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Research Proposal: How to foster inter-organisational knowledge sharing on the Knowledge Sharing Centre-platform

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Research Context

In this chapter of the research proposal the context of the research is described. First an introduction in into the Knowledge Sharing Centre is provided. Then, the problem situation is described and the aim of this research is presented.

Introduction Knowledge Sharing Centre

The Knowledge Sharing Centre is a foundation that is initiated through a collaboration of organisations, unions and foundations in the manufacturing industry. The initiative is founded with the goal to increase open innovation, connect organisations in the Brainport region and provide a platform for knowledge assurance and knowledge sharing. The Knowledge Sharing Centre platform is still under construction, but is set out to be an independent non-profit knowledge sharing platform. The aim of the Knowledge Sharing Centre platform is to offer organisations a way to deal with internal and external knowledge and to connect the design and manufacturing industry in a way in order to increase innovation effectiveness (Knowledge Sharing Centre, 2020). The Knowledge Sharing Centre platform represents itself as both a physical and virtual platform that combines knowledge from four different types of organisations as presented in Figure 1:

- Teaching institutes, organisations with a strong commitment to teach, not limited to educational or research institutes (O’keefe et al., 2015);
- Manufacturing companies, organisations that focus on production of products by labour or machinery with intent to use;
- Engineering companies, organisations with the purpose to design and build machinery, structures, etc.;
- (Original) Equipment Manufacturers, organisations that produce parts, equipment or systems with the use of component parts bought from other manufacturing or engineering companies.

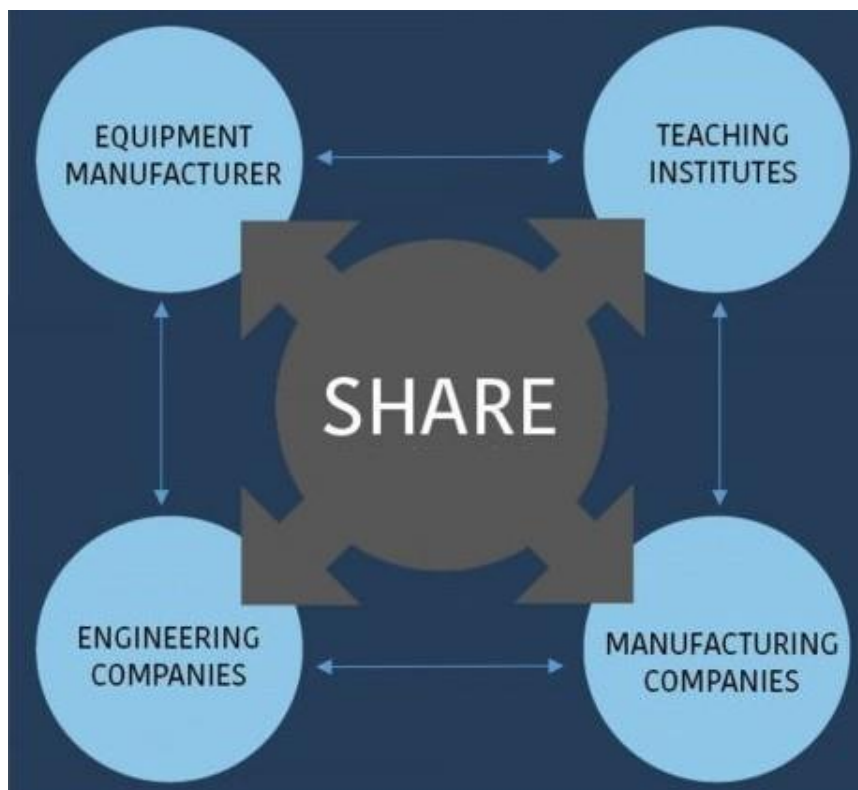


Figure 1: Groups of organisations in the Knowledge Sharing Centre network

Regardless of the influence knowledge sharing has on innovativeness of associated organisations (Lin, 2007; Wang & Wang, 2012), the business thought specific to the Knowledge Sharing Centre concept is that information and knowledge is shared early and accurate in the design process with the aim to reduce the need for redesigns and thus lower development and manufacturing cost, better time-to-market and user experience (Herrmann et al., 2004). Sharing knowledge in the manufacturing industry can enhance the design process and alignment of organisations throughout the entire supply chain.

Problem Situation

In this research proposal two different problems emerge. These problems are presented per section accordingly.

Understanding the organisations on the Knowledge Sharing Centre platform

The Knowledge Sharing Centre would like to create a network of organisations that share knowledge. The goal of the Knowledge Sharing Centre is to connect organisations in the design and manufacturing industry in a way to enhance the innovative strength. Underlining this goal, they state the following “The ambition for continuity and viability is a driver for design- and manufacturing organisations. In this search to become future proof it is increasingly important to effectively and quickly innovate and develop products, services and organisations. Knowledge sharing is key in this innovative performance and leadership & management practices have great influence on the knowledge sharing behaviour of organisations”. However, in pursuit of this goal Knowledge Sharing Centre lacks a clear understanding of what motivates and restricts organisations to join the Knowledge Sharing Centre platform. As the Knowledge Sharing Centre platform focusses solely on inter-organisational knowledge sharing, the motivation and restrictions that organisations have inherently translate to the benefits and risks that those organisations perceive with the practice of inter-organisational knowledge sharing.

Quality of management

There is a broad consensus that increased knowledge sharing contributes to an organization’s performance and/or innovativeness, and that if firms understand the knowledge transfer process and the variables that affect it, the firm’s capabilities can be enhanced (Easterby-Smith et al., 2008) Most management within manufacturing organisations understand the importance of knowledge and knowledge sharing for the future of their organisation, however is this believe also carried through to the employees? Research (Rabobank NL, 2020) has shown that most companies in the Dutch manufacturing industry are not future proof, e.g. almost 80 percent of organisations is not prepared for technological shifts and developments. Analysis of this research has shown lack of quality in management practices and leadership is one of the parent reasons that manufacturing companies are not future proof.

Literature shows that knowledge sharing contributes to the innovativeness and performance of organisations and thus relates to viability of an organization (Aulawi et al., 2009; Carmeli et al., 2013; Lin, 2007; Rabobank NL, 2020; van Wijk et al., 2008). Literature investigated the impact of top management support and leadership on knowledge sharing (Aulawi et al., 2009; Carmeli et al., 2013; Lin, 2007) and found a significant positive influence of top management support on the attitude towards knowledge sharing, knowledge donating and collecting if support by top management is perceived by their employees. Results also show a positive influence of leader behaviour on internal and external knowledge sharing. It shows that lack of vision, support and drive within top management results in lack of motivation, facilities, engagement and commitment for employees to share and collect knowledge. It is deduced that if organisations want a knowledge sharing environment, they should commit and show support in knowledge sharing towards employees.

Research goals

The Knowledge Sharing Centre wants to foster inter-organisational knowledge sharing within its platform. However, it is unknown what the considerations of organisations are with regard to participating and practicing inter-organisational knowledge sharing in this platform; how organisations value the Knowledge Sharing Centre Platform or what risks organisations perceive with inter-organisational knowledge sharing in the platform.

Secondly, literature shows that leadership behaviour and top management support positively affects intra and inter-organisational knowledge sharing (Aulawi et al., 2009; Carmeli et al., 2013; Lin, 2007). Combined with the knowledge that quality of management is lacking in the Dutch manufacturing industry (Rabobank NL, 2020), the Knowledge Sharing Centre wants to support organisations in improving the quality of their leadership and managerial practices as it is believed that leadership and management practices can foster involvement of employees in sharing knowledge and empower inter-organisational knowledge sharing. Therefore, this research contains a primary and secondary research goal.

The primary research goal is to gain insights into the considerations that organisations have in participating in the Knowledge Sharing Centre Platform and to understand the benefits and risks the organisations perceive with inter-organisational knowledge sharing.

The secondary research goal is to gain insight into how employees in associated organisations perceive support from management to share knowledge.

Because this research investigates an existing business problem, this thesis has a design goal to provide case specific implications for the Knowledge Sharing Centre. Insights gathered in this research and knowledge from known literature will be combined to provide substantiated advice on how the Knowledge Sharing Centre can support organisations to participate in the platform and practice inter-organisational knowledge sharing.

Research Questions

The goals proposed in the previous section consist of research goals and a design goal. In this section research questions are proposed to address each of these accordingly. Based on the goals of this thesis the following main research question is formulated:

What are the considerations of organisations in the manufacturing industry regarding inter-organizational knowledge sharing? And how can the Knowledge Sharing Centre support these organisations to participate in inter-organisational knowledge sharing?

To provide direction to this research and help answering different segments of the main research question the sub questions are formulated with regard to their exploratory and practical nature.

Exploratory

In order for organisations to participate in inter-organisational knowledge the benefits they perceive should outweigh the risks that are involved. Thus, to gain insight into the considerations of organisations the following questions are formulated.

What do organisations perceive as beneficial and what do they want/hope to gain from the Knowledge Sharing Centre?

What restricts (/are barriers for) organisations to join the Knowledge Sharing Centre and what risk do organisations associate with inter-organizational knowledge sharing?

In addition to the considerations of management, this research also tries to provide insight in the perspectives of the employees and how they perceive management support from top management. The following question should provide insight on this matter:

How do employees perceive benefits and risks of inter-organisational knowledge sharing compared to top management and how do employees perceive management support regarding knowledge sharing?

In a big network of organizations, all with different needs and characteristics, it is useful to classified groups of organizations with similar characteristics in their views on value and risk. Therefore, the following question is formulated.

Is there a clear differentiation/distinction between participant groups regarding benefits and risks?

Practical implication

As the explorative first section of this research provide insight in the considerations that organisations might have, this second practical section aims to provide recommendations on how the Knowledge Sharing Centre can deal and act on with these insights. The following design questions are formulated to guide the design section of this research.

How can Knowledge Sharing Centre exploit benefits and mitigate the risks that organisations experience with inter-organisational knowledge sharing?

How can Knowledge Sharing Centre contribute to the quality of leadership and managerial practices of organisations to foster inter-organisational knowledge sharing?

Research model

In order to indicate and assess risks and benefits associated with inter-organisational knowledge sharing, important antecedents and factors of inter-organisational knowledge sharing have been selected. The presents or lack thereof these antecedents can lead to the perception of risks amongst organisations. However, when possessing the skill or capacity to deal with these antecedents can mitigates the perception of these risks or even perceive them as beneficial. However, in the research model the negative situation is presumed and therefore the antecedents are seen as possible risk. E.g. when an organisation has no or low absorptive capacity, they are unlikely to acquire new knowledge. A perceived risk could be: not being able to acquire new knowledge.

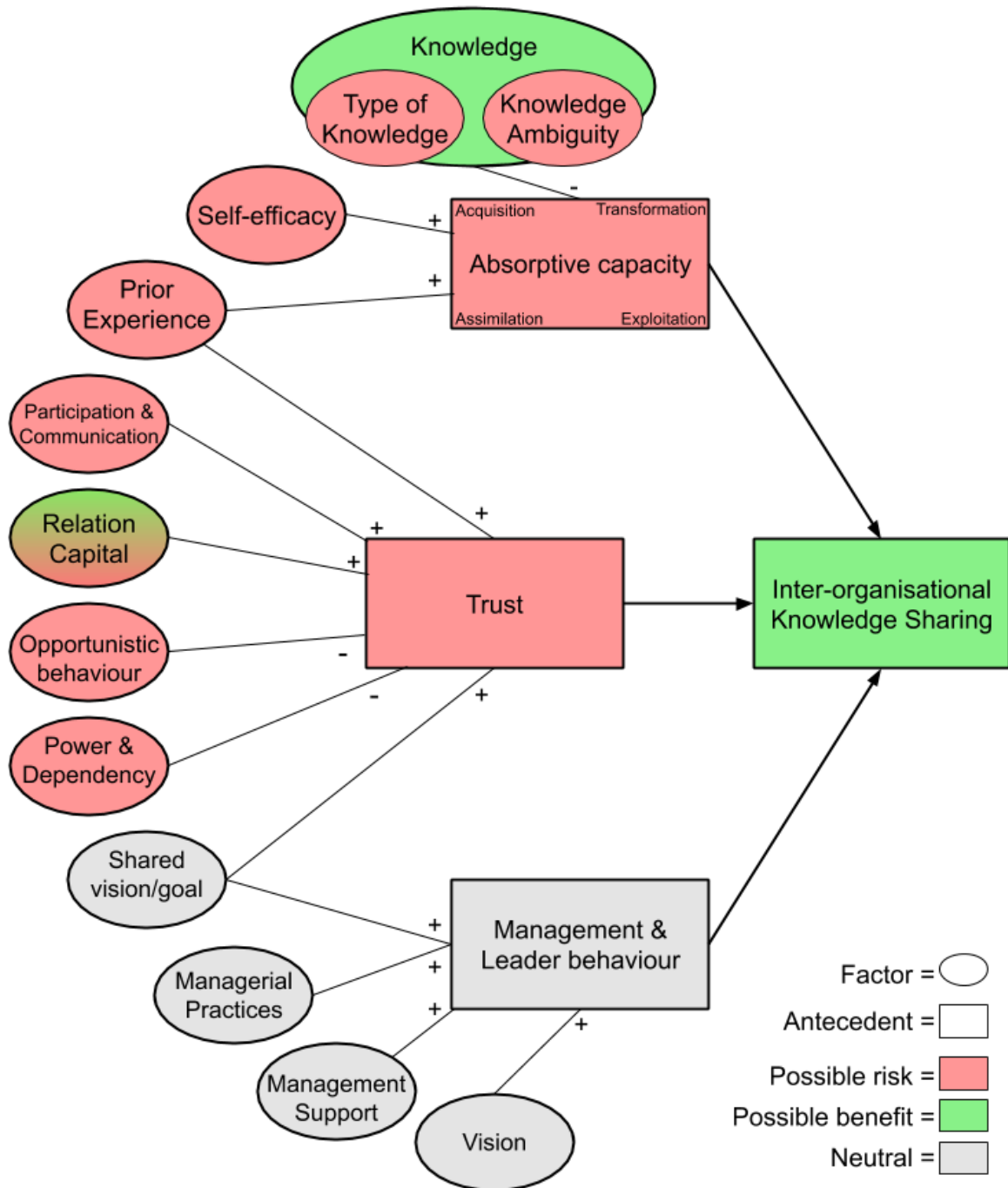


Figure 2: Research Model

The model hereabove shows antecedents and factors that influence inter-organisational knowledge sharing. The research model is shown in Figure 2. Absents of 'Absorptive Capacity' and 'Trust' is associated with risk, therefore these antecedents are coloured red. 'Management & Leader behaviour' is denoted neutral, as lack there of will not be perceived as risk. Yet, lacking 'Vision', 'Management Support' and 'Managerial practices' can have a significant negative influence on inter-organisational knowledge sharing. Organisations participating in inter-organisational knowledge sharing are likely do it to obtain new knowledge, therefore the factor 'Knowledge' is coloured green. Secondary, organisations could be participating to gain better relations with peer organisations. However, lacking social ties or relation numbers can also be denoted as possible risk. Therefore, relation capital is coloured both red and green.

'Knowledge ambiguity;' or 'type of knowledge' can get more difficult when it gets more complex or more tacit. When lacking absorptive capacity, complex knowledge could become too hard to incorporate into an organisation and thus can become as risk. Lacking believe that you as an organisation can incorporate knowledge into the organisation can stall and diminish absorptive capacity. No or bad experience with inter-organisational knowledge sharing also has a negative affect absorptive capacity and self-efficacy. Bad or no 'prior experience' can also make an organisation less trusting. Therefore, lack of 'Self-efficacy' and 'prior experience' within an organisation is denoted as a possible risk.

Lack of participation from and communication with peer organisations in knowledge sharing makes it harder to predict future behaviour of these organisational. When sharing knowledge with these firms this uncertainty makes peer organisations less trustworthy. When an organisation experiences 'Opportunistic behaviour' from a peer organisation trust between these organisations diminishes, having a negative effect on inter-organisational knowledge sharing. Therefore, 'Opportunistic behaviour' and lack of 'Participation & Communication' are denoted as possible risk. When the 'Power relation & Dependency' between organisations is imbalanced, organisations can perceive peer organisation as a threat and fear that these organisations try to exploit them. Therefore, 'Power & Dependency' imbalance can be received as possible risk. While, shared goal/vision does increase trust amongst organisations, it is not perceived as risk when there in non. All above named factors that are denoted as possible risks are coloured red in the research model. Other factors in the research model are deemed as neutral.

Methodology

Due to the exploratory and practical nature this research it is chosen to use both basic research and applied research methods. First, basic research is used to explore and gain insight on the different aspects that go into the considerations that organisations have with inter-organisational knowledge sharing. The basic research means to find information regarding why organisations would like to join the Knowledge Sharing Centre network and practice inter-organisational knowledge sharing, but also the risks they associate with inter-organisational knowledge sharing, what would resist them from joining the Knowledge Sharing Centre network and what the perspective of employees is. Second, applied research is used to provide recommendations to the Knowledge Sharing Centre on what could be their role in mitigating the risks that organisations associate with inter-organisational knowledge sharing, exploit the values and benefits that organisations want from joining the Knowledge Sharing Centre and support organisations in advancing leadership and managerial practices towards inter-organisational knowledge sharing.

It is chosen to use an exploratory research as a method to gain extensive and in-depth description of the situation specific for the Knowledge Sharing Centre. Known literature describes phenomena that

have an influence on organisational behaviour regarding inter-organisational knowledge sharing. This exploratory study aims to confirm the needs for these phenomena to reoccur within the Knowledge Sharing Centre network and validate whether addressing these phenomena would impact the considerations that organisations have with inter-organisational knowledge sharing. With the information gathered specific to the Knowledge Sharing Centre network, requirements can be set for the design aspect of this research.

The applied research is a design process that focusses on the needs of the users, in this case the organisations that are associated with the Knowledge Sharing Centre. A linear user centred approach is chosen to deal with this design process. A linear process is required due to the availability of participating organisations and in consideration of simplicity and structure. This process structure only requires the interaction with participating organisations in the beginning and at the end of the project. First, the analysis stage where requirements for the design are determined. These requirements will result from the exploratory study that is conducted in this research. Next, in the design stage the insights from the exploratory study are combined with the knowledge and insights obtained by known literature to provide substantiated recommendations to the Knowledge Sharing Centre. The last stage is the validation of the design, where the recommendations are validated by the user. Participating organisations will be invited to reflect on the proposed recommendations and evaluate if these propositions satisfy their needs. A visualisation of the design model can be seen in Figure 3.

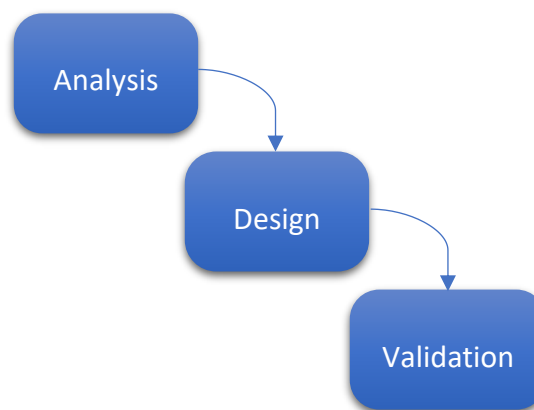


Figure 3: Design model

Research approach

The exploratory research aims to get in-depth insight into the considerations that organisations have with regard to inter-organisational knowledge sharing. To gain these insights in-depth semi-structured interviews with management of organisations are used to collect qualitative and insightful data on the considerations that organisations have with inter-organisational knowledge sharing. While, interviewing a single respondent in an organisation raises validity concerns, respondents are carefully selected as key informants that provided reliable information. This is in line with most research in the field that measure 'soft' concepts through single key informants including owners, CEOs, presidents and general managers (Seppänen et al., 2007). In addition, questionnaires are used to question employees of these organisations to gain an understanding of their perspective regarding inter-organisational knowledge sharing and how they perceive management support. The qualitative study will be done in Dutch since the study is conducted in a Dutch region. Dutch is preferred over English because managers and employees are more talkative in their native language. Using a second language can set a barrier and lower willingness to cooperate for participants. Although consistency is the target some participants might be international organisations where English is the main language spoken or do not speak Dutch. In that case the interview or questionnaire is conducted in English. Furthermore, for reporting purposes the coding of the interviews and questionnaires will be done in English.

As reliability and validity of qualitative research is often at question, the researcher uses the following strategies to ensure the credibility of the qualitative research (Noble & Smith, 2015):

- To avoid biasing, interviewee questions from the interviews are sent prior to the interview so it is clear what data is gathered and the interviewee can gain an understanding of the questions asked;
- During the interview answers must be provided by the interviewee and the interviewer should avoid filling in answers;
- Researcher confirms answers provided by the interviewee relate to one or multiple underlying constructs;
- Interviews are done face to face or via videoconference and are being recorded for later review and reference.
- Researcher validates with the interviewee that the insights gathered from the interview are correct. This will be done through a short summary based on constructs. After validation these this summary will be posted on the Knowledge Sharing Centre Platform.

As a second part of the exploratory research employees are questioned through use of a questionnaire. This questionnaire questions employees on their view on the benefits knowledge sharing a cross organisations has or could have for them, the risks they perceive with inter-organisational knowledge sharing and if they currently experience support from management to share knowledge. Due to the number of employees questioned, the questionnaire contains closed questions with pre-set of possible answers that resemblances the constructs chosen.

Constructs for the interview and questionnaire are derived from the antecedents and factors that influences inter-organisational knowledge sharing. For the interview, it is important to assess the risk managers perceive with these constructs. First a general risk assessment will be asked, managers can freely name the risks and benefits their organisation perceives most with inter-organisational knowledge sharing. The researcher will then continue the interview with the constructs that are related with the risks that are noted. After all risk related constructs have been discussed, non-risk related constructs will be questioned. While the order might differ per interviewee, each of the constructs will be questioned. A list of all the constructs is shows here below:

- Trust
 - Prior experience
 - Participation & Communication
 - Relation Capital
 - Opportunistic behaviour
 - Power relation & Dependency
 - Shared vision/goal
- Absorptive capacity
 - Knowledge
 - Knowledge Ambiguity
 - Type of Knowledge (Explicit or Tacit)
 - Self-efficacy
- Management & Leader behaviour
 - Managerial Practices
 - Management Support
 - Vision

The questionnaire is mainly focused on getting insight in to how employees perceive their management and whether management supports knowledge sharing behaviour. Secondly, questionnaire is used to get an indication of the benefits and risks that employees associate with inter-organisational knowledge sharing. Employees are asked to read a description of constructs. Employees are then tasked to choose one or multiple constructs that they associate as risky or beneficial from an array of constructs. Then, employees are asked to reflex on their managers behaviour and perception of management support. These questions are formulated as statements and are graded on a 5-point Likert scale.

Design approach

The interviews provided insight on the needs of organisations and what organisations wish to see from the Knowledge Sharing Centre is gathered. Together with the empirical findings in literature, suitable recommendations to the Knowledge Sharing Centre scenario are proposed. Literature into the topic of inter-organisational knowledge sharing is present but not extensive. Yet, some research has provided elaborative models with proven or supported aspects that influence inter-organisational knowledge sharing. These models and literatures are used as the basis for the design, matching the results from exploratory study of the Knowledge Sharing Centre situation with these models and literatures will provided aspects on which progress can be made to foster inter-organisational knowledge sharing. Some literatures also provide practical implications that might also be useful in the Knowledge Sharing Centre scenario. In addition to literature, it is tried to reach out to experienced leaders and managers in the industry to strengthen the practical implications provided by this research.

The validation of the proposed design is done through a sounding board group session with participating organisations. In these soundboard group sessions, the design will be presented and organisations can reflect upon on the proposed recommendations. Organisations be asked if these recommendations satisfy their needs, help them exploit the benefits and mitigate the perceived risks associated with inter-organisational knowledge sharing and whether these recommendations once implemented will impact and affect their decision to join the Knowledge Sharing Centre. Organisations that are already participating on the Knowledge Sharing Centre platform are used to having interactive video presentations on the digital platform. Therefore, the sound board group session will be done through a video session. As this is in line with the current way of working of the Knowledge Sharing Centre platform and thus purposely chosen for the ease of participating organisations, as well as keeping in mind covid-19 virus regulations and avoiding group gatherings.

Data collection

To get organisations to participate in this research an informative flyer is created and sent through network organisation within the Dutch manufacturing industry. Organisations that participate in the research are specific to the Knowledge Sharing Centre scenario and thus data collected is specific to the thesis case. Interesting organisations are those in the manufacturing industry that are interested in the activities of the Knowledge Sharing Centre or are considering to join and participate in the Knowledge Sharing Centre platform and network. Participants will be indicated within one of the four groups (Teaching institutes, Manufacturing companies, Engineering companies, Equipment manufacturers), as the aim of this research is to have representative data for each of these groups.

To be able to generalise finding to the entire current or future population of the Knowledge Sharing Centre the aim was to have enough participating organisations in each of the groups. Therefore, an estimation is made on the ratio between groups. The population is estimated to consists of:

- 15% Original Equipment Manufacturers;
- 20% Engineering organisations;
- 45% Manufacturing organisations;
- 20% Teaching institutes.

Conform this estimation 24 organisations have been approached. 16 of these organisations have confirmed to participate in the research. These organisations are listed in *Table 1*. Several organisations are still inconclusive about participating and therefore not shown in the list of participating organisations. However, the number of organisations that are going to participate in the research is representative to the estimated population. The classification of each of the organisations can be found in the list of participating organisations in *Table 1*. The groups are represented by the following amounts:

- 3 - Original Equipment Manufacturers;
- 3 - Engineering organisations;
- 7 - Manufacturing organisations;
- 3 - Teaching institutes.

While this thesis strives to be a valid and reliable research, ecological validity of the research might be in question. Interviews are being conducted in an environment that is natural for the interviewee, which increases the ecological validity of the research. Findings and recommendations provided in the research are not exclusive to the Knowledge Sharing Centre. Insights, findings and recommendations of this research can be used in comparable situations. However, due to the specific relation to the Knowledge Sharing Centre platform and network, the findings and recommendations are mainly applicable in the situation of the Knowledge Sharing Centre and therefore limits the usability in other more generic situations and cases.

Table 1: List of participating organisations.

Logo	Organisation	Interviewee	Function	Group
	ASML	Peter Wennink	CEO	OEM
	ATG Europe	Samo Simonian	BUM - EngineeringLAB	Engineering
	Cematec	Richard Tompson	Managing Director	Engineering
	Craft Education	Roy van Bussel	CEO	Teaching
	Formatec Ceramics	Rene Bult	General Manager	Manufacturing
	Metafas	Hans van de Mortel	Managing Director	Manufacturing
	Mikrocentrum	Geert Hellings	Managing Director	Teaching
	Mitutoyo	Henk Slotboom	Managing Director	OEM
	oZone	Jeroen van de Vorst	Senior Advisor learning	E-Teaching
	Rabobank NL	Kees de Schipper	Sectorspecialist Manufacturing Industry	Manufacturing
	Sioux Technologies	Patrick Doms	Department Manager Mechanics	Engineering
	Ter Hoek	Annelien Weenink	HR Manager	Manufacturing
	ThermoFisher	Paul Nollen	Competence Manager	OEM
	WBM staalservice	Hermen Bos	Managing Director	Manufacturing
	West End	Ben van Berge Henegouwen	General Manager	Manufacturing
	Wilting Components	Adwin Kannekens	CCO	Manufacturing

Planning

For this thesis project a time planning provides guidance and structure, this timeline can be seen in Figure 4. Note that several milestones are still uncertain and do not have strict deadlines. For example, the date of the graduation hearing is still unknown due to approval criteria and exam committee.

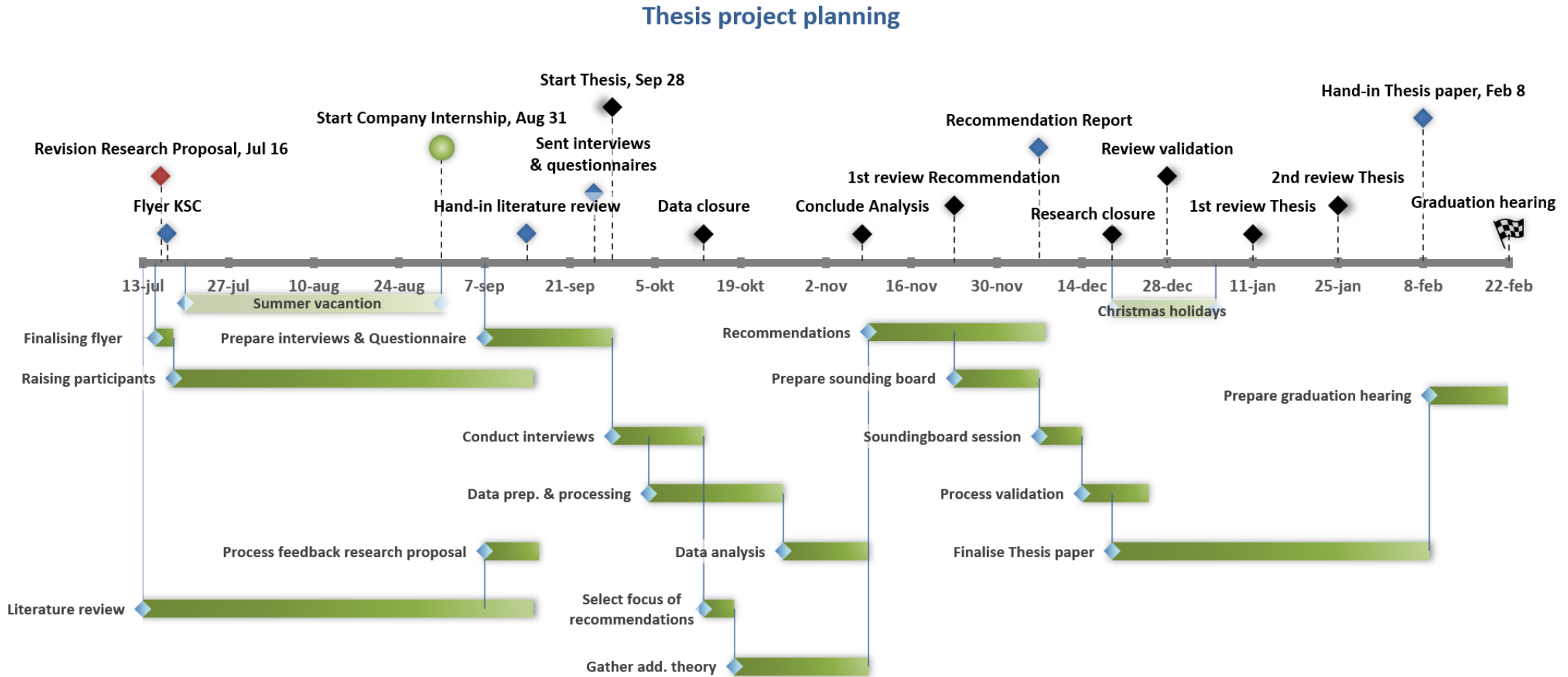


Figure 4: Thesis project planning

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