, 2004). The process maturity model is presented in Figure 9.

Figure 9: Process maturity model
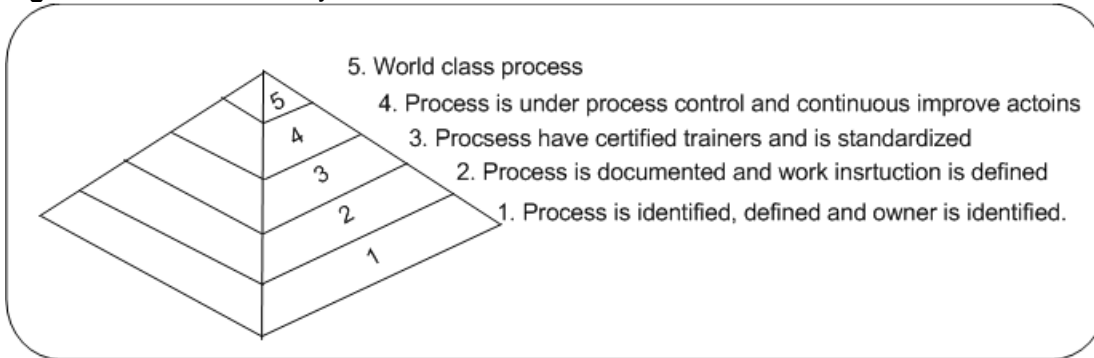
Source: SEA, 2004.

Steco was established to control and monitor continuous BPR improvement and follow-up. Steco consists of senior management, process owners and developers, and other necessary stakeholders. Steco's most important task is to provide adequate authority to implement organizational management practices in the re-engineering process.

The strategy management and process development projects are linked to one another through steco. This ensured that the strategically important views are adequately taken into account by developing processes. Another important role is associated with the use of resources and prioritization. Steco has sufficient powers for the development project's resource allocation and prioritization.

3.3 Continuous improvement follow-up

At this point, the monitoring and management of the sub-processes follow-up procedure was abandoned, and it was replaced with the follow-up and assessment of key indicators in order to perform adequate process management practices in the long term.
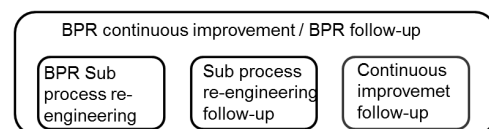
The process owners are responsible for the process capability and performance in the continuous improvement follow-up process management model. Each core process is monitored on a monthly base for the agreed-upon process KPI results. Development measures are taken in a continuous manner in order to eliminate unproductive work and correspondingly strengthen the customer-value-added work. The company's top management monitors the processes via reviews and audits.

RQ1. What are the most important practical business process management measures needed to achieve the strategic goals?

The BPR concept described in Chapter Three, as well as the development of measures, can be considered the answer to Research Question 1.

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4. RESULTS AND DISCUSSION

The most important strategy elements, such as significant turnover growth, customer-perceived quality, and competitive products and services, have been the key drivers in the development of business processes. A development project of this magnitude is a major strategic measure taken in order to retain the company's competitive advantage in the long term, 3-6 years ahead.

Sub-process renewal was carried out over one and half years, and thereafter, the process management was moved into continuous improvement mode.

The process management challenges of the case company can be summarized as follows: the implementation of the management intent – change management must ensure that the new and more efficient practices will be sustainable in the organization's new permanent practice.

The development project took a long time, about two and a half years. In the organization, other changes also occurred: the relocation of individuals must be taken into account by providing information about the ongoing projects, including their orientation and objectives. In the other words, the new staff of the organization must be involved in the change management objectives.

Communication is a challenging part of change management. Communication must take place at all levels of the organization, and it must be visible in order to bring its content into the consciousness of the entire staff. There are a great variety of communication channels available in a large organization, such as intranet, e-mail, info events, and department meetings. It is important that all these communication channels are utilized in change management.

The importance of visible support on the part of senior management cannot be overstated. The company's senior management must put itself on the line on behalf of change management. They must be visible and active participants in the change management and trendsetters in terms of the introduction of new practices and roll-outs. They also have an important role to play in prioritizing the activities of the organization. The high priority of change-management-related activities indicates strong intent on the part of the senior management and the importance of the change management itself, which, in turn, contribute to new sustainable practices.

This fourth article is the last article in the author's series on the development of business-related research. The following chapter consists of three sections. The first section discusses the principal results achieved in the study, the second section discusses the important and relevant research-related points of the view, and the third section is about the tool developed and applied in the project.

4.1. The main results of the study

The main objective of the study is to improve the competitiveness of the enterprise by developing its business processes. A key objective of the study was carried out by renewing all of the company's business processes. The development project included the regeneration of both the core processes and the sub-processes, as well as the design and implementation of a new IT environment. In addition, it also covered the designing and deploying of a development tool that is used in the development project implementation. All the business processes and their associated activities were carefully carried out, and the necessary development measures were implemented. In the following, the business process development achievements are considered.

The most significant development measures in the CRM core process were carried out in the Business Enabling and Business Capture sub-processes. The Business Enabling process directly affects customer relationships in order to create customer-focused awareness and ensure the acceptance of the company's products and services. The most important developments in the Business Enabling sub-process are issues such as the categorization of services provided by the renewed process, the improvement of KPI setting, illustration follow-up and agility in reactions, cross-process communication improvement, and ownership clarification in roles and links to other processes. The most important development area in the Business Capture sub-process is believed to be the systematization of processes into a functional entity, where increasing revenue and customer satisfaction are two important areas of development. The Net Promoter Score (NPS) and the 2013 Revenue performance indicators have provided good results. The NPS is a customer satisfaction survey in which promoters

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and detractors are tracked, and based on the results, NPS is calculated using the following formula: NPS % = promoters % - detractors %. In terms of the NPS indicator, a significant level of lifting was reached, and the results are close to the company's goal of 50%. In terms of turnover growth, the target was not achieved, but considering the very challenging market conditions, keeping the turnover around the level of the previous year can be considered a good result.

The most significant development measures in the PDM core process were performed in the Order and Delivery sub-process and the Ensuring Testing Capability sub-process. The most important development area in the Order Delivery sub-process is on-time delivery (OTD) improvement, which is the ratio between the supplies delivered on time and all the supply deliveries, which is represented as a percentage. OTD was about 99% throughout the year, while the target is set to 100%. The most important area in the Ensuring Testing Capability sub-process development is test yield improvement regarding the final testing. Its most important performance measure is the first pass yield (FPY), which is the ratio between first-time-passed products and all tested products, expressed as a percentage. A significant improvement was obtain in terms of the entire year's performance measured in terms of FPY, and the results approached the target of 99%.

The development results achieved in the PM core process are considered via the Product Portfolio Management, Product Ramp-up, and Product Ramp-down sub-processes. All three sub-processes are important for the overall management of the product portfolio: Product Portfolio Management controls the whole the process; after the R&D phase, the Product Ramp-up sub-process efficiently readies new products for mass production; and the Product Ramp-down sub-process transfers the end-of-lifecycle products for post-manufacturing production. The development of the Product Portfolio Management process has intensified and systematized portfolio management. In terms of product sales and deliveries, two important aspects can be highlighted: the capacity to release new products, as well as the relocation of end-of-life products to post-manufacturing production. A significant improvement is obtained when controlled production volume is increased via the Product Ramp-up process after the product development project has released the product for sale and delivery. A fast and efficient product release into the market is particularly important in the early stages of a product's life cycle. The ramp-up process capability is measured via time-to-volume KPI.

This approach emphasizes a separate development project in which the stepwise development of the processes moves them to a higher maturity level. The current process maturity is evaluated using a ten-step scale: 1) process ownership is defined; 2) process description is defined; 3) objectives are defined; 4) measurements are implemented; 5) continuous improvements are implemented; 6) cooperation within the organization is achieved; 7) global cooperation is realized; 8) trend analysis is implemented; 9) benchmarking by others; 10) best in class. The results indicated that the maturity of the processes before the development project was between levels 3 and 5. After the development projects, the results indicate some progress in the maturity of the processes: Process maturity levels are being moved from levels 3 to 5 to levels 4 to 6. In the other words, it can be concluded that most of the measures are implemented in the processes (level 4), and accordingly, many processes are carrying out successful cooperation with other processes (level 6).

4.2. Consider the important aspects of the study

The process-management-related responses were considered through three viewpoints: Why does process management gives the company a competitive advantage? What kind of know-how does process management consist of? What are the key development objectives of the actions?

Considering the first question, it is important that the company ensures its competitiveness by acting optimally in areas such as accomplishing the right things based on the customer's needs, doing the right things the first time; providing high-quality products and services, and implementing the necessary development measures rapidly.

Considering the second question, the process-know-how-related areas of expertise were identified as follows: the identification of customers' needs, understanding the whole the process by deploying appropriate development tools (SIPOC, etc.), describing the processes at the appropriate level, developing operations in a systematic manner, and ensuring necessary skills takeover and deployment in the area of project management.

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Regarding the third question, the key issue regarding the development measures was to identify important factors such as business process reform and the creation of a new process map; development concept deployment and testing via the piloting method; further utilizing the obtained experience in sub-process development; the sub-process follow-up procedure (Roadmap – Project frame - Process maturity – Steco); and the continuous process improvement approach, in which processes independently measure, analyze, take corrective measures regarding, and sustain their new policies.

Creating a sustainable change

With large and long-enduring projects, "downgrading" may occur, in which there is a risk of failure in practical implementation and sustaining the project, and the organization may this return to using the old ineffective working practice. Establishing change management and sustaining new working practices involve visible senior management support, which refers their own and their subordinates' commitment to ongoing development actions, and process development measures based on the idea of continuous improvement (Measurement - Analysis - Development - Sustain).

Development measure timeliness

In the previous article, timing development measures in such a way that the development is carried out before the company faces the challenges caused by environmental changes was discussed. The case company's one major objective was revenue growth, which was pursued via business process development. The market has remained challenging as a consequence of moderate economic growth. Due to the implemented process development measures, the company's high level of competitiveness has been sustained. As a result of this, the company's profitability and turnover have remained at a high level as well. Taking into account the above-mentioned challenging market situation, the development measures in themselves have been successful and the proactive development method makes sense.

4.3. Tool developed and used in the study

A consistent and systematic approach is essential for business process development. Figure 10 illustrates the tool that has been developed and applied in this study. Its various phases are described in the image, as well as how these phases are linked together.

The "BPR concept," the middle part in Figure 10, is the main frame of this research. The "Preliminary study" is the first phase of the "BPR concept," and it is the starting point and groundwork for conducting the research in the following way: create of a basic overview of the areas that need development, initiate a debate regarding the most important matters that need development, and create a positive atmosphere for the development. Also, it was found that development activities should be accomplished proactively, before the company face challenges caused by weakened competitiveness.

In the next phase, "BPR tool definition," the BPR development tool is preliminary considered on a general level.

In the third phase, the "BPR re-engineering project," the process re-engineering is carried out in an appropriate manner. Individuals whose jobs relate to all functions and processes participated in this phase.

In the fourth step, the "Project implementation" phase, the two sub-processes' development projects were carried out, and the functionality of the development tool was verified via the pilot approach.

The pilot project approach turned out to be a good practice. It allows the functionality testing of the development tool, and at the same time, the organization learns about the process-related development practices. A regular review in which the development project's progress was monitored proved to be a good opportunity to share the good practices discovered via the development work for wider use in the organization.

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The fifth phase, "BPR continuous improvement / BPR follow-up," was larger that the others. The project included a total of twenty sub-processes, which were re-engineered according to priority scoring and controlled via the BPR follow-up procedure. The continuous improvement phase can be considered to be a part of the organization's normal activity, in which all the sub-processes' performances are measured, evaluated, and developed.

Figure 10: BPR development tool
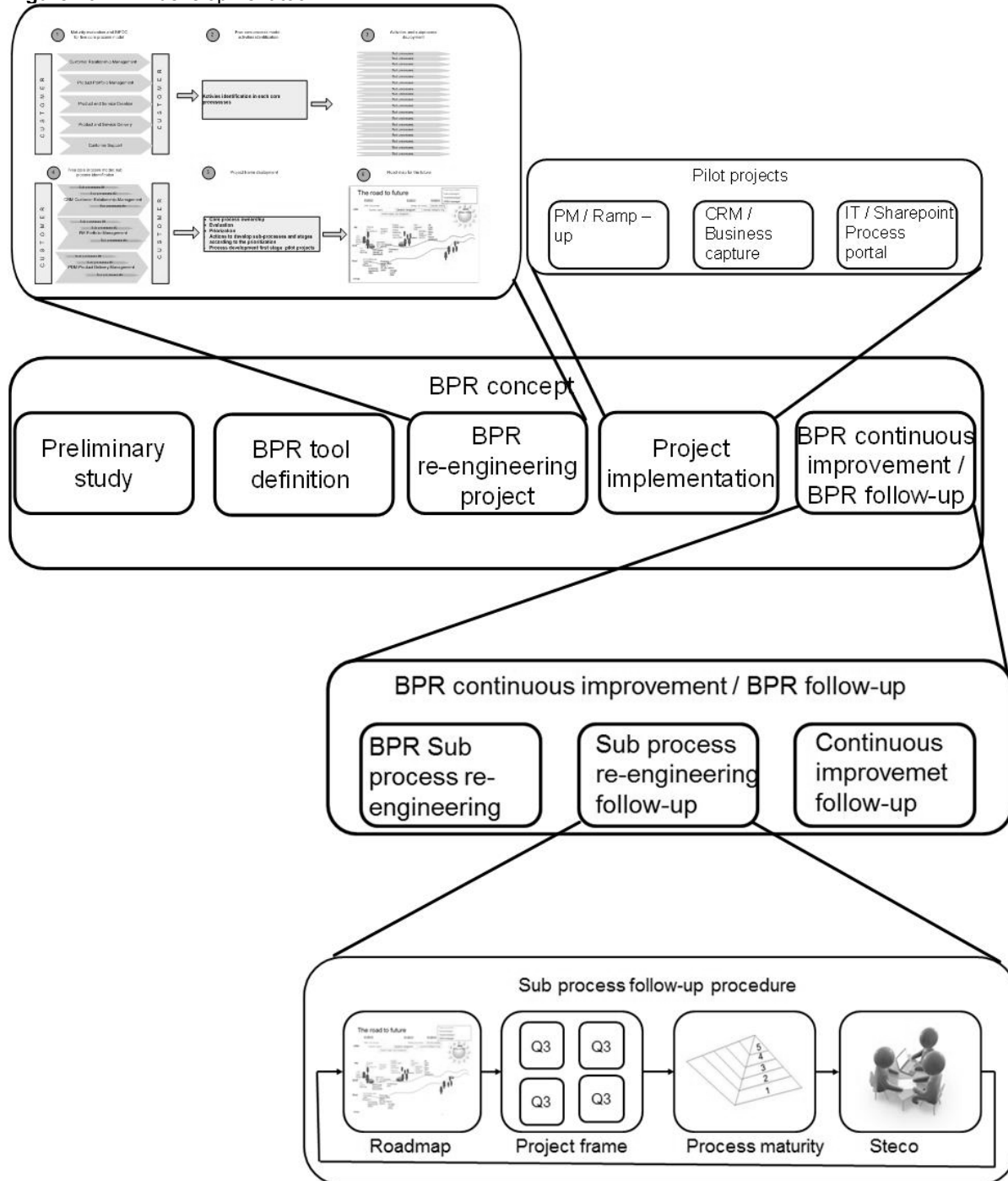
The systematic research practice called the "BPR concept" used in this study turned out to be a good practice. The early phases of the project, such as the pre-study, considering the research tool, and the complete development project planning, and correspondingly, the late phases of the project, such as the implementing and sustaining the new working practice, are particularly important for the success of the project.

4.4. Generalization of the results

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The study is based on the BPR theory, which was created in a study by Uusitalo (2012). Regarding this theory, the most significant references as follows: (Kallio et al., 2002; Al-Mashari & Zairi, 1999; Tinnilla, 1995; Laamanen, 2001; Jouko & Hannus 1994; Balasubramanian, 2006; Harrington, 1992; Davenport, 1993; Childe, 1995; Hammer & Champy, 1993; Kiiskinen et al., 2002; Hanafizadeh et al., 2009).

The "BPR concept" developed and described here can be considered to expand upon the theory presented in Uusitalo's 2012 study for the following reasons: The company's situation factors have been considered in greater detail and more widely; the research has a strong practical approach, and its practical implementation is shown in greater detail; the process management is linked to the company's strategy, as well as to the literature presented in this study; and the study is reported from a project implementation point of view and a practical process change management point of view.

4.5. Limitations and further studies

This results of the study confirm the assumption that the company's business could be improved by the development of the company's business processes. The company's situation factors, which follow, contribute significantly: the process development potential, the development potential of the company's business area, the company's focus on process improvement, etc.

The BPR re-engineering project and the practical measures of the sub-process changes, followed by establishing a continuous improvement approach, need still be tested in future studies in other electronics manufacturing companies, as well as in other industry sectors. Also the functionality of the developed tool (the BPR concept) need still be tested in practice, and its description could be further complemented and systematized in an appropriate manner.

RQ2. What are the practical benefits to a manufacturing company when the process management approach is used?

The results of the study described in Chapter Four can be considered to be the answer to Research Question 2.

5. CONCLUSIONS

The case company's experience with moving towards process management is very much in line with the content of the literature references used in the study. In particular, moving towards process management has improved the process flow between various function interfaces. Another important finding is the usefulness of a customer-oriented operation, including the fact that it highlights value-added work.

Process management emphasizes an approach in which the activities of the organization are continually monitored, evaluated and improved. This process management approach is very useful for the company in terms of maintaining and improving its competitiveness.

In this context, it is good to emphasize the importance of a proactive approach. A customer-based, visionary approach towards the future will allow the company to continuously create new business and adapt its operations by responding to environmental change.

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