

The development of value propositions in High-Tech entrepreneurial startups

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Firms are continuously striving to make better value propositions than its competitors, in order to outperform them. Little is known about how High-Tech startups develop a strong value proposition. Therefore the purpose of the study is to find out how High Tech startups develop their value propositions. Including which stakeholders are integrated in the development process, and what their role is. Interviews were conducted with several startups to get a clearer picture of this process. The results reveal that every startup conducts market research, integrates the customer in the value proposition development as soon as possible, creates a beta version of the product and uses the feedback to adjust the value proposition. It can be concluded that High-Tech startups develop their value proposition in similar ways, and especially customers play a significant role in this process.

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Keywords

Business-to-Business, entrepreneurial, High-Tech, stakeholders, startups, value proposition development

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1. INTRODUCTION

1.1.1 The topic area and its relevance

Marketing has focused for decades on the exchange of manufactured output. Throughout time, the worldview of marketing changed increasingly towards a new dominant logic. 'Marketing has moved from a goods-dominant view, in which tangible output and discrete transactions were central, to a service-dominant view, in which intangibility, exchange processes, and relationships are central.' (Vargo & Lusch, 2004). The image of 'how you market to somebody' has changed to 'how you market with somebody'. More and more consumers are looking for value in terms of becoming 'better off' in some way. (Grönroos, 2011). According to Vargo & Lusch 'The enterprise can only offer value propositions; the consumer must determine value and participate in creating it.' (Vargo & Lusch, 2004). 'Value propositions are firms' proposals on how consumers can derive value from integrating offerings with their other resources.' (Holttinen, 2014). These studies all provide evidence of the importance of taking into account consumers in the value proposition. When they are integrated in the process of creating value propositions, this accordingly could lead to mutual benefits. Both the consumer as well as the enterprise will be better off then.

Firms are continuously striving to make better value propositions than its competitors, in order to outperform them. Hence, the relevance and importance of value propositions should not be underestimated, and be considered 'as the key to obtaining competitive advantage' (Vargo & Lusch, 2004, p. 12). Developing value propositions is a difficult task as it requires understanding and managing several needs and objectives across a network of multiple stakeholders in order to create shared value. (Baldassarre, Calabretta, Bocken, & Jaskiewicz, 2017).

Some researchers already studied how entrepreneurs try to create value. 'Some entrepreneurs are evidently better at creating value than others. If what they do could be better understood, communicated, taught and learned, then perhaps the at times questionable output of entrepreneurship (Nightingale & Coad, 2014) could be improved' (Frederiksen & Brem, 2017, p. 170). In other words, the better the value creation of entrepreneurs is understood and known, the better the output. This once more illustrates the importance of strong value propositions. The impact of entrepreneurs and their startups could be significant on society as a whole (Frederiksen & Brem, 2017). This great impact increases the necessity of studying these startups.

As the focus of this research is on High-Tech startups, an explanation of High-Tech would be convenient. The concept 'High-Tech' is a bit vague as it has been assigned multiple meanings. High-Tech is something novel and advanced. It is often associated with the emergence and use of new technologies (Grønhaug & Möller, 2005). These new technologies represent opportunities, but logically also create uncertainties. Buyers may have trouble understanding the new technology, and they may misinterpret the possible benefits. For this paper High-Tech is interpreted in the broadest sense of the

word: 'Using new technologies to create new products or services.'

The research specifically focuses on the Business-to-Business (B2B) segment. Nowadays companies are more interconnected than they used to be before. This network provides several opportunities. 'The collaborative development of new service offerings, and the coproduction of value propositions, is becoming an increasingly common practice in the B2B context.' (Kohtamäki & Rajala, 2016, p. 4) Value co-creation and coproduction of value propositions help to explain how value is created through interactions between different actors. In the figure below you can see how value is created due to collaboration between different stakeholders (see figure 1).

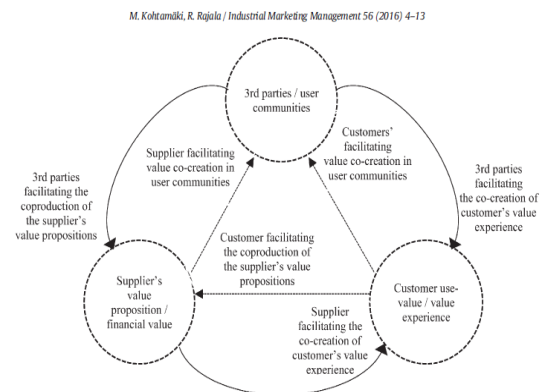


Figure 1: Actors' roles in value co-creation and coproduction

Coproduction as well as co-creation both generate value, but there is a difference. 'Coproduction is attached to the collaborative development of value propositions, while value co-creation is linked with customer experience.' (Kohtamäki & Rajala, 2016, p. 9) The scope of this research is on understanding the development of value propositions, therefore more attention will be paid to coproduction as this could have a direct influence on developing value propositions.

1.1.2 The research gap

Research has been done on the development of value propositions. However, it has not been studied enough in depth. For example development of sustainable value propositions (Baldassarre et al., 2017) has been studied. Furthermore, the process of developing value propositions of leading companies has been thoroughly studied (Payne & Frow, 2014). This research fits within the scope of developing value propositions, but the literature lacks research on specifically the development of value propositions for High-Tech entrepreneurial startups. One would assume there is a major difference in the development process of these value propositions, because of the structural and environmental differences between different types of companies and startups. Little is known about how High-Tech startups develop a strong value proposition. What processes lay the basis for these propositions, and how are stakeholders involved in it? That is to be found out in this paper.

1.1.3 The purpose of the study

As described in the ‘research gap’ section, research has been conducted extensively in this field of study, but the literature is a bit scattered. This will be explained in the ‘LITERATURE’ section. There is no general systematic description available, or even possible, of how firms develop their value proposition because of the different types of sizes, structures and focus of firms. There is a need for clarifying the process especially High-Tech startups go through in the development phase of their value proposition. Therefore the purpose of the study is to find out how High Tech startups develop their value propositions. Including which stakeholders are integrated in the development process, to what extent they were integrated and what resources have been used in the development.

The research question to be answered in this paper is of empirical matter. It concerns the following question: ‘How do High-Tech entrepreneurial startups develop their value proposition and what is the role of stakeholders in this process?’

Below there are some related sub-questions stated. These sub questions will be used to get a better understanding on how to eventually formulate a clear full answer to the research question.

- What process do High-Tech entrepreneurial startups go through in order to develop their value proposition?
- Which stakeholders are involved in developing the value proposition and for what purpose?

1.1.4 Theoretical positioning

The core domain in the ‘value proposition’ field of study is the marketing domain. Most of the prior studies and scientific articles on this topic are posted in several marketing journals. However, it is also included in the business field in general. As this paper will focus on especially High-Tech startups, the research will be positioned somewhere between entrepreneurial, High-Tech and marketing studies to bridge the gap between these areas. Views from these different lenses may provide new insights on value propositions. The contribution of this research will accordingly be to these three domains.

1.1.5 Research strategy and data

Data will be gathered by searching articles in academic databases and carrying out interviews. The research questions will be studied by conducting a literature review. This review will be backed by the results of the empirical study. Interviews will be done at several High-Tech startups to gather extra data.

The result sought for is a clearer picture of how High-Tech startups develop their value proposition.

1.1.6 Expected contribution

This paper contributes to the literature by examining how High-Tech startups develop value propositions in the B2B sector, which would be new knowledge in this research domain. Furthermore this research could provide advice on how to develop successful value propositions for High-Tech startups, and how to include stakeholders in this process.

1.1.7 Outline of the paper

The paper will advance by a literature review. This part describes the prior research done on value proposition development for startups and the role of stakeholders in value proposition development. Thereafter the method used for this research will be comprehensively explained. Subsequently the results of the interviews and a cross-case analysis will be given. This will be followed up by a discussion with the contribution, limitations and possibilities for future research. Lastly, the conclusion will wrap up this paper.

2. LITERATURE

Unfortunately there has not been done significant research on the value proposition development of startups, or even more specific High-Tech startups and the role of stakeholders in this process. However, some studies indicate the importance of a well created value proposition for startups and the process of developing value propositions and the role of some stakeholders in value proposition development in general.

Creating successful value propositions for startups when trying to enter new or existing markets is seen as a struggle a lot of startups are coping with. (Fisher, 2012) provided in his article on comparison of theories in entrepreneurship research a simple solution to deal with some of the early stage struggles: ‘Entrepreneurs who engage in experimentation and who interact early and often with customers will be able to overcome many of the hurdles associated with starting a venture.’ (Fisher, 2012, p. 1046). The combination of engagement with customers and other stakeholders in value proposition development is therefore critical to create value for these startups.

Simply developing a product because of new technologies still seems to be a mistake often made by startups, as the number one reason for failure of startups (with 42%) is that there is no demand for the product in the market (CBinsights, 2014). A graph of the top 20 reasons why startups fail can be found below (see Figure 2).



Figure 2: Top 20 reasons why startups fail.

This research is based on 101 startup failures. A proposed solution to the problem to market a product is: ‘Before attempting to sell a product or service, the entrepreneurs should run a competitive analysis of the industry, and realistically determine the company’s offerings. This may require collecting constructive, objective criticism from potential customers’ (Yetisen et al., 2015, p. 3652). Even though technologies allowed it, oftentimes products or services get rejected by the market, as customers did not demand it. This could be prevented by including customers in determining their offerings, to make sure that there is a high demand for the new product or service.

Following the traditional marketing logic, it is assumed that customers understand the usefulness of products. But in High-Tech industries hardware is continuously being upgraded, providing the customers limited time to discover the benefits of these products. ‘At the heart of the high-tech marketing is the ability to communicate the benefits of the product to customers’ (Yetisen et al., 2015, p. 3648). This communication should happen before launching the product, as otherwise by the time customers understand the benefits of the product, their product turned obsolete. Thus, businesses should analyze customer perceptions of benefits before launch and include customer perceptions in the development of their value propositions. ‘The product should have a compelling value proposition to cause the customer to commit to purchasing.’ (Yetisen et al., 2015, p. 3652)

(Grønhaug & Möller, 2005) agree to the importance of developing and modifying the offerings to attract and keep customers. They say ‘Market research is assumed to play a major role in this respect – in particular to bring in insights regarding customers’ preferences and their needs and wants.’ (Grønhaug & Möller, 2005, p. 97) But they continue that in fast changing markets the influence of market research is minor. Customers are in those markets often unaware of their own needs. In those High-Tech markets the time-to-market is substantial.

(Payne & Frow, 2014) have further studied the processes by which leading companies develop their value proposition. The results of this study unfortunately solely provide guidelines of

how companies could successfully develop it. They also studied a stakeholder perspective of the value proposition concept, and how value propositions could be created for key stakeholders. They discovered that value propositions have a key role in value creation between stakeholders. (Frow & Payne, 2011)

The process to develop a user-driven value proposition and a superior problem-solution fit should be adopted in a dynamic and iterative way. A three-step approach is proposed: (1) talking to users, customers and stakeholders; (2) thinking about potential solutions; and (3) testing these solutions early on moving towards problem-solution fit (see figure 3) (Baldassarre et al., 2017, p. 178)

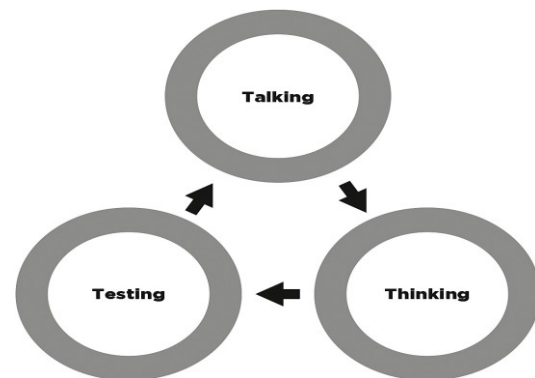


Figure 3: User-driven iterative process for developing value propositions

The findings of this research indicate that customers should be involved more systematically in the value proposition development. To discover the different perspectives of multiple stakeholders the value proposition should be discussed with them. The best way of doing this is by conducting conversational interviews and co-creation sessions. Consequently the stakeholder network could be identified and other unexpected problems may be discovered. The value proposition could then accordingly be adapted. ‘Adopting a multifaceted stakeholder perspective - instead of, for instance, a technology driven one - allows the discovery of opportunities for shared value creation that would otherwise be missed’ (Baldassarre et al., 2017, p. 183) This again may explain the number one reason why startups fail, due to a technology driven perspective, they are not focused on what the market demands.

The feedback of the stakeholder network should be used to redefine the value proposition in order to develop a product/service that creates value for each of the stakeholders. This could be best done by reframing the problem, knowledge brokering and brainstorming sessions. Companies should create a minimum viable product in an early stage to verify whether it delivers the intended value among the network of stakeholders. In this stage the assumptions should be defined, the product should be tested, and the results should be evaluated. This process should then be continuously iterated as the stakeholders’ demand changes fast in the High-Tech industry. (Baldassarre et al., 2017)

‘Value propositions are reciprocal resource-integration promises and value alignment mechanisms, operating to and from actors seeking an equitable exchange.’ (Kowalkowski, Kindström, & Carlborg, 2016, p. 2) Every actor in this business seeks an exchange for its input. This counts for every company, no matter the size. In this research they found out that while developing the value proposition, a more compelling market offering can be provided by adopting a triadic perspective.

The three actors (stakeholders) used for this relationship in Kowalkowski’s research were the manufacturer, dealer, and user firm. First the value propositions were only directed from the manufacturer to the dealer and from the dealer to the user. The process of joint value proposition development started by generating ideas and understanding user needs. This happened by looking at usage patterns and business processes. In a later stadium key activities included ‘more structured and detailed user studies and efforts to understand the dealer’s role, along with initial pilot tests of the value proposition.’ (Kowalkowski et al., 2016, p. 16)

Customer interaction with the manufacturer was increasing. The process continued by doing workshops with the three actors in different markets, resulting in being able to better fulfill the needs of both the customers as well as the dealers. Once the needs were clear, the value proposition got materialized and launched on several markets with a limited number of dealers and users as a test. This was to ensure control over the launch process and to gather qualified feedback from those willing to commit to this value proposition in reality. The value proposition became more reciprocal with contributions from all actors, and value proposition customization became an opportunity. Over time a triadic value proposition emerged, all three actors’ responsibilities were shared, and they were able to help each other to resolve the problem. The overall performance of all these actors increased. This research emphasized the importance of commitment of all actors in the value proposition development process. ‘A viable value proposition demands alignment among the interests of all actors in the system.’ (Kowalkowski et al., 2016, p. 28)

To summarize it, previous studies indicate the importance of a well-developed value proposition. Early interaction with customers in this process is the first step towards this goal. To determine the offerings of a startup, customers should be consulted and integrated in this process. Market research in High-Tech markets only seems to be of minor influence. The time-to-market is more important. Important stakeholders and their influence on the value proposition development have been identified for companies in general. This process has also been studied. But, do High-Tech startups have other important stakeholders? What is their influence on the value proposition development? What the value proposition development for High-Tech startups looks like and how stakeholders are involved in this process is unknown. A clearer picture of this is to be found out in this paper.

3. METHOD

This part describes the type of research that was conducted and in what way this happened. The methodological approach followed for this research is both empirical as well as theoretical.

The theoretical approach contained searching for relevant articles concerning value proposition developments and High-Tech startups on Scopus, Web of Science, Google Scholar, and similar websites/databases to generate the necessary literature for this research. Some of the search terms used include: value proposition, development, High-Tech, marketing and combinations of these. The reference lists of the articles read for this research referred to other possibly relevant articles. When finding articles, special attention was paid to the relevance and quality of the articles; together with the journals they were published.

Furthermore the empirical data was generated by conducting personal interviews at High-Tech startups in the Business to Business (B2B) sector. This is decided upon as most startups in the Twente region are B2B focused. The interview questions were created based on the theoretical information gathered in the databases. These questions could be found in Appendix 1. The startups were either contacted by mail or by phone. The interviewees all had a function in which value proposition was a matter, all of them were either the CEO or responsible for the marketing of the company. The sample consisted of biomedical, chemical, thermo-acoustic as well as software development companies. The sample is diverse to find out whether stakeholders play different roles in the value proposition development process in different types of High-Tech start-ups. The interview technique used was face-to-face, as the interviewed startups were all located in the Twente region, and therefore easily reachable. For the setup and organization of the interviews a look was given to an interview guide for qualitative research (Ritchie, Lewis, Nicholls, & Ormston, 2013)

All interviews started off with an introduction of this research and the purpose of the interviews. The same questions were posed to the representatives of the different startups. Yet, the interview was conducted in a semi-structured way, to have the possibility to ask more in-depth questions based on the answers of the respondent. This led to a more interactive session. The questions were open ended in order to gather more information, as opposed to solely a fixed answer when using multiple-choice questions. All the qualitative information was accordingly analyzed. Some of the interviews were tape recorded, in others only notes were made. Some of the interviewees preferred not to be recorded for privacy reasons. In those interviews that were recorded, notes were made next to it to ensure no important information would get lost. Taking notes next to recording is important for various reasons: (1) to check if all the questions have been answered, (2) in case of malfunctioning of the tape recorder, and (3) in case of "malfunctioning of the interviewer" (Opdenakker, 2006). The duration of most of the interviews was approximately half an hour to 45 minutes. The interview started off with some general question, to get to understand the startup, followed by questions relevant for answering the research

questions. The data gathered following this approach is the primary data, which is later used to address the research problem.

At last secondary data from the websites of the startups was used for this research. This was for the purpose of getting a clearer picture of what the startups are about, to be able to pose more specific company-focused value proposition related questions.

4. RESULTS

In this section the results of the individual interviews will be described, followed by a cross-case analysis. An overview of these results can be found in Appendix 2. For the sake of anonymity all High-Tech startups will be numbered somewhere between A and Z, and specific confidential information will be left out. In Table 1 below, a small overview of the startups is given. A further description is given in the subsections.

Table 1: Startup overview

Company Name	Founded in	FTE	Offering
<i>Startup A</i>	2012	7	Developed an application for saving and transferring data.
<i>Startup B</i>	2016	7	Developed a coating for medical equipment.
<i>Startup C</i>	2013	11	Developed an application for contract management.
<i>Startup D</i>	2015	7	Developed a new ceramic nanofiber material.
<i>Startup E</i>	2015	4	Developed a new technology to cool buildings

4.1 Startup A

4.1.1 Company description

The first interviewed startup developed an application which provides a safe way to save and protect data and to exchange this data among multiple parties. This happens without using the cloud. The data to be stored will be kind of locked, cut into pieces, and divided among locations that the user can choose. To ensure the protection of the data, everything is locked, even the company itself cannot access it. In order to make this possible High-Tech software is used. For the sake of convenience, this startup will be called *Startup A*. The interviewed person is the sales & marketing officer of the

company. Startup A focuses on the B2B segment. Their customers consist of companies possessing confidential information which has to be protected: such as notaries, law firms, hospitals, universities, consultants.

4.1.2 Interview result

The value proposition development process of Startup A started off by conducting extensive market research. They mainly focus on the small- and medium-sized enterprises (SME's), and the value proposition is focused on them. As the product is still in minimum viable state, the SME's are currently testing the product. When the product has proven to work well, the focus will shift more towards bigger companies, and the value proposition will accordingly be adapted to their wishes. The interviewee knows the ins and outs of having a well-developed value proposition and indicates that this could provide companies a competitive advantage. Customers may decide to choose you instead of your competitor because of the value propositions.

The abovementioned customers together with investors are seen as the main stakeholders. Startup A is aware of the benefits these stakeholders could provide the company. Especially customers influence the development of the value proposition. The investors influence the value proposition as they invested in the company. They want a high return on their investment, and therefore want a saying in what happens within the company. The university does not have any direct influence on the development of the value proposition. As the application of company A is all about privacy of information, gathering feedback from customers is kind of a struggle. About 2 years ago, a beta version of the application was launched. Constant feedback was gathered using feedback loops in this trial version. This took place in the early development phase of the application. Thus customers were integrated in this early phase. This feedback was consequently used to adjust the value proposition.

4.2 Startup B

4.2.1 Company description

The second interviewed startup (*Startup B*) is active in the biomedical world. They use a revolutionary technology to produce coatings. This coating could be used to cover medical equipment. The interviewed person is the founder and CEO of the company. Startup B focuses on the B2B sector and its customers consist of medical firms.

4.2.2 Interview result

Startup B has conducted extensive market research in several different markets to discover the demand for the coating. This already started long before product launch. The interviewee is well aware of what a value proposition is, and the benefits it could provide to the company. During the market research potential customers were immediately contacted. The customers' wish could then still be integrated in the value proposition in an early stage. Their value proposition process is currently going on. Being able to clearly explain the benefits of

a product to the customers provides a competitive advantage. Startup B says to have a clear solution to an existing problem. The customer is intensively integrated in the value proposition development process. With every new idea, the customer will be involved and the value proposition will accordingly be adapted.

Startup B adjusted the value propositions for each market, as the different markets demand coatings with different characteristics. During the process of developing value propositions, special attention is paid to time-to-market. In the medical segment, products arrive slowly at the market, this has to be taken into account. If there is no demand anymore for the product, stop the development, and adjust the value proposition.

Shareholders, universities, investors and customers were seen as the main stakeholders. They all influence the value proposition of startup B in different ways. The customers are integrated in the process as soon as possible; the value proposition is adapted based on the customers' wishes; consequently the customer may become an early adopter of the new coating. The university mainly provides knowledge and stresses the importance of early stage customer involvement. Business development teams consult Startup B and emphasize the importance of market demand. Investors are well aware of different markets and the market movements. They provide guidance to developing the value proposition and thereafter drafting the strategy. All information gathered by the investors led to a roadmap towards the goal. This is tough, as every stakeholder has a different goal.

The first coating is recently finished; therefore the feedback is still small-scaled. The feedback to this prototype was profoundly positive and production just started. If the founder of Startup B has to start all over, he would try to reach customers even earlier. Start off with a scan of the market, then immediately contact customers, ask for feedback and continue from there on. Also the scope of the technology would be extended. Instead of solely focusing on the medical sector, open your eyes and focus on the opportunities.

4.3 Startup C

4.3.1 Company description

The third interviewed startup (*Startup C*) developed an application to help companies manage their contracts using a subscription based model. They especially help companies with complying with their rights and duties as signed for in their contracts. They help by making it easy to retrieve the documentation around the contracts and managing the important milestones. The interviewee is the founder and director of the startup. Startup C focuses on the B2B sector, by targeting individuals within the companies. The target audience is everyone, as everyone signs contracts. Their customers consist of all different types of companies.

4.3.2 Interview result

Market research on contract management has been conducted by others, not by the interviewee himself. Analysts indicate that the contract management market is growing. Given this, together with the fieldwork the director has done and the studies he read, he was able to draw conclusions.

Value proposition is a common concept for the company. Being able to clearly explain the value of doing business with a company would result in a 'no-brainer' situation. Having a good value proposition leads to having a good sight on what you are doing. If you are able to manage this, you may get a competitive advantage and could outperform the competition. In every part and every page of a company the value proposition matters.

You should be well aware of your target audience. The value of contract management to the customer depends on the content of the contract. Whatever your function is, and whatever industry you work in, everyone has to deal with contracts, which makes everyone a stakeholder. Some companies collaborate with Startup C on a certain level, but they always want to control their own destiny. Startup C does not collaborate with other universities or universities of applied sciences, although some students graduate at the company or do an internship there. Customers are attached to the products and the value proposition development process in an early stage. Some customers even signed the membership before the application was ready.

Stakeholders could provide benefits to the company. Startup C sees stakeholders as a way to reach the market and they influence the value proposition development process. The yield customers get by managing their contracts gives Startup C food for thought, which accordingly could influence the value proposition. Customers willing to use the contract management software after trying the demo also may influence the value proposition. Especially those customers that decide to sign a membership within a short timeframe have most impact on the value proposition development. How could it be that they make this decision so fast?

The demo is used as a feedback mechanism. There is a problem; the demo explains the solution using the software. Consequently Startup C either gets a new customer, or feedback. There is a database filled with feature requests, some of them will be used in their advantage. If the director of Startup C has to start all over, he would not have done anything differently to develop the value proposition.

4.4 Startup D

4.4.1 Company description

The fourth interviewed startup (*Startup D*) is doing business in the material-science game. The company owns a disruptive high-tech technology to turn ceramic materials into flexible. Using this technology they can produce products with characteristics of both ceramic as well as plastic, dependent upon the customers' needs. The interviewee is the CEO and co-founder of this company. The focus of Startup D is on the B2B sector. Their customers incorporate large companies:

manufacturing companies, chemical producer companies and material-science companies at the bottom of the value chain that goes all the way up to the customer.

4.4.2 Interview result

Startup D conducted market research to understand in big lines what the market problem is, to find out the players in the market and to understand the value chain, prior to creating the product. Their process works like this: They go to the customer and try to understand their problem, instead of telling them about the offering. If the customer has any development in mind, or if the customer has a problem with a product that needs improvement in certain properties, Startup D and the customer brainstorm together and come with a proposal on how to solve the problem. It also works the other way around, customers search for Startup D. Those looking for flexible ceramics ask them if they can produce this for them. Then the process starts all over again.

The CEO is well aware of what a value proposition is and indicates that if you find the right customer for the right value proposition, you would have a competitive advantage. Startup D does not create a value proposition on its own. Their technology is not their value proposition, the way Startup D and their customer help each other solving the problem is the value proposition. It is how they create value for the customer. This accordingly leads to a customized value proposition for each customer. All players in the value chain are stakeholders of Startup D; they have to understand the different needs of each player.

The main stakeholders to Startup D are the investors, co-founders, university, employees and of course their customers. The university has no influence on the value proposition development, but Startup D benefits from the network of the university as they are a UT Spin-off. The investors have influence, since they are at the board, together with the main co-founders. The CEO proposes the value proposition to the board, they either accept, adapt, or reject it. They have the final decision on what the value proposition will be.

During the value proposition development process they get feedback from the customers. They already do testing with the customers in an early stage. They transform the technology together with the customer to a product. The feedback is then used for the co-development with the customer.

In the beginning phase it was much like a technology push. There was no demand for the technology yet. If Startup D has to start over, they would take off by forecasting the customer needs. Instead of creating a solution and afterwards finding the problems, you should start with a problem and then try to find the solution.

4.5 Startup E

4.5.1 Company description

The last interviewed startup (*Startup E*) owns a breakthrough technology to cool buildings without the use of electricity or

gas. This happens with zero CO₂ emissions and zero Global Warming Potential (GWP). The product can turn heat into coolness and is maintenance free. The target for this product is office buildings, sport halls, the leisure branch, retail industry and all types of companies with large production halls. The interviewee is the CEO of the company. The startup focuses on the B2B sector and their customers are mainly building owners and installers.

4.5.2 Interview result

Startup E let another organization do the market research in order to develop their business plan. Next to this, they also did some market research themselves. They contacted potential customers and interviewed them, to discover the demand for the product. Some customers already approached Startup E suggesting they will be the first to use the product. They emphasize the importance of taking your time to find the product-market fit before investing significant amounts of money in the production.

The CEO of Startup E is familiar with the concept value proposition and the benefits a good developed value proposition could provide you. The value proposition will be adapted based on the customers' wishes. The value propositions are co-developed with the customer. This leads to a customized value proposition for each customer.

The customers are seen as the main stakeholders. If a building owner demands a smaller product, Startup E tries to make one. The value proposition will correspondingly be adapted. Investors do not have any influence in the value proposition development yet, since they have not invested in the company yet. This may change in a later phase. Neither does the university have any influence.

The value proposition development process starts off by contacting potential customers, asking for feedback based on a rendering version of the product, and having a critical eye at the current value proposition. The value proposition will continuously be adapted until it really makes a difference and customers cannot reject it. From that moment on costs will be made and the product will be commercialized. The process and the lean startup method are thus likewise. Bringing a minimum viable product to the market in an early stage, start generating feedback and accordingly adjust the value proposition.

Gathering feedback already happened when this product was still just an idea. Furthermore Startup E is constantly talking to business coaches and participating in competitions or events. The feedback received here is also taken into account in the value proposition development process. If the CEO has to start over, the approach would be similar. He would fasten the process, make faster decisions, and have a broader look at the different markets that could be pioneered with the product.

4.6 Cross-cases Analysis

In this section the results of the individual interviews with the startups will be compared. This part will describe the differences and similarities between these 5 High-Tech startups

in the development of their value proposition and the role of stakeholders in this process.

All the interviewees are well aware of what a value proposition is and how it could provide you a competitive advantage. As one interviewee said: *'Being able to clearly explain the benefits of a product to the customer provides you a competitive advantage.'*

The interviewed startups have all done market research before product launch. However, the style of market research differs. Whereas the one startup conducted market research by itself, the other used an external organization for this. One startup let another organization do the market research and complemented this with its own research. This is where the value proposition development process of all startups began. This process continued for 4 startups by contacting potential customers. This already happened in an early stage, long before product launch. For one startup it was the other way around, they were being contacted by potential customers.

All interviewees emphasized the importance of integrating the customers in the value proposition development as soon as possible. Then the value proposition could accordingly be adjusted to the customers' wishes before significant investments are made. For some of the startups this leads to value proposition co-development. They create customized value propositions with each individual customer. The way the customers are being contacted and integrated varies among the startups. One of the approaches is going to the customer, try to understand the problem and the need, brainstorm together and propose a solution. That is how you shape the value proposition. Another mentioned approach is contacting the customers and show them a minimum viable product, ask for feedback and adjust the value proposition.

The way feedback is generated from the customers is different. Two startups asked for the necessary characteristics of the product to solve the problem, created the product together with the customers, tested it, and then asked for more feedback. Another one created a beta version of an application which customers could test for free and gathered feedback using feedback loops. Then we have a startup that uses a demo as feedback mechanism. The customer describes the problem, the demo explains the solution. And the last startup created a rendering to show potential customers what the product looks like and what it could do, then feedback was asked. All startups thus created some type of minimum viable product to show the potential. Some of them are materialized, and others are immaterialized.

The other stakeholders and their influence on the value proposition development differ significantly. Investors influence the value proposition because they want the company to succeed as they invested in it and require a return. For one startup the investor provides guidance and drafts the strategy for developing the value proposition. At another one the investors are at the board and they decide to accept, adapt or reject the proposed value proposition. The remaining startups are not invested in by investors, and therefore they have no influence. Universities do not have any direct influence in the value proposition development, but their network and knowledge will

be used. Some startups consult business development teams or business coaches for advice. All interviewees mentioned that customers should be integrated in the value proposition development process even earlier. You cannot be too early. The product-market fit will then be better and consequently the value proposition will be better shaped.

5. DISCUSSION

The results of the interviews as compared to the prior research conducted by others will be discussed in this section.

There seem to be a lot of similarities. The combination of engagement with customers and other stakeholders in value proposition development is critical to create value. The ability to communicate the benefits of the product to the customers is indicated as being at the heart of high-tech marketing. The interviewees also stressed the importance of being able to clearly explain the benefits of the products to the customers. Furthermore the customers' perceptions should be understood and analyzed in an early stage to adjust the value proposition.

Existing theories state that market research brings insights regarding customers' preferences and their needs and wants, but that in fast changing markets the influence is minor. The time-to-market is more substantial. All interviewed startups still started their value proposition development by conducting market research, but only some of them emphasized the importance of time-to-market, it were especially those startups that are active in fast changing markets.

The value proposition development process of the interviewed startups has similarities with the proposed processes in prior research. Both the literature and the interviews show that companies should contact potential customers in an early stage, think about potential solutions and then test these solutions. The interviewed startups tested this by creating a minimum viable product. Furthermore feedback should continuously be gathered and the value proposition will accordingly be iterated. Value propositions demand alignment among the interests of all stakeholders. This is still a struggle for some of the interviewed startups.

It looks like the value proposition development of the startups is a perfect combination of the existing theories on value proposition development, startups, and high-tech marketing. This can be explained by the time startups spent on understanding their own market and understanding the benefits of a well-developed value proposition. The startups did research on value propositions and therefore most likely followed approaches as proposed in prior studies.

5.1.1 Contribution

The research contributes to the literature and has a practical contribution as well.

This paper contributes to the literature by examining how High-Tech startups develop value propositions in the B2B sector, which is new knowledge in this research domain. The development follows the service-dominant logic, indicating that High-Tech startups involve other stakeholders in their

development process. This is an interesting addition to the research conducted by Skålén & Edvardsson (Skålén & Edvardsson, 2016). What the role of these stakeholders is in the value proposition development of High-Tech startups is also new knowledge in this research domain.

5.1.2 Managerial implications

This research may provide advice or guidelines to developing successful value propositions for High-Tech entrepreneurial startups. To those startups that are already well performing, this research could provide advice on involvement of other stakeholders in the value proposition development process. In order to overcome the struggles many startups are coping with the following advice is provided. The value proposition should be aligned with the stakeholders' interests, discuss the value proposition with these individual stakeholders and adapt the value proposition until it fulfills everyone's needs. High-Tech startups should integrate customers in an early stage. Feedback should continuously be gathered; subsequently a minimum viable product or service should be created. Based on the feedback the value proposition should correspondingly be adapted to get the best product-market fit.

5.1.3 Limitations & Future Research

Obviously this research comes with certain limitations. One of them is that only High-Tech startups in the Twente region were interviewed. Accordingly, only conclusions for startups in this region could be drawn. A second limitation is the willingness of startups to cooperate in this study; many appropriate startups indicated they had no time for such interviews. A third limitation is that High-Tech for this research is interpreted in the broadest sense of the word, resulting in conclusions not for specific niches. Lastly, only a small group of startups is interviewed, which makes it difficult to draw a general conclusion about startups.

Because of the limitations, this research provided several possibilities for future research. One of them is to find out whether different interview techniques will get different results for the same research, to discover whether certain biases had impact on the interview answers. The same type of research could be conducted in a different region in the Netherlands, or even in another country. Maybe startups in other areas or countries include other stakeholders in their value propositions development. To be able to draw conclusions for a more specific niche, case studies on for example value proposition development in the medical sector could be a possibility. Probably more information on that one sector, and more in-depth information of the startups could be gathered then. If multiple researchers conduct these case studies in the different High-Tech sectors, the results could be compared and analyzed. This may be a perfect addition to the research conducted for this paper. For those having more time, this research could be extended by increasing the sample size of the interviewed startups to generalize the findings.

5.1.4 Conclusion

To formulate an answer to the research question and the sub-questions, five interviews were conducted and many articles were read. The results of this study indicate that High-Tech startups develop their value propositions in similar ways. They all start off with conducting market research after which they contact the potential customers or the customers contact them. They all take into account the customers' wishes and accordingly adjust the value proposition already in an early phase. The approach of contacting customers and integrating them in the value proposition development process depends on the type of startup. All startups created some type of test version of the product for the customers. They all gathered feedback from these tests in their own way. Investors have a significant impact on the value proposition development to those startups they invested in. Universities do not play any role in this process. All startup representatives point out that customers should be integrated in an even earlier phase and correspondingly shape a better value proposition.

It can thus be concluded that the value proposition development process of High-Tech startups is similar, but the approaches differ a bit. There is no general way that High-Tech startups develop their value proposition, but they all stress the importance of integrating the customer in this process. Next to the customers, investors seem to have most influence on the value proposition development. The value proposition could be fostered by integrating the customer even earlier.

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7. APPENDIX

7.1 Appendix 1: Interview questions

General questions

- ❖ What is the size of your company? (in FTE)
- ❖ For how long does your company currently exist?
- ❖ What is your job within this company?
- ❖ What type of product/service do you sell?
- ❖ On what type of customers does your business focus? (B2B, B2C)
- ❖ Did you conduct market research before bringing the product/service to the market?

Value proposition questions

- ❖ Do you know what a value proposition is?
- ❖ Do you think that a proper value proposition could provide you a competitive advantage?
- ❖ Are you aware of the benefits that a good value proposition could provide you?
- ❖ Which parties do you consider to be stakeholders to your company? (Think about customers, other businesses, universities, investors)
- ❖ Are you aware of the benefits that stakeholders could provide you?
 - If yes, what benefits come to mind?
- ❖ Did these stakeholders somehow influence the creation of your value proposition?
- ❖ If yes, in what way did each individual stakeholder influence it?
- ❖ What process did you go through in order to develop your value proposition?
- ❖ Do you use some kind of feedback mechanism from your customers/potential customers?
 - If yes, what kind of feedback do you get? And how do you use this feedback to your advantage?
- ❖ Do you think that involving customers in creating the product increases the likelihood of market acceptance?
- ❖ If you had to start over, what would you do differently, concerning your value proposition development?

7.2 Appendix 2: Overview interview results

Company Name	Value Proposition development process	Main stakeholders	Role of stakeholders
<i>Startup A</i>	The value proposition development process started off by conducting extensive market research. Followed up by launching a beta version. The product is now in the testing phase. During this whole process constant feedback was gathered by using feedback loops.	The customers and the investors are seen as the main stakeholders.	The customers influence the development of the value proposition by providing feedback. The investors also influence it, because they want a high return. The university has no direct influence.
<i>Startup B</i>	The value proposition development process started off by conducting extensive market research. During this process, potential customers were contacted, so their wishes could still be integrated in the value proposition. The first product is recently finished; therefore the feedback is still small-scaled. With every new idea the customer will be involved. During the process, special attention is paid to time-to-market.	Shareholders, universities, investors and customers are seen as the main stakeholders.	Customers are integrated in the process as soon as possible; the value proposition will be adapted based on their feedback. The university provides knowledge and stresses the importance of early stage customer involvement. Business development teams consult Startup B. Investors provide guidance and draft the strategy for developing the value proposition.
<i>Startup C</i>	Market research has been conducted by others. Together with the fieldwork done and the studies read by the director the value proposition development process started. Customers are already attached to this process in an early stage. Startup C uses a demo as feedback mechanism. Furthermore there is a database filled with feature requests. Some feedback will be used to adjust the value proposition.	Everyone is seen as a stakeholder, customers are clearly the main stakeholder.	Stakeholders are seen as a way to reach the market. Customers provide feedback after using the demo as well as while using the product. The value proposition could accordingly be adapted. Some companies collaborate with Startup C, but they do not influence the value proposition. Universities have no influence either.
<i>Startup D</i>	Market research has been conducted to understand the market problem, find out the players and to understand the value chain. The value proposition process continues by contacting customers and trying to understand their problem. Startup D and the customer brainstorm together and come with a proposal on how to solve the problem. It also works the other way around, customers search for Startup D. Then the process starts all over again. They already do testing with the customers in an early stage.	All players in the value chain are stakeholders. The main stakeholders are the investors, co-founders, university, employees, and their customers.	The university has no influence on the value proposition development. The investors and the co-founders are at the board and they accept, adapt or reject the proposed value proposition. Customers influence the value proposition by providing feedback. The feedback is used for co-development. Together with the customer the technology will be transformed into a product.
<i>Startup E</i>	Market research is done by Startup E as well as an external organization. The value proposition development process continued by contacting potential customers, asking for feedback based on a rendering version of the product and accordingly adjust the value proposition. The value proposition will be co-developed with the customers. Furthermore constantly talking to business coaches and participating in competitions or events is used as a way to generate more feedback.	Customers are the main stakeholders of the company.	Investors do not have any influence in the value proposition development yet, since they have not invested in the company yet. Neither does the university have any influence. Customers and business coaches influence the value proposition by providing feedback. The customers may be used for co-development.