



Value-centric business development: descriptive and prescriptive research into five different companies

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Abstract. The companies that discover changes and possibilities within the value system first and make use of them are considered to be prime movers and often are more successful than those who adapt late. Research has been done on multiple levels for understanding value-centric business from a practical perspective as well as from a theoretical perspective. In the first stage of the research (Descriptive Study 1), practical experience and knowledge were gained simultaneously from a case company and from literature-based case analysis. As output of a prescriptive study, a specification of a proactive value-centric business was proposed and a practical method for building a value-centric product, service, and business model was developed. In the last stage of the research (Descriptive Study 2), the method was tested at four case companies from different fields. The paper describes the data collection, analysis, and results involved in both the descriptive and the prescriptive phases of the research.

Key words: value-centric business, value system, value activity cycle, business development.

1. INTRODUCTION

Many interpretations of the term ‘value’ exist, and sometimes it is the re-interpretation of value that reveals new value [1]. Value should be considered central to an economic system: it is created, exchanged and otherwise transacted in, and perceived [2]. Many branches of science (marketing, product/service systems, virtual organizations, business and entrepreneurship, psychology, environmental sustainability, engineering design, service design, service logic, etc.) have discovered the importance of value in customers’ day-to-day decisions and have started opening up the field [2,3,5–16]. In this paper, the authors see value as the core concept for an integrated product, service, and business development. The goal of the research, carried out from this theoretical perspective, was to create a practical, value-centric process model that can aid product/service and

business developers in conceptualizing and maximizing value output [2].

We presented our views on the term ‘value’ (based on a literature review) in previous articles [2,7]. Companies create value by their offerings, and customers judge the value of products and services [5]. However, people cannot have the same experiences as these are derived from the interactions between the staged event and the individual’s prior state of mind and being [6]. Therefore, perception of value is individual- and context-dependent [2,5,7]. Value for customers is created throughout the relationship with the company, partly in interactions between the customer and the supplier or service provider [8,14].

A product such as a car would have no value if no one knew how to use or operate it, had access to needed energy (e.g. fuel) and maintenance, functioned in social networks for which particular products have particular meaning, etc. A product has value only when the customer makes use of it in the context of their own life.

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In this case, customers, manufacturers, and social services co-create value [2,3,5,7–9,17].

The most widely known concept of value creation is Porter's value chain [18], wherein value is created by multiple actors within a chain and then offered to the market. However, this concept has proved to be unsuitable in the context of intangible products (services, knowledge, and financial products) [2,3,5,7,8,10]. New approaches in science and economics show that value can also be shared or co-created (in open innovation, open design [19], strategic alliances, etc.) through combination of different assets and resources into value in the same process (in a 'value star') [2,10] or in interlinked activities (in a 'value network') [2,14–16].

Value propositions are born out of objects, which can be products (physical goods), services, experiences, events, people, places, property, organizations, information, or even ideas [2]. Therefore, propositions include many interlinked activities and actors that do not create value in a sequential pattern. The success of a company depends on how efficiently it can convert one form of value into another [2,3,7]. It is our ambition to contribute to the shift towards value-based thinking by opening some new perspectives for understanding the value system and detecting new product, service, and business-model design possibilities that may be more competitive and efficient for a company [2].

The main objectives of our research were to

- (1) conduct in-depth research on the concepts 'value' and 'value system' (what 'value' is, how it can be used and converted into another form of value) [2,7] (Chapter 2);
- (2) propose a specification of a proactive value-centric business [3] (Chapters 3 and 4);
- (3) develop a method for analysing manufacturing enterprises and help them find ways to
 - raise efficiency (resources, management, marketing, logistics, etc.),
 - raise added value for the customer,
 - increase cooperation between different parties within the value system, and
 - develop and update their business models (Chapter 4);
- (4) test the proactive value-centric business development method [4] (Chapter 5).

The problem addressed in the research is how to help manufacturing companies develop their business models to be more competitive (see Fig. 1).

In this paper we first describe the need for new value-centric business-development models. Secondly, we describe the process and methods used in the descriptive phase of the research. Next we introduce our specification of a proactive value-centric business, created via grounded theory, and a value-centric business-development method. Finally, we present results of

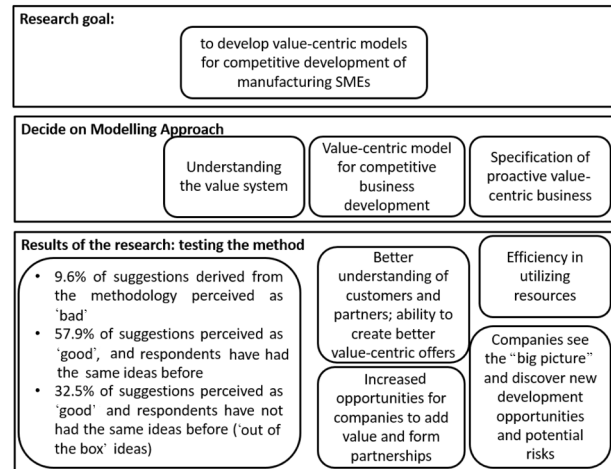


Fig. 1. Research goal, what has been done, and outcomes of the research.

testing the method with four companies and state goals for further research.

2. NEED FOR NEW VALUE-CENTRIC DEVELOPMENT TOOLS

Globalization and information technologies have made the economic landscape more transparent and the customers smarter, more demanding, and networked. However, customer behaviour has not only influenced the landscape of economics. Etgar brought out eight major changes in the social sphere [11]. Also, Lusch et al. state that as individuals become increasingly micro-specialized, there is a growing need for specialized services [5]. Because of these dynamic changes, new retail formats develop: as consumers want to change their mix of value providers, the social and psychological cost of time changes. How consumers value various activities, products, and services changes dynamically, depending on customers' context and lifestyle [2,6].

The wishes of industrial customers have changed too: industrial customers now value how well value propositions harmonize with their existing components, processes, and strategies [2,7]. In the field of manufacturing, there are also some early signs of a shift from production-centred to production–service-centred manufacturing [12,20–22]. As the quality and low price of a product have become prerequisites, the market is now beginning to demand extra services from manufacturers [13]. Distribution, product lifecycle management, database services, prototyping, testing, financial services, repair, maintenance, and consulting are just a few of the services from which the customer can benefit. One can assume that the demands imposed on a manufacturing

company will increase over time. To be ready for the shift, enterprises will need to make changes in their strategy, structure, and management and start looking for partner enterprises in order to combine strengths and face the challenges of the future's highly demanding business environment [2].

The process-centric view of business is giving way to the human-centric view of business, which means that people rather than processes are seen as the active agents of business [5,7,8,23,24]. Allee and Schwabe [10] and Stabell and Fjeldstad [25] are developing a new, promising theory and methodology for understanding the value network within and beyond a business [2,10,24], and Lusch et al. [5], Grönroos [8], and Vargo et al. [17] are rethinking the concept of value- and product-dominant logic, stating that every company should function as a service-providing company. Porter and Kramer [12,23], Porter et al. [21], London et al. [24], Wach [26], and Prahalad and Hammond [27] are conducting research on how to bring shared value and serve the world's poor, creating sustainable business models that 'do well by doing good' [12,21,23–30]. The value-centric way of thinking is evolving rapidly and is opening major new opportunities for profit and competitive advantage. There may be huge opportunities to apply co-creation models between different parties in the economy (customers, suppliers, retailers, producers, etc.), which could change how value is created, delivered, and perceived, thereby increasing the efficiency and competitiveness of value systems [2,7,10,12,26,28].

We set out to develop a practical, easy-to-use method to help companies see the 'big picture', gain in-depth understanding of the value system linked to their business, and see unused opportunities – along with the associated possible threats.

In this work, the value system is understood as a set of interactions (exploited and non-exploited) that can potentially create value [2]. Almost every value has a number of possessors and a number of owners within a system, who have a need or desire for some of those values (potential receivers). Possessors and owners attract each other as opposite magnetic poles do. In the value system, some values can be hidden or unnoticed, some may be unevenly distributed, etc. There is often unused potential.

Chapter 3 gives an overview of the descriptive phase of the research. Descriptive Study 1 was conducted as an action research, where successful business was investigated in its natural setting. Additionally case analysis based on the literature was conducted.

Chapter 4 presents results of the prescriptive phase of the research: a specification of a proactive value-centric business is proposed and a method for value-centric business development is created. In Chapter 5 the results of method testing are presented.

3. DESCRIPTIVE STUDY 1

Simultaneously with performing a literature case analysis [2], Descriptive Study 1 was conducted at Case Company A (CCA) over a span of three years. CCA is a micro-sized head contracting company in the field of industrial construction. The researcher was involved in its business processes as the general manager. Thus, the research was done by an insider within the organization in an insider's action research setting [30]. Descriptive Study 1 aimed to capture and summarize the business model of CCA through a document analysis of six case projects. In the study the phenomenon of successful business was investigated in its natural setting with the researcher included in CCA's decision-making and management processes. Ideas for developing the business model stemmed from the literature review and the literature-based case analysis conducted in parallel. As CCA is a main contractor managing on average six projects in one season, it was possible to test different strategies and see the outcome of each change relatively quickly.

3.1. Methods used for Descriptive Study 1

For finding answers to the research questions formulated, various research methods, tools, and techniques were used. In general, the research can be characterized as action research: ongoing actions are studied in their natural setting, with their inclusion in the actions and processes of the organizations that are being studied. As action research derives knowledge from practice rather than from theory, the findings and proposals that emerge often reflect local knowledge [27]. Traditional research enables formalistic generalization, whereas action research enables naturalistic generalization (practical knowledge).

As the roots of the entrepreneurship paradigm lie also in psychology and sociology, it makes sense to use qualitative methods too while digging deeply in the course of our research [30,31]. Qualitative approaches are used when one wishes to go beyond mere description at a generalizable level in empirical investigations [30]. As we sought to keep our research practical, informative, and real-life-based, we used only qualitative approaches at this stage in the research and followed the principles of the Grounded Theory method [32], in which we systematically generated theory from data, prior literature, and emerging theory (see Fig. 2).

The Grounded Theory method entails the following stages [25]:

- (1) codes – identifying key points of the data to be gathered,
- (2) concepts – grouping the data,

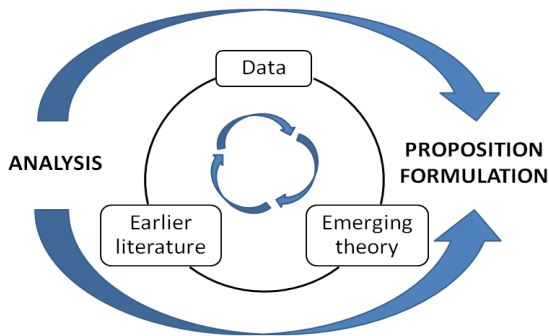


Fig. 2. The process used with the Grounded Theory method.

- (3) categories – forming broad groups of similar concepts to generate a theory,
- (4) theory – collecting the categories that detail the subject of research.

We gathered, analysed, and grouped data from CCA (from spontaneous interviews, conversations, observations, documentary study, and self-reporting) [3] and

cases in the literature [2] in parallel, going through these four steps. We generated a specification of a successful company and created a method to guide companies through the process of analysing their value systems in order to see potential mutual links for value co-creation, sharing, transactions, and ways to overcome barriers within a system [2].

3.2. Research at Case Company A

3.2.1. Perceptions at Company A

Company A is customer centric, trying to understand the context and needs of every customer. It is open and honest, telling potential customers that ‘in the end, you are paying for everything’; therefore the customer is motivated to choose what they want to pay for and what not (whether they want to pay for additional security and storage room or let construction workers keep their machinery in the customer’s existing facilities, etc.). Table 1 summarizes tactical changes that CCA has applied and their impact on the value system.

Table 1. Common practice and changes in Case Company A

Field	Common practice in the industry	Changed practice in CCA	Outcome of the changes
Contract	Costs for a shed, guards, toilets, etc. are included in price	If the customer has a secure shed close to the building site and allows storing engineering tools there, the price will be excluded. The same is valid for toilets etc.	It is clear to every party that in the end the customer will pay for everything, so the customer can customize the construction contract and services
	Costs for all the machinery needed are included in price	If the customer has some sort of machinery that can be used in construction process (lift, tractor, bucket, etc.), the price will be excluded	It is easier for CCA to arrange machinery to the building site. Contract price is reduced
	Contract and payment schedule are fixed	Contract and payment schedule are beneficial for both parties (a balanced compromise is worked out)	Contract is customizable for both parties. Contract follows good business ethics and is targeted for win-win solutions
	Contract is long, precise, and contains juridical text that is difficult to understand	Contract is short and is based on good business ethics. Main principles are agreed, and both contract partners are working to fulfil their responsibilities	Partners are equal and are willingly trying to fulfil the contract. Often results in good cooperation
Construction	Usually site managers do not discuss with construction workers or ask their opinion	Site manager communicates closely with construction workers to get their feedback on construction design, schedule, etc.	Quite often construction workers make good suggestions on how to raise efficiency and develop construction design. This practical knowledge can be used in coming projects
	Construction companies employ workers and have to pay for accommodation, duty assignment, and transportation	CCA hires local construction workers close to building site	Price of construction works falls, local workers get some work and can suggest their local friends and companies when needed (cranes, splinters, etc.)

Table 1. Continued

Field	Common practice in the industry	Changed practice in CCA	Outcome of the changes
Production	Usually companies give drawings to production and expect exactly what has been drawn	When giving drawings to production, CCA asks for alternative suggestions for better price and better manufacturability. Often production company has long discussions with project designer to make compromises where practical	Practical, cost effective design (also in the future, because project designer has been involved and educated)
Design	Usually designing departments have no practical experience and have had no practical discussions on manufacturability of their design	CCA brings designers together with manufacturers to discuss about optimizing the design and reducing price	Price for the customer decreases, the system becomes more effective
	Usually designers make over-dimensioned drawings (because then they do not need to calculate so precisely and they feel less responsibility)	CCA requires their designers not to over-dimension designs where this is not needed	This often makes designs lighter and reduces price
Location	Companies usually have representative offices. This raises their fixed costs and decreases flexibility	CCA has no representative office. It holds meetings in various cafes and prefers visiting customers at building sites	The customer does not need to pay for office or secretary who makes coffee
	Usually construction companies hire designers, accountant a.o. and make them to work in the office	CCA buys designing, accountancy, and other services from specialists all over the country. Information is shared by e-mail or telephone	Prices are usually lower than in big cities and people are better at cooperation. This also gives better flexibility compared to employed workers
Emotions	Usually contracts and construction works are as emotion-free as possible	CCA enables customers to customize services and involves them in construction process	Emotional link is created between the customer and its new building, which is usually much appreciated. It also helps to raise efficiency within the value system

It appears that CCA is approaching its customers personally and is willing to customize offers that enable saving and raise economic efficiency. The company attempts to sense the value system and use its customers' resources, therefore engaging customers in the construction process if they feel interested. This creates an emotional attachment to the new building (usually a person's life dream) and helps them to reduce building costs. The company keeps its dynamics by employing as few workers as possible and buying services nationally with making use of e-commerce and so keeps the costs low. It brings together construction workers, designers, manufacturers, and logistics companies to discuss about product manufacturability, assembly, cost, etc. issues. It is always developing its design and services to raise efficiency and to lower costs.

3.2.2. What can be learned from CCA

Company A is using successfully a different business model than other construction companies in the region.

1. CCA is aiming for system efficiency and cost reduction by
 - trying to view the whole value system,
 - enabling its customers to contribute to the construction process,
 - outsourcing most of the services it needs. This also keeps the company dynamic,
 - gathering information from construction workers, designers, production companies, etc. for better ideas and development,
 - ordering from smaller companies nationally.
2. CCA is flexible in order to achieve win-win-win solutions:

- contracts are simple and if possible developed for mutual gain,
- CCA is listening to suggestions from its construction workers, manufacturers, etc.

4. PRESCRIPTIVE STUDY

We analysed different cases on literature bases in parallel to the research on CCA, combined all data with our understanding of the concept ‘value’ [2], and followed the stages of the Grounded Theory method in order to propose a specification of a proactive value-centric business.

Codes

The codes we extracted from Descriptive Study 1 (CCA) are big picture, system efficiency, cost reduction, customer contribution, outsourcing, dynamics, gathering information, new ideas, development, utilizing smaller companies as suppliers, flexibility, win-win-win solutions, simplicity, communication.

The codes extracted from the literature case analysis [2] are co-production, unknown potentials, barriers, excluding activities not creating value, including activities creating customer value, forming effective co-creating system, new value constellation, new value perception, long-term relationships, exchange, sharing values, combine different potentials, design customer experience, ‘unbundle’ and re-configure the total set of activities and values.

Concepts

The above codes can be arranged into groups we call concepts. A value-centric company

- sees the big picture: is able to ‘unbundle’ and re-configure the total set of activities and values, is constantly gathering information, new ideas, long-term relationships;
- is aiming for system efficiency: cost reduction, customer contribution, simplicity, co-production, forming an effective co-creating system, excluding activities not creating value, sharing values, combining different potentials, removing barriers, win-win-win solutions, exchange;
- is increasing customer value: customer contribution, including activities creating customer value, designing new value constellations and new value perceptions, designing customer experience.

Proposal

The above concepts can be organized into the following proactive value-centric business specification.

A proactive value-centric company is constantly trying to make sense of their customers’, partners’, and suppliers’ decision-making backgrounds:

- Why are the actors acting like that? (their needs and wants),
- Can they act differently? (their potentials, resources), and
- Why don’t/can’t they act differently? (their barriers, restrictions).

A proactive value-centric company is constantly trying to notice and use any unused potential within its value system.

By describing the ‘big picture’ about the situations that the customers, the company itself, and the other actors within a system are going through, it is possible to see ways for increasing system efficiency as well as customer value.

4.1. Value-centric business development method

We constructed a method around proactive value-centric business specification and applied it in four different case companies [4]. The value-centric business development method consists of four stages (Fig. 3).

- I. Value Activity Cycles,
- II. Value Analysing Matrix,
- III. analysis of possible changes,
- IV. summarizing results of the analysis.

- I. Value Activity Cycles make it possible to see some unseen mutual links, opportunities, and barriers between the customer and the company. In order to create Value Activity Cycles (Fig. 4)

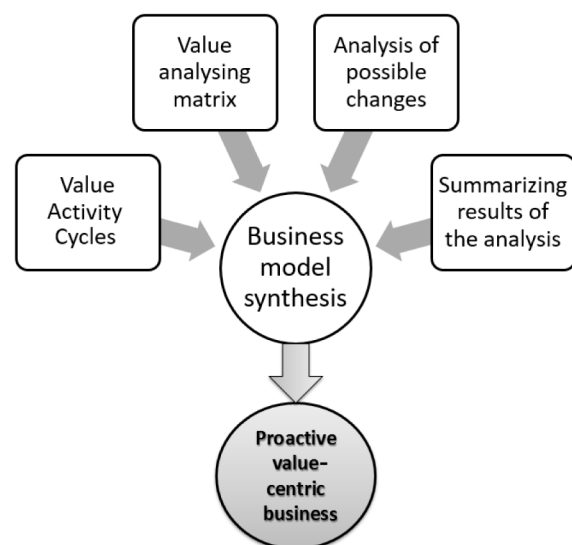


Fig. 3. Stages of the value-centric business development methodology.

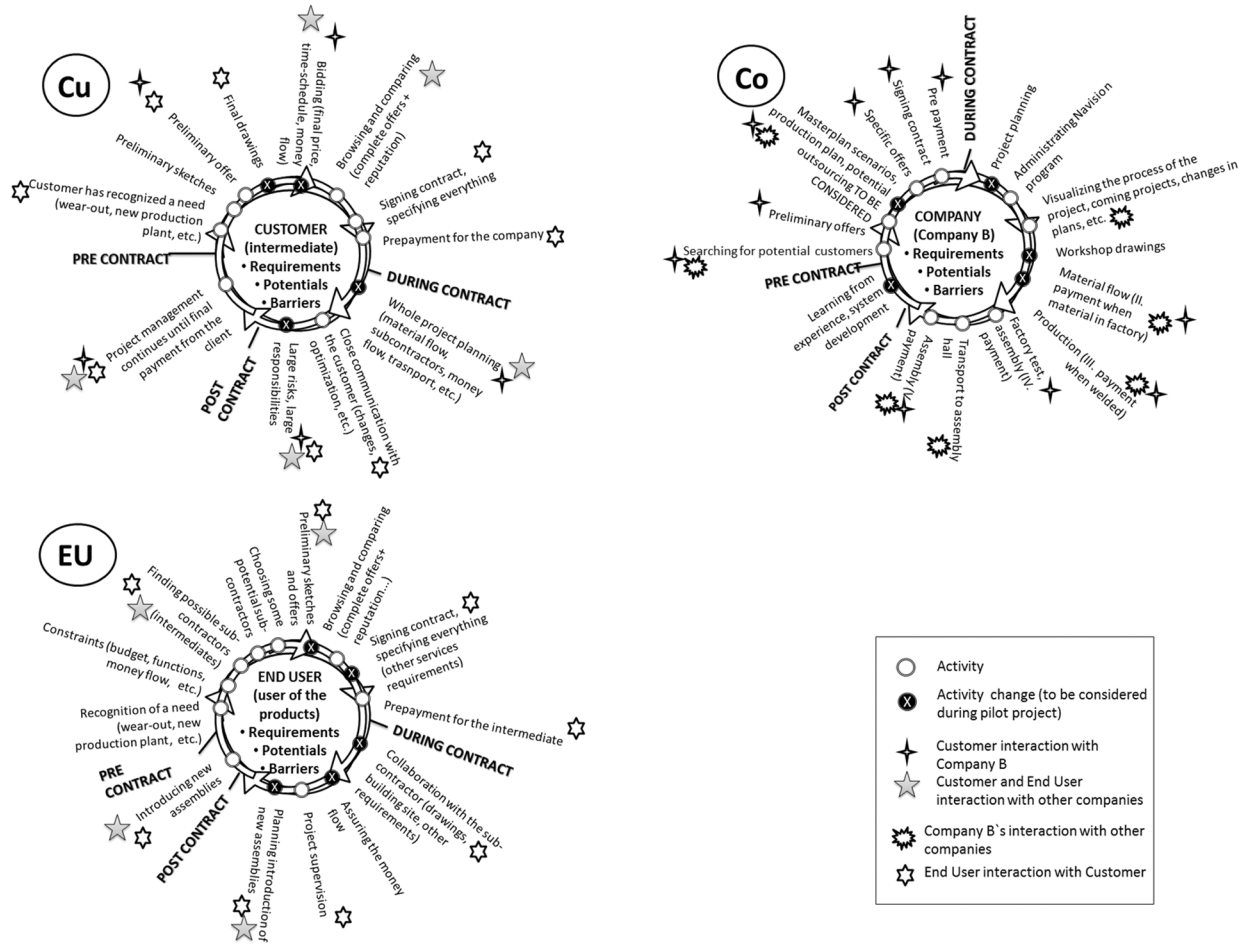


Fig. 4. Current value-activity cycles of Case Company B (Co), its customers (Cu), and end users (EU)

- determine actors within the value system that participate in value creation, exchange, transaction, or use process;
 - write down all activities that are being performed by different actors before, during, and after the contractual bond (or purchase);
 - intuitively add actors in the analysis process when needed;
 - use different marks (star shapes) to show interactions between different actors within a system (who signs a contract with whom etc.). By connecting the actors, a value network appears.
- II. In order to make potential interlinks within a system more clear, it is beneficial to analyse actors' activities within the Activity Cycles from three perspectives with the help of the Value Analysing Matrix (Fig. 5):
- Why are the actors acting like that? (their needs and wants),

- Can they act differently? (their potential, resources), and
- Why don't/can't they act differently? (their barriers, restrictions).

This matrix shall be filled in for every activity within the Value Activity Cycles.

III. From stages I and II, a company can identify some potential changes in its value system. Analysis of the impact of each possible change is now needed. At stage III, another matrix is used for this analysis (Fig. 6):

- What precisely can be changed within a value system?
- What are the expected benefits of the change?
- What are the expected dangers of the change?

Analysis of the effects of possible changes within the value system helps to foresee benefits and risks of possible changes. At stage III, another matrix is used for this analysis.

Activity: product transportation	Customer	Furniture shop	Transport company
Needs, wants	Wants transportation service to be precise, in time. Service provider should be polite, have clean shoes. Service has to be at low price and fast.	Service can enhance customer experience and therefore potentially form long-term customer relationship/base.	Wants more customers and higher prices. Wants to save money by optimizing transportation routes.
Potentials, resources	Has a vehicle, could transport the product themselves. Manpower/resources through friends for transport.	We can start our own transportation service business.	We can start working only for furniture shop if we make a contract for long enough period and at good enough fixed prices.
Barriers, restrictions	Does not have any vehicle or it is too small to contain and thus transport the product.	This business is not as profitable as our core business of selling goods.	Sometimes we cannot deliver goods fast enough because we try to optimize our routes, or the addresses given by furniture shop are not valid.
Activity: product assembly	Customer	Furniture shop	Assembly company
Needs, wants	Wants product to be assembled correctly and without damage to apartment when product is carried inside.	To reduce storage area products must not be assembled before stored.	Wants to assemble furniture in the manufacturing factory because it is easier, no need to carry tools.
Potentials, resources	Could find some time to assemble the product. Would like to improve home environment themselves. Has friends who can help if needed.	Could assemble the products in shop right after purchase. Could start our own assembly service business.	Could start working only for furniture shop if we make a contract for long enough period and at good enough fixed prices.
Barriers, restrictions	It is difficult to assemble products themselves because instructions are complicated, assembling requires special tools.	This business is not as profitable as our core business of selling goods.	-

Fig. 5. Value-analysis matrix for Case Company B (a small fraction).

Activity	What can be changed in a value system?	Benefits of a change	Dangers of a change
1. Product Design: (opportunity to raise value co-creation and system efficiency)	<ul style="list-style-type: none"> Company B can be included in Product Design stage for some practical optimization advice Also for developing new principal solutions for the customer 	<ul style="list-style-type: none"> Reduced price of product Reduced delivery times New principal solutions developed Full responsibility for the product is on company B (design, materials, production) 	<ul style="list-style-type: none"> Designing phase could be longer Customers will need to bring company B and End User together – danger of being left out from the system (Customers will need to think what their CORE BUSINESS is. Is it designing?)
2. Bidding: (price, money flow, schedule...) (opportunity to raise system efficiency)	<ul style="list-style-type: none"> Agile responding programme for bidding between Customers and their partners (price, money flow, schedule, included services, etc.) Production volume booking commission fee (early booking gives certain discount, but commission fee is not refundable) First prepayment from the Customer is small and symbolic (just to book the production volumes and start the project). First prepayment for materials will be asked later (this optimizes Customer's money flow) 	<ul style="list-style-type: none"> Fast collaboration in bidding between Customers and their partners Optimized money flows for End User and contracts signed earlier Early and reliable Masterplan fill-up (thanks to commission fee and discount) 	<ul style="list-style-type: none"> End User will need to divide and sign contracts earlier (greater uncertainty)

Fig. 6. Matrix for analysing the impact of changes at Case Company B (a small fraction).

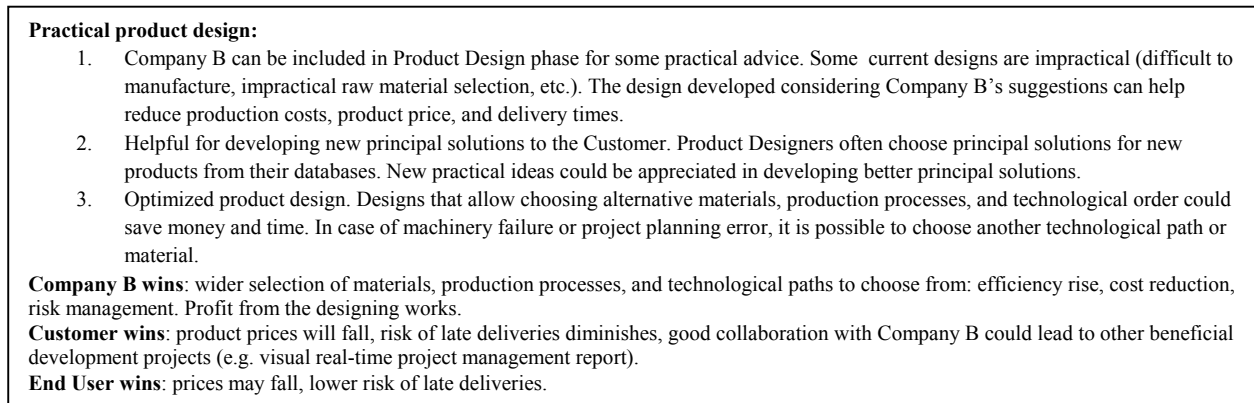


Fig. 7. Results of the whole value-centric analysis.

IV. In the final stage of the value-centric business analysis method, results of the analysis are summarized and presented (Fig. 7) by asking

- What changes should a company consider?
- How to implement the changes and prevent unwanted impacts?
- What does every stakeholder win from the change?

By describing the ‘big picture’ of the situations, the customers, the company itself, and the other actors within the system, it is possible to see the potential for mutual links for value co-creation, sharing, and transaction and to find ways to overcome barriers within the system [2]. The developed method is aimed to be a practical and easy-to-use tool for every company from any field. The method helps companies to explore their value system and find ways to make the value system more effective, raise benefits for the customer, increase cooperation between different parties within the value system, and develop business models.

5. TESTING THE VALUE-CENTRIC BUSINESS DEVELOPMENT METHOD

We tested the value-centric business development method on four different companies with different business models (Table 2).

As it was first difficult to find companies on which to test our methodology, we were forced to find a way to shorten the time the companies needed to invest in analysing their business by using our value-centric method. The research was conducted following the table tennis principle (similar to a Delphi study): researchers created a draft of one stage of analysis and sent it to the case company (Fig. 8). The case company improved and corrected the draft and sent it back to the research team, etc. After we proposed such working principle, the companies agreed to participate in our research easily.

Table 2. Overview of the companies in which the value-centric business development method was tested

	Company B	Company C	Company D	Company E
No. of workers	250	50	50	50
Field	Machine building	Metal parts and assembly production	Assembly production	Engineering
Examples of products	<ul style="list-style-type: none"> • Heavy cranes • Platforms for oil rigs • Other XXL products 	<ul style="list-style-type: none"> • Metal parts and assemblies for the parent company • Some sub-contracting activities 	<ul style="list-style-type: none"> • Elevators • Other similar products 	<ul style="list-style-type: none"> • Drawings • Preliminary calculations • Engineering services
Close relationships with	<ul style="list-style-type: none"> • Head contractors • Subcontractors of company B 	<ul style="list-style-type: none"> • Mother company • Sub-contractors of company C • Innovation partners 	<ul style="list-style-type: none"> • Customers • Sub-contractors 	<ul style="list-style-type: none"> • Parent company • International customers

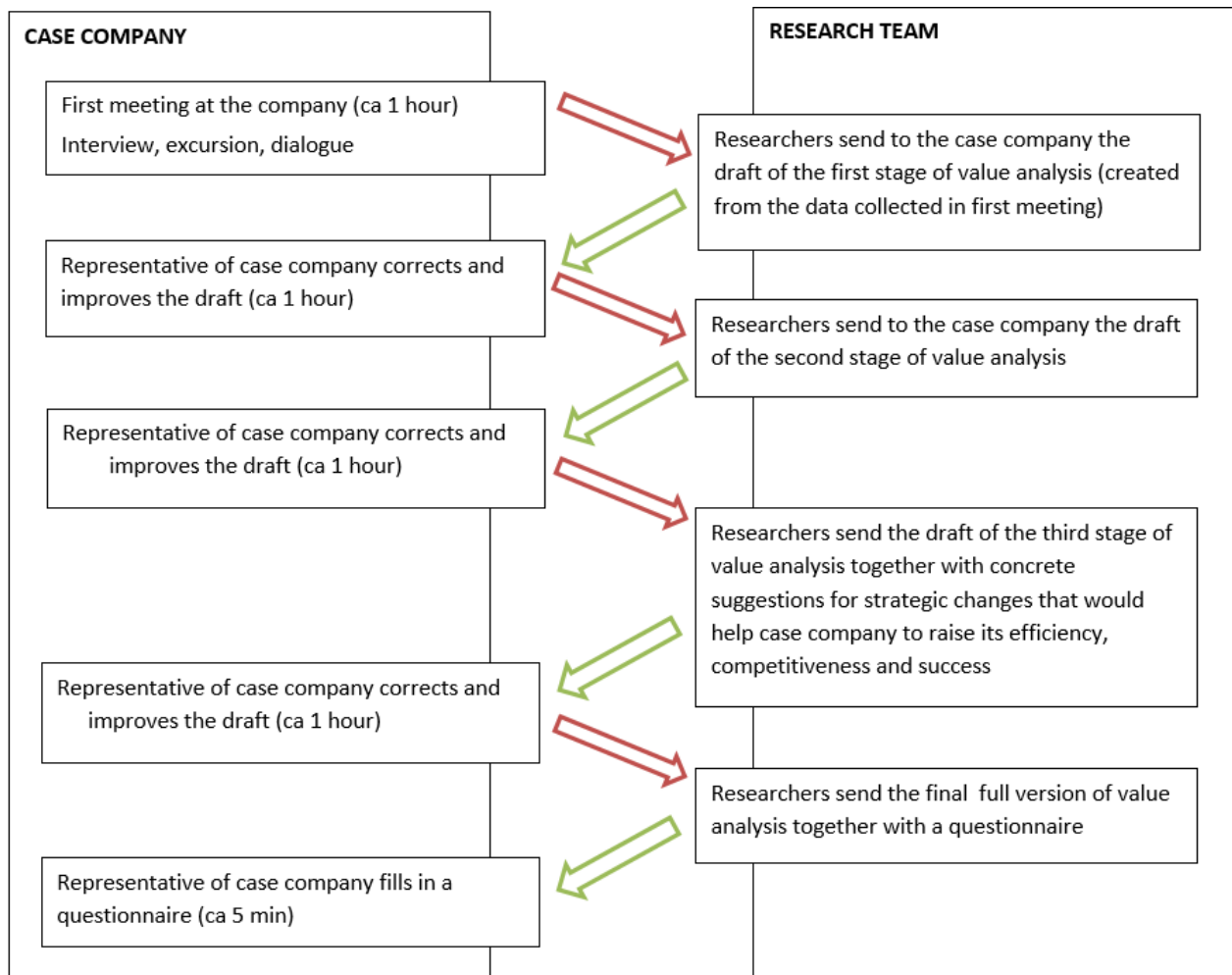


Fig. 8. Principal process of the testing phase in companies B, C, D, and E.

5.1. Stage I: Value Activity Cycles

Based on the information gathered from the first meeting with company representatives, we created activity cycles of all actors within the value system. Results of company B are shown in Fig. 4.

5.2. Stage II: Value Analysing Matrix

In stage II we analysed previously specified activities from three perspectives for all actors:

- Why are the actors acting like that? (their needs and wants),
- Can they act differently? (their potential, resources), and
- Why don't/can't they act differently? (their barriers, restrictions).

A small fraction of the matrix is shown in Fig. 5.

5.3. Stage III: analysing possible changes and their impact

In stage III we analysed the impact of changes within the value system (Fig. 6):

- What precisely can be changed within a value system?
- What are the expected benefits of the change?
- What are the expected dangers of the change?

Based on the understanding gained from the value-centric analysis method, we made practical strategic suggestions and described their impact in a concise manner (Fig. 7).

5.4. Stage IV: formulating results of the whole analysis

In the final stage we summarized our analysis and showed in a holistic manner

- what changes the company should consider,

- how the company could implement the changes and prevent unwanted impacts, and
- what every stakeholder will win from the change.

5.5. Testing results

Companies were quite willing to participate in our value-centric business development research. They were open in giving input to our research and replied us about the research draft within 2–3 days (this might indicate their belief in our methodology). After the value-centric analysis process was finished, we asked them to fill in a questionnaire.

Feedback from the questionnaires suggests that the companies' representatives perceived method to be rather

- easy to use;
- useful;
- helpful in understanding what
 - actions customers perform during perceiving a product or service,
 - customers and partners need and want,
 - resources and potentials their customers and partners have,
 - barriers and restrictions their customers and partners have (what makes it difficult to act),
 - the 'big picture' is;
- after analysing its value system, the Company has a better understanding of its
 - opportunities,
 - risks,
 - business model,
 - potential for development and next steps to take,
 - how to create offers and propositions that are in harmony with customers' and partners' values and processes.

Implementation of the method took the companies' representatives on average 3.5 h and the research team 14 h, which is perceived as an acceptable and worthwhile investment of time [4].

The feedback from Company E was the most negative. In order to find out if this feedback is relevant and Company E really did not get any benefits from the value-centric business analysis, our team decided to continue research and prepared another questionnaire, to be filled in by 10 other persons from the same case companies. Feedback was gathered for every idea and suggestion derived from the value-centric business analysis. Of the 40 questionnaires delivered (10 for each case company) 15 were returned (5 from Case Company B, 7 from Case Company C, 0 from Case Company D, and 3 from Case Company E). Respondents

were asked whether they perceived ideas derived from the value-centric business analysis as 'good' or 'bad' and whether they had had the same ideas before. A small fragment of Case Company B's questionnaire 2 is shown in Fig. 9.

Case Company B got seven principal suggestions as a result of our research. The distribution of their answers to questionnaire 2 is shown in Fig. 10. It appears that 20% of the suggestions were perceived as 'bad', 34.3% of the suggestions were perceived as 'good' and the responders had had the same ideas before, and 45.7% of the ideas were perceived as 'good' and the responders had not had similar ideas before (therefore these ideas were perceived to be 'good' and 'out of the box').

Case Company C got nine principal suggestions from our research. The distribution of their answers is illustrated in Fig. 11. Of all suggestions 14.3% were perceived as 'bad', 49.2% were perceived as 'good' and the respondents had had the same ideas before, and 36.5% of the ideas were perceived as 'good' but the respondents had not had similar ideas before (therefore these ideas were perceived to be 'good' and 'out of the box').

Case Company E received 33 suggestions from our research. Figure 12 illustrates how they answered to the questionnaire. It appears that 3.2% of the suggestions were perceived as 'bad', 69.9% as 'good' and the respondents had had the same ideas before, and 26.9% of the ideas were perceived as 'good' and the respondents had not had similar ideas before (therefore these ideas were perceived as 'good' and 'out of the box').

On average 9.6% of the suggestions were perceived as 'bad', 57.9% were perceived as 'good' and the respondents had had the same ideas before, and 32.5% of the ideas were perceived as 'good' and the respondents had not had similar ideas before (therefore these ideas were 'good' and 'out of the box').

6. LIMITATIONS OF THE RESEARCH

Subjectivity in the testing phase is the main limitation of the research. As at first it was difficult to find companies on which to test the method, the amount of time the companies need to invest into analysing their business had to be reduced. The method testing was conducted according to the table-tennis principle. In addition, the sample was too small to provide statistical evidence. However, the researchers see that a statistical presentation of questionnaire results is helping to understand the potential value of the created method.

		This suggestion is good? YES/NO	I have had the same ideas? YES/NO
In order to make better use of vacancies	Forecasting workers' workload (by teamleaders) allows making flexible weekly and monthly plans. Workers' "Free time" can be filled with developing tasks and exercises		
	Forecasting machinery vacancies helps to assure effectiveness (machinery rental, production workers training programme , subcontracting)		
Employees of a growing and developing company need to develop as well	When workloads are low, then: <ul style="list-style-type: none"> • Workshops by co-workers (practical tips) • Competitions (on speed, quality, creativity, etc.) • Handicraft minutes 		
	New innovative machines and production lines require operators . From Company C personnel development programmes perspective workers can be noticed (whom to invest time and money)		
	Handicraft made by Company C employees can be given away to Mother company's customers as a gift		
	Company C and its Mother company can cooperate with the personnel development programme (study trips to Mother company etc.). It is also possible to form a joint development programme with Mother company		
In order to increase the proportion of subcontracted work	Close communication with Mother company to make plans and prognoses (cash flow, production, etc.)		
	It is necessary to try out different scenarios with different proportions of outsourcing (Mother company may not suffer)		
Quality control system	For Company C, it is important to meet the requirements and wishes of Mother company. A practical and simple quality control system would be useful (to assure exactly correct packing, etc.)		

Fig. 9. A brief extract from questionnaire 2 for Case Company C.

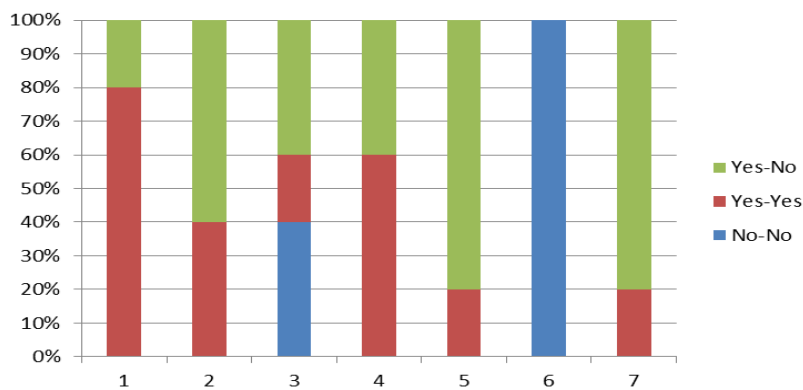


Fig. 10. Distribution of answers to questionnaire 2 from Case Company B. Yes-No: suggestions perceived as 'good' and respondents have not had the same ideas before ('out of the box' ideas); Yes-Yes: suggestions perceived as 'good' and respondents have had the same ideas before; No-No: suggestions derived from the methodology perceived as 'bad'.

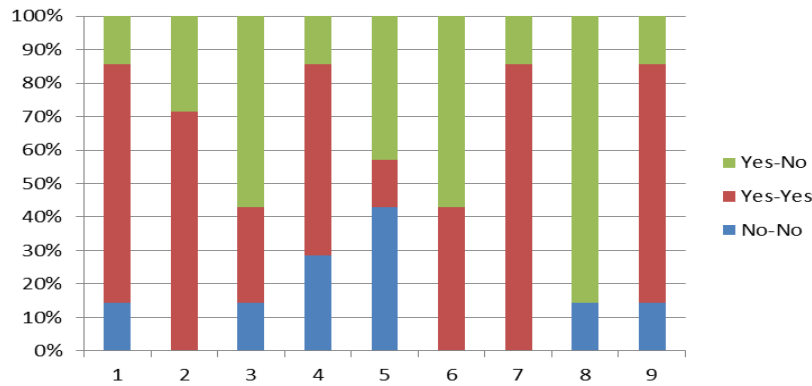


Fig. 11. Questionnaire results from case company C. Yes-No: suggestions perceived as ‘good’ and respondents have not had the same ideas before (‘out of the box’ ideas); Yes-Yes: suggestions perceived as ‘good’ and respondents have had the same ideas before; No-No: suggestions derived from the methodology perceived as ‘bad’.

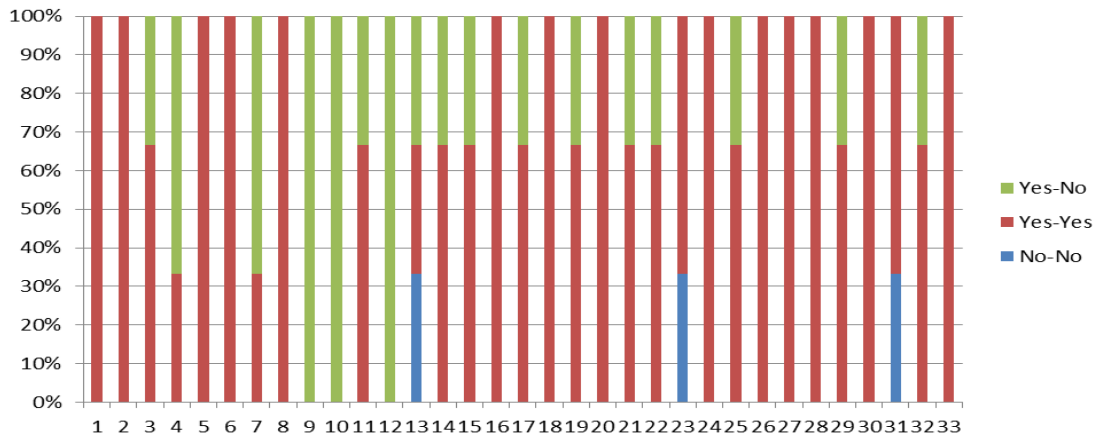


Fig. 12. Questionnaire results from case company E. Yes-No: suggestions perceived as ‘good’ and respondents have not had the same ideas before (‘out of the box’ ideas); Yes-Yes: suggestions perceived as ‘good’ and respondents have had the same ideas before; No-No: suggestions derived from the methodology perceived as ‘bad’.

7. CONCLUSIONS

During the years of research, knowledge from the literature and experience from Case Company A were collected. While intensively rotating between data, experience, the emerging theory, and earlier literature, using the Grounded Theory method, a specification of proactive value-centric business emerged.

Next, a value-centric business development method was constructed on the proposed specification. The method consists of four phases and enables to explore the value system of a case company from four perspectives. New ideas on how to make the value system more effective and competitive appear and their possible impact can be analysed. Based on the understanding gained from the value-centric business development method, new value-centric models can be synthesized.

According to the questionnaire, the companies’ representatives evaluated the method to be easy and useful. They gained a better understanding of their customers and partners and knowledge how to create offers that harmonize with their customers’ and partners’ values and processes. The method helped them to understand the ‘big picture’ and discover new development opportunities as well as potential risks. From the practical point of view, the method helped companies to understand their development potentials on a deeper level and to decide what steps to take next. The method is able to develop some good ‘out of the box’ ideas (in our research, 90.4% of the ideas were perceived as ‘good’ and 32.5% of the ideas were perceived as ‘good’ and ‘new’). The method might be a good start for Estonian manufacturing companies to start developing their business models in order to be more value-centric and competitive.

Further research needs to be done on the testing phase. It would be interesting to investigate what results can be obtained when a company's managers implement the method themselves. In addition, the method needs to be developed to become easier to use.

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REFERENCES

- Kim, W. C. and Maugborne, R. *The Blue Ocean Strategy*. Harvard Business School Press, 2005.
- Randmaa, M., Mougard, K., Howard, T. J., and McAloone, T. Rethinking value: a value-centric model of product, service and business development. In *Proceedings of the 18th International Conference on Engineering Design, ICED11*. Scandinavian Digital Printing A/S (SDP), Copenhagen, 2011, DS 68-11.
- Randmaa, M. and Otto, T. Value-centric business: an in-depth analysis of one case company. In *Proceedings of the 9th International DAAAM Baltic Conference "Industrial Engineering"*. Tallinn University of Technology, 2014, 169–174.
- Randmaa, M., Otto, T., and Howard, T. Test results of practical value-centric business development methodology. In *Proceedings of NordDesign 2014 Conference: NordDesign 2014, Espoo, Finland*. Aalto Design Factory, Aalto University, 2014, 642–651.
- Lusch, R., Vargo, S., and Morgan, F. Historical perspectives on service-dominant logic. In *The Service-Dominant Logic of Marketing* (Lusch, R. and Vargo, S., eds). M. E. Sharpe, New York, 2006, 29–42.
- Pine, B. J. and Gilmore, J. H. *The Experience Economy*. Harvard Business School Press, 1999.
- Randmaa, M., Howard, T. J., and Otto, T. From product centered design to value centered design: understanding the value system. In *Proceedings of the 8th International DAAAM Baltic Conference "Industrial Engineering"*. Tallinn University of Technology, 2012, 548–554.
- Grönroos, C. Service logic revisited: who creates value? And who co-creates? *European Business Review*, 2008, 20(4), 298–314.
- Normann, R. *Reframing Business: When the Map Changes the Landscape*. John Wiley & Sons, Chichester, 2001.
- Allee, V. and Schwabe, O. *Value Networks and the True Nature of Collaboration*. Live digital edition (6.3.2012), 2011.
- Etar, M. Co-production of services. In *The Service-Dominant Logic of Marketing* (Lusch, R. and Vargo, S. L., eds). M. E. Sharpe, Armonk, NY, 128–138.
- Porter, M. E. and Kramer, M. R. The big idea: creating shared value. *Harvard Bus. Rev.*, 2011.
- Ueda, K., Takenaka, T., Vánca, J., and Monostori, L. Value creation and decision-making in sustainable society. *CIRP Annals – Manufacturing Technology*, 2009, 58(2), 681–700.
- Ueda, K., Takenaka, T., and Fujita, K. Toward value co-creation in manufacturing and servicing. *CIRP Journal of Manufacturing Science and Technology*, 2008, 1(1), 53–58.
- Takenaka, T. and Ueda, K. An analysis of service studies toward sustainable value creation. *International Journal of Sustainable Manufacturing*, 2008, 1(1), 168–179.
- Ueda, K., Kito, T., and Takenaka, T. Modelling of value creation based on emergent synthesis. *CIRP Annals – Manufacturing Technology*, 2008, 57(1), 473–476.
- Vargo, S., Maglio, P., and Archpru Akaka, M. On value and value co-creation: a service systems and service logic perspective. *European Management Journal*, 2008, 26, 145–152.
- Porter, M. E. Competitive advantage: creating and sustaining superior performance. *Harvard Bus. Rev.*, 1985, 76(4), 97.
- Howard, T. J., Achiche, S., Gürcan Özkil, A., and McAloone, T. C. Open design and crowdsourcing: maturity, methodology and business models. In *Design 2012 – 12th International Conference on Design*. Design Society, 2012, 181–190.
- Tan, R. A. Service-oriented Product Development Strategies. PhD thesis. DTU Management Engineering, Lyngby, Denmark, 2010.
- Porter, M. E., Hills, G., Pfitzer, M., Patscheke, S., and Hawkins, E. *Measuring Shared Value: How to Unlock Value by Linking Social and Business Results*. http://www.fsg.org/Portals/0/Uploads/Documents/PDF/Measuring_Shared_Value.pdf, 2012 (accessed 04.03.2015).
- Matzen, D. A Systematic Approach to Service Oriented Product Development. PhD thesis. DTU Management Engineering, Lyngby, Denmark, 2009.
- Porter, M. E. and Kramer, M. R. Strategy and society: the link between competitive advantage and corporate social responsibility. *Harvard Bus. Rev.*, 2006, 84(12), 78–92.
- London, T., Anupindi, R., and Sheth, S. Creating mutual value: lessons learned from ventures serving base of the pyramid producers. *J. Bus. Res.*, 2010, 63(6), 582–594.
- Stabell, C. B. and Fjeldstad, O. D. Configuring value for competitive advantage: on chains, shops and networks. *Strategic Manage. J.*, 1998, 19(5), 413–437.
- Wach, E. *Measuring the 'Inclusivity' of Inclusive Business*. Practice Paper, Vol. 2012, No. 9.
- Prahalad, C. K. and Hammond, A. Serving the world's poor, profitably. *Harvard Bus. Rev.*, 2002, 48–57 (Reprint 2009).
- United Nations Development Program. *Creating Value for All: Strategies for Doing Business with the Poor*. <http://www.ids.ac.uk/files/dmfile/Pp9.pdf>, 2008 (accessed 04.03.2015).
- Jenkins, B., Ishikawa, E., Geaneotes, A., Baptista, P., and Masuoka, T. *Accelerating Inclusive Business Opportunities: Business Models that Make a Difference*. Washington, DC: IFC, 2011.

30. Bjork, E. and Ottosson, S. Aspects of consideration in product development research. *J. Eng. Design*, 2007, **18**(3), 195–207.
31. Neergaard, H. and Ulhøi, J. (eds). *Handbook of Qualitative Research Methods in Entrepreneurship*. Edward Elgar, 2007.
32. Wagner, S. M., Lukassen, P., and Mahlendorf, M. Misused and missed use – Grounded Theory and Objective Hermeneutics as methods for research in industrial marketing. *Ind. Market. Manag.*, 2010, **39**(1), 5–15.

Väärtuskeskse ettevõtte arenduse metoodika rakendusanalüüsid viies juhtumettevõttes

Merili Kukushkin, Tauno Otto ja Thomas Howard

Artiklis on lähtunud tegevusuuringust, kus tegevusi uuriti valitud tootmisettevõtete keskkonnas. Uurijad kaasati uuritava juhtumettevõtte tegevustesse ja protsessidesse, võimaldades seeläbi genereerida teadmuse läbi praktika. Uurimistöös teises, kirjeldavas osas analüüsiti kirjanduse baasil juhtumettevõtteid ja saadud tulemused peegeldavad teoreetilist teadmust. Kolmandas faasis kombineeriti praktiline ja teoreetiline teadmus kokku ning töötati välja proaktiivse väärtuskeskse ettevõtte spetsifikatsioon. Selle põhjal arendati välja meetod, mis võimaldab ettevõtete väärtussüsteemi analüüsida neljast erinevast vaatepunktist lähtuvalt ja seejärel sünteesida uusi väärtuskeskseid mudeleid, mis võimaldavad väärtussüsteemi efektiivsemaks ning konkurentsivõimelisemaks muuta. Viimases faasis testiti meetodit erinevates ettevõtetes.