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Extended use of Value Management at i3tex AB
Increasing value focus through workshops

Master's thesis in Product Development

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Acknowledgements

Abstract

A trend seen in the technical consultancy industry today is to take on complete outsourced development projects to a larger extent. Instead of supplying expertise knowledge in the form of labor to customer projects, the opportunity to deliver more value exists and hence, enjoy larger revenue. This trend implies both the need for a more complete in-house development process to create superior products, and to in first-hand, possess the ability for enclosing those business deals.

With the above stated incentives, this thesis was conducted with the objective of proposing how *i3tex AB*, a consultancy firm located in *Göteborg*, *Sweden,* can increase their value creation focus and hence become more competitive. To further achieve differentiation an attempt was made to ease differentiation through connecting the company values and value creation, important for smaller companies to become visible in a market.

Following an exploratory study on the current state of value creation at the company tailoring workshops, it was discovered that the most effective means of increasing the value creation would be through Value Management. Two workshop frameworks were created to account for the needs the company wants to use workshops to accomplish. *Workshop A* extends its internal applicability, and thus increases value creation work. *Workshop B* targets the scope of building customer relations through a two-step workshop method separated in time, through which will enhance the number of project starts. To implement these two workshop frameworks into the working process, two recommendations for further work were identified and given to the company. The recommendations are to focus on promoting Value Management and extending the efforts on educating employees in Value Management workshops.

The possibility to differentiate the company through connecting value creation and the *i3tex AB* company values was found to be less beneficial than initially expected. Instead, internal promotion of how workshops align with the development work that *i3tex AB* performs was recognized as the best means to increase the usage of value creative work, and thereby profile the company.

Keywords: Workshop, Value Management, VM, Soft Value Management, Hard Value Management, SSM, Value Creation, Company profiling

Acronyms

AS-IS model – Model describing the current state of a system, as it is.

Function Analysis Systems Technique (FAST) – Technique to graphically describe the logical relationships between the functions of a product, process or similar. It focuses on answering how, why and when a function is carried out.

Hard Value Management (HVM) – An approach for solving well-defined problems using mathematical models and techniques for finding the optimal solution.

SMART Value Management (SMART VM)– A VM method based on a technique denoted Simple Multi Attribute Rating Technique, developed to take advantage of soft-systems thinking into traditional VM.

Soft System Methodology (SSM) – An approach focused on learning that accommodates conflicting interest among participants.

Soft Value Management (SVM) – Value management of sociological situations emphasizing human content, knowledge transfer and learning.

TO-BE model – Model describing the sought state of a system, how it should be.

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1 Introduction

This chapter presents the background to this Master's thesis together with purpose and goals, including scope delimitations and deliverables. It also depicts the report outline.

1.1 Background

The project-based business environment of today is often represented by high competitiveness, where profit margins are low and the need for effective resource utilization is high. Thus, it is important for businesses to focus on only the essentials of what a product is supposed to deliver in order to stay competitive.

Traditionally, the base for customer driven product development is a needs specification list. However, the identification of needs is a challenging task on its own, as multiple objectives may exist and real needs can be hidden or difficult to pinpoint. Striving to achieve high customer focus in development projects is today tackled by applying value focusing methods such as *Value Management* (*VM*), an approach today existing as European standard: SS-EN 12973:2000, and throughout the development process focuses on value creation as means to achieve high performance (SAVE International, 2015). Hence, by utilizing this approach is the stakeholders' needs focused upon, enabling elimination of non-value adding features (Dallas and Clackworthy, 2010; SAVE international, 2015).

A trend seen by *i3tex AB* in the technical consultancy industry today is to take on complete outsourced development projects. Instead of supplying expertise knowledge in the form of labor to customer projects an opportunity to deliver more value emerges and hence, enjoy larger revenue possible through managing the responsibility for complete projects. This opportunity is given when the customer either lacks resources or knowledge to conduct the project on their own. Though, the settings of outsourcing imply an additional step between end customer and the developer, detaching customer value focus from the development process. This entails an increased level of difficulty in addressing needs identification and translation into a product that meets expected performance. As a means to overcome this difficulty, *VM* emerges as one possible means as the approach's centrality is to develop with focus on eliciting and satisfying customer needs.

The shift towards more overall responsibility taken by the consultancy firms additionally implies a need for knowledge not only within narrow technical fields, but also for holistic project management and end customer oriented development to create superior products. Therefore, as an increasing share of projects is conducted in-house, the importance of having a well-functioning process is amplified. This further accentuates the possibilities of *VM* being a suitable approach to integrate into the development process.

Further, the process of claiming market shares for a smaller consultancy firm is difficult relative to major market shareholders, as a fewer number of consultants provide little presence at customer sites and hence, low visibility. This leads to an increased need for differentiation to create a unique company profile that provides superior value, thus, attracting customers.

1.2 i3tex AB

i3tex AB is a consultancy firm active within the technical industries of automotive, medical technology and manufacturing providing expertise knowledge in mechatronics, hardware, software and mechanics. Services are mainly offered through staffing customers' projects but the firm is pursuing an increased share of in-house driven development projects. With approximately 170 employed consultants the firm is seen as relatively small compared to most branch competitors.

Today, *i3tex AB* occasionally makes use of the methodology of *VM* to achieve customer satisfaction through value-focused development. This approach emphasizes focus on each customer's specific needs and as a result, increases the value delivered to the customer at a reduced total cost (*i3tex*, 2016). *VM* is today implemented at the company through workshops, though the use of the application is limited.

The company name, *i3tex*, is an abbreviation of innovate, implement, improve (i3) and technical expertise (tex). Technical expertise explains what the company possesses. Innovate, implement and improve denote the company's cornerstones and are a symbolic interpretation of *i3tex AB*'s philosophy for how a products lifecycle is an ongoing iterative cycle. These are words that permeate the organization and define the company's competence areas in product development to customers. However, the values' connection to the daily work is seen as farfetched. A stronger connection between these and the operational activities would help to strengthen the company profile.

1.3 Purpose and research questions

The objective of this thesis is to explore how to increase the presence of a *Value Management* approach within the development work at *i3tex AB*, and propose a means for how this shall be incorporated to increase their value creation focus. An additional outcome of this thesis will be to clearly express how this is to be connected to the company profile. Hence, through achieving a more value-focused development, which can be accentuated and communicated through the profile, the goal is to enable *i3tex AB*'s market position to be strengthened.

To support this process, a number of research questions were formulated. These questions are:

- How can *i3tex AB*'s in-house development achieve a higher value creation focus?
- How can a value creation focus be aligned with the company's values in order to accentuate their company profile?

1.4 Delimitations

This thesis is limited to solely study the in-house development process at the main office of *i3tex AB* in *Göteborg*.

Moreover, the company profiling aspect is only considered to be accentuated through the existing cornerstones' values. Therefore, the company values are not subject for change.

The result is limited to a proposal of changes and recommendations for implementation. The thesis will therefore not account for the preparations needed, nor implement them into the work process.

1.5 Definitions

Within this section the central terms of this thesis, *Value Management, value* and *workshop*, are defined. In theory, these terms sometimes are differently defined. Hence, to clarify their meaning and avoid misinterpretation in this thesis, they are defined below.

1.5.1 **Value**

To deliver what the customer wants, it is important to specify the customer's perception of value (Cai, 2011). One definition of value is the ratio between quality and cost, where these attributes are objectively assessed (Kaufman, 1985). Hence, the ratio is indifferent between customers (Thiry, 2013). Contrasting to this does more customer-oriented definitions exist that takes the notion that value is subjectively perceived (Slack, 1999; Dallas and Clackworthy, 2010).

For this thesis, a broadened approach to value is taken, where the value concept is expanded to include any perceived benefit for the sum of expenses utilized. Hence, the definition of value for this thesis reads as follows:

$$Value = \frac{Percevied\ Benefits}{Total\ Use\ of\ Resources}$$

This rejects the notion of value solely depending on monetary expenses of receiving a certain quality. Cost is only one of several things that could be given up in the pursuit of fulfilling a need. Taking into account all used resources given up therefor provides a more accurate view of what is actually spent. While cost is an inaccurate notion of resources spent is quality an inaccurate notion of what is provided. Although quality can be specified it can also be subjective and, thus, perceived (Kelly, Male and Drummond, 2014). Therefore, taking all perceived benefits into account enables a more accurate explanation of the quality that actually is perceived by the customer. The definition held therefore holds a subjective perception of each parameter and thus, interprets a customer-oriented focus. The delivered value of customized projects, present in this context, are highly reliant on customer interpretation and hence, a wide notion of value is needed.

1.5.2 **Workshop**

The term workshop is commonly utilized in several contexts to generalize and denote a gathering with some degree of interactive character. Thus, a workshop cannot be an activity of solely informative character. For this project, a specified definition is chosen to emphasize the importance of structure to approach problem solving. The activity aims to approach problems that are too complex to handle singlehandedly, thus to utilize it accurately participants need to collaborate. Hence, meetings of informative character cannot be denoted a workshop.

The definition in this project is equivalent to *i3tex AB's* definition of a workshop, and reads as follows:

> *Workshop*: *Activity that emphasizes problem solving in groups using a structured approach and practical exercises.*

1.5.3 **Value Management**

The term *Value Management (VM)* in this thesis refers to a methodology that aims to maximize stakeholders' value in a systematic team-based setting, applicable on a wide range of problem- and system-types, aligning with Thiry's (2013) definition. By utilizing this approach the stakeholders' needs are focused upon, enabling elimination of non-value adding features (Dallas and Clackworthy, 2010; SAVE international, 2015). Depending on the type of problem, different tools and techniques are applied to the methodology in order to address the problem.

1.6 Disposition

The first chapter has presented the background to this thesis together with its purpose, posed research questions and delimitations. A set of definitions central to the thesis was also introduced. The remaining constitution of the report is presented below.

2. Theoretical framework

The theoretical framework covers literature central to this thesis and aims to build a foundation for how to apply these to subjects covered. The areas of *Value Management*, *Organizational change* and *System modeling* are introduced.

3. Method

In chapter three the method used for this thesis is presented. It aims to describe research strategy and objectify how the research method was used to approach the problem.

4. Initial Scope Refinement

The result from the initial scope refinement is presented by posing the identified areas possible to improve and what each scope would incorporate. The selection of the best-suited scope refinement is presented.

5. The Workshop

The present situation of the selected scope is described using an AS-IS model and a TO-BE model to depict the wanted state of the targeted area.

6. Analysis

In chapter six the performed gap-analysis is presented. Here, the missing linkage between the AS-IS and TO-BE model is identified. The outline of change that is to answer the research questions is addressed using theory on how these can be fulfilled.

7. Proposal

Chapter seven presents this thesis's result, in terms of a proposal explaining how *i3tex AB* can increase their value creation focused work.

8. Test and Validation

The eighth chapter of the report presents the test conducted to validate central characteristics of the proposal and evaluate its theoretical applicability to the company. A conclusion of possible improvements is presented.

9. Discussion

In chapter nine the thesis result, chosen research strategy and the delimitations' possible implications on the result are discussed.

10. Conclusion and Recommendations

The last chapter answers the purpose and research questions of this thesis. Moreover, further recommended research within the area to proceed with the implementation of the proposed changes is outlined.

2 Theoretical Framework

The theoretical framework of this thesis consists of three areas of theory providing knowledge central to understand the working process and results developed.

2.1 The Value Management approaches

The denotation used for *VM* as an approach that aims to maximize stakeholders' value in a systematic team-based setting, applicable on a wide range of problem- and system-types (Thiry, 2013), could be discussed from two standpoints. Throughout the development of the methodology, two main interpretations have emerged, splitting the research into two approaches. These are *Soft VM (SVM)* and *Hard VM* (*HVM*) where *HVM* is rooted in the original idea of *VM* that emphasize value creation through cost reduction (Green, 1994). This approach was derived from *Value Engineering* (*VE*) and *Value Analysis* (*VA*) which was introduced by Lawrence Miles in the 1940's (Shen and Yu, 2012).

SVM targets social complex problems by emphasizing learning through knowledge transfer within the group (Liu and Leung, 2002). This suit complex problems where multiple stakeholders with different interests are involved and emerged from a lacking applicability of *HVM* on these kinds of problems (Green, 1994).

The methodologies of *VM* are often framed as a workshop where a multidisciplinary team works towards a common goal of problem solving. This process is represented as a three-stage method, pre, during, and post workshop. (SAVE International, 2015).

2.1.1 Value Management process

The pre-workshop stage starts with gathering information and planning the activity. During the workshop six phases are conducted, Information gathering, Function analysis, Creative, Evaluation, Development and Presentation, seen in the process presented in *Figure 2.1*.Post-workshop activities are often held to follow up on results, further research and develop ideas. (SAVE international, 2015)

Information: The current state of the problem is defined and the goal of the study presented for the participants.

Function analysis: The functions of the system are identified followed by a team review of them to determine their current state and their role in order to reach the goal.

Creative: Through the use of creative techniques the team can generate new solutions to the problem by using the earlier created information of the system's functions.

Evaluation: The generated ideas are assessed by the team so that the best solution(s) can be found and taken for further development.

Development: The ideas making it through the evaluation phase are developed to a sufficient level of detail so that they together form complete solution(s) making a more detailed decision making possible.

Presentation: The complete solution(s) are documented and presented by the team leader in the phase of Presentation. (SAVE international, 2015)
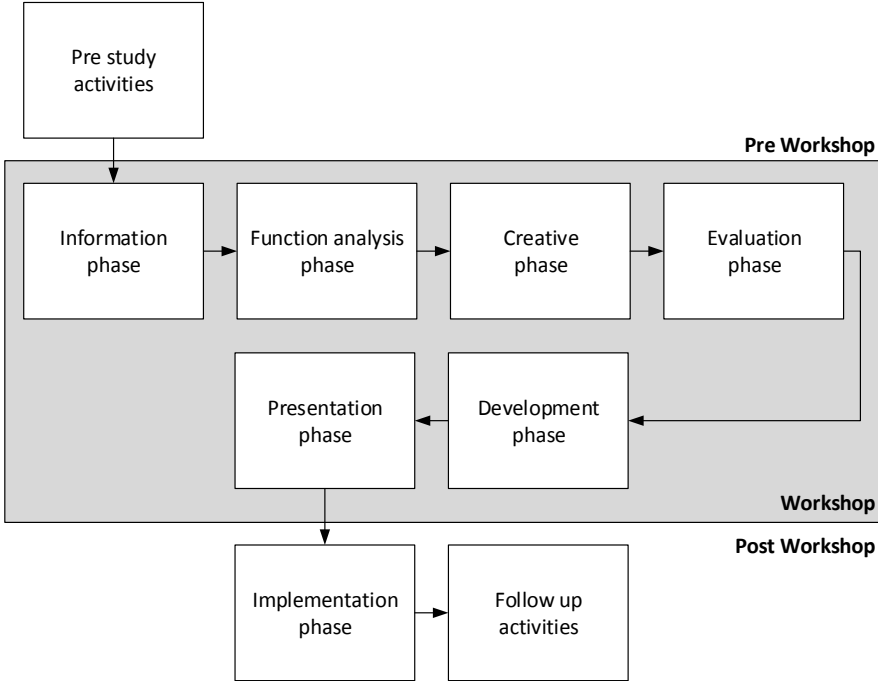
Figure 2.1 The generic process of the Value Methodology Standard for Value Management workshops (SAVE International, 2015)

2.2 Organizational change

Were *VM to* be implemented, the organization it is implemented within will undergo change. Therefore, would the inevitable change that *VM,* or any other organization change that today's modern companies undergo to cope with the fast paced market environment, be managed poorly, a significant risk of affecting business performance appears. Hence, not utilizing the change's full potential can even result in a lower performance than prior to the change (Whipple, 2014; Maylor, 2010). The importance of change and its possible disastrous effects if not executed properly emphasize thorough planning and management of change. Hence, to be able to implement *VM,* the following organizational and behavioral changes have to be well considered and accounted for.

Campbell (2014) presents *The cycle of change* representing the steps to take, their key aspects and environmental factors to successfully manage organizational change. Phases of change are presented as a cyclic process and the environmental factors are placed in the center of the model, see *Figure 2.2*.
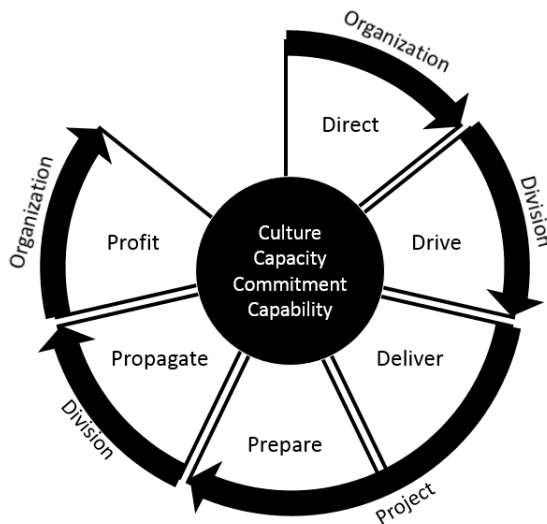
Figure 2.2 The cycle of change presented by Campbell

2.2.1 **Environment**

Cultural prerequisites imply forces that can help and hinder the change and can be one of the major aspects to take into consideration when designing and implementing change. Such forces could be trust, empowerment or proactivity as helping and independence, or criticism and control as hindering factors. These are all underlying expectations and signals that define an organization's spirit.

Capacity to change is defined as the amount of resources available to accomplish the needed change. As much resources such as money, time, people to be set aside for the change as possible, or for an organization with limited resources, taken from other posts across the ordinary operations.

Commitment is the drive of change provided through the energy given by involved people. To commit people in the process of change fuels the project with hard work in the pursuit for success and is closely connected to motivation of the individual.

Capability refers to the organizations potential to change. A high capability is characterized by possession of the right skills, knowledge and focus that will enable the organization to carry out changes time after time with successful outcome. (Campbell, 2014)

2.2.2 **Stages of change**

Direct: In order to achieve a successful implementation of change a clear direction will have to be set. With an articulated destination of what the change sought to result in, as well as a clear path of how to get there. This provides consensus to where and why things are changing. With a common goal and a clear focus resources and energy can be located in the right way.

Drive: Providing a direction is the next step to creating the needed momentum to reach the goal set. Drive originates from the project owner or sponsor of the project and promotes an optimistic view of change as well as suppresses negative sentiments. The initial excitement that is brought through by drive will by nature decrease over time and can vary throughout the project. It is therefore important to keep the momentum up to succeed on time.

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Deliver: When momentum is built, the activity of conducting the change can start. Bringing the idea up to a concept, and selecting the best possible solution, validate it and implement it in the organization. The success of the phase is highly dependent on project management to deliver the sought solution, on budget and on time.

Prepare: Preparation is key to succeeding with the delivery of organizational change. Therefore, to make sure that both external and internal stakeholders and the external environments are ready to adapt to the new conditions that the change will entail. Larger investments do often imply larger changes and hence, more preparation work to make it fit well.

Propagate: When changes are put in place in the organization is it essential to make them stick by getting them accepted by the employees and adopted in to the daily work. Additionally, rather than stop focusing on them as soon as the implementation is done, it is important to follow up their effects. Thus making sure that possible problems are located so that improvements can be made as soon as possible.

Profit: Changes and their benefits should be measured and accentuated to ensure visibility throughout the organization. A step in the right direction provides new momentum and affects the direction of the company, in this way is *The cycle of change is* completed and new improvement projects can be started. (Campbell, 2014)

2.3 System modeling - IDEF0

Since *VM* requires a comprehensible, clear understanding of how work practices are conducted, the ability to first clarify and describe the practice must be ascertained. One means of pursuing this is through modeling the work practice as a process, e.g. using IDEF0 notation. The IDEF0 notation provides a methodology to create a clear view of a complex system using a system modeling approach. This facilitates handling of system work such as analysis, development, re-engineering or integration through the use of a system modeling language. IDEF0 is a part of the IDEF family that consists of 15 different modeling languages targeting a wide range of uses. The IDEF family originates from the U.S Air Force in the 1970's and was developed from the graphical language Structured Analysis and Design Technique to enhance the level of communication among involved parties whose objective were to understand a system. IDEF0 is a model for structurally mapping a system by depicting the relations between its constituting system elements. An activity transforms input to output and is described by its input, output, resources and controls. The input is what initiates the activity and refers to what is transformed during the activity to a new state, the output. The resources refer to what is needed to perform the activity, such as people, systems and equipment. The controls refer to the guidance or support that regulates the activity. (Kim and Jang, 2002) A schematic description of an IDEF0 model is seen in *Figure 2.3*.
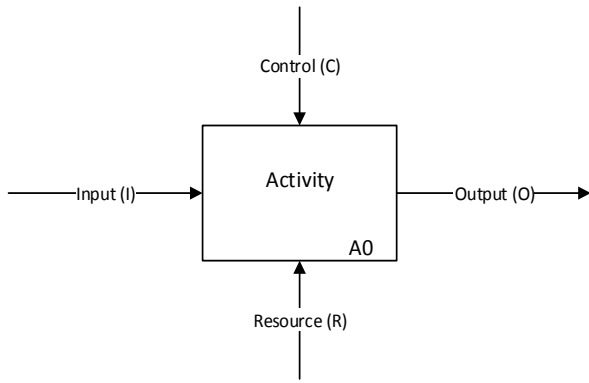
Figure 2.3 Basic IDEF0 model

By using the IDEF0 model, an activity can be de-composed into sub-activities to depict system relations graphically, see *Figure 2.4*. Through the structured mapping and decomposition, a detailed system analysis is supported which can be used as a basis to identify activity improvements (Kim and Jang, 2002; Haapaniemi, 2011).
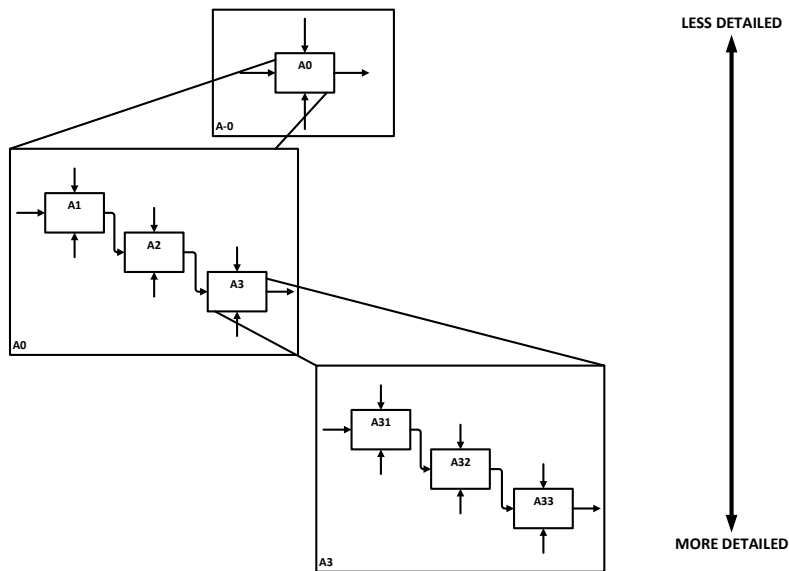
Figure 2.4 Schematic decomposition of system using IDEF0

3 Method

The thesis's research approach is presented and an objective explanation of how it enabled the posed research questions to be addressed. An appropriate research approach was of great importance in order to deliver sought results applicable in the company's business context.

3.1 Research strategy

The research questions posed several conditions for selecting the approach to collect and interpret data. Although the problem of creating a higher value focus has been accentuated it was on a high level of abstraction. Therefore, a more concrete expression of the problem in the company's contextual settings was required. Thus, an exploratory research approach was used, to which a qualitative assessment of the problem enabled the initial problem to be refined. The selected area of the problem implied for the most relevant part to pursue throughout the remainder of the thesis.

Further, the quality of this thesis result was largely dependent on the acquired information being correctly interpreted by contextualizing theory and company conditions. Hence, achieving best value was not solely a matter of comparing theoretical approaches and selecting the highest scored. This further stresses the need to utilize a qualitative research approach (Hennink, Hutter and Bailey, 2011). The main drawback of this was that the number of information sources to depict the problem context was low, and additionally, interpreted. Thus, a skewed result was a possible risk. Despite this concern, the qualitative approach was considered most beneficial, as important factors to account for are difficult to quantify accurately. The approach also enabled continuous gathering of information in the company context as the study was conducted on a daily basis at the main office. One downside this kind of case study implies in terms of generalizability is inevitable, as the goal was to generate a higher value focus within a specific setting. Therefore, it will be difficult to further re-use the findings elsewhere. (Bryman and Bell, 2011) Another downside was the possibility of experiencing a biased view of the settings as being part of the company context.

3.2 Research methods

The approach to the conducted research constitutes four areas schematically described in *Figure 3.1*. The methods used each have the aim of fulfilling different objectives to answer the research questions, although they have to a large extent been overlapping.

Figure 3.1 Research methods of the thesis

3.2.1 Data acquisition

The sources for acquiring information were interviews, observations and literature reviews. Interviews and observations served as input for the acquisition of company information and thereby explained how the problem was expressed in its context. The literature reviews provided input for concretizing the problem's amplitude, reasons for

existence and how they could be targeted. Hence, it enabled the research area to gradually be narrowed and expressed more clearly.

Interviews

To gather company information and further grasp the problem, semi-structured interviews of approximately one hour were held. Seven interviews were held with the objective of addressing where, and to what extent, the problem was located within the organization. Thus, the owner, employees and managers within the customer contact, in-house development and the quality system divisions/ departments (delete one) were interviewed. As the project scope was refined, four additional interviews were conducted. The interviewees were selected based on their high experience within the area and who were seen as key stakeholders for any future implementation of the thesis result.

Observations

To further provide input for the preconditions that affect the research, observations were conducted. Observations were beneficial since it enabled the acquisition of information which otherwise would have been unspoken, such as in-work behavior (Hennink et al., 2011). Although interviews are beneficial to extract information, some information that is acquired is based on subjective interpretations of the interviewee. Hence, observations enable a more objective view to be obtained (Trost, 2010).

Further, data was acquired through participating in the internal education of *VM.* Through holding a high participatory level, a deepened understanding of the employees' knowledge within the field studied could be obtained (Hennink et al., 2011).

To acquire input on whether the theoretical based solutions answered the research questions, practical tests were designed, conducted and observed. Two tests were performed in the company context with employees as participants.

Evaluation forms

Data from the tests was additionally obtained through the use of evaluation forms. To assess data applicable to answer whether the refined scope objectives could be met with the new value work approach, 2 qualitative questions and 12 quantitative statements with 0-10 scale intervals were included in the template. The quantitative data sought to answer a number of hypotheses formulated to validate that the research questions could be solved with the proposed solutions. Data from 11 respondents that tested the new value approach was acquired. This enabled the participants' perception of the solution applicability to be included.

3.2.2 Data reduction

When using an exploratory approach, the data acquired will include information that is later to be found not useful for answering a research question. Thus, it is appropriate to reduce the data to make it more manageable. However, it needs to be done using a valid interpretation to not discard important information. Thus, the interviews had been recorded and transcribed, and the observations noted. Hence, information determined invalid at first could be reevaluated. To reduce the data, coding was used to sort data. These were qualitatively evaluated according to relevance and connection to posed research questions, where non-used data was removed.

3.2.3 **Modeling**

For problems with many possible causes with interdepending relations, the process of finding their root causes are often complex. In such situations, it is beneficial to systematically analyze the system to locate where efforts shall be spent using a model (Veeke, Ottjes and Lodewijks, 2008). In this project, two systems models were created. By visualizing them using system modeling, the information of the data acquired became foreseeable, enabling a holistic understanding of the interrelated dependencies constituting the scope.

The two system models denoted the *AS-IS model* and *TO-BE model*, describe a current system respectively a wanted system's performance (Weigelt, 2011), where the wanted system corresponds to the problem being non-existent. According to Kim and Jang (2002), by using a top-down approach, the AS-IS model can gradually be de-composed into sub-systems to identify their interrelations. Thereby, factors important for the system's outcome were identified using de-composition intro three sub-levels. Although the activities could have been further de-composed, overly comprehensive process documentation was not sought as focus needs to be kept on clarifying areas of importance to create understanding of the system (Sharp and McDermott, 2008). The models were complemented with descriptive texts to explain their constitutions in detail.

3.2.4 **Data analysis**

The following three methods were used to analyze the data obtained through the interviews, observations and evaluation forms. The purpose and characteristics of the data to be analyzed varied throughout the project. Hence, different methods were applied.

Evaluation matrix

To refine the project objective, an evaluation matrix was qualitatively assessed to support the selection process. Since the scopes dealt with different improvements difficult to compare, an evaluation matrix was suitable to apply as it enabled the scopes to be assessed against a set of common criteria (Ulrich and Eppinger, 2012). Each scope was scored and the highest total scored was selected as the preliminary scope refinement. To confirm that the preliminary refinement was suited as an initial action towards higher value creation focus, the company was consulted for deciding the scope refinement.

Gap analysis

The complex problem made it difficult to identify explicit changes needed to reach the desired state. In such operational circumstances, Franklin (2006) suggests a gap analysis to be performed. A gap analysis aims to identify differences between actual performance and potential performance, where the differences, denoted gaps, act input to design the improved process (Wiegelt, 2011). In this thesis, the gap analysis was applied on the highest system models' level to keep the wanted state outcome independent of solutions. As gaps were identified, these were interpreted into areas of improvement to be targeted for solving the problem.

Hypothesis testing

Hypothesis testing was conducted to validate the result of the proposal's applicability. Four hypotheses were formulated, comparing two cases by applying two different methodologies. This provided an objective view of the proposals applicability and acted as a base for possible changes to account for (Pereira and Leslie, 2009).

4 Initial Scope Refinement

With the objective to refine the scope, the six possible project orientations named *Customer needs, Document Management, Introduction for new employees, Knowledge Management and project learning, VM Workshops, Structured idea generation*, are presented and evaluated, whereupon the most promising scope is selected to further pursue to answer the research questions. The following orientations are the relevant scope refinements found during the initial exploratory research.

4.1 Customer needs

Multiple difficulties were identified regarding the activities of collecting, interpreting and handling of end customer information. Hence, most often it is not the customer of *i3tex AB* that seeks competence through the outsourced development.

The knowledge of end customer needs is in some in-house projects low. This becomes a problem when the customer provides an inaccurate or incomplete needs specification to *i3tex AB*. Further, misinterpreting the specification may lead to poor products (Ulrich and Eppinger, 2012). This emphasizes the need of a complete and accurate needs specification. As projects frequently face time pressure the handling of such lists is difficult, especially if *i3tex AB* have little or none end customer experience. This implies the importance of reviewing it closely together with the customer to thoroughly understand the needs to address. Though, questioning the list and thus, the customer's knowledge, can interfere with their integrity by demonstrating the inability to identify end customer needs.

Further difficulties arise when the customer believes that their interpretation is correct, and wants *i3tex AB* to just accept it and start the project. But as the project proceeds it becomes evident that an insufficient needs specification was used and rework is needed to deliver what the end customer wants.

Another difficulty identified that can emerge is how the requirement specification is established. Based on the needs specification provided by the customer, a requirement specification is created by translating needs into measurable features to develop a product. However, constructing the requirement specification is time consuming and can be strenuous work. In combination with the time pressure to complete a project this work can become down prioritized. An insufficiently made specification thus leads to the customers' needs being excluded from the product, but also that the verification of their fulfillment becomes inaccurate.

4.1.1 Customer need focused scope

The incentive for a thesis-refined scope to manage customer needs is that higher customer focus can be achieved. By being able to more correctly identify customer needs, a higher value is more likely to be delivered through the end product (Ulrich and Eppinger, 2012). For projects where an incomplete requirement specification is set this would also imply a reduced amount of rework required. This time could instead be spent for development work, realizing customer value.

Consequently, three topics are identified to focus the scope:
- Create routines to identify and process customer needs
- Enable synthesis between requirement specification and end customer needs
- Propose a solution on how to deal with the trade-off between identifying and probing the market without detracting customers

4.2 Document Management

The majority of the development projects deliver a set of documents, rather than physical products. Thus, an accurate documentation of the outcome becomes important. Often, customers operate in businesses requiring traceable decisions and definitions. This requires high quality document management to show that *i3tex AB* has obliged on the contract and conducted the work accordingly. Proper documentation will also enable a gentle project transfer where *i3tex AB* work ends and the customer takes over.

To reduce the time spent on doing administrative work, templates are accessible at the company intranet. The routines for documentation and handling of document templates were identified insufficient in a number of areas. As template standards were missing, or had unclear description of procedures, this results in possible sources of error. Further, employees need to build experience through projects to properly understand the process map and make use of the templates correctly.

The process of updating and improving existing templates depends on the employees' individual efforts to initiate and conduct the change. But, as this has to be done in addition to their regular responsibilities, it can be down prioritized, causing outdated or incorrect templates to not be updated. Additionally, when updates are made these are not communicated to the employees. Hence, it is the responsibility of the employee to make sure that they use up-to-date documentation.

4.2.1 Document management focused scope

A refined scope of document management would further enable more frequent updates of documents and allow for more unproductive work such as searching for the right documents and adjusting templates, to be prevented.

A document management refined scope would not specifically address the updating of unclear documents since it would only be a temporary solution. The proactive solution would be to address the root cause of the problem by ensuring that the process capturing updates work properly.

Consequently, three topics are identified to focus the scope:
- Create a process that ensures that document templates get updated and communicated to relevant parties
- Clarify navigation through the development process to find needed documents
- Enable employees to actively participate in the process of updating document templates

4.3 Introduction for new employees

The earlier presented documents templates are supposed to act as supportive guidance for how in-house projects are performed. This implies the importance for employees working in-house to understand how to utilize the documents. Despite this, no

introduction or guide to the process is given to new employees. Instead, it is the responsibility of employee to familiarize himself or herself with the documentation. This could cause various interpretations of how to utilize it, which gets amplified as the documentation discussed before can contain ambiguities.

4.3.1 **Work introduction focused scope**

A refined scope focused at creating a work introduction would reduce the unproductive time that a new employee has, and enable a uniform interpretation of work is conducted at the company to be established. Through the shortened learning period more time is available for value creation work. Additionally, it would provide an opportunity to further emphasize the three cornerstones' values to new employees.

Consequently, three topics are identified to focus the scope:
- Create an introduction program for new employees
- Clarify the work procedure at *i3tex AB*
- Promote the cornerstones' values

4.4 Knowledge Management and project learning

Presently, a process for capturing operational difficulties and deviations exist through the use of improvement groups and Managements' review of operation (MRO). However, these processes are to a high extent reliant on employees providing input into the improvement groups and MRO to initiate the processing. This results in a timely process for making improvements, and small changes are often left unnoticed as the incentives for employees to propose changes are low. However, if a problem would be perceived severe enough, the incentive for the employee to initiate change would naturally rise. Thus, the knowledge management system can still mitigate for major problems that are left unnoticed.

Project learning is established through the use of white papers, written at the end of every project and reviewed at the MRO's. Although actions are taken to ensure project learning through white papers, employees seldom read them before new projects to mitigate possible reoccurring problems. Hence, the benefits of writing them diminish. Despite not being read, drawbacks could not be identified. However, formal project learning solely emphasized after a projects end, could lead to problems that emerge early on being forgotten when the project learning process formally begin, especially for extensive projects.

4.4.1 **Knowledge and learning focused scope**

A refined scope pursuing these areas would prevent the repeatedly occurring problems and enable more efficient project learning. Therefore, non-value adding activities in terms of re-work would be prevented. Additionally, a learning focused process would enable more value to be created through re-use of knowledge.

Consequently, three topics are identified to focus the scope:
- Create a routine for continuous identification of project improvements
- Create a process that implements identified improvements
- Systematize project feedback and learning as a part of the project process

4.5 VM Workshops

Today's workshops are not a part of the internal development process and neither listed as one of their externally communicated core competencies. The use of workshops is limited to two applications: A small operational group of the company using it externally for solving a customer's problems and internally, where workshops are used for strategic decision making at management level.

Although appreciated by its users, tendencies of viewing *VM* as a buzzword are identified. This can partly be explained by *VM* methodology often being perceived as a very general method trying to take credit for what is to be viewed as common sense, and labeling it with strong words is seen redundant. Hence, the willingness to relate to it is lost by the phrasing rather than the content of the methodology.

Neither does the workshop methodology include any routines for improvement nor make use of learning. Hence, awareness is not raised of well or less well-functioning parts value approach.

4.5.1 **Workshop focused scope**

Pursuing a scope refined to workshops would result in spreading the notion of value creation. A continuous improvement process applied would give feedback of current performance, and thus create a more effective process over time. Since the workshop is based on a value creation focused method, an increased usage throughout the company would lead to more value-focused work. It would also entail an opportunity to connect and promote *i3tex AB* and value creation externally, bringing value to the company through positive marketing.

Consequently, four topics are identified to focus the scope;
- Integrate workshops in the internal development process
- Design a workshop methodology that integrates the cornerstones' values
- Establish a clear connection between value creation and *i3tex AB*'s business
- Design a learning process enabling continuous workshop improvement

4.6 Structured idea generation

Throughout a development project, the idea generation process for solving problems is rarely structured. Instead, it is a rather informal activity for approaching the problem. Obvious benefits of this exist; the problem solving becomes effective and flexible for less excessive problems where a structured process is not needed. However, applied at complex problems several complications can occur that result in insufficient solutions. This is partly explained by the idea generation's dependency on knowledge and ability of involved parties to conduct it accurately. Additional, by not having a process it is difficult to establish a sufficient common ground from which value is created. Hence, the outcome will to a higher extent be negatively affected by employees' uncertainty on how to approach the problem.

4.6.1 **Idea generation focused scope**

The benefits of refining the project scope to target this area are that a methodology providing an ability to ensure higher quality result is developed. Thus, a better end product is delivered, increasing the value delivered to customers.

Consequently, three topics are identified to focus the scope;
- Assess areas in need of a more structured idea generation applied
- Design of a structure that eases problem solving
- Ensure that the source of cooperative problem solving is better utilized

4.7 Scope selection

To select scope and delimit this project, four criteria were used to assess the potential of the above presented improvement areas applicable to further research. The criteria origin from the needs identified from the in-depth interviews conducted during the pre-study, and represent the objectives outlining the thesis scope refinement. These were:

Connection to cornerstones' values: The importance of applying a competitive edge to the company and differentiate its offerings in the market of consultancy services.

Size of problem: The severity of the problem traded off against having to be manageable to conduct throughout the assigned thesis timeframe.

Potential improvement: The potential to imply a significant improvement of the value creation focus at the company.

Suiting first step to enhance value creation focus: How well the scope coincides with value creation and addresses a customer need's focus in the studied company context.

The evaluation matrix in *Figure 4.1* shows the result of the qualitative assessment of each refined scope's fulfillment according to stated criteria.

Scope \ Criteria	Connection to cornerstones' values	Size of problem	Potential imporvement	Suiting first step to enhance value creation focus	Total
Customer Needs focus	1p	2p	2p	1p	6p
Document Management	1p	1p	1p	1p	4p
Introduction program	2p	1p	2p	2p	7p
Knowledge and learning	2p	1p	2p	1p	6p
Workshops	3p	1p	2p	3p	9p
Structured Idea generation	2p	1p	1p	1p	5p

Legend: 3p ●, 2p ◉, 1p ○

Figure 4.1 Resulting Evaluation matrix of possible project scopes

The assessment indicated that Workshops was the most relevant scope refinement to pursue. This scope's relevance was additionally confirmed through consulting company personnel. Therefore, the thesis was further guided by the scope refinement topics in section *4.5.1 Workshop focused scope* to answer the research questions.

5 The Workshop

This chapter presents the company's current workshop practice as well as the sought state of the activity. The models are based upon gathered company information, and are input to the later performed gap analysis.

5.1 TO-BE

Three main characteristics that define the wanted shape of workshops were identified. These outline the factors that will enable the wanted activity's outcomes to be reached. The characteristics and their main relations are depicted in *Figure 5.1.*
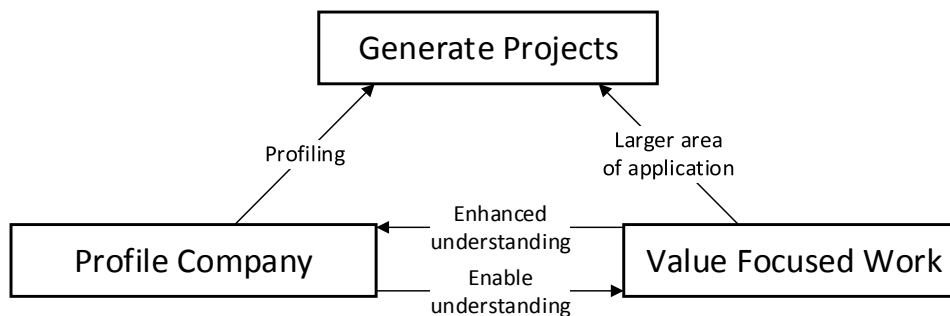
Figure 5.1 The three main characteristics defining the wanted state of workshops

5.1.1 **Generate projects**

The most central characteristic identified is to a greater extent use workshops as events engaging the customer with the intent to generate new projects. Having such an approach has already been identified as powerful by the company, but no specific method for how to pursue it to systematically achieve success exist. The goal is to have an approach that can be used as an introductory tool focusing on building customer relation. This characteristic is seen most central since two residual areas both have the objective of generating projects and also affects the ability to accomplish this.

5.1.2 **Profile company**

The second characteristic to incorporate for in workshops is the ability to integrate *VM* methodology within the company, and thereby increase of value creation work. It shall also act to profile the company externally towards customers. By having a more thoroughly outspoken value creation focus, non-value adding activities will be reduced and a leaner operation with more high quality work will be achieved. Further, by creating a mindset to focus on value throughout the company, it will in the long run also increase its competitiveness. To accomplish this, the objective is to more clearly incorporate the company values into the value-focused workshops.

5.1.3 **Value-focused work**

The third characteristic important to account for is that the *VM* workshop ought to be used internally to a greater extent. This will also help spread the connection between *VM* and the company down to reach the operative level. The broadened use of a workshop methodology would in the long run increase the employees' knowledge of the methodology. More value-focused work would additionally also strengthen the company.

5.1.4 **Outcome of improved workshop**

By fulfilling the characteristics above, the workshop will be able to produce the following set of outcomes, corresponding to the objectives *i3tex AB* want their workshop to fulfill. These are represented at the highest system level of the TO-BE model seen in *Figure 5.2.*
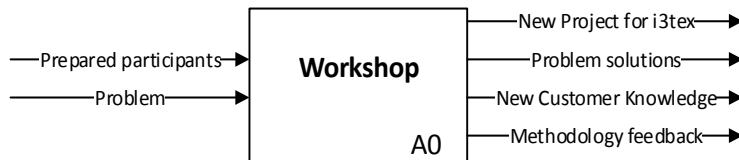
Figure 5.2 Highest system level of TO-BE workshop

5.2 AS-IS

The existing workshop is presented through an objective description. Its main- and sub-activities are presented in a general, chronological order starting with an overall description, which is broken down into details further on.

5.2.1 **Current use**

The company workshop is a creative problem-solving tool, most often held as a one or two-day event. It is today limited to two main areas of application, externally for helping customers solve complex problems by providing technical expertise, and internally for determining strategic objectives. A third interface is found though a customer-partnership where *i3tex AB* both have facilitated and participated in larger technical workshops helping the customer to find cost reducing solutions to existing products. This collaboration has put pressure on *i3tex AB* to provide knowledgeable participants to these events, which have resulted in an internal education being constructed.

Workshops are also occasionally held as initial new customer meetings with the main objective of generating new projects. Most often is the outcome though; a purchase of regular consultancy hours in customer driven projects, but at times it is discovered that the problem is best approached with a new, separate project. On these occasions the customer lacks either their own competence or resources to conduct the project by themselves, and *i3tex AB* have succeeded to, during this meeting convince that they are able to solve this problem for the customer.

The AS-IS model presented in this section is focused on the customer-orientated workshops because of the characteristics presented in the TO-BE model to enable comparison. Minor structural changes are applied when making this model into the internally used workshop. Therefore, describing both is superfluous.

5.2.2 **Stakeholders**

A typical customer-oriented workshop includes one workshop project leader, one customer and a number of participants. Additional stakeholders can be other, non-directly involved personnel from both the customer's company and *i3tex AB* that are affected by the workshop outcome. The stakeholders of the workshop are presented in a stakeholder map, seen in *Figure 5.3.*

Figure 5.3 Stakeholder map of workshops at i3tex AB
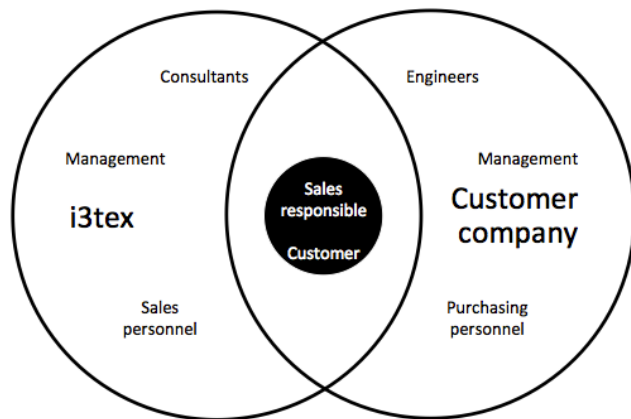
The stakeholder map also includes persons affected by a possible shortcoming of resources that are relocated to the workshop. The workshop project leader is typically the sales person responsible for the customer contact. This person initiates the activity in collaboration with the customer and is the one who plans, prepares and most often leads the workshop. When leading the activity, the workshop project leader is synonym to the workshop leader. The customer is denoted the person possessing the problem and who ordered the workshop to solve it.

Workshop participants can be sourced from both the customer's company and from *i3tex AB* depending on the scope, with focus on gathering key stakeholders and participants with adequate technical knowledge. If the customer possesses the technical knowledge, these resources are utilized to the extent possible. Though, as key personnel have other responsibilities it is difficult to summon all at once for a long period of time, a result of the activity being lowly prioritized when limited resources exist.

Workshops from a sales manager's perspective
Although workshops act as a direct source of income for *i3tex AB*, this post of revenue is relatively small. Hence, little monetary incentives are provided for conducting such activities as isolated events. Though, workshops are found to be a good way to meet customers and acquire knowledge about their needs. This accounts for both existing and possible new ones, to identify potential business opportunities and at the same time market company competences. Opportunities to create new business are occasionally an outcome of the workshops. For these, substantial amounts of revenue are generated compared to isolated workshop events. This way of working is relative new to the sales personnel and no routine or process is established to pursue these kinds of events. As a result of this the use is limited, and sporadically applied when an opportunity arises, or when the customer specifically asks for it.

When workshops are used the *VM* methodology of the activity is seldom presented both because of limited time leading to down-prioritization, but also as the view of *VM* tends to be seen as a buzzword by both customers and sales personnel, fancy words that add cost rather than increase value. This view is split in the sales force, where parts look at it the other way around.

The process of initiating a workshop deal with the customer starts with a general customer meeting, unless the customer actively contacts the company seeking this service. The customer meetings are seldom focused at identifying workshop opportunities specifically, but are focused to establish or manage a customer relation by creating a mutual understanding of each party's needs. Hence, finding a workshop opportunity is infrequently the most suitable option to address the need as the customer, who often requests regular consultancy services in terms of work hours. However, when the sales manager identifies an unsolved problem or unseized idea, the manager proposes that the customer brings some of their leading employees and *i3tex AB* provides their matching competences, to which they can utilize a group activity aimed at finding possible solutions to problems. Thus, the workshop often acts as an introductory exercise that, outside solving the workshop problem, has an agenda aimed at exchanging needs information. Evolving a customer relation is deemed of absolute importance for enclosing new business deals and attracts new projects, out of where a workshop is one tool to utilize for this purpose. By establishing a customer relation, the competences *i3tex AB* possesses become visible to the customer and thus they are more likely to be offered projects. To gain the customer's attention, security and previous business contact is important, especially if the search of new business opportunities is extended beyond the existing business network.

Workshops from an employee's perspective
The connection between employees and workshops is limited in today's situation. The majority of the employees has an idea of what a workshop is and how it can be used, but possess little experience of applying it to their daily work. Neither is this use seen necessary in the majority of their work, as it would imply one additional step to the development process and take up time from an all too often pressured schedule. Even if a higher customer value could be achieved, delivering according to time is higher prioritized.

5.2.3 Workshop education
An internal education is held twice a year to educate employees in workshops. The education is mainly targeting employees that have a direct connection to participate in workshops, but management and sales personnel are also encouraged to take part. The objective is to prepare employees to act as both participants and facilitate workshop groups although how to facilitate is only briefly mentioned during the education. The education is structured as a real workshop with a fictitious scenario, where emphasis is to give the participants an opportunity to try different tools during a session of approximately two hours.

5.2.4 **Process structure**

Figure 5.5 depicts the general structure of the workshop, and the transformation of the activity as a whole. The initiating factor is an unsolved problem that is to be processed and transformed into a list of solutions. The second input is unprepared participants. These will in the early stages as information is given to them, transform and thereafter act as a resource to the problem solving. Three main outputs exist, a priority list of solutions, new customer knowledge and occasionally, new projects.
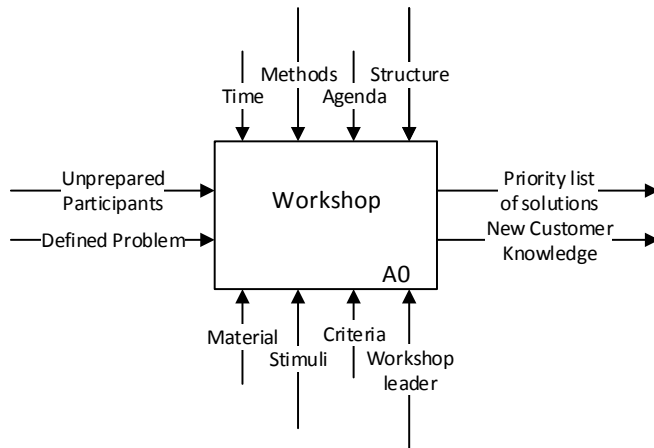
Figure 5.4 Highest system level of AS-IS workshop

A0 Workshop

Decomposing the highest-level model, the workshop consists of four phases, *A1-A4*, seen in *Figure 5.5*. This model presented describes a workshop where all phases are performed. Due to its generality the usage range differs, all phases are not performed every time. However, to describe the generic model and be able to determine their interrelations, all phases will be included. Further, the pre- and post-workshop activities are included as they to a large extent determine the input and output of the activity.
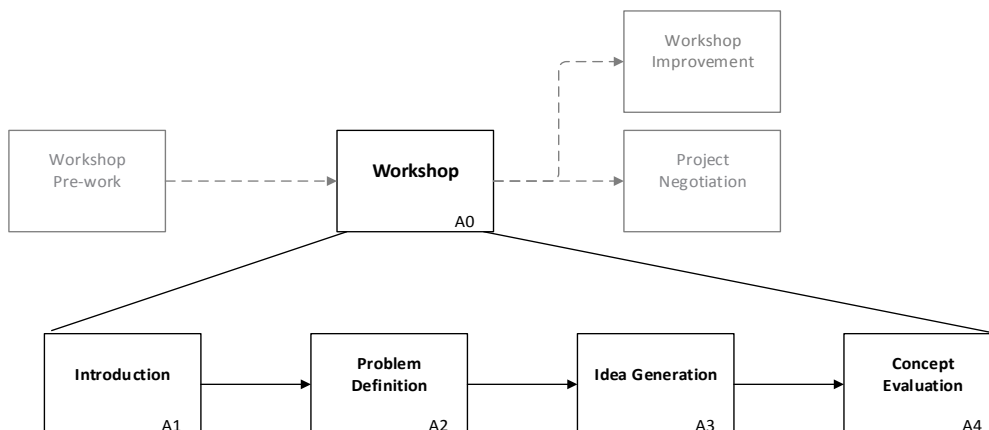
Figure 5.5 The four main workshop phases A1-A4

Pre-workshop activity

Preparation work is conducted to ensure that the workshop has the prerequisites needed to solve the problem. The main focus of this activity is to adjust the workshop structure and equivalent methods accordingly to the sought outcome. Large parts of this consist of gathering information about the problem and finding appropriate participants to include. The input to the workshop hence is, stimuli, appropriate tools, together with relevant problem, product, customer and market information provided by the pre-workshop activity. A system model depicting the workshop pre-work phase and its relation to the workshop is seen in *Figure 5.6.*
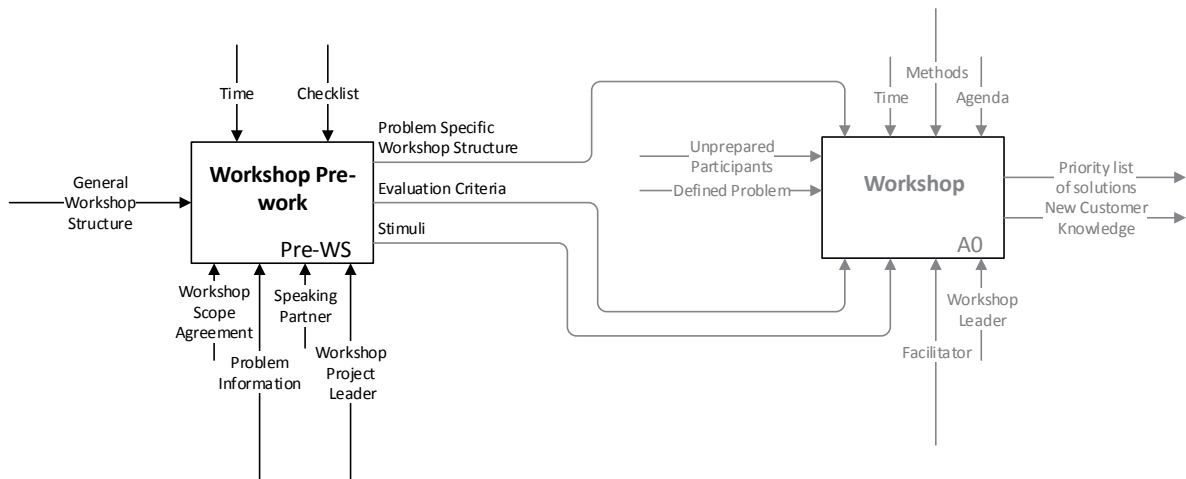
Figure 5.6 Pre-workshop activity with workshop relation

Gathering already scheduled personnel during extended periods of time puts pressure to make the workshop lean and efficient. As a result, non-idea generating work is kept to a minimum. Therefore, the participants receive information about the workshop prior to the event. Information communicated includes problem description, sought result and information about stimuli available during the event.

A1 Introduction

A1 Introduction aims to inform the participants about the work ahead. The objective is to achieve an open, socially comfortable group informed about the activity. Decomposing *A1 Introduction*, the activity is structured in four sub-activities, *A1.1-A1.4*, seen in *Figure 5.7*.
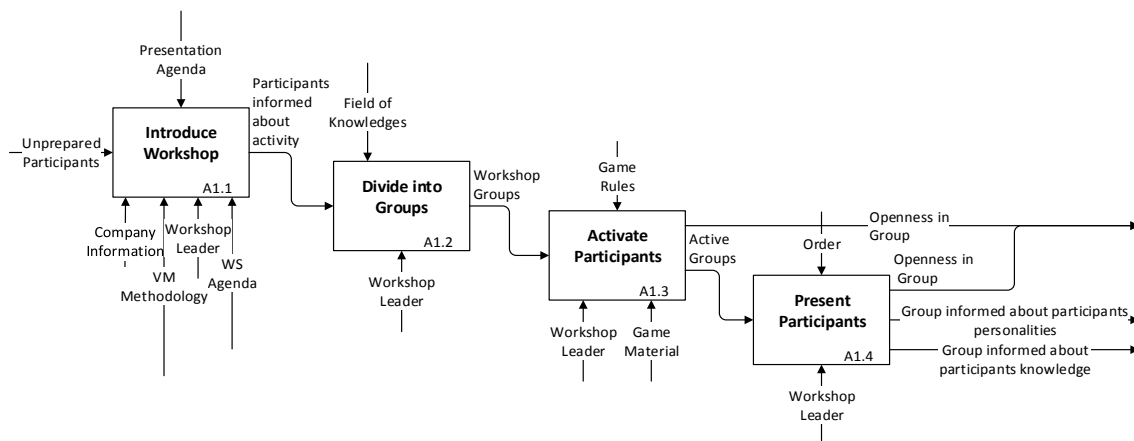
Figure 5.7 The four sub-activities of the Introduction phase

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A1.1: The workshop's agenda is presented to help the participants understand the structure of the activity. The *VM* methodology is presented, although depending on the time pressure, the thoroughness varies. If participants from the customer's company are unfamiliar with the company's business, brief company information is provided.

A1.2: The participants are divided into groups. For groups larger than around eight, participants are divided into two or more groups to foster communication and enable closer collaboration between team members. Considerations made to form groups are technical knowledge and social skills. A trade-off is necessary as similar technical knowledge facilitates communication but diversity enables different views of the problem. Social skills are deemed to be of great importance to create group dynamics, communicate and exchange ideas. The idea is to have at least one person in each group that possesses the skills to facilitate this. If difficulties arise to find such competences at the customer's company, *i3tex AB* provides personnel for this task.

A1.3: An exercise is held to engage the participants and stimulate creative thinking using a playful game that involves fast thinking and group interaction to unite the members and become a team. The purpose of introducing an ice breaking activity early on is to foster openness that later facilitates communication during problem solving.

A1.4: Each team member is introduced to each other. The participants are asked to present their work title, field of knowledge, and something personal to embrace a relaxed atmosphere. Additional to building team spirit, the group becomes aware of the knowledge the group possesses.

A2 Information

Decomposing *A2 Information*, the activity is structured in three sub-activities, *A2.1-A2.3*, seen in *Figure 5.8.* The goal of this is to create a deep understanding of the problem among the participants and use it to formulate a customer needs specification. The workshop leader, or other person well versed in the subject, presents the problem. By giving all participants the same information, the objective is to establish consensus of the problem definition and goal.
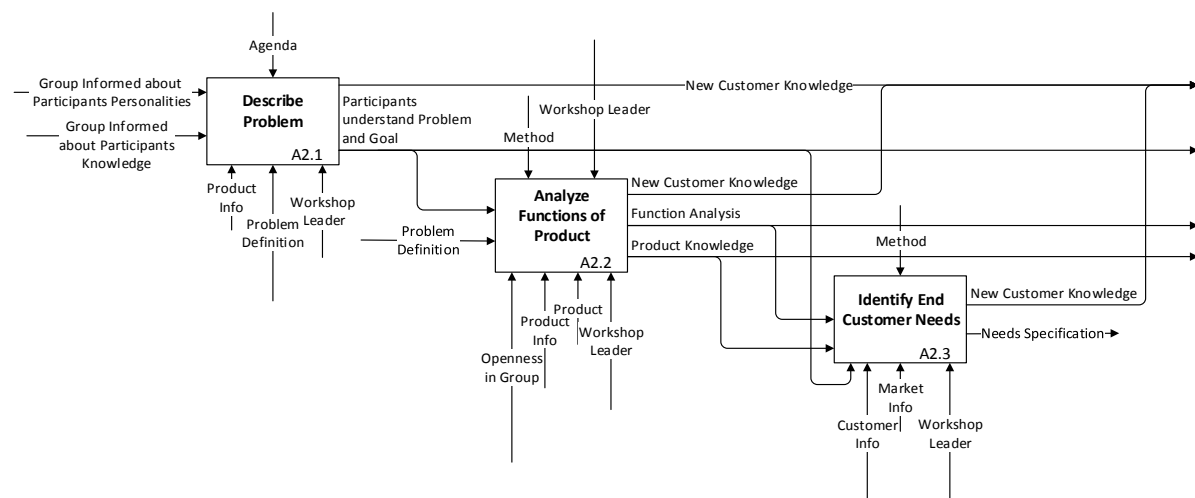
Figure 5.8 The three sub-activities of the Information phase

A2.1: Key facts and detailed problem information is presented to provide participants with an overview of the problem. Information such as function descriptions, cost

analysis and requirement specifications are given to establish a common holistic technical ground.

A2.2: The product is analyzed and decomposed into sub-functions with the objective to track in what way each part of the product helps fulfill the customer needs. Focusing on analyzing the products functions helps keep an objective mindset. Depending on scope, different function analysis tools are selected.

A2.3: Each identified product function is translated to the end customer need it fulfills. Market and customer information act as inputs to more accurately connect functions and needs. The outcome of the activity is a customer need's specification.

A3 Idea generation

Decomposing *A3 Idea generation*, the activity is structured in four sub-activities, *A3.1-A3.4*, seen in *Figure 5.9.* This activity incorporates the process of idea generation, with the main focus to generate a large quantitative number of solutions to the posed problem.
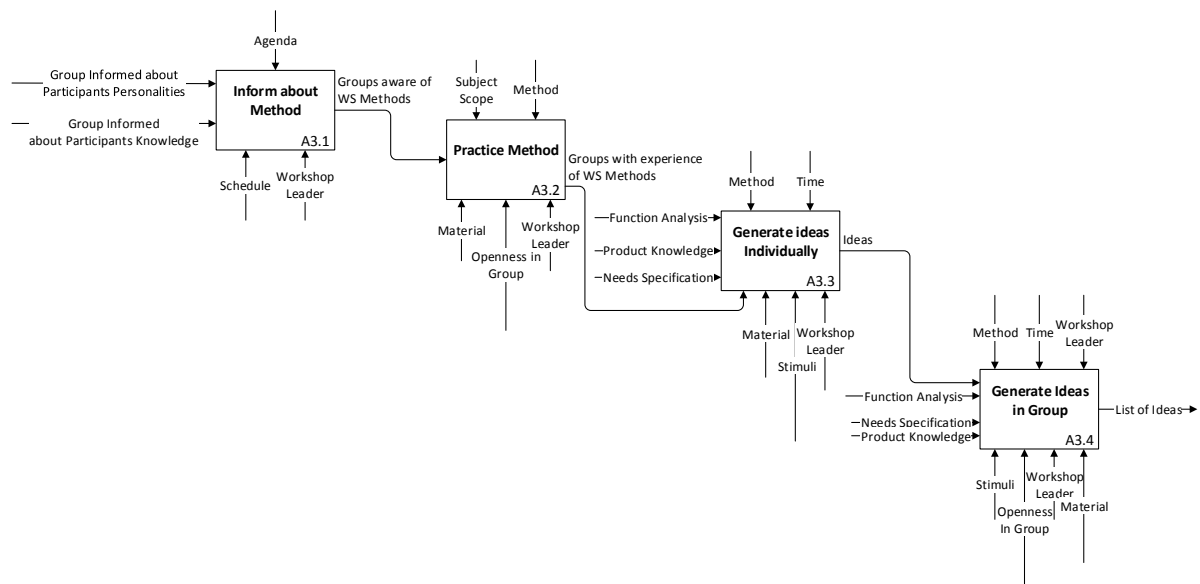
Figure 5.9 The four sub-activities of the Idea generation phase

A3.1: The workshop leader presents the idea generation method to create awareness of how the exercise will be conducted. This is made to remove possible uncertainties and increase the likelihood of keeping the focus on generating ideas.

A3.2: The method is practiced through a fictitious example to involve the participants, and ensure a clear understanding of the methods to be used. The exercise is led by the workshop leader to avoid ambiguities and allow participants to reflect over the method and ask clarifying questions. The objective is to ensure the idea generation to solely be focused on the problem posed.

A3.3: Ideas are first generated individually in a brainstorming session where each participant gets a chance to think through the problem and create ideas without others providing input. This prevents participants from being affected by each other. It also aims to diminish strong personality impact on the idea generation. By structuring

thoughts into ideas, adequately developed ideas with less ambiguity are brought to the group brainstorming session.

A3.4: The individually developed ideas are shared with the group, where a selected joint brainstorming method is applied to structure idea generation in the group. The key focus is to share, combine and develop the individual ideas. Through out the session is the non-acceptance of negative attitudes and criticism recalled by the workshop leader. All ideas are accepted at this stage. The outcome of this activity is a set of collectively documented ideas.

A4 Concept evaluation

The objectives of *A4 Concept evaluation* are to evaluate, prioritize and select the most promising ideas for further development. The extensiveness of the phase depends on the scope. If substantial technical input is needed to assess the ideas this activity ends with *A4.1 Present Ideas*, where further information is gathered in order to evaluate and prioritize the ideas. When this activity is performed after the workshop, the customer often exclusively does it. When conducted entirely in the workshop, A4 is decomposed in five sub-activities *A4.1-A4.5*, seen in *Figure 5.10*, and all participants are a part of the evaluation.
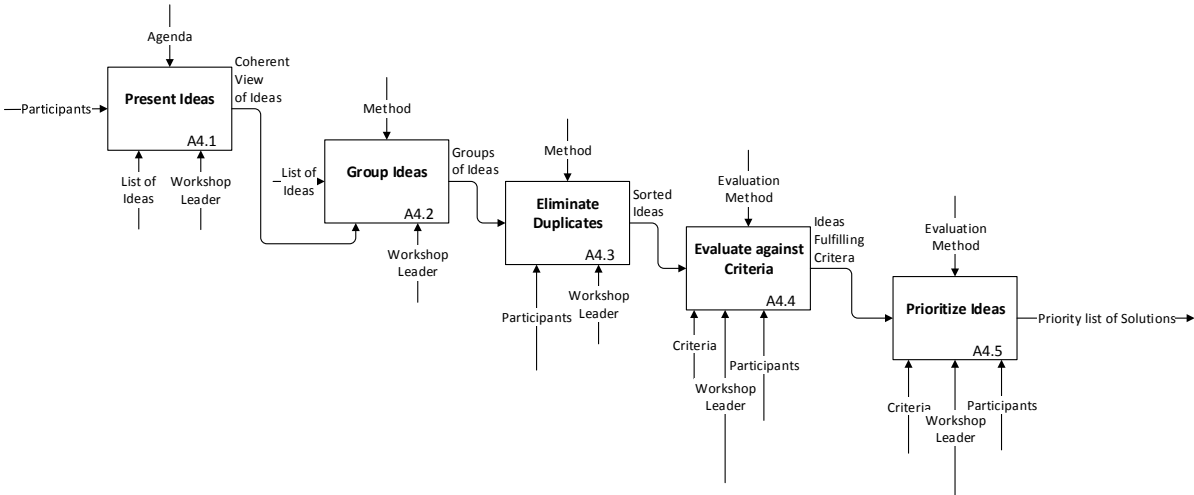
Figure 5.10 The five sub-activities of the Concept evaluation phase

A4.1: For workshops where participants are divided in groups, a short presentation of each group's ideas is given to the other groups. To ease the process, each group reaches consensus about a best set of ideas to present. The objective is to depict the workshop result to all participants, and for workshops including all of *A4's* phases to complete a set of solutions and evaluate them.

For workshops were large quantities of ideas are generated, only the most accountable people, such as the customer and workshop project leader perform *A4.2-A4.5*. The reasons are two; the complexity of involving numerous stakeholders makes it both difficult to manage practically but also consumes substantial time.

A4.2: The ideas are grouped according to similarity to achieve an overview and support evaluation. Judgment of similarity is defined by the group's perception of it, often technology specific or fulfilling specific needs. The ideas are thoroughly analyzed, and possibly combined.

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A4.3: The grouped ideas are evaluated for distinctive novelty. If two or more ideas are considered the same, one is kept and the other is dismissed to reduce the number of ideas and administrational work.

A4.4: The ideas are evaluated according to important criteria. Input criteria are either the customer needs specification created in *A2.3*, or pre-work established criteria. If the development has indicated a need to add criteria, these are added at this point. Evaluation matrices, based on the scope, are applied to structure and focus the evaluation. The outcome is a set of scored proposals.

A4.5: The proposals are ranked according to score and presented to the customer, who decides whether or not to pursue with one or more proposals. The decision process is supported by the scored evaluation with personal judgments and technical input from the company. Ideas not selected are most often discharged, and not to be re-used in further work.

5.2.5 **Project negotiation**

The ideas generated in the workshop often require substantial amounts of technical data and analysis to be properly evaluated. The results from the workshop are often handed over to the customer who becomes responsible for the outcome and further development. To actively participate in possible project negotiation is a sales related activity, where customer experience, sales skills and workshop results are important. No formal process of following up the activity is formulated and is highly dependent on the salesperson.

The quality of the workshop outcome is not measured in any way. Hence, no documentation of how well the activity fulfilled its purpose of delivering sought results is left for qualitative improvements.

5.2.6 **Workshop improvement**

An evaluation form is sent to the participants through e-mail to assess the workshop experience. The evaluation is done through marking either a positive or negative smiley and answering an open question addressing good and bad experiences of the activity. The results are summarized and the workshop project leader assesses whether the result demands future changes to the activity. Changes made are rarely means for updating the formal, company common, and workshop methodology. Information regarding the feedback is informally spread to other workshop project leaders.

6 Analysis

This chapter presents the gap-analysis made between the present state and the wanted state of workshop, followed by the outline of changes needed to fulfill the identified gap. The changes are based on contextualizing theory for each field to match company objectives.

A general analysis of the overall structural composition deems it as satisfactory. All sub-activities, although described generally, are either directly or indirectly increasing the value created for the customer. Thus, the analysis is kept on a level of abstraction corresponding to the main characteristics described in the TO-BE model.

6.1 Workshop applicability

The limited use of workshops at the company is seen to hamper the awareness of how to utilize the methodology among the employees. A low rate of the employees have taken the internal workshop education and have, in few, or no cases, used the methodology in their operational work. This causes a generally low knowledge in the field of workshops among employees. As a majority of the internal use is on a strategic level rather than on an operational level, this causes the employees to become further disconnected from the methodology and its possible use.

Since the workshop project leaders design case-specific workshops, the performance of a workshop highly depends on this person's ability to match the problem with a suitable method. As the workshop framework is intended to be applicable on a broad range of problems, it would be constrained by specifying which tools to utilize, theoretically limiting the ability to achieve a satisfactory result. Hence, this implies the need to ensure that sufficient skills among workshop projects leaders are obtained.

The main benefitting factor of the current workshop approach for being effective as a problem-solving tool is its applicability on low-complex problems, often technically oriented. Even though, it is mainly used for internal strategic decision-making. Hence, the match between used method and area of application is not seen as optimal. However, the willingness to expand the applicability of workshops so that they are not solely used as problem-solving exercises broadens the range of scopes to be handled. For the new area of scopes, the technical aspect is less central, and focus is instead put at building a customer relationship. Thereby, the current approach's ability to address such scopes is scarce. As a shift from being technically focused to acquiring new customers, the approach will differ, indicating the need for a new framework to be developed.

6.2 Generate projects

The main objective for workshops is to generate new customer projects, although seldom focused upon in the current approach. The full potential of *i3tex AB* may therefor never be seen or used in customer relations initiated by a workshop. This could partly account a reason for why projects seldom start as a workshop result.

At the times when workshops were held as initial new customer meetings, and that lead to a project start, it often depended on the customer either lacking their own

competence or resources to conduct the project by themselves. This indicates that for generating more projects, these types of customers could be targeted. This gets further accentuated, as the internal and external communication of workshops today is highly limited. Without the external marketing of this knowledge no awareness among either existing or potential customers will be created. Customers with an undefined problem that do not possess the technical knowledge may therefore not know where to start looking. Hence, finding *i3tex AB* services may already from the start be difficult. This further promotes the need for external promotion. Though the view of *VM* as a methodology is seen sensitive within the present industry.

6.3 VM connection

The single connection between outspoken value creation focus and the company is through the *VM* workshops. Although workshops being VM based, the explanation of how they create value is not thoroughly emphasized while conducted. Therefore, the result is an overall low knowledge about the methodology beyond its existence.

The marginal use of workshops is not seen to be connected to a sense of unwillingness among the employees, but is rather a result of a majority having assignments not involving workshops. Therefore, due to resource limitations the training is not given to all employees.

Management incentives for applying the methodology internally is today not present, and the communication of it towards employees is non-existing. Its advantages are therefore not getting highlighted throughout the company, providing little incentives for the employees to apply the methodology in already time-pressured projects.

6.4 Outline of changes

From the gaps identified to target the three main characteristics of the workshop described in chapter *5.1 TO-BE*, the outline of changes needed to account for is presented.

6.4.1 Two approaches

The existing approach is similar to the methodology of *HVM* described by Liu and Leung (2002), an approach that emphasize focus on system thinking through the use functional analysis to obtain maximum value (Green, 1992; Liu and Leung, 2002). However, *HVM* is not suitable for achieving the new purpose of generating projects where other objectives exist (Green, 1994; Thiry, 2001). As workshops are to be used for other purposes, the workshop objective shifts from technically focused to building customer relations. Green (1994) and Thiry (2001) suggest that for such purposes emphasis should be put on soft values, making a *Soft System Methodology* (*SSM*) useful. The narrow technical approach, often cost-focused, is redundant since objectives are yet not well set (Green, 1992). Using a different VM approach that focuses on soft systems thinking can promote understanding of each other's needs, as the sociological aspects become more central in the problem.

As mentioned, a workshop is shaped from the general value management template, formed accordingly to each prevailing scenario's unique pre-requisites. For the company the workshop's usability can be clustered into two main application areas. Therefore, two different generic frameworks are deemed needed due to that their objectives and

wanted outcomes differing vastly: (1) A workshop framework to be applied mainly as a problem solving tool for well-defined technical problems. This approach coincides with the *HVM*, where function analysis and cost reduction are main features (Kelly and Male, 1992;Thiry, 2001). (2) A workshop framework to use as an introductory tool where getting to know customers and creating trust are essentials, although problem solving is part of it. For these, the workshop objective is seldom pre-defined. It is therefore first needed to ascertain the stakeholder's interests before problem objectives can be expressed (Green 1994). Because softer problems seldom are pre-defined, the scope of the workshop vastly differs from the one matching today's approach. These problems require focus on creating an understanding to make the problem graspable. Hence, the idea is to establish this framework and establish customer relationships, which subsequently enables the start of new projects.

6.4.2 **Necessities to generate projects**

For B2B markets, it is important to emphasize the notion that customers utilizing a service or purchasing a product do so to fulfill their own needs and demands to enable a more efficient utilization of resources (Stevens and Kinni, 2007). Thus, the leverage a selling company achieves comes from the degree to which they fulfill customer needs. The more knowledge about customer needs that is acquired therefore increases the probability of offering the requested attributes to the purchaser (Gunasekaran and Ngai, 2007). Hence, the more successful the process of understanding the customer becomes the more value can be added to the product (Stevens and Kinni, 2007; Ulrich and Eppinger, 2012). Further, customers seek to partner with the ones that show the largest understanding and capability of addressing their interests (Sain and Wilde, 2014). Roselius (1971) and Ulrich and Eppinger (2012) highlight that a learning process is eased by direct customer knowledge interaction as it more correctly depicts the right quality attributes sought. Having a process focus on acquisition of customer knowledge, through which you can accentuate the possession of technical skills and ability to manage work addressed to the problem therefore become necessities for workshops where key focus is set on soft skills (Pucetas, 1998). This suggests that an intra company team activity such as workshops, where stakeholders interact and exchange knowledge, would serve good purpose for building customer relations from.

Loyalty in the context of customer relations
The process of recruiting new customers is often seen as far more expensive than the process of retaining already existing ones (Fornell and Wernerfelt, 1987). This implies an importance on building well-developed customer relations, where business loyalty is central. Loyal customers result in great benefits for the supplier in a B2B setting that comprises large transactions (Rauyruen and Miller, 2007). In these contexts, sales volume is not the main goal to strive for, but of greater importance is to obtain long-term relations where a profound understanding of the customer's needs and problems are created (Gounaris, 2005; Rauyruen and Miller, 2007). As these circumstances apply to *i3tex AB*, the notion of loyalty is important to address.

A study of the European Customer Satisfaction Index (ECSI) in the context of B2B customer relations, by Askariazad and Babakhani (2015) points out corporate image, customer satisfaction, trust and complaint handling as important factors to build loyalty. For this project, loyalty is assumed to positively correlate with the creation of sustainable relations and project starts based upon the above notion. By targeting these factors, and incorporating them into the proposal, important underlying factors will be

dealt with to help substantiate project generation. Their specific characteristics and how to account for these in the proposal are argued below.

Corporate image: The corporate image, or brand, is the means by which a company projects itself (A dictionary of business and management, 2016), and is a mean used to define market position, and is utilized to accentuate unique offerings. A brand is built through the formulation of visual and verbal attributes such as logo, slogan, design, packaging and symbol, which are supposed to communicate company values to the customer (Anderson, Narus and Narayandas, 2009). However, the brand of a company in B2B markets may, to a larger extent, be built through high performance service and offerings. This corresponds more closely to the branding of a service company, than a company in the consumer goods market (Brown, Dacin and Pitt, 2010). This corresponds to the industry *i3tex AB* is present within. Thus, to enhance a company's corporate image a possibility is to, over time, deliver high quality results and thereby become further associated with this performance. Therefore, having a workshop that is able to address problems and target solutions, would communicate a corporate image connected to high value.

Customer Satisfaction: Defined as the total evaluation of a company's post transaction performance (Fornell, 1992), customer satisfaction is mostly perceived through the cognitive process of comparing total experience to one or more references (Johnson and Fornell, 1991). This definition does not correspond to the notion of the customer's overall experience that implies perceived satisfaction in all stages of the activity. Hence, to have a direct customer focus throughout the workshop process should be stressed to achieve high customer satisfaction in addition to the post transaction performance.

Trust: B2B trust is created through both showing an understanding of a customer's situation and the possession of the technical capability to fulfill their needs (Wu and Li, 2009). Without trust, the process to elicit the customer's needs accurately and create an effective customer relationship is difficult (Pucetas, 1998; Ulrich and Eppinger (2012). Moreover, Monty (2015) states that without trust the purchaser is less likely to make a purchase. Further, Pucetas (1998) specifically addresses how trust in shorter workshops is established through competence and personal character. For group focused problem solving, credibility and trust are built from the actual result and presentation of the outcome. Here, possessing technical expertise as well as an understanding of the workshop methodology for the facilitating parties are essentials to accomplish this (Pucetas, 1998). The workshop proposal therefore has to include a methodology for efficient problem solving as well, although the foremost emphasis in these cases are building a relationship. An important part will therefore be to ensure that the workshop activity is conducted appropriately by the facilitator (Chen, Chang and Huang, 2010; Shen and Liu, 2003; Thiry, 2013).

Credibility is additionally built when participants interact within a group, as the workshop stakeholders will have to develop a unanimous consensus upon the methodology and objectives to reach success (Green, 1994; Maylor, 2010; Palmer, Kelly and Male, 1996; Pucetas, 1998; Shen and Liu, 2003). To establish consensus and strive for common goals are also stated as aspects needed to create an effective temporary team (Dyer, Dyer and Dyer, 2013). Thus, these elements are important to account for to achieve high workshop performance. By also addressing post workshop activities, further engagement is shown to the customer and thus accentuating credibility.

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Through developing personal relationships within the team and giving all stakeholders the possibility to voice their opinion, a better holistic understanding is established, through which trust is built. This also coincides with the findings of Zaheer, McEvily and Perrone. (1998) who recognize two types of trust, inter-organizational and interpersonal, having a positive correlation. Once established, more effective information sharing is possible, which increases the likelihood of addressing the right needs and, in the end, finalize project deals (Pucetas, 1998). It is therefore important to include all stakeholders in the workshop execution. (Chen et al., 2010; Male, Kelly, Fernie, Grongvis and Bowles, 1998; Pucetas, 1998; Shen and Liu, 2003; Thiry, 2013).

Complaint handling: Complaint handling is how the customer perceives the quality of the actions given by the supplier when handling complaints (O'Loughlin and Coenders, 2002). The utilization of this activity in today's workshop process is minimalistic. A more extensive feedback regarding the customer's experience of the process would provide input for improving the process. Additionally, it would also lead to higher customer satisfaction as the post transactional activities would be more focused upon (Johnsson and Fornell, 1991), leading to the customers perceiving themselves as more important. By using this input to improve the process, the workshop would long term create better outcomes, important to achieve satisfied customers, build long lasting relationships and loyalty. Even though this is not a direct complaint-handling act, it means that the customer's input is of utter importance to account for.

6.4.3 **Connect VM to the company**

Just as the cornerstones today have a profound positive perception among the employees, *VM* is negatively viewed by some, including some customers and is seen as a buzzword with little substance attached to it. This poses a possible threat of resistance to further implement a *VM* based method. However, the less positive employees think that the content of the methodology is good, but that it is more a matter of using common sense than a profound specific method. Thus, is it of importance to formulate the proposal in a "Value Management-neutral" manner, but still propagate the methods and techniques for value-focused work. To further pave the way for successful implementation, the connection between cornerstones and methodology is needed not only to accept the change, but to also for use in daily work.

The importance of corporate image has previously been emphasized. The company would not only benefit from having a clearer value-focused profile in the matter of loyal customers, but it would also serve the purpose of marketing as well. Having an active brand management in the sector of industrial services enables an opportunity to create and maintain a unique competitive edge (Kotler and Pfoertsch, 2006), so called differentiation. Though, perhaps of even greater importance for connecting *VM* and company values is not the external marketing it would yield, but the internal promotion and establishment of value-focused work. Because this project's goal to a large extent consists of suggesting a set of changes applied in an existing environment, the changes made will affect this. Campbell (2014) presents the difficulty of making new behavior stick when implementing organizational change. This is explained by the inherent view that change is negative, which therefore induces an initial resistance, even if the change is seen as positive in the long run (Campbell 2014; Maylor 2010). A company's capacity to evolve through this depends highly on the individual employees' capacity to change.

The three cornerstones are seen to bring the employees closer to each other but also to the company. Incorporating these in the workshop could therefore add a positive tone to the inevitable change that is needed if TO-BE objectives are to be met. Then, to some extent mitigate initial resistance. As a consequence of this workshops would also be more clearly connected to the entirety of the company.

6.4.4 **Achieving increased use**

To reach an increased use of workshops is seen to be connected to extending the value focus and to make work more effective and efficient. The restrictive use of workshops today is the result of a number of factors. The first is to actually make it useful in more situations. Secondly is to utilize them for initiating new customer relations and exchange needs have already been identified as an opportunity by the company, and the prerequisites to achieve such a setting have already dealt with in this analysis. Despite the technical oriented approach of today's methodology, it is to large extent not used for those purposes in projects. This indicates a potential for extending the existing approach as well. Two factors needed to account for this are identified, knowledge and promotion.

Knowledge: As mentioned, the workshop is restrictively used and a low level of knowledge about the methodology exists. Few have taken part in the internal education and a low level of drive to apply it in the day-to-day work for the employees exists. The education is rather short and focused on gaining practical experience in the methods. Thus, the connection of workshops as a methodology for creative problem solving to be applied in projects is vague. However, one cannot solely inculpate the infrequent usage on low method skill. To always utilize a workshop to target a problem in a project would not be efficient, as not all problems have the complexity and suitability to be targeted using a workshop. Although, the general knowledge among employees of when workshops could be a suitable method to use in internal development projects is low. Hence, creating the knowledge of workshops role for creating customer value is important. As a part of this, additional efforts should be put into education the employees and management if one wants to expand its usage. An education with a more extensive agenda could targets specific needs of each group of users, and thereby more directly connect it to their work with examples of applications.

Promotion: To reach an increased internal usage, the knowledge should be spread indirectly to the users through incorporating it in the development process at the company intranet. Here, all other operational guides and templates are provided to employees, which make it the natural source for promotion. The introduction of a guide on how to use the methodology would therefore help to raise the attention of the workshops, and how it can be applied.

To promote an organizational change, it is of importance to provide incentives for the involved to accept and embrace it. Encouragements, penalties and removing old routines provide efforts to be focused on phasing out the old (Campbell, 2014). Positive effects of using workshops therefore have to be depicted to enable adaptation, possible amplified with incitements in the early introduction of the new proposal. Further, management will have to both to communicate the benefits of using workshops and encouragement is to be applied in in-house development projects, to get employees to use it. If the connection is made, and it highlights the workshop benefits, an intrinsic motivation can be established as the persons utilizing can relate to relevance of it according to the work (Armstrong, 2009).

7 Proposal

The proposal developed to meet set objectives of the improved workshop is presented. It is the result of a literature assessment in best practice within the identified improvement areas presented in chapter *6. Analysis*. It is divided into two main sections. The new workshop structural methodology that constitutes the proposal delivered to company is presented. Thereafter, the connection between workshops and the *i3tex AB* is presented together with the approach to be used communicating workshops internally and externally.

7.1 The two workshop approaches

The proposal is based on the utilization of two different workshop approaches. For each approach a general structure has been developed, which is to be modified to fit the specific problem that the workshop is applied at. The purpose is to utilize these two frameworks to cover the extended spectra of objectives and application areas the company strives to reach. The main difference between the two approaches is the type of scope they are to be applied for. For harder problems, often technical, an approach primarily focused on problem solving through a function analysis is designed. This framework is further denoted as *Workshop A*.

The second framework intends to be applicable on more sociologically complex problems and therefore better correspond to the ambition of having the workshop as an introductory tool to build customer relationships. This framework therefore constitutes the main addition to cope with the extended wideness workshops are to be applied for, and is denoted *Workshop B.* Their applicability in relation to the scope type is presented in *Figure 7.1.*
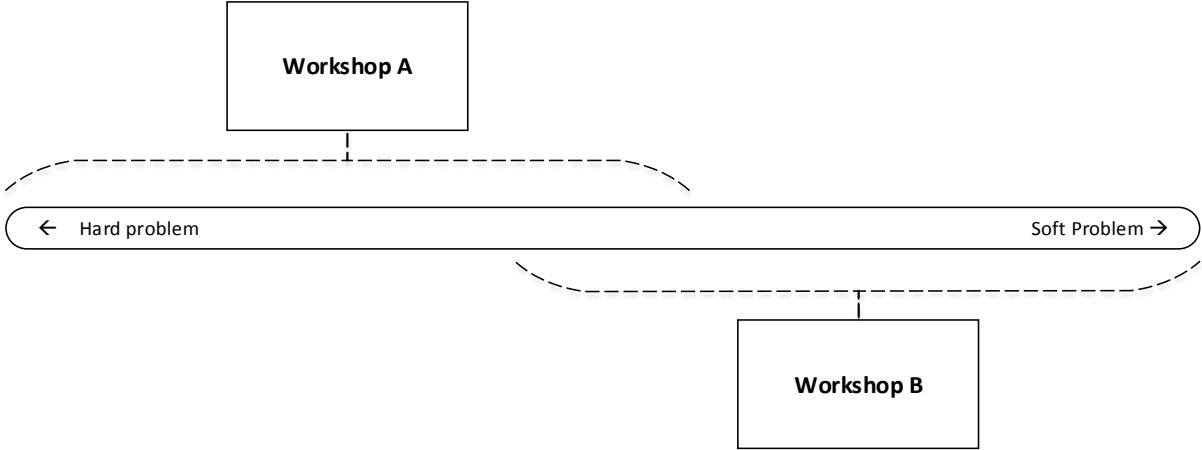

Figure 7.1 Schematic depiction of two frameworks' application areas

7.1.1 General workshop process

In addition to the frameworks of *Workshop A* and *Workshop B* are activities added for enhancing the pre- and post-workshop activities, highlighted in *Figure 7.2*. These are reworked due to their importance for the workshops result presented in section *5.4.2 Process structure.*

The pre-workshop activities are mostly planning and preparation done by the workshop project leader and hence, the skill of this person is the largest factor in how this is performed and will not be further developed. However, lacking post-workshop activities was identified and a set of improvements will therefore be presented for each workshop framework.
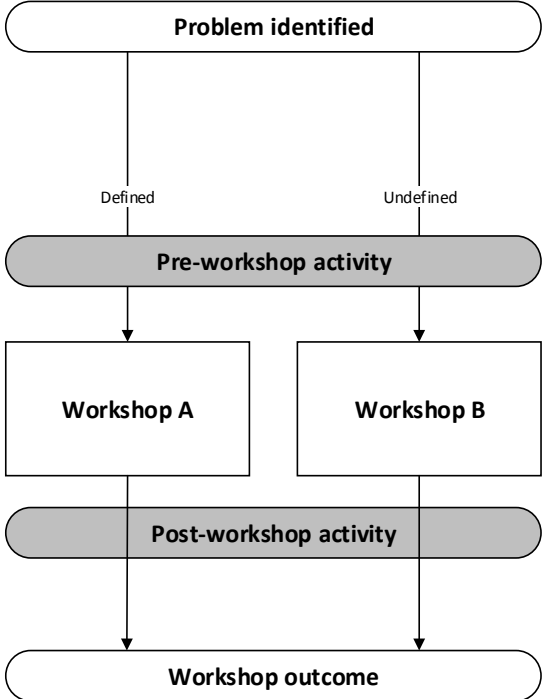
Figure 7.2 Workshop with added workshop evaluation step

7.2 Workshop A

The existing approach to workshops at the company is already well suiting for technical oriented workshops. Hence, *Workshop A* will apply the same structure as the existing one as a completely new approach is deemed unnecessary as little extra value could be added. This decreases the level of change needed and thus, facilitates a smooth implementation. Inspiration for incremental improvements of the approach is taken form the theory of *Function Analysis System Technique* (*FAST*). The intended use of *Workshop A* is to apply it at technical problems in in-house development projects.

7.2.1 Stakeholders

In the project context of *Workshop A,* the number of key stakeholders is relatively low. First and foremost is the project leader, and to a large extent, it is currently this person's responsibility to manage the project and solve possible problems that occur to keep the project on track. Close to the project leader is the project team, often the employees that locate the problems in their work and hence, are in need of the solution. These are closely related to the project and the problem, hence, often the only affected by it. In the long run other stakeholders are found to be affected by the workshop outcome. A stakeholder map for *Workshop A* is depicted in *Figure 7.3.*
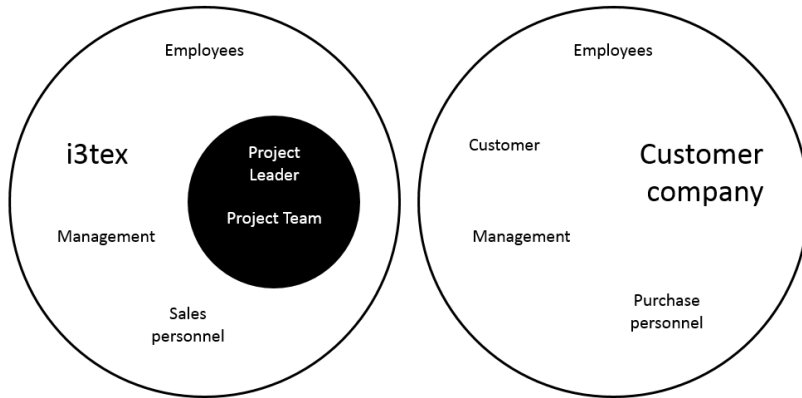
Figure 7.3 Stakeholder map in the settings of Workshop A

7.2.2 **Process structure**

Shown in *Figure 7.4* is the highest-level system model of *Workshop A*. The initiating factor of a *Workshop A* is an unsolved problem that has occurred in any phase of a development process of the above-described characteristics. A workshop is held to solve the problem where the project team members and the project leader participates. The outcomes are problem solutions and methodology feedback for improving *Workshop A*.
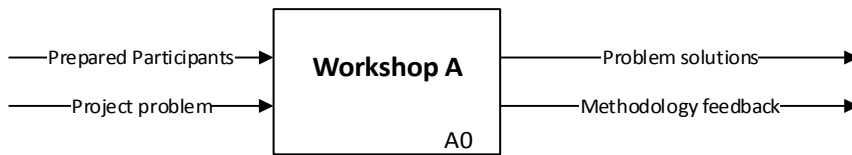
Figure 7.4 Highest system level of Workshop A

A0 Workshop A

The framework of *Workshop A* consists of six phases, and the separate phases of pre-workshop activity and workshop improvement. Post-workshop activities are handled in section *7.2.3. Post-workshop activities.* Since the methodology to a large extent is similar with the current workshop structure, only the proposed improvements will be presented. The initial workshop lacked problem focus, and a clear ending. Thus, these are the areas where improvements have been designed. Hence, *A3* and *A6* are new phases to address this fulfillment. *Figure 7.5.A2 Information* and *A3 Structure problem* corresponds to *A2 Information* in the AS-IS model. Since changes only are made in *A3 Structure problem*, *A2 Information* is not to be presented in detail.
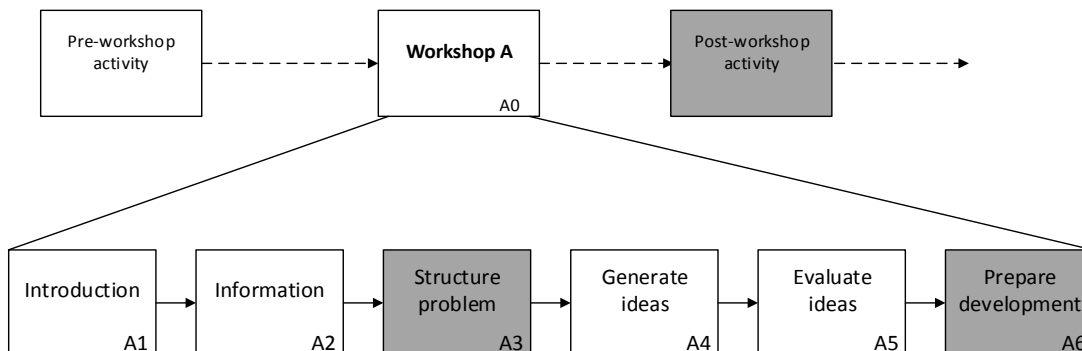
Figure 7.5 Process structure of Workshop A with changes highlighted

A3 Structure problem

The separation done is made to highlight the importance of *A3 Structure problem*. The objective of this activity is to translate the products functions into the end customer needs they fulfill. Activity A3 is structured in two sub-activities, *A3.1 and A3.2*, shown in *Figure 7.6*.
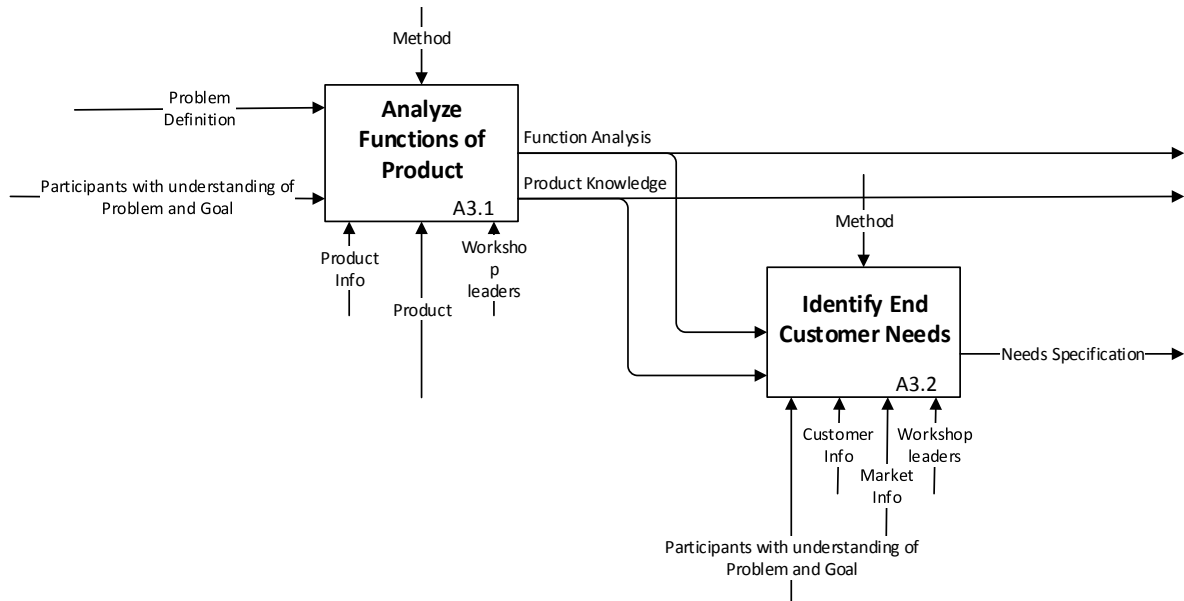
Figure 7.6 The two sub-activities of the Structure problem phase of Workshop A

A3.1: The product's functions are analyzed and decomposed into sub-functions, building the product hierarchy. This helps to keep an objective view of the problem.

A3.2: Sub-functions of the problem are connected to the fulfillment of customer needs. This traces the problem to be translated into the end customer needs, which is the main outcome of this phase.

A6 Prepare development

This phase is the ending phase of *Workshop A*. The objective of it is to identify and assign responsible employees to conduct the solutions proposed. The activity *A6* is structured in two sub-activities, *A6.1* and *A6.2*, shown in *Figure 7.7*.
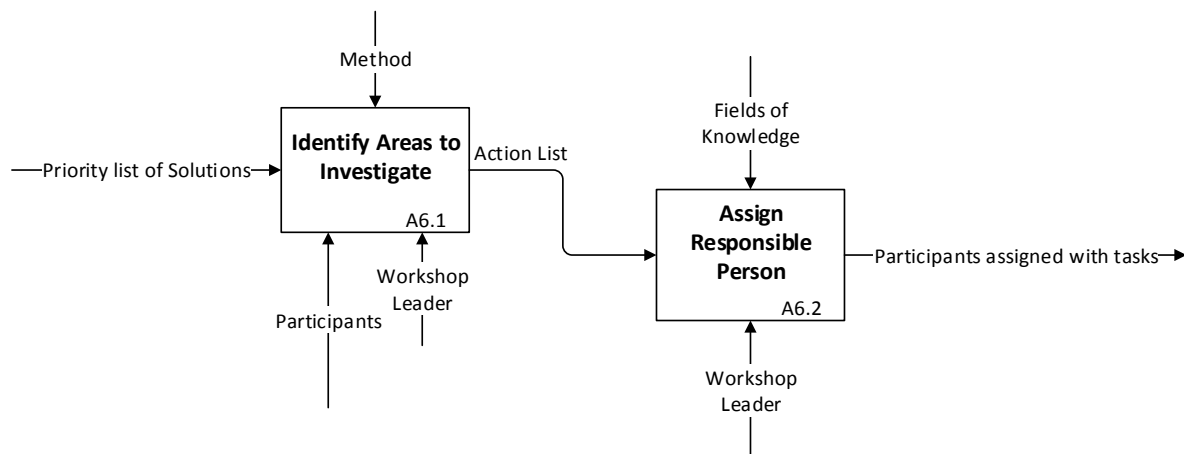
Figure 7.7 The two sub-activities of the Prepare development phase of Workshop A

A6.1: The participants, as a group, assess the chosen solutions future implications to identify possible areas in need of further investigation. These could both be areas of concern and opportunity and will as a whole determine the developments success.

A6.2: The found areas relevant for further investigation are assigned to persons responsible for further investigation, development and implementation. A clear objective of the further work shall be formulated to make sure that there is a coherent view of what the future development entails.

7.2.3 **Post-workshop activities**
Activities performed after the problem solving exercise of workshops for in-house projects provides a structured ending to the activity, where information for further development of both solution and workshop process are gathered.

Evaluation
The participants evaluate the workshop in terms of performance. The input is provided through an evaluation sheet filled in at the end of the workshop.

Feedback
Information regarding the workshop's outcome is summarized together with a short description of the activity. This documentation is then sent to all participants and involved personnel of the workshop to inform them about the results. This helps keep track of why and what happened during the event.

Workshop improvement
Information regarding workshop process, methods and activities are assessed in terms of the participant's experience. If possible improvements are found these are implemented as changes to the framework as continuous improvement.

7.3 Workshop B
In contrast to *Workshop A*, *Workshop B* is developed to target the objective of generating projects through focusing on soft value attributes. This approach advocates the creation of consensus among stakeholders early in projects. It is divided in two workshops, occurring separated in time, *Workshop B1* and *Workshop B2*.

The approach's methodology and application areas differ from the presently utilized workshop. Whilst, to diminish friction of integration to the company and create consistency with *Workshop A*, parts and phase names are reused where possible.

7.3.1 **Stakeholders**
Workshop B's main stakeholders refer to the ones mostly affected by the outcome, which are the customer and sales responsible at *i3tex AB*. Employees, management, sales and purchasing personnel are other in-direct stakeholders of the workshop outcome. These also represent persons affected by a possible resource shortcoming as a result of relocation to participate in the workshop. As the context in which Workshop B is used is the same as the current customer one presented in the AS-IS model, see *Figure 5.3.*

Participants of the workshop can be sourced from both the customer's company and from *i3tex AB* depending on the scope. Focus is put on gathering all key stakeholders to account for their point of views.

7.3.2 **Process structure**

The process structures for *Workshop B1* and *Workshop B2* are depicted in *Figure 7.8* and *Figure 7.9*. *B1* is initiated by gathering key stakeholders of the problem area. Through *B1*, the key stakeholders develop a consensus on the objectives to strive for, and this is used to create an outcome in terms of a priority list of solutions. Responsible persons are each assigned an unsolved task. *Workshop B2* initiates on the basis of a set of proposals developed accordingly to the *Workshop B1* outcome. Through *B2*, each proposal is evaluated for its value per resource utilized, whereupon new projects are decided based on this result.
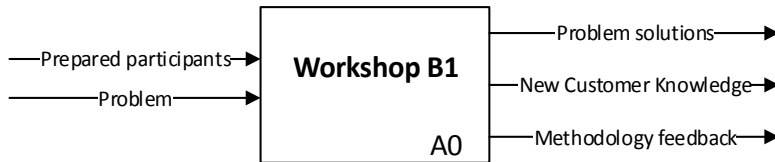
Figure 7.8 Highest system level of Workshop B1
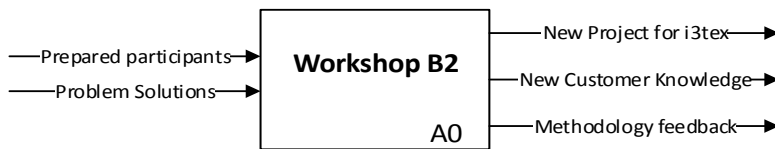
Figure 7.9 Highest system level of Workshop B2

A0 Workshop B1

Workshop B1 consists of six phases, *A.1-A.6*, depicted in *Figure 7.10*, where new and altered sub-activities are highlighted. Post-workshop activities are handled in section *7.3.4 Post-workshop activities.* Although Workshop *B1* is utilized to incorporate additional objectives than the present workshop methodology, some sub-activities are not changed. Hence, their contents are not presented in detail in this chapter, and solely new or altered sub-activities are described.

Figure 7.10 Process structure for Workshop B1 with changes highlighted

A2 Information

A2 is structured in two sub-activities, *A2.1* and *A2.2*, see *Figure 7.11*, described with controlling functions and resources utilized to create a complete list of problem objectives. The aim of this phase is to create consensus and agree upon what objectives are most important to fulfill to address the problem. It is important to capture new customer knowledge that regards the root cause of the problem and the customer's situation.
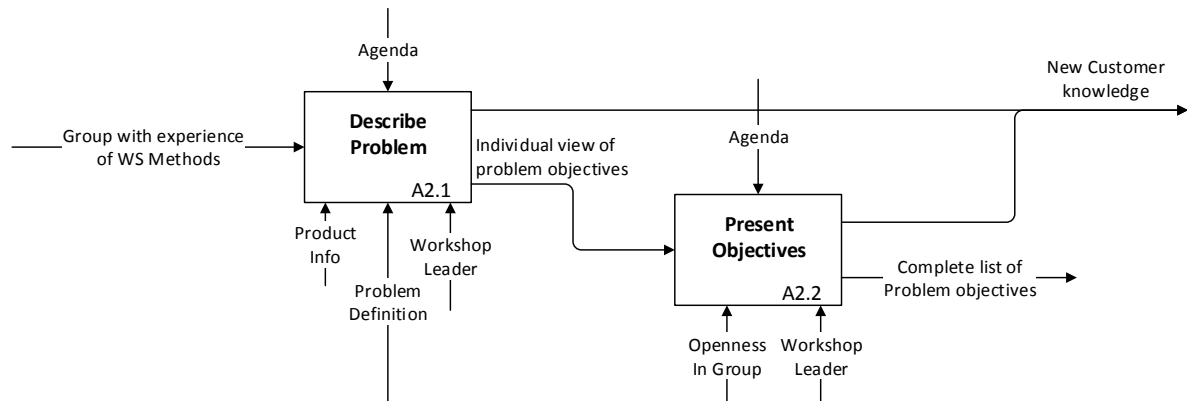
Figure 7.11 The two sub-activities of the Information phase of Workshop B1

A2.1: The objective of this phase is to introduce the problem to the participants through the workshop leader who defines the problem and gives any further information needed.

A2.2: Each participant is given a moment to assess their point of view on the problem. Taking turns, each participant presents his or her perception of the objectives that exist for the given situation. By discussing all objectives, a list of key objectives is agreed upon within this phase.

A3 Structure objectives: *A3* is structured into two sub-activities, *A3.1* and *A3.2*, depicted in *Figure 7.12*. This phase aims to clarify which prioritized objectives to strive for, decomposed into sub-objectives.
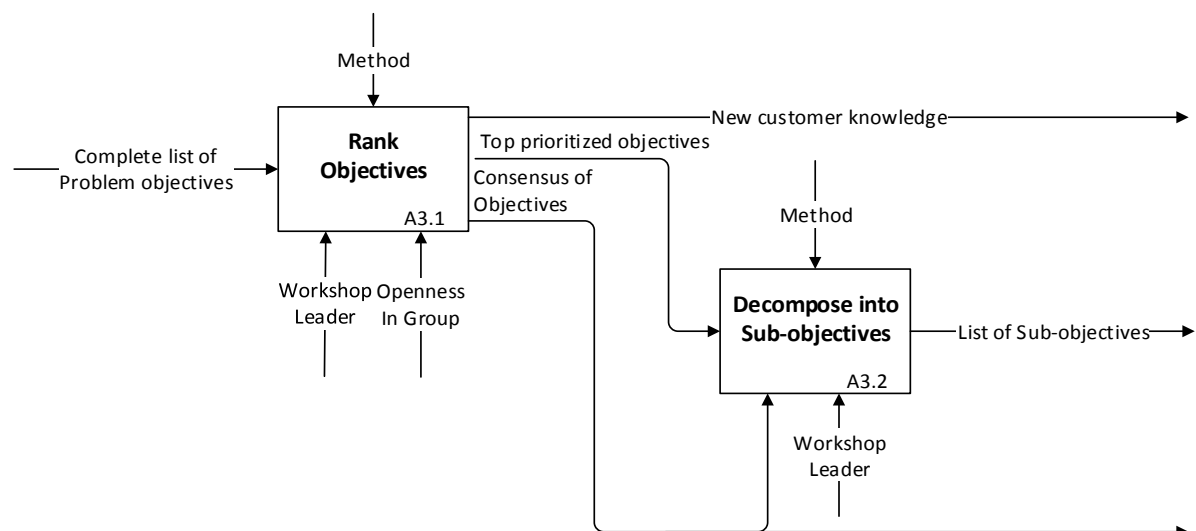
Figure 7.12 The two sub-activities of the Structure objectives phase of Workshop B1

A3.1: The list of problem objectives agreed upon in *A2.2* is structured into a value hierarchy. The value hierarchy shall depict the relative value of each objective against the other and therefore highlight the most value creating objectives.

A3.2: The top prioritized ones are selected and progressively decomposed into sub-objectives. The decision on how many objectives are considered top ones is discussed, and is controlled by the workshop leader to ensure that a manageable number is agreed upon.

A6 Prepare development
A6 is structured in two sub-activities, *A6.1* and *A6.2*, to describe how the workshop concludes, see *Figure 7.13*. The objective is to identify areas of importance that need to be further developed before complete project solutions can be assessed.
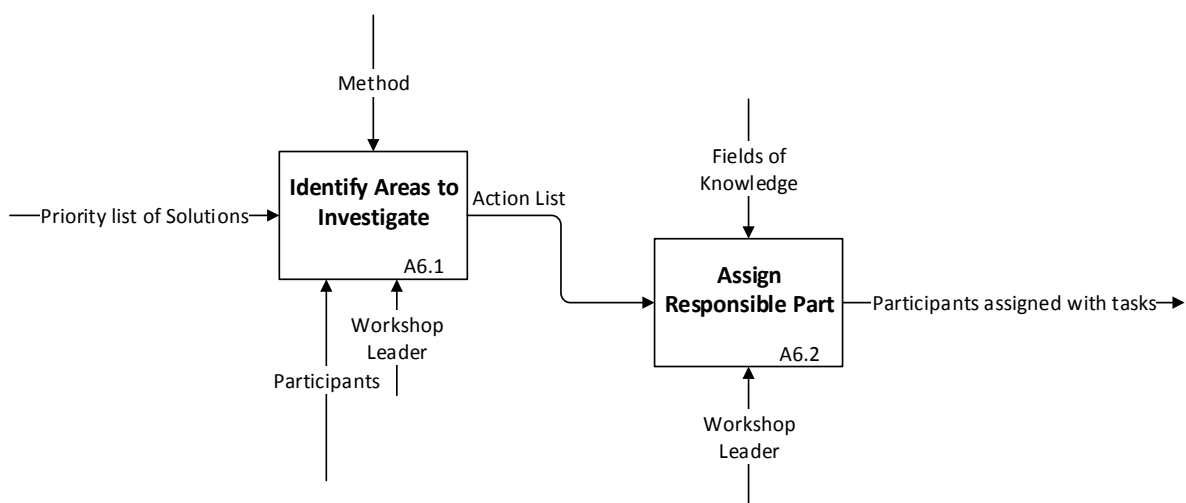
Figure 7.13 The two sub-activities of the Prepare development phase of Workshop B1

A6.1: The solutions proposed are discussed to identify areas in need of further development to evaluate their potential. Each proposal is discussed and an action list of areas for further investigation is created.

A6.2: The action list is reviewed and one of the workshop parties is assigned responsibility for each task to make sure that the areas identified are addressed prior to *Workshop B2.*

Development work between Workshop B1 and Workshop B2
The sales person at *i3tex AB* assigns employees of the company with adequate knowledge to execute the identified development areas. Each area shall be developed to the degree that their true merit can be assessed in *Workshop B2*. The proposals are to be developed to the degree that an evaluation is possible in *Workshop B2*. Their capital costs are therefore calculated.

A0 Workshop B2
Workshop B2 consists of eight phases, *A.1-A.8*, depicted in *Figure 7.14* with new or altered sub-activities highlighted. Post-workshop activities are handled in section *7.3.4. Post-workshop activities.* Similar to *Workshop A* and *Workshop B1,* only the new or altered content sub-activities are described in detail. The participants in Workshop B2

shall involve more design personnel and cost managers than *Workshop B1* to address the activities handled in *B2*.
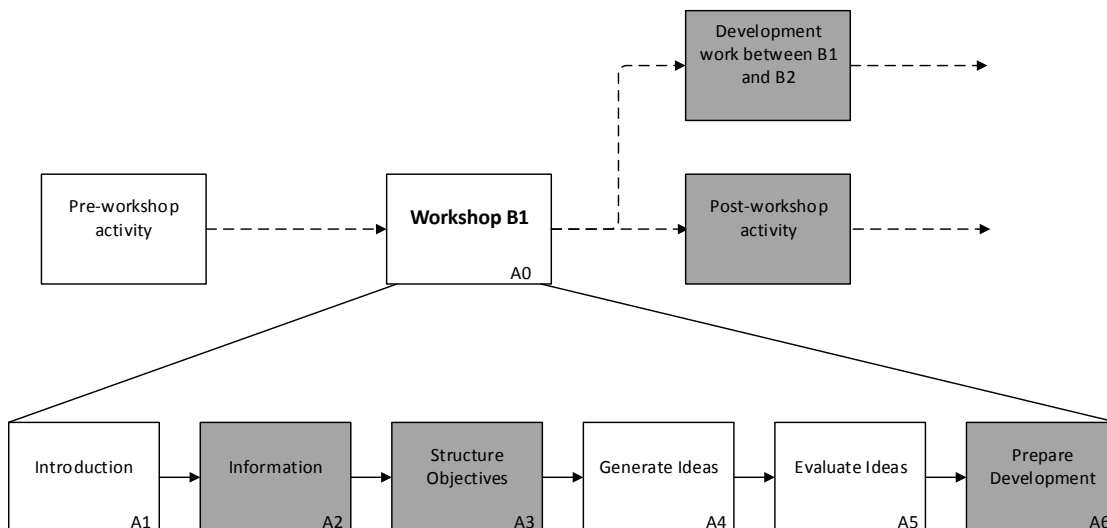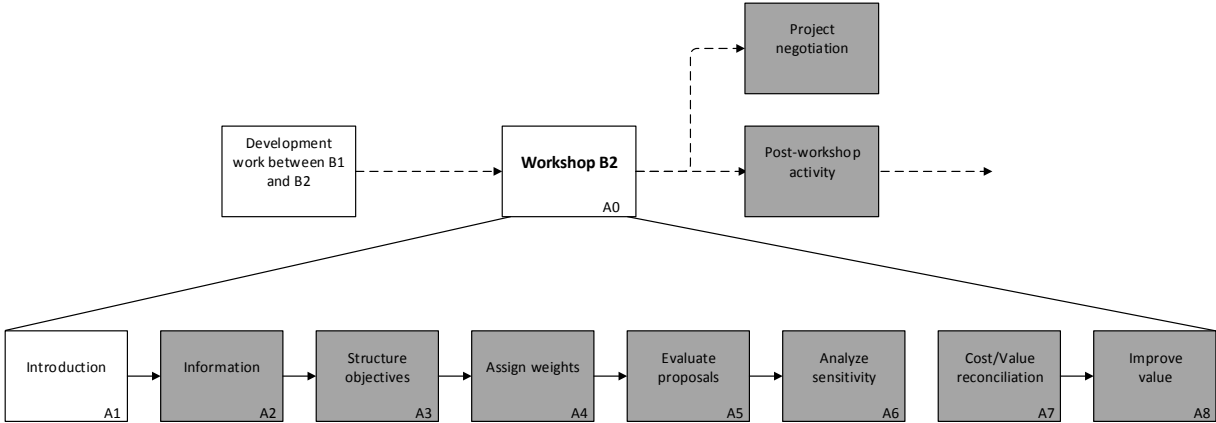

Figure 7.14 Process structure of Workshop B2 with changes highlighted

A2 Information

A2 is structured in two sub-activities, *A2.1* and *A2.2*, seen in *Figure 7.15.* The objectives of this phase are to make sure that the prioritized objectives from *Workshop B1* still are valid, and the proposals developed between *B1* and *B2* are presented.
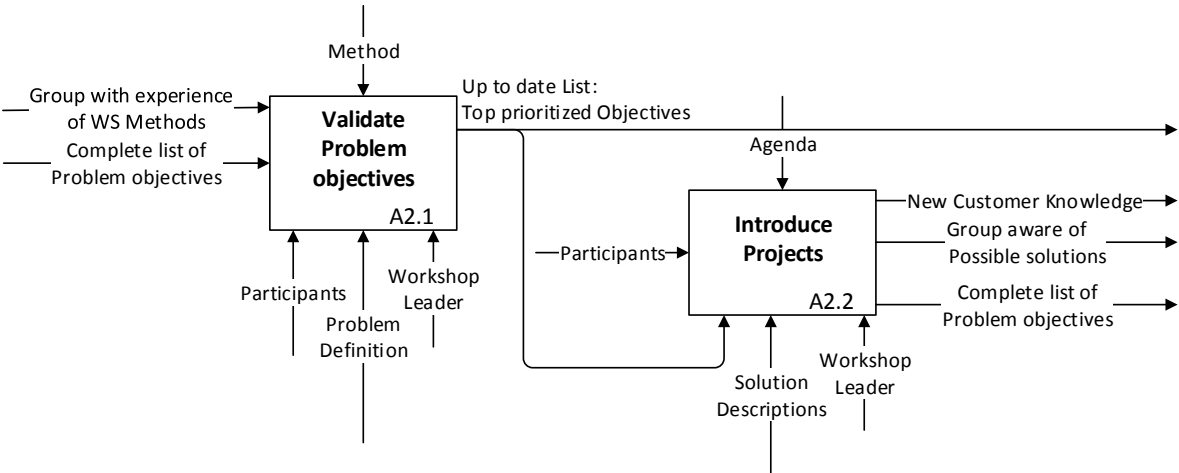
Figure 7.15 The two sub-activities of the Information phase of Workshop B2

A2.1: The workshop leader describes the problem and the prioritized objectives agreed upon in *Workshop B1*. These are discussed with the aim to either verify or reject their hierarchy. If rejected, a discussion is had to agree upon a new list of prioritized objectives. The outcome is an up to date list of the objectives.

A2.2: Each project proposal is presented. The objective is to bring all participants up to date with the range of solutions that exists.

A3 Structure objectives

A3 is structured in two sub-activities, *A3.1* and A3.2, seen in *Figure 7.16*. Within this phase the established list of problem objectives from *Workshop B1* is re-evaluated, with the outcome being an up to date consensus is reached on the value hierarchy. The importance of each criterion is questioned and non-important criteria are removed.
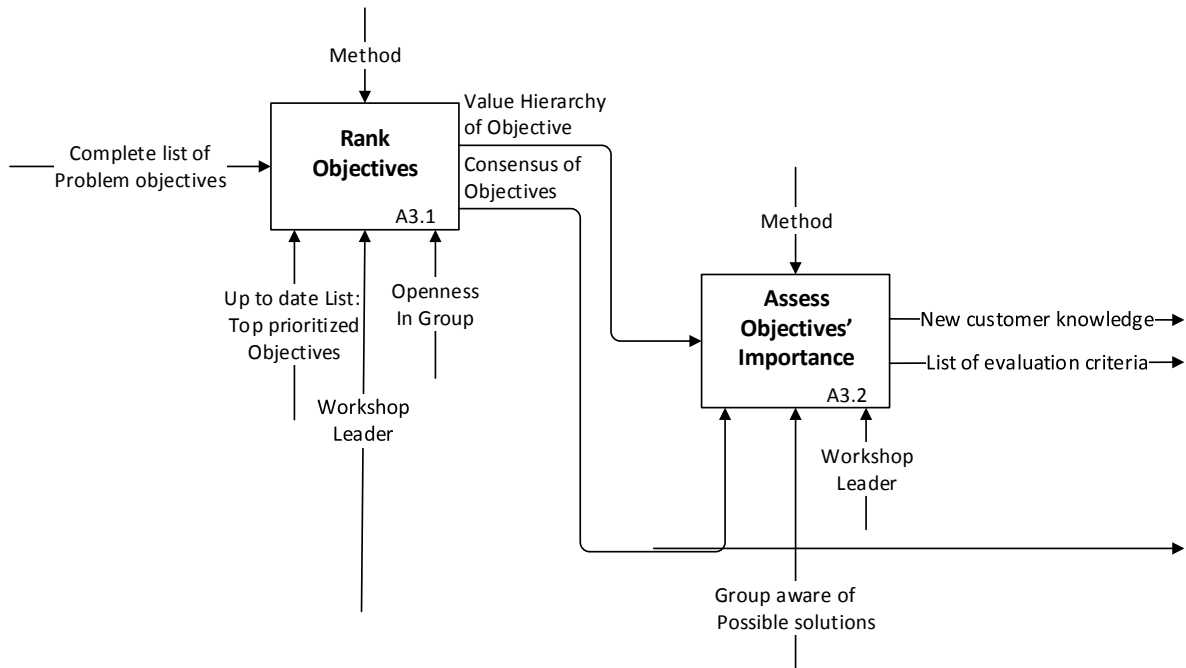
Figure 7.16 System model of A3 Structure objectives for Workshop B2

A3.1: The complete list of objectives established in *Workshop B1* is presented. An assessment aimed to rank the objectives is made. Possible additional objectives that have been introduced during the proposal development before *B2* are included.

A3.2: The value hierarchy objectives are assessed for importance. Starting from the one considered least valued, the objectives are evaluated to assess whether they influence the selection of project proposal. If not, the objective is removed from the value hierarchy. The remaining objectives are now considered as the list of evaluation criteria, used to assess the project proposals' value.

A4 Assign weights

A4 is structured in three sub-activities, A4.1-A4.3, depicted in *Figure 7.17.* The objective of this phase is determining the importance of each criterion for the proposals.
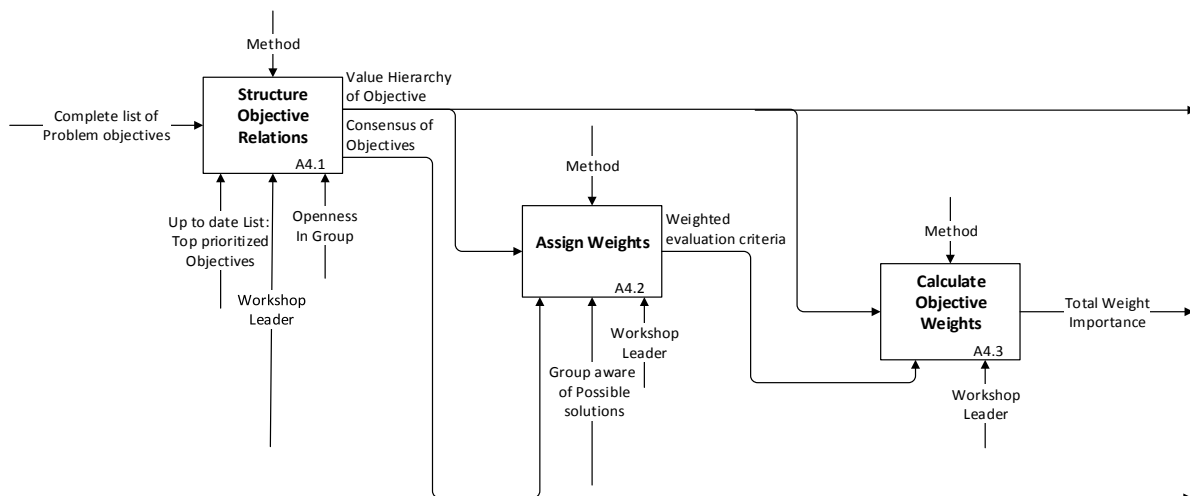
Figure 7.17 The three sub-activities of the Assign weights phase of Workshop B2

A4.1: The list of criteria is decomposed into means that enable the criteria to be fulfilled. The criteria are structured into a tree of value according to their interrelation to the objectives. Starting with the overall objective, the tree is progressively branched out until the relations are described on a means-level. Judgment decides the number of levels needed.

A4.2: Each criteria branch level has a summoned total importance weight of 1. A schematic representation of this is seen in *Figure 7.18*. Their relative importance is discussed and assigned for each branch. The sum of each branch shall be equal to 1.
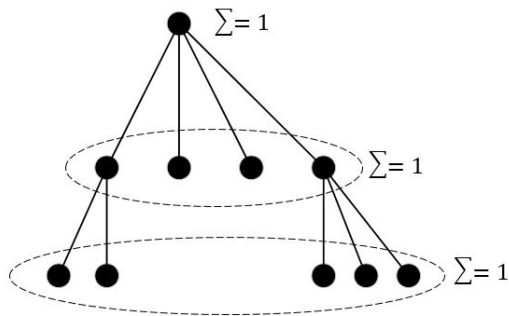
Figure 7.18 Tree of value representation

A4.3: The objective of *A4.3* is to determine the total relative weight importance each lower level mean has on the first level objective. The ratio method is used. The weights are summoned and multiplied down through the tree. The outcome of this phase is a list of the total weight importance the lower level criteria have.

A5 Evaluate proposals

A5 is structured in two sub-activities, *A5.1* and *A5.2*, seen in *Figure 7.19*. The aim of this phase is to assess the weighted proposals, later to be used to determine if projects are started.
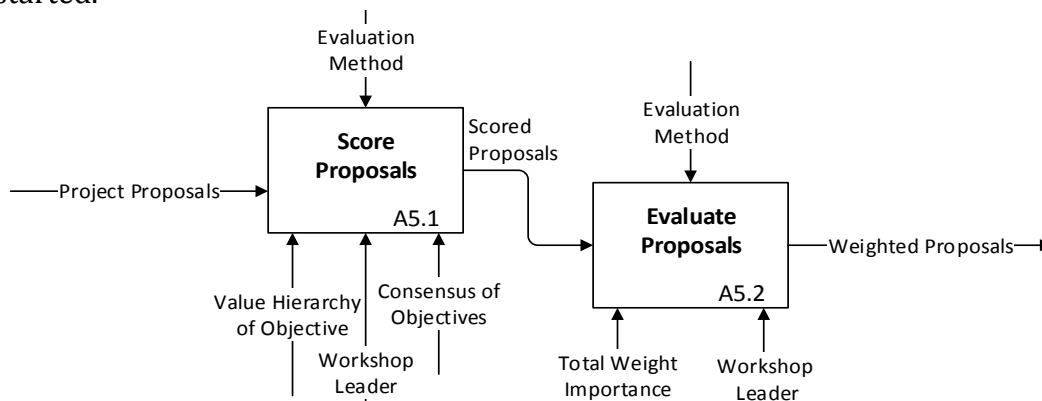
Figure 7.19 The two sub-activities of the Evaluate proposals phase of Workshop B2

A5.1: Each proposal is scored using the criteria developed in *A3 Structure Objectives*. The evaluation method practiced in *A1 Introduction* is utilized.

A5.2: The scored proposals are assessed to reach a weighted score by multiplying each proposal's criteria scores with their corresponding total weight importance from *A4.3*.

A6 Analyze sensitivity

A6 is structured into two sub-activities, *A6.1* and *A6.2,* depicted in *Figure 7.20*. The key objective of this phase is to determine each proposal's sensitivity for an alteration of the degree to which each criterion is fulfilled. Thus, the analysis outcome represents the impact a wrongly scored proposal inherits.
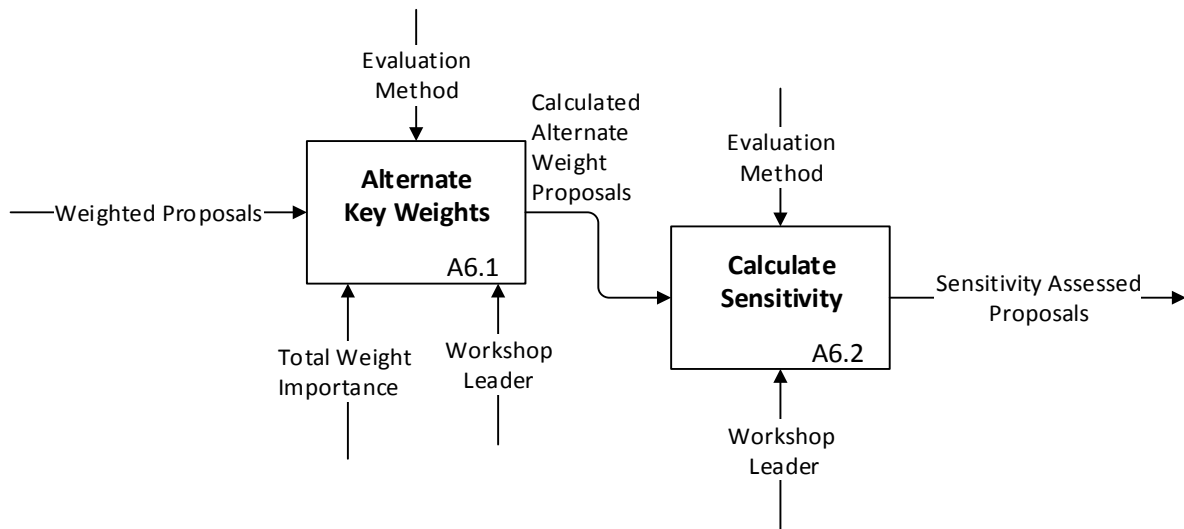
Figure 7.20 The two sub-activities of the Analyze sensitivity phase of Workshop B2

A6.1: Each criteria weight is altered to investigate a changed score's impact on the proposal. Both the criteria's total weight importance and score is altered. Hence, looping back to *A4* and *A5* and iterate these.

A6.2: The altered scores are calculated, whereupon the sensitivity is calculated by comparing the altered score to the one initially calculated.

A7 Value/cost reconciliation

A7 is structured in two sub-activities, *A7.1* and *A7.2*, depicted in *Figure 7.21.* The aim of this phase is to calculate the value each proposal imposes. The outcome is to act input for deciding whether projects are to start.
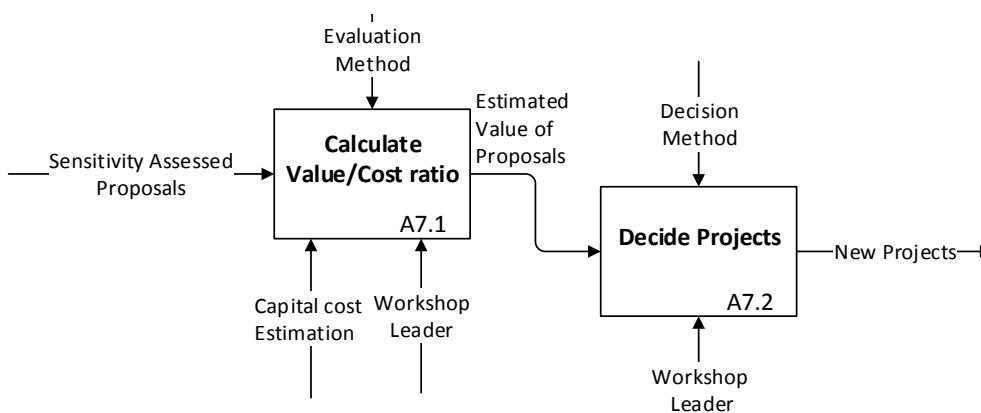
Figure 7.21 The two sub-activities of the Value/ cost reconciliation phase of Workshop B2

A7.1: Each proposal's value is calculated by assessing the total weighted score from *A5 Evaluate proposals* according to their respective capital cost. The outcome indicates which projects that hold the highest value.

A7.2: The calculated values are discussed, whereupon a decision of which projects to possible start is taken. Hence, this outcome is together with *A8* input to the *Project negotiation*.

A8 Improve value
A8 is structured in two sub-activities, *A8.1* and *A8.2*, seen in *Figure 7.22*. The objective of this activity is to improve the value for the selected proposals. The outcome of this phase is improved value project proposals that will act as basis for the *Project negotiation.*
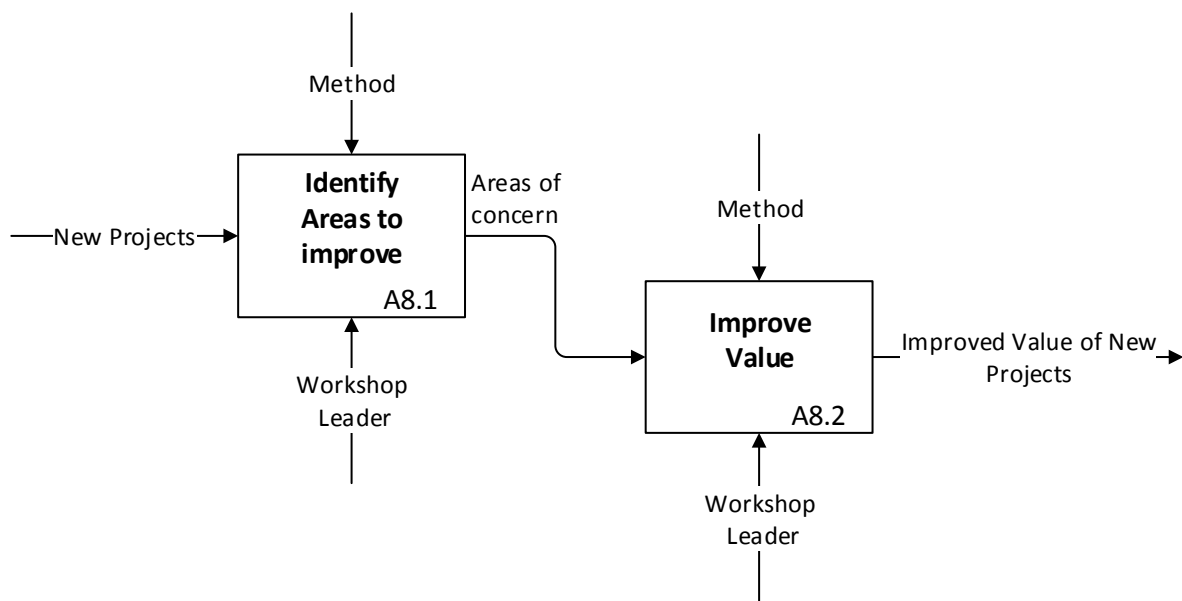
Figure 7.22 The two sub-activities of the Improve Value phase of Workshop B2

A8.1: A brainstorming session is conducted with the objective of identifying possible areas subject to further improvements.

A8.2: Identified areas of improvement are discussed in order to find possible solutions. The outcome is increased value project proposals that will be negotiated for project enclosures.

7.3.3 **Project negotiation**
The sales manager negotiates possible project scopes and future collaboration with the customer separate from the workshop activity. The results from *Workshop B* are used as a base for depicting the projects' values in relation to cost and scope and hence, creating understanding of possibilities and fostering communication.

7.3.4 **Post-workshop activities**
Activities performed after *Workshop B1* and *Workshop B2* serves multiple purposes. These strive to further add credibility and trust towards the customers, and to ensure that the workshop effectively creates value for the customer. Through this, the workshop can be improved and better applied in more situations.

Evaluation

The participants in terms of performance evaluate the workshop. The input is given through an evaluation sheet filled in at the end of the workshop.

Feedback

Information regarding the workshop's outcome is summarized together with a short description of the activity. This documentation is then sent to all participants and involved personnel of the workshop to inform about the results. This helps keep track of why and what happened during the event. If this also is done in direct connection to the workshop, it shows initiative and adds a sense of loyalty.

Workshop improvement

Information regarding workshop process, methods and activities are assessed in terms of the participant's experience. If possible improvements are found these are implemented as changes to the framework as continuous improvement.

7.4 Driving implementation

Further changes were identified as needed to successfully implement the workshops and fully utilize their potential. Increasing knowledge and awareness can incorporate for the changes. More resources need to be dedicated to the investment and implementation of *VM* workshops. This is to both create the needed level of knowledge and spread the notion of it.

7.4.1 Education

The education needs to be enhanced and more extensive. Customized educations are needed to target the specific needs that the different users have. An education mainly for sales personnel and company management where the focus is *Workshop B,* and to make use of its methodology. It is important to also emphasize what objectives *Workshop B* have and how these are supposed to be fulfilled.

Another education based on *Workshop A*'s framework targeting the in-house development of employees and project leaders at an operational level. This will prepare the participants to make use of the methodology as problem solving tool in projects. By presenting previous conducted workshops in projects it will be easier for the participants to relate to how it is applied to their work.

Both educations need to be more focused at leading workshops since this is a critical success factor due to the generality of the frameworks. The workshop leader will need extensive knowledge within the methodologies applicability's to create preconditions, select appropriate tools and steer the workshop.

Just as any other skill that is needed for the employees' work the skills of using and participating in workshops is needed if they are to be implemented throughout the company. Therefore, it should be compulsory education for all employees. The staff education should start in the early stages of the implementation of education of the proposed changes. This will entail that a high level of knowledge is reached quickly, which supports the usage and helps to promote its benefits.

7.4.2 **Promotion**

Promotion is needed to fully apply the value-focused approach of workshops developed through Workshop A and B to reach both internal and external stakeholders.

Internal

Internal company visibility is needed to spread the awareness of the method and demonstrate its importance for the company. Reaching out through the intranet, employee meetings and at project starts are seen as ways to naturally introduce the subject to the employees. Further, introducing workshops as part of the employee introduction held for new employees would also make it a natural part of the company culture.

The workshop process needs to be implemented as part of the development process guide and thus, presented at the intranet among its other parts. This would put the methodology into use in projects systematically and make it accessible for all users in their daily work.

The workshop guide shall be visualized through a framework shaped accordingly to the three cornerstones of the company. The three cornerstones all represent areas where workshops are applicable. Hence, it will ease the understanding of when to use the methodology. The suggested shape and thought usage areas is presented in *Figure 7.23.*
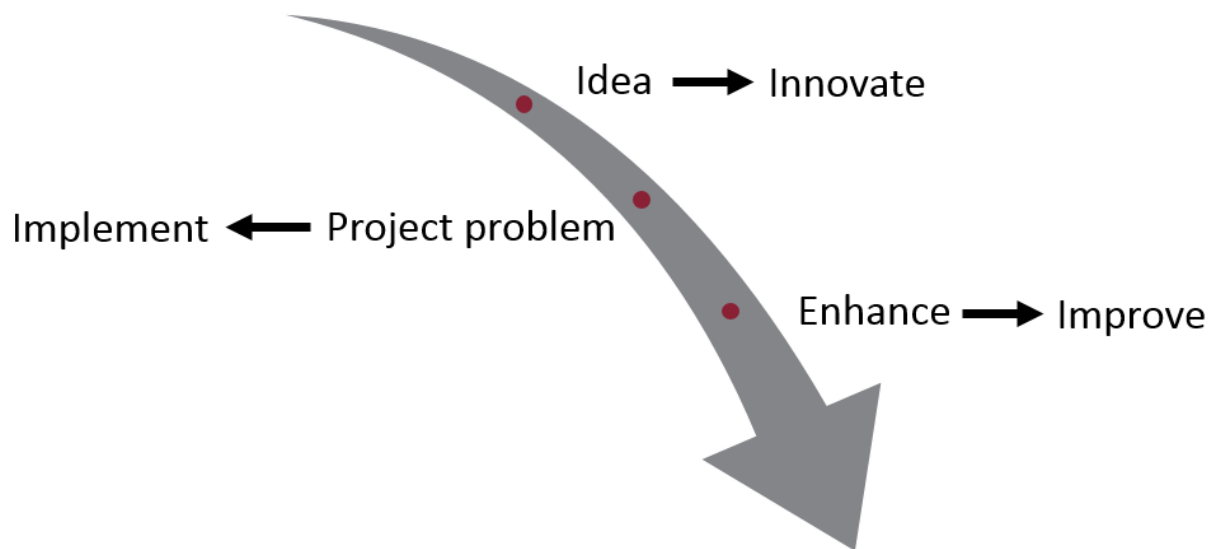
Figure 7.23 Suggested connection between i3tex AB cornerstones and Workshops' applicability for internal promotion

External

The skill of problem solving through workshops needs to be promoted externally towards existing and potential new customers. The promotion is to be done through the website, active promotion by sales personal and at customer events, to clarify where *i3tex AB* can help and what expertise can be provided. The specifics of how it is communicated are up to sales personnel and company management as this is outside of the project's scope.

8 Test and Validation

Results from the proposal test are presented and are followed by a discussion of their implications for the general structure as well as the two proposed frameworks. The test's objective is to qualitatively assess whether *Workshop B* is better suited than *Workshop A* for the purpose of generating projects. Hence, with the aim of ascertaining if the proposal can target the sought application areas better than the current framework.

8.1 Test Design

Hypotheses are formulated in order to validate the proposal. They are based on an assumption that the methodology of *Workshop B* facilitates communication between stakeholders with different views and objectives of a scope, better than *Workshop A*. Hence, one test is made with Workshop A and one is made with workshop B, each test is one and a half hour long. Further, the hypotheses are formulated on a notion that a methodology denoting great focus on these attributes in a structured form better establishes preconditions suitable for generating projects. The hypotheses formulated to validate this are:

Hypothesis 1. *Workshop B* provides better preconditions for the workshop participants to reach insight to the other participant's view of the problem than *Workshop A*.

Hypothesis 2. *Workshop B* provides better preconditions to enable communication in a workshop group than *Workshop A*.

Hypothesis 3. *Workshop B* provides better preconditions to make each participant's voice heard in the group than *Workshop A*.

Hypothesis 4. *Workshop B* enables the participants to easier agree upon common goals to work according to than *Workshop A*.

Only *Workshop B1* was performed to test *Workshop B*. The implication of this is deemed low, as the hypotheses to validate are non-dependent of *Workshop B2*.

Information to asses these hypotheses and the general structure of the workshop framework are gathered through an evaluation form and observations. Due to the small sample size, little dependency on verifying the hypotheses, and to not further increase the number of error sources the outcome in terms of ideas are disregarded in the analysis. Different participants are used in the two tests, six in *Workshop A* and five in *Workshop B.*

8.1.1 **Evaluation form**

Questions included in the evaluation form for the individual test assessment is presented in *Table 8.1.* It consists of 2 open ended questions and 12 statements, where each participant was asked to score to which extent they agree upon the posed statements on a scale of 0-10 with 1 step intervals. 0 corresponds to *do not agree at all* and 10 correspond to *fully agree*.

Table 8.1 Evaluation form template

Question/Statement:

0. How much previous experience of workshops do you possess

1. I learnt something new during the workshop

2. The exercise enabled me to get an insight to the other participants view of the problem

3. The communication in the group was eased by the exercise

4. The workshop introduction provided a good overview of what to do in the workshop

5. The practical method exercise provided equivalent knowledge to understand how it is applied to the problem
6. The ideas generated were relevant

7. The sent out pre-workshop information was enough to prepare me to participate

8. I felt that my voice was heard during the exercise

9. I could see myself using this kind of method for problem solving

10. The exercise made it easy for the group to generate ideas targeted to set goals

11. It was easy to reach consensus of the most important goals to work towards

12. I was comfortable in the group

Open ended-questions:
13. This worked well during the workshop…

14. This worked less well during the workshop…

8.2 Quantitative test result
The mean value and standard deviation for each of the statements are presented for *Workshop A* and *Workshop B* in *Table 8.2* and *Table 8.3* respectively.

Table 8.2 Test result Workshop A.

	Mean Value	Std. Deviation
0:	7,2	1,17
1:	8,0	1,67
2:	7,5	1,38
3:	7,4	0,55
4:	6,7	1,37
5:	7,5	1,64
6:	8,2	0,45
7:	7,7	1,51
8:	8,8	1,17
9:	8,2	1,83
10:	8,5	1,22
11:	7,6	1,52
12:	9,2	1,17

Table 8.3 Test result Workshop B

	Mean Value	Std. Deviation
0:	6,2	3,49
1:	5,2	3,11
2:	8,2	1,30
3:	8,0	1,22
4:	6,8	1,30
5:	6,4	1,30
6:	8,8	1,82
7:	9,2	1,10
8:	9,4	1,10
9:	8,8	0,89
10:	7,8	2,17
11:	7,4	1,52
12:	8,2	0,84

8.3 Qualitative test result

The below presented results originate from two sources, the two open questions posed in the evaluation form and observations made during the tests.

Observations are based on the researchers own interpretation of the two workshops. Notes made during, and in direct connection to, the activity acts base for the qualitative assessment. The total qualitative data is grouped in categories based on similarity, presented in *Table 8.4-Table 8.9*. Positive feedback is marked with green, and negative feedback is marked with orange. To distinguish participant feedback and researcher observations, the observation comments are marked with a *.

Table 8.4 Comments and observations regarding time in Workshop A and Workshop B

Time

Workshop A	Workshop B
Not sufficient time	Could have needed more time
Time pressure to conduct the whole workshop*	Time pressure to conduct the whole workshop*
	Difficult to brainstorm for three areas at the same time
	Some of the purposes formulated could have needed to be further broken down to more clear descriptions

Table 8.5 Comments and observations about group dynamics in Workshop A and Workshop B

Group Dynamics

Workshop A	Workshop B
Introductory association-exercise, is it needed?	The group integration process did not feel natural, maybe because there was little information exchange?
Group dynamics	To reach efficiency, pre-workshop exercises are needed
Positive attitude	Lower amount of discussion
Laughter	No natural group dynamic environment created
Cooperation	
Group interaction*	
Discussion*	
Relaxed atmosphere*	
Ideas created	

Table 8.6 Comments and observations regarding creation of group consensus in Workshop A and Workshop B

Creation of Group consensus

Workshop A	Workshop B
Unbalanced speaking time between participants*	Good to agree upon three most important main purposes
	Structured listening*
	Listening between participants
	Calm discussion, little interruptions while someone spoke*

Table 8.7 Comments and observations regarding facilitation of Workshop A and Workshop B

Facilitation

Workshop A	Workshop B
Hard to keep to subject*	Hard to keep focus on phase objectives*
	Clear, pedagogic facilitation
	Good facilitation of exercise

Table 8.8 Comments and observations regarding information in Workshop A and Workshop B

Information

Workshop A	Workshop B
The connection of title "value-management" does not feel connected to the work	Good that information (including methodology) was sent out on beforehand
Clearer agenda	
Better description of method	
Good presentations	

Table 8.9 General comments and observations regarding Workshop A and Workshop B

General

Workshop A	Workshop B
The workshop as a whole	The workshop as a whole
The content as a whole	Wanted to learn something new, which I did not
Easy going group, facilitation focus mostly to steer discussions and keep scope focus*	Difficult to engage fast thinking in the group, facilitation focus mostly on pushing than steering*

8.4 Test result indications

Indications from the qualitative and quantitative results are analyzed. The validity of the hypotheses is discussed. The qualitative feedback and their relevance are interpreted in terms of possible effects that require change to the proposal design.

8.4.1 Evaluation of quantitative result

The statements' results are evaluated and interpreted:

S0: The workshop experience of the participants in *Workshop A* is greater than for *Workshop B*. *Workshop B's* result also accounts for a higher standard deviation, the result of a high variation of experience within the group in *Workshop B* where some had substantial experience while others had limited.

S1: A much higher degree of new learning was possessed from *Workshop A* than *Workshop B*, even though that *Workshop A's* participants possess higher workshop experience. However, since method and tools are selected based on each workshop scope, a low result does not necessarily have to indicate that methodological change is needed.

S2: The result for Statement 2, corresponding to test of *Hypothesis 1*, show mean values of 7.5 for *Workshop A* and 8.2 for *Workshop B*, and indicates a positive response to *Hypothesis 1*. As a result of this, Statement 2 supports *Hypothesis 1.* When *Workshop B* is utilized each stakeholder's insight of the subject is easier facilitated to the team.

S3: The result for Statement 3, corresponding to test of *Hypothesis 2*, show mean values of 7.4 for *Workshop A* and 8.0 for *Workshop B*. This indicates a positive correlation for *Hypothesis 2* in the comparison of *Workshop B* and *Workshop A*. On this basis Statement 3 supports *Hypothesis 2*. *Workshop B* better facilitates communication than *Workshop A*.

S4: Mean values of 6.7 and 6.8 for *Workshop A* and *Workshop B* indicates that little difference exists in the perception of the introduction of the workshop. However, the overall mean value result for this activity is one of the lower of the tested statements.

S5: *Workshop A* and *Workshop B* provided mean values of 7.5 and 6.4, indicating a difference between the perceptions of the experienced method practiced. The practiced methods were both conducted with a practical example, but with different methods. Part of the difference resulted from *Workshop A's* participants being both more experienced in workshops, as concluded from S0, having been employed at company for longer time. Further, *Workshop A* is similar to the presently used methodology meaning some participants are used to it. The overall score though indicate that general improvements could be needed.

S6: The perceived relevance of the ideas created show that the ideas were highly scored, with mean value scores of 8.2 for *Workshop A* and 8.8 for *Workshop B.* The result indicates that both workshops were able to create good value solutions.

Even though that *Workshop B1* intends to develop the ideas to a lower detail in theory, than *Workshop A*, the ideas were higher scored. Possibly a result of that the thoughts framed in the ideas were perceived promising even though further development is

needed. The result could also be due to the fact that the scope dealt with was not that complex, thus the ideas could be more developed in *B1* than normally. However, because of the small sample size it is difficult to conclude any major implications, and the results are to be seen as vague indications.

S7: The mean value is significantly higher for *Workshop B* with score 9.2 than *Workshop A* with score 7.7. Both results indicate that satisfactory information was given prior to the workshop. The difference existing between the workshops is difficult to account for, but could be a result of the information being sent to *Workshop B's* participants earlier. This highlights the importance of communicating the information well before the activity.

S8: The results for *Question 8*, corresponding to test *of Hypothesis 3*, show a mean value of 8.8 for *Workshop A* and 9.4 for *Workshop B* respectively, and indicates a positive correlation for *Workshop B* compared to *Workshop A* for *Hypothesis 3*. On this basis Statement 8 supports *Hypothesis 3*. Using *Workshop B* provides a better chance for each participant to make his or her voice heard.

S9: Mean values of *Workshop A* and *Workshop B* were 8.2 respectively 8.8. This indicates that the methodology used is suitable both for problem solving in the company context. Therefore, this indicates that the approaches have potential to be implemented as part of the development process.

S10: The scorings of question 10 resulted in mean values of 8.5 for *Workshop A* and 7.8 *Workshop B*. Important characteristics are however hard to distinguish with any significance as many impacting factors exist such as group composition, workshop experience and the ability of the facilitators to steer discussion to areas relevant to the scope. Although, the result indicated that consensus was reached fairly satisfactorily in the groups.

S11: The result for *Question 11*, corresponding to test *Hypothesis 4*, show a mean value of 7.6 for *Workshop A* and 7.4 for *Workshop B*. This indicates a negative correlation for *Workshop B* compared to *Workshop A* for *Hypothesis 4*. Therefore, Statement 11 does not support *Hypothesis 4*. *Workshop B* does not provide a better ability to reach consensus among the participants for working towards a common goal.

S12: Mean values of 9.2 and 8.2 for *Workshop A* and *Workshop B* is relatively high, indicating that open group environments were created. The lower score for *Workshop B* can be a consequence of the less acquainted the participants were to each other at the start. Although the introduction aims to foster an open environment, where participants introduce themselves to each other, a safe open environment is hard to establish in the short period of time these workshops provided. Therefore, the factor of knowing each other beforehand could be amplified in shorter versions. However, the mean value scores are still high.

8.4.2 **Evaluation of qualitative result**

The qualitative feedback is analyzed and interpreted in the areas of Time, Group Dynamics, Creation of group consensus and Facilitation, Information, and General ending with connecting these results to possible implications to the hypothesis' validity.

Time

The foremost comments address that time was scarce for conducting the workshops. It was known prior to the test that the time allocated to conduct the tests was scarce. However, there existed no possibility to extend it due to the employees' limited time away from their regular responsibilities. Therefore, that both observers and participants experienced this is not surprising. This indicated that workshops need to have a well-set time when conducted in real scenarios. However, if the workshop project leader stresses the importance in the planning phase, the time pressure is reckoned to be far lower than in this case. Therefore, will the time pressure in the test not be fully comparable to real scenarios, although the presence of time pressure will always exist to some extent.

The limited time available affected the identification of objectives and idea generation phase, where additional time would have been needed to pursue each solution in detail. As a consequence, the most important ones were selected in order to manage conducting the whole workshop process with the needed level of detail, although only with a set of the ideas. The implications for the outcome result are that fewer areas could be targeted and therefore the complete solution range possible was not examined. However, for the purpose of determining whether the posed hypotheses are true or not this cause lesser implications. Therefore, this does not indicate the need for change, but the time should be highly prioritized in real scenario workshops where the end result is of greater importance.

Group Dynamics

The findings for the group dynamics indicate a clear trend. In *Workshop A* better group dynamics was achieved, and allowed the exercise to run smoothly through establishing great discussion. On the contrary, for *Workshop B* the group dynamics observed were less well established, and discussions were less frequent. However, the focus could to a larger extent be kept on scope related discussions. Although a clear difference exists, it can be seen as being mainly dependent on the previous workshop experience and relations existing between participants, for example being higher in *Workshop A*, than as a result of methodology differences between the two workshops.

Creation of group consensus

Differences were also identified between the workshops regarding how good consensus were achieved among the participants for setting workshop goals, where an eased process of generating consensus was identified in *Workshop B.* This could be explained by that a more unstructured communication was emphasized in *Workshop* A, causing naturally outgoing personalities to be accentuated, creating an imbalance of the amount of individual voices that was spoken. Whereas, *Workshop B* focused on making room for all participants to in a structured way speak their voices. Here, participants were more cautious and did not claim the center of discussion as one-sidedly and impulsively as for *Workshop A.* This could be connected to the above described, where a more open group environment can result in less structured communication.

Facilitation

Observed during both sessions was the difficulty in steering the session. Difficulties arose at both sessions with steering the discussion to areas relevant of the scope for *Workshop A*, and to not move back and forth between phases for *Workshop B,* where

participants to some extent, had a hard time letting go of the earlier task or were eager to start the next one. The clear differences in what type of support the two groups needed indicated that to successfully support both activities, different facilitation is needed. Hence, experience in leading these activities is highly required. It is therefore difficult to address these occurrences to be consequences of the used methodologies. Instead, the researchers' limited experience in facilitation is believed as the most likely explanation this.

Information
For *Workshop A* it was perceived that the agenda and method were not sufficiently described, something that can be connected to the workshop leaders earlier experience and knowledge of what that is important when presenting such information. However, due to the time pressure earlier discussed, emphasis was put on being able to conduct all phases of *Workshop A* and *Workshop B1* during the time slot, and the *VM* methodology descriptions were intentionally kept short. The intent of using *VM* to brand workshop activities was also found negatively viewed.

General
Other feedback brought up by the participants regard the overall structure, which was perceived positive and good. Thus, referring to the workshop as whole, general satisfaction of their constituted parts was seen. If this attitude existed prior to the event cannot be concluded. Although, the outcome experience is positive, indicating that the methodology has chance to fulfill TO-BE purposes.

Indications on the hypotheses' validity
Hypothesis 1 is supported by the observations made during the two occasions. A clearer structure was found to be in place for *Workshop B*, leading to a more evenly distributed time of speaking between the participants. This is in line with the statistical result of Statement 2.

The characteristics of *Hypothesis 2* were proven to be highly dependent on the participant's ability to cooperate rather than the methods ability to provide structure. Due to large differences between the two groups, evidence from the observations cannot provide support for the hypothesis. Worth mentioning is that group 1 experienced a much richer communication than group 2 and that could have led to the imbalanced time for speaking between the participants. Perhaps the structure of *Workshop B* could have helped to balance this better.

The above-mentioned observed imbalanced speaking time for group 1 supports *Hypothesis 3*. The structure brought by *Workshop B* was seen help balance the speaking time in the group. This aligns with the calculated statistical data for Statement 3 presented earlier.

Observations supports *Hypothesis 4* but is not in line with the calculated quantitative indication. The more formal structure of *Workshop B* was seen to provide a more organized way of reaching consensus within the group. A misalignment between the datasets can be explained by the possible different perceptions of what a "reaching consensus easily" means.

8.5 Test result conclusions

The main point of discussion needed is to conclude whether changes are required, and to which degree the results indications can be assured. Based on the quantitative evaluation, three of four test hypotheses were verified. Even though indicating a positive correlation for *Workshop B* over *Workshop A*, the results may only indicate evidence for not rejecting the hypothesis. Further, the low statistical significance of the quantitative data, and that only a small sample has been tested, must be taken into account. This means that little emphasize shall be put on this data's validity but merely use it as possible indications. However, as a complement to the participant feedback and researcher observations, the indications suggest that *Workshop B* does serve the purposes of establishing the preconditions needed to generate new projects. *Workshop B* is also seen to have an overall beneficial structure when compared to *Workshop A* in the fulfillment of their objectives in the test and in the company context. Hence, no methodological changes are seen required for the proposal. However, verifying the test result does not mean that the workshop proposal worked fully satisfactory and no improvements are required. The indications and comments are important to include in the guidance, to show how a workshop shall be planned so that time pressure, group composition influence and the other less well functioning parts' negative implications are minimized in future workshops. These implications are to be viewed as consequences of time pressure and limited facilitation experience of the researchers rather than faults of the theoretical proposal created. But, structure-wise, the proposal requires no change based on the result.

9 Discussion

A discussion regarding the results fulfillment of the thesis purpose is held below. Further, the research strategy as well as the delimitations and their implications for the project are discussed.

9.1 Fulfillment of purpose and research questions

The proposal presented in chapter *7. Proposal* constitutes how *i3tex AB* can increase their value-focused work through extending the usability of *VM* workshops. How well the theory based frameworks correspond to fulfillment in real life applications can however be argued. With the characteristics presented in section *5.1 TO-BE* as a point of reference the result's fulfillment of the research questions is discussed.

9.1.1 Enabling increased value creation

The proposal was created by tailoring value creative theory to the company context, and how each of the different workshop objectives is fulfilled. The theory applied enabled two workshop approaches to be created. By utilizing two frameworks, workshops are believed to now, not only be satisfactory for solving technical problems, but also sociologically complex situations, extending the workshop applicability. Hence, the two frameworks enable value creation focus in more situations in theory. As this new application focuses on establishing trust, credibility and understanding which are all needed characteristics to establish when meeting new customers. The possibility to build a relationship through which a new project can start increases.

By expanding the application area, it is also believed that the focus on value creation will be further emphasized throughout the company. Internally, *Workshop A* possesses the ability to increase value in in-house development projects by being utilized as a technical problem-solving method. Increasing the knowledge of the employees through the education and use in projects, the in-house work will reach a higher value creation.

Having a widely applicable method and promoting it internally, increases the likelihood of employees using it. However, management should then oblige the change to foresee that the initial resistance of change that often exists is limited (Maylor, 2010). If the method promoted also would be effective for solving the purposes, the employees would understand the relevance of using it, hence, the value-focused work would increase (Armstrong, 2009).

To ensure that the theoretically proven workshops also were practically applicable to the company context, a test was conducted. The purpose of the test was to validate that the new frameworks can better establish the characteristics needed when meeting new customers than the current one. Validating the test result showed positive indications of this, and is covered in section *8.4. Test result indications*. However, the test was highly limited and included many possible sources of error. Therefore, the result is merely to be seen as indications of this effect. The test design implications are further discussed in section *9.2.4 Company applicability of the result.* Yet, with the strongly argued theory base that constitutes the proposal, the objectives to increase value creation and generate projects are highly probable to be reached.

9.1.2 Connecting company cornerstones' values to value creation

As the thesis proceeded, the initial purpose shifted from achieving differentiation through connecting the cornerstone values and value creation to, *VM as* workshops were selected. Efforts made to connect *VM and* the cornerstones made it visible that *VM* was negatively perceived, although not shared throughout the company. Moreover, creating an intuitive connection between the cornerstones and *VM* was difficult as the three cornerstones interpretation are that they describe the iterative life cycle of a product, whilst *VM* handles a process and therefore the two exist on different levels. Therefore, connecting *VM* and the three cornerstones through the structure of the workshop became unnatural. It could therefore be less suitable to establish such a connection.

However, the wide application area that the proposed *VM* workshops have poses a greater intuitive description of the three cornerstones. Workshops are well applicable to scopes where innovations are focused, for example through utilizing *Workshop B* to understand how to proceed with a customer idea. Implement can be viewed as the internal use of workshops to solve project-related problems. Similarly, workshops are well applicable for improvement projects. Therefore, as value is created through projects generated within these, a connection could be established, although vague.

The negative tone that *VM* sometimes holds suggests that emphasis possibly should not be put on establishing a connection. This can further be amplified as the *VM* connection is seen to not have much value to the customers whilst enclosing workshop deals. Sales personnel do not specifically denote that the methodology of *VM* bases the workshop. Instead they intend to continue to exemplify the content of *VM* but not use the phrasing. This approach to differentiation is therefore deemed less important. But of greater importance is to profile *i3tex AB* as being excellent at performing workshops. Yet the proposal in this thesis is based on *VM*, and fulfills the purposes the company have, the active communication of *VM* does not necessarily have to be done. Instead, focus can be put on the possession of a well-suited methodology enabling to target the customer's needs.

To use workshops as an introductory tool for new customers in addition to the already well established problem solving approach is seen to bring new benefits and hence, better utilize the methodology's potential. Not only strengthening the position in current markets but possible penetrate in new markets where customers are yet unaware of *i3tex AB's* potential offerings. Today, *i3tex AB* mostly conducts workshops with customers that possess the technical ability to themselves execute the project being started as a result of the workshop. If promoted externally, customers with less technically oriented businesses, but nevertheless in need of a problem solved, could be reached to a higher extent. If *Workshop B* then is held, and trust would be established through it, the likelihood to enclosure a business deal is more likely to happen for two reasons. Firstly, a workshop approach more suited to generate projects is used, and secondly, the internal competition at the customer company would not exist.

9.1.3 Implications of having general frameworks

A notion that has to be stressed is the role of workshop preparation. Although the tested hypotheses indicated that the established preconditions to generate projects are achieved, the end result and total impression of a workshop will to a high degree depend on that appropriate tools are applied and correctly used during the workshop. Therefore, great emphasis is put on having an experienced workshop project leader,

both to prepare the activity, but also to enable high focus on value creation. To prevent inappropriate tools from being used it thereof natural to specify methods and tools for specific scopes, creating numerous frameworks and, hence, not solely use two frameworks as this thesis proposes. However, if a limited framework is applied one of two things will happen. For some scopes, the delimitation will enable the framework decided upon to best serve the scope. For other scopes, the delimitation will cause less appropriate tools to be utilized, thus creating less value. As the company wants their workshop to be applicable to a wide range of scopes, strictly deciding "good enough" tools could enable inexperienced workshop project leaders to reach sufficient results. Though, best possible value would in many cases not be achieved. The proposed approach is therefore to have a wide applicability of the frameworks, where tools are selected by the workshop leader based upon the scope. The resulting implication is that it will become necessary to have experienced workshop leaders, to make the appropriate decisions when planning and conducting the activity. Hence, education and sharing of experiences between workshop leaders are important to achieve high knowledge within the field of workshops at *i3tex AB*. Additionally, as the actual facilitation of the event, shown in section *8.4.2 Qualitative evaluation assessment,* highly affects the group effectiveness, the effects of having inexperienced workshop leaders get accentuated.

The proposal designed includes a set number of steps of the workshop approaches. Hence, implying that the generality of the method is restricted. However, a level of structure has to exist, otherwise no method would exist. Further, the complexity of the problems that the workshop is intended to solve is high, thus structure is needed to approach them. Moreover, the structure intends to steer what is done, but not how and what tools to use. Therefore, it has a great amount of adaptability.

9.1.4 **Company usability**
Multiple incentives have been presented for how the proposal enables a higher value focus at *i3tex AB*. Although, the true need for a consultancy company to promote themselves as workshop specialists, whilst mainly providing their services through man-hours, is difficult to estimate. How the actual extended services of a specialization like this is perceived by the market is yet unknown, and outside of this thesis scope to address. However, as per the positive test result indications, it can be argued that the workshop usability is high for internal usage. Its application areas enable a coordination effect between in-house employees, who most often spends their time working for an external customer. Using workshops internally can therefore strengthen the bond towards employees at *i3tex AB*, creating loyalty. Additionally, a means for introducing newly employees into the *i3tex AB* culture is provided, together with the ability of actually educating them in a systematic problem solving methodology, thereafter used to create customer value.

9.1.5 **Result novelty**
To what extent the result provides research novelty can be argued. It is a further development of the already established *VM workshop* at the company, thus the changes made could be viewed as incremental. Yet this is valid, the approach too which *VM* is utilized differs. The approach to make use of a *SSM* to cope with the new workshop objectives is a fundamental change compared to the company approach used. And, since the proposal has to be company applicable the most appropriate solution possible is not

to introduce a completely different approach, especially as *VM* is argued to be able to address the objectives within this project.

This thesis has attempted to apply existing theory of *SSM* in a setting where no applications of such were found. It can therefore be argued that this thesis has intended to examine a new field. Since the quantitative aspect of the testing did not provide significance enough to disprove the hypotheses, it can be argued that it is merely the qualitative result that is relevant to discuss. By receiving positive test feedback for factors stated by theory to be of importance for creating a well-functioning business relationship, this are indications that an *SSM* approach has positive effects for building customer relations.

9.2 Research Method

Both selection of research method and delimitations made before and during the project are likely to in one or another way have affected the end result. Possible implications of those are discussed.

9.2.1 Overall process

Generally, the exploratory approach fulfilled the purpose initially framed by continuously narrowing the scope as more information was retrieved. To achieve an increased value creative focus in the company specific setting, both finding a theoretically applicable well-functioning approach, and a deep company understanding had to be acquired. Utilizing a qualitative approach with observation and in-depth interviewing as main sources to gather company information was inevitable. However, the two scope selections made posed great implications on the result created. These should thereof be discussed further to account for the effects they have on the result.

9.2.2 Selection of workshops

The initial scope refinement resulted in focusing on workshops to further increase value work. Workshops are today the sole outspoken value creation focused work the company conducts. Although not identified as a major problem area in need of improvement it showed great potential for the purposes the company strived for. As it is the only existing implementation of value creation focused work, the possible resistance inherited of change is lowered. Although not widely spread among the company employees, workshops are known. Additionally, it entails an ability to be used for promoting the company's knowledge externally, something not found in the other scopes identified in chapter *4. Initial scope refinement.*

By involving *i3tex AB* in the scope selection process their willingness for using the thesis results was taken into account. Hence, a future implementation of the proposal would not meet a great amount of initial resistance from key stakeholders. As workshops are already used, the next step to further develop their use at the company was considered a relatively small transition. However, it should be stressed that despite workshops being selected, other possibilities to increase value focus existed. But, as the next step workshops was seen most relevant.

9.2.3 Selection of *VM*

By focusing on workshops, the choice to apply *VM* methodology was considered most relevant as it is presently used, and selecting another value creation focused approach

would require more change. But, it is of fundamental importance to highlight that *VM* would not have been suitable to use unless it was able to fulfill the company workshop objectives.

Noteworthy is also the existence of a champion in the form of a employee at the company already pursuing the implementation of *VM.* Hence, the likelihood of this project to actually be implemented is deemed higher by pursuing the scope of *VM* for workshops.

Implications of utilizing *VM*
As *VM* was selected, the resulting benefit became constrained to the ability of *VM* to increase the value creation work. Hence, possible better solutions existing in the design space are limited to being used. However, throughout the project the focus was primarily on achieving a solution that was achievable in the company setting. Further, also taking into consideration that *VM* was well suited to use in workshops, the decision to pursue *VM* was well founded.

9.2.4 **Analysis methods**
Throughout this thesis, data analysis methods were used to validate the acquired data and find out whether the research questions could be answered.

The use of an evaluation matrix for the initial scope refinement enabled the assessment to be done objectively. The scopes could be evaluated with respect to important criteria, hence reducing the possibility of boas affecting the result. The criteria was formulated by interpreting qualitative data and not directly acquired through outspoken important factors. However, a risk still existed that the data could be misinterpreted, and that essential criteria could be missed. However, it enabled a more neutral view of the situation. Therefore, the evaluation is believed to have been valid.

To locate the changes needed a gap analysis was performed. Because of the circumstances, explicit changes were difficult to identify. Although, the gap analysis enabled a comparison between the two states' high-level characteristics which made it possible to keep it independent of solutions but still pinpoint important areas. A drawback of this was that result was dependent on high-level of abstraction. Despite areas being located, they did not provide any tangible solutions. Yet, it provided direction on how to more specifically address the problem.

To assess whether the theory-based proposal was applicable in practice, the statistical hypothesis testing was conducted in parallel with qualitative observations. Despite the positive quantitative indications, the tests ability to validate the practical ability was low. The time pressure, small sample size and the inexperienced facilitation proved to be factors highly affecting the result. Further, other topic related questions, such as previous knowledge of the selected scope and workshop experience all increased the variance of the outcome, which further highlights the limited certainty the test was able to prove. However, this test was not meant to fully validate the proposal, but merely provide first indications on whether to pursue further work with this approach. It could therefore be argued that if the same should be repeated, more effort should have been spent on enlarging the qualitative assessment made by the participants.

The time constraint led to that only *Workshop B1* in *Workshop B* was tested. Hence, its ability to generate projects was not validated. But, by testing *Workshop B1's* ability to establish the preconditions needed to generate projects, this objective could still indirectly be targeted.

10 Conclusion and Recommendations

This chapter will answer to the thesis's purpose and research questions. It will also present both further work to be done in terms of further research and the implementation of proposed changes.

10.1 Concluding remarks

The purpose of this Master's thesis has been to propose the next step for how *i3tex AB* can increase their value creation work. Further, the work has aimed to establish a more clearly expressed connection between the interpretations of the cornerstones' values and value creation.

During the course of this thesis work, the area of *VM* workshops was found to hold the highest potential to increase value creation work, whereupon a proposal constituting two workshops frameworks, *Workshop A* and *Workshop B* was developed. To enable simple implementation and utilization of the frameworks, a user guide was developed and handed over to the company together with a set of recommendations to drive the implementation. Management incentives were found to be of importance to drive the implementation and enable acceptance in the organization.

The two frameworks developed suit the differing objectives of the company workshops, by targeting both technically and sociologically complex problems and therefore increasing the workshop application area. Therefore, the purpose of proposing how *i3tex AB* can achieve a higher focus on value creation is achieved.

During the thesis extensive effort was put into making the proposal applicable to prevailing company preconditions. The two frameworks were tested with company personnel, where three out of four hypotheses were supported by the qualitative assessment. Therefore, an *SSM* approach is supported to engage customer relations.

The test indicated a set of factors accounting for workshop performance. Among these, workshop leader experience was identified as distinctive, and further emphasizes the importance of knowledge. Therefore, to successfully create value for the customer, a more extensive internal education and an evaluation and feedback process for continuous improvement were found to be important.

Further, connecting the cornerstones' values to *VM*, and thus enable company promotion and differentiation was not done. Throughout this thesis the benefit this connection was expected to bring was lower than expected. Thus, the objective shifted and the benefit instead was seen to arise from promoting *i3tex AB's* possession of technical ability through workshops as a mediating tool. Hence, the initial purpose was not fulfilled, and the alteration towards the workshop differentiation is partly fulfilled.

10.2 Future research

The results presented in this thesis indicate that the proposal derived possesses the ability to achieve an increased focus on value through workshops at *i3tex AB*. However, the result has limitations. Due to being theoretically derived, with little testing to prove applicability to the company, it needs to be further practically tested. Due to the limited testing done, it is difficult to pinpoint the specific areas that should be addressed

without detracting focus from other, possibly unidentified factors to match between theory and practice. Hence, the sole effect specific factors have needed to be further researched.

The testing also implied another area that further should be researched. As the company has general frameworks and will continue to have if the proposal is implemented, the workshop leader's effect on achieving success is amplified. Thus, it is recommended to expand the content of the workshop education to account for the knowledge to both select appropriate workshop methodology based on scope, and how to lead workshops.

A limitation, which the proposal has not been validated for, is performing *Workshop B* as a whole. As *Workshop B* focuses on taking a problem from the first stage of objective agreements through to project negotiations, where multiple different stakeholders are involved, and because of this contextually appropriate circumstances were difficult to model. Further research should strive to accomplish real customer scenario testing. However, the trade-off between testing how good theory works in real scenarios, against the risk taken when conducting a possibly less well-functioning and realistic workshop with customers', need to be assessed.

In addition, the thesis identified a set of possible approaches on how the company can increase their value creation focus. Although, only one has been pursued, meaning that the entire spectra of things to do has not been pursued. Therefore, the other areas should be addressed to utilize their potentials identified to further increase the value creation focus. A reasonable start to reach higher effectiveness and focus more on value creation is to re-evaluate the improvement areas from the initial scope refinement that was delimited from studying. They ought to be evaluated more in-depth to assess the potential improvements that can they can bring to make *i3tex AB* an even greater company than today, and increase their already high competitiveness.

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