MASTER

Speeding up the commercialization phase of new product development processes

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Speeding up the Commercialization phase of New Product Development processes

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Speeding up the Commercialization phase of New Product Development processes

“Any process can be managed to be more effective.” Cooper, R. G. (1994)
Abstract
The Bridge is in need to extend their know-how of accelerating New Product Development processes. As stated by The Bridge and also in the academic literature, obsolescence is occurring more quickly than in the past while competition intensifies. (Hayes et al., 1988; Womak et al., 1990). To gather specific knowledge, the company requires to gain better insight in how acceleration of New Product Development processes could be realized. The focus of this research is particularly on the commercialization phase of the New Product Development process. The research of Cankurtaran et al. (2013) together with potential contextual influencers (moderators) from literature is used as a starting point for the development of a model. Further exploration, support and development of the model was conducted when executing this research. First, by using a ranking system to determine the scope to focus on is used. The next step was to interview customers of The Bridge for further exploration. Consequently, a discussion is held by comparing the results with findings in the literature. Next, conclusions were drawn based on the findings and discussion. The results suggests that organizational support, marketing proficiency and organizational integration are important accelerators for the commercialization phase. Additionally, there is also found that the type of product, market, process and team influences the acceleration power of those accelerators. Finally, recommendations for future research are presented.
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I. List of abbreviations, similarities and explanations

Abbreviations:
The Bridge = The Bridge B.V.
NPD = New Product Development
COM = Commercialization/Launch phase of a New Product Development process

Similarities:
Antecedent = Accelerator
Research phase one = internal research = internal
Research phase two = external research = external
Speeding up = accelerating = acceleration

Explanations:
Product(s) = Physical, service or process
Contextual influencers = Moderators
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IV. Preface

This paper presents a master thesis project on the advisory role of The Bridge regarding the acceleration of their customer’s New Product Development processes, in particular the commercialization phase.

First of all, I would like to thank my first supervisor of the University of Technology Eindhoven, Dr. Myriam Cloodt. She helped me in an excellent way through the entire process of graduation. It started with creating a strong base by helping with the literature study and matching the research proposal to the needs of The Bridge. She also helped me by continuously providing feedback on all the delivered writings. In addition, I would like to thank her for her enthusiasm and friendly way of working.

Secondly, I want to thank Prof. Dr. Fred Langerak for steering me through the process when needed. His advisory role helped me a lot to fine-tune the research process and has led to new insights regarding this research project.

Additionally, my appreciation goes to MSc Bas van Wieringen from The Bridge. He helped me through the graduation project at The Bridge in many ways. Especially his experience within the field and humor helped me to fulfill this research project. I would also like to thank Jeroen de Kempenaer. His critical view added value to this research. Moreover, I would like to thank The Bridge for giving me the opportunity to conduct this research project at its company. The way of working and passionate colleagues inspired me a lot. During this period I have met many nice and interesting people and learned a lot about living a life as a business innovator.

Fourthly, I would like to thank all the interviewees. Each one of them contributed to the final result of this master thesis project.

Last but not least, I would like to thank my family and friends. In particular my parents, girlfriend, brother and sister. They all supported me through my entire study period. Finally, I especially would like to thank Wout Loman. He motivated, supported and advised me each time I asked for it.

Luuk Nijland

Mei, 2014
V. Management Summary

Context of Research

The Bridge, a subsidiary company of Twynstra Gudde, discovers, develops, and delivers new business for its customers. The core business is to innovate and renew business plans/models of various types of companies whereby sales can be realized by penetrating into new markets or by launching new products. According to The Bridge this is one of the key drivers for a company to survive. However, The Bridge observes an increase in faster changing environments whereby competition intensifies. As a result, customers want and have to consciously accelerate their New Product Development process to increase the profitability of an innovation, but struggle in realization. Additionally, The Bridge argues that customers often have a lot of good ideas, and know how to develop the ideas in proper products, but when commercializing the product it often goes wrong. In other words, realizing ‘quick’ sales seems to be the most difficult part. Therefore, gaining know-how in how to realize speed in the commercialization phase of the New Product Development process would enable The Bridge to better serve its customers.

In order to realize this, The Bridge aims to discover the important factors (accelerators) and contextual influencers (moderators) which are of importance for the acceleration commercialization phase of the New Product Development process.

The above mentioned changes are also emphasized within the academic literature. For this study the research fields applied were New Product Development with in particular the acceleration. By conducting an explorative research in the academic literature motives for research were determined which corresponded with the needs of The Bridge.

Problem definition

Based on the need of The Bridge mentioned above, the problem was further analysed. An Ishikawa diagram was drawn based on previously executed interviews. The findings were used to derive the following main research question:

“How could The Bridge speed up the commercialization phase of its customer’s New Product Development?”

In order to answer the main research question, sub questions were derived. By combining the theory and need of The Bridge, the project design was determined. Van Aken (2004) has been used as a guideline for the project design. The process design (Figure 3.4) of the reflective and regulative cycle (Figure 3.1) is used for the realization of a final model. The model provides the answers to the research questions.

For this research, qualitative research techniques were used due to the limited amount of knowledge available. The research model first needed further development since the accelerators for the commercialization phase were not known. For this research step the Fleiss’ Kappa method is used at The Bridge. Next, interviews with experts from customers of The Bridge were held to find support for the
selected accelerators from the first research phase. Additionally, this research step was also set up to
determine how to stimulate those accelerators, and to discover the influences and relationships of the
moderators (process, team, product, market) on those accelerators. Semi-structured interview
techniques were used.

Conclusions from the findings and discussion

Before focussing on the commercialization phase, conclusions can be drawn about the overall New
Product Development process. If a customer of The Bridge wants to accelerate his New Product
Development process, The Bridge should advice that most of the effective acceleration could be realized
from the moment a team starts to develop the idea. With effective acceleration there is meant that the
acceleration does not harm the quality of the ideas. Acceleration could be realized through the entire
process, but doing this in the front-end might reduce the overall product success. In addition, through
the entire process there must clearly be communicated that speed is important to realize success and
should always be kept in mind.

For the commercialization phase, a final model (Figure 6.1) is drawn which presents a visual overview of
all the findings. The model provides the answer to each sub question and thereby the main research
question. The first sub question was about the discovery of the accelerators for the commercialization
phase. Organizational support, Marketing proficiency and Organization-Integration are denoted as
accelerators that are of importance when acceleration in the commercialization phase is preferred to be
realized. Organizational support is an important accelerator due to the enthusiasm it realizes within the
team and the power of assigning resources to the project. Marketing proficiency accelerates the
commercialization phase because it enables to better understand and serve the customer. Furthermore,
the commercialization phase is also seen as the responsibility of the marketing department.
Organizational-Integration is an accelerator because it results in more efficient processes and better
communication to the outside world which is important because of the high risk and costs involved in
this stage. If The Bridge is providing advice on possibilities on accelerating the commercialization phase,
it should focus on these accelerators. Additionally, the model also shows how those accelerators could
be stimulated. This answers the second sub question from this research. The Bridge could use these
suggestions to advice their customers about how those accelerators could be stimulated. Additional
explanation about this can be found in chapter 4. Moreover, such information could also be found in
management literature or from experts in the field like The Bridge itself. The third sub question is
defined to find out what the contextual influences are and what the effect is on the acceleration power
in the commercialization phase. Knowing this would enable The Bridge to adjust their advice regarding
the possibility to accelerate the commercialization phase to a specific situation that might occur.
Product newness is denoted as the biggest moderator. The newer the product the more acceleration
there could be realized. The moderating effect of Market competition and Process formalization are
almost similar. The power of the accelerators would be stronger within a high market competition with
non-formalized processes. Finally, team autonomy is also a moderator, although, there might be
concluded that the effect is relatively small.
Overall, the conclusions drawn above answers the main research question and enables the experts of The Bridge to better advice their customer regarding the acceleration of the commercialization phase.

Finally, limitations and implications for future research were presented in this thesis report. The possible applications to apply the presented model in other fields is discussed. As the model is established on a qualitative study it should therefore be used as a guideline whereby managerial experience is required. Future research on supporting the findings of this research would be valuable.
1 Introduction
The environment is changing rapidly and competition intensifies. Understanding how to deal with these changes is seen as an essential element in order to survive. Ragatz et al. (2002) and Primo and Amundson (2002), denoted these changes as a major trend. Products need to be faster on the market and customers demanding a higher product quality. The contradiction between those two factors, reaching a higher level of product quality usually requires more development time, makes it even harder to determine the right balance. Consequently, the debate on how to find the balance is already going on for a few decades. Recently, researchers (McNally et al., 2011) found that the impact of speed on profitability is larger than of product quality. This might indicate that there is a small and slow shift towards the paradigm where speed is becoming more of importance than quality. Consequently, this suggestion underpins the importance and urgency of correctly speeding up the NPD process. Figure 1.1 presents an example of the possible differences in payoff that could occur when realizing speed. The overall results would be a higher profitability.

![Figure 1.1: Cycle time Payoff (Gistics, 2008)](image)

The COM is seen as the back end of the NPD process. Within this particular phase high costs are involved and sales needs to be realized. In general, this phase is seen as a critical phase where success of the product is dependent on. Additionally, The Bridge shares this vision and experiences that customers struggle the most with properly executing this part of the NPD process. They argue that customers often have a lot of ideas, and expertise to develop ideas into proper products, but when commercializing the product it often goes wrong. Recently, The Bridge published an article where this problem was highlighted. In appendix G, the article is shown.

This master thesis research project focuses on gaining an insight for The Bridge on organizing acceleration for the COM of a NPD process. This first chapter will further elaborate on the reasoning for conducting this research and will end with research questions and assignments. The second chapter will highlight the theory related to this subject and the set-up of the conceptual model generated from. The following chapter, chapter 3, describes the methods used to test and further development of the conceptual model. Chapter 4 presents the findings, Chapter 5 shows the discussion on the findings are captured and in Chapter 6 the final conclusions are drawn.
1.1 Context of research
The core business of The Bridge is to innovate and renew business plans/models of various types of companies whereby sales can be realized by penetrating into new markets or by launching a new product. To execute this process successfully, certain know-how is needed in each stage of the NPD process. This research is meant as an extension to the existing internal expertise at The Bridge in order to increase customer service. Before going into detail, a company profile is presented to gain a better understanding in which context this research is executed.

1.1.1 Company Profile
The Bridge, a subsidiary company of Twynstra Gudde, was established in 2000. The company is situated in Amersfoort and has 16 employees. The total turnover in 2012 of the organization was 1.9 million Euros. The mission of The Bridge is as follows:

- The Bridge discovers, develops, and delivers new business for our customers. Looking from different perspectives, we make surprising combinations in business concepts and bridge the gap between the existing and the new.
- The Bridge looks for the new, incremental or radical, and takes a leading role in strengthening sustainable business ecosystems.
- The impact on overall business result is key. Professionals at The Bridge have proven their capability to turn goal oriented renewal into tangible business success.

The Bridge has an advisory role in providing innovative solutions to their customers. They serve the following fields:

- Sales- and marketing innovation: stimulating and implementing innovative sales and marketing
- Start-up management: getting started, improving and speeding up your marketing processes
- New business search and strategy: finding and selecting new products and services, new markets, new customers and new alliances
- Innovation performance improvement: building innovation as a strategic core competence in your business culture in an original way of looking at business models, products, services and markets. By combining people, markets and technology The Bridge helps to improve organizational and project achievements.

Examples of projects The Bridge has led:

- Helping customers to self-innovate products (e.g. commercializing IQ houses – Building IQ)
- Bringing parties together and forging collaborations (e.g. accelerating the national revenue generated out of innovative protein products)

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1.1.2 The need for research
The focus of this research is on the ‘Deliver phase’ which is a The Bridge terminology for the COM of the NPD process. In general, the ‘Deliver phase’ can be seen as the final step to determine how to bring a new product to the market to make it as successful (often financially measured) as possible. Further on, chapter 1.2.1, the precise meaning of The Bridge’s NPD process, and in particular its ‘Deliver phase’ (COM) will be clarified.

The Bridge preferred to focus this research on the COM since they experienced a specific need for acceleration and clarification of their customers. This observations came forward during interviews which were held regarding the identification of customer needs for setting-up a new proposition, see appendix G. By joining several of the interviews which were not conducted yet, analyzing the meeting notes, and interviewing employees of The Bridge, a first orientation regarding the customer’s pain of not understanding how to speed up the COM was conducted and eventually confirmed. Paragraph 1.2.1 will go further into detail in what there is found during the orientation.

Moreover, NPD speed gets a lot of attention in academic literature since it is proven to be directly related to the success of a new product (Vesey, 1991; Henard and Szymanski, 2001; McNally et al., 2011). This relation underpins the relevance of this subject and is further discussed in chapter 2. Incidentally, the amount of research has led to many different terminologies. Those terminologies will directly be explained once discussed or there will be referred to the list of abbreviations (chapter I).

1.2 Problem definition
As stated in the company profile, the core business of The Bridge is to help their customers with innovating new businesses. According to The Bridge this is one of the key drivers for a company to survive. The believe of The Bridge corresponds to the findings mentioned in the literature as is partly shown in this chapter, and further discussed in chapter 2. Consequently, the developments within the market forces companies to consciously accelerate the NPD. However, the question rises, how could companies act consciously? Related questions behind this could for example be “How could the product development process be accelerated?” or “Does the type of innovation matter regarding the possibilities to accelerate?”

This explorative research is designed to answer such questions and to clarify how consultants of The Bridge should assist their customers in realizing acceleration within the COM. Moreover, the findings of this study might be useful for any other company or manager who is facing similar questions.

1.2.1 Problem statement
Based on the findings of the orientation phase, it is found more know-how in this field of research will help two different parties. First, it would enable The Bridge to better understand and assist its customers regarding the process of accelerating the COM. Secondly, it would help customers of The Bridge to realize more profit by accelerating its COM. From this point of view, it is important to highlight both perspectives when conducting this research, in order to better understand the problems and needs. According to Van Aken et al. (2007), the orientation phase of business problem solving projects is often a ‘problem mess’. They argue that such a ‘mess’ should first be structured before starting to define
the main research. This can be executed by creating an Ishikawa Cause-and-Effect diagram. Important to note is that this should be interpreted as a preliminary model. Despite the fact that these diagrams are often unreliable, they are helpful in better understanding the problem and in defining research questions (Van Aken et al., 2007).

**Customer’s perspective**

As mentioned in chapter 1.1, the occasion for this research was a research about the development of a proposition, conducted by the company itself. Interviews with twenty customers gained insight of the current needs of their customers and the underlying causes, specifically for the COM. The results are shown in the Ishikawa Cause-and-Effect diagram, see Figure 1.4. The black color represents the customer’s pains. Out of the interviews, it appeared that customers of The Bridge do not precisely know how to control and, in particular, accelerate their activities from the moment they have decided to launch their new product.

**The Bridge perspective**

The core competence of The Bridge is to create business for customers. It is essential to know exactly what customers want in order to be able to solve the problem they face.

The overall conclusion from the analysis of the previously mentioned customer interviews for the set-up of a new proposition confirmed that these customers find it difficult to speed up the COM of their NPD process. In order to better serve its customers, The Bridge wishes to understand how these processes needs to be managed. The issues related to the understanding are colored red in the Cause-and-Effect diagram (Figure 1.4). Both, The Bridge and its customers are experiencing a ‘general’ lack in understanding the acceleration of the COM.

**The COM**

The Bridge has developed its own NPD process model, see appendix I. The NPD model shows which steps should be taken and which deliverables should be realized which are relevant for each of its customer. The model has been discussed with several employees of The Bridge to precisely determine which part of the process is seen as the COM. The definitions made corresponds with the definitions from Cooper (1990) found in literature. The definitions of Cooper (1990) are presented in paragraph 2.1.1.. Figure 1.2 is a visual representation of what is seen as the COM. Also the Stage-gate® model of Cooper (1990) has been included.
The COM is seen by The Bridge and customers of The Bridge as a critical phase since it is argued to be the most costliest and riskiest part of the NPD process. Additionally, in literature, e.g. Calantone and Montoya-Weiss (1994) and Langerak et al. (2004), similar statements are found. Figure 1.3 is a model used by The Bridge which represents the risks involved per stage. As can be seen, the costs and risks in the Deliver phase are the highest.
It is important to strive for efficient and effective processes in order to reach the break-even point (Time to Profit) of a NPD as soon as possible. Slowing down this process would negatively influence the success of a new product since there is less time to realize sales.

Employees of The Bridge argued that starting the COM, named by Cooper (1990) as full commercialization, basically is seen as a ‘Point of No Return’. It is about the moment the organization communicates the introduction of their new product to the entire market. From that specific point the customer is expecting the product and companies have to prepare themselves to be fully operational for realizing sales. Not delivering or stopping the production and marketing after this moment would have a negative impact on the brand image of a company since customers are not being satisfied. Additionally, costs related to stops are also expected to be very high. Although, nowadays NPD processes are not so much sequentially structured anymore as Cooper (1990) states. Stages of the process overlap each other which also means that the ‘Point of No Return’ as defined by The Bridge is somehow moveable.

Figure 1.2 represents the ‘Point of No Return’ according to The Bridge. It is important to note that this ‘Point of No Return’ is not confirmed by literature. Summarizing, The Bridge feels the need to gain more know-how regarding accelerating the COM in order to better serve their customers. What are important factors (accelerators) to realize COM speed? Additionally, The Bridge serves different kinds of customers with each one operating in a different context. By knowing the possible contextual influencers (moderators) The Bridge will be able to assist each customer more specifically.

**Figure 1.2: Ishikawa Cause-and-Effect diagram regarding the need for accelerating the COM**
1.2.2 Research questions and assignment

Based on the Ishikawa diagram (Figure 1.4) and the conversations with employees of The Bridge research needs were derived in regard to the organization of controlling the COM speed of NPD processes. The main research question of this research is as follows:

“How could The Bridge speed up the commercialization phase of its customer’s New Product Development?”

The research question is two folded. First, the most important accelerators for speeding up the COM needs to be determined. This determination is in line with the literature gap described in the literature review ‘Speeding up New Product Development Processes’ whereof the main elements are shown in chapter 2. This chapter represents the NPD accelerators defined by Cankurtaran et al. (2013), which are not yet assigned to certain stages, e.g. the stages from the stage gate® model of (Cooper, 1990), of the product development process. Also possible contextual influencers which affect the power of an COM accelerators is searched for. Knowing this, The Bridge would be able to advice their customers more specifically. The exact meaning of this will be elaborated in the following chapter.

The following sub questions were derived:

- Which accelerators are important to speed up the commercialization phase of a New Product Development process?
- With what tactics should The Bridge stimulate these accelerators?
- To which degree are these accelerators affected by contextual influencers (moderators)?

The results from these sub questions should provide the information to answer the main question and to derive a final model which could be used by The Bridge as a supporting tool to make decisions regarding the acceleration of the COM.

For this study the research set up as proposed by Van Aken et al. (2007) is used. First, a literature study about the field of speeding up New Product Development processes has been done to gain insight about current knowledge of New Product Development acceleration and the possible contextual influences. Based on the findings of the literature study the research method has been chosen.
2 Theory
This research is focused on exploring the field of accelerating the NPD with in particular the COM. This chapter covers related concepts to gain proper insights on the most relevant concepts that should be taken into account. At first, the phenomenon NPD and its COM are defined and clarified. Secondly, the theory of accelerating the product development process is highlighted. Next, the contextual influencers (moderators) are discussed. Finally, these two subjects are used as a base for the research model which is used as a guideline for further exploration.

2.1 Theory development

2.1.1 What is New Product Development?
Cooper (1988) was one of the first who did research in this field. Cooper (1994, p.3) defined NPD as, “A formal blueprint, roadmap, template or thought process for driving a new product from the idea stage through to market launch and beyond.” A quite similar formulation of the concept NPD comes from Ulrich and Eppinger (2004, p.2). They defined NPD as, “A set of activities beginning with the perception of a market opportunity and ending in the production, sale and delivery of a product.” Hultink and Langerak (2005, p.8) defined NPD by presenting a list of activities. These activities (stages) are idea generation, idea screening, concept development and testing, business analysis, beta testing and market testing, technical implementation, commercialization phase and new product pricing. Over time, the concept of NPD got a somewhat wider scope. Loch and Kavadias (2007, p.3) defined NPD as follows:

“New Product Development (NPD) consists of the activities of the firm that lead to a stream of new or changed product market offerings over time. This includes the generation of opportunities, their selection and transformation into artifacts (manufactured products) and activities (services) offered to customers and the institutionalization of improvements in the NPD activities themselves.”


Consequently, the perception of the exact definition of NPD has changed over time. Especially the definition by Loch and Kavadias (2007, p.3) is an interesting add on, since the solution to the problem statement described will automatically create a better understanding of the NPD process itself. With this in mind, the definition of Loch and Kavadias (2007), also the most recent one, is used as the base definition of NPD in this research.

The New Product Development process
Booz et al. (1982) were one of the pioneers in the field of NPD who developed a model of how the NPD process should look like (Figure 2.1). They separated the process into different phases with each phase having their own characteristics.
As a response to the work of Booz et al. (1982), Cooper (1990) built a model (Figure 2.2) based on the BAH model called the Stage-Gate® process. Cooper (1990) defined his model as a conceptual and operational model for moving a new product from idea to launch. One of the extensions Cooper made is the addition of gates between each stage. These gates secure the process and serve as a quality control by demanding a Go, Kill, Hold or Recycle at each stage. Cooper (1990, p.8) stated that “Good evaluations prevent “losers” from proceeding too far, with the resulting misallocation of scarce resources. And good evaluations focus the resources on potential winners. Stage-gate® systems are designed to overcome these deficiencies in project evaluation.” The addition of the gates into the NPD process created new insights in how to develop new products. This made the model popular for NPD process managers. Later on, many different varieties of such product development processes were described in the academic literature. The main goal of such models was to adjust the model to current developments like outside-in thinking and acceleration. This is further discussed in the literature study ‘Speeding Up New Product Development processes’ conducted by Nijland (2013).

**The Commercialization phase**

As can be seen, the last part of both models is denoted as the commercialization (COM) or launch phase. There are many definitions on what this phase exactly means, and most of them show a big overlap. Cooper (1990) clearly defined a start, the process itself, and the end of the COM. The last gate from his model could be seen as the start of the COM and is denoted as the pre-commercialization decision. Once the idea is through this gate, the product can be fully commercialized. “This final gate opens the door to full commercialization. It is the final point at which the project can still be killed. This gate focuses
on the quality of the activities at the Validation Stage and their results. Financial projections play a key role in the decision to move ahead. Finally, the operations and marketing plans are reviewed and approved for implementation in Stage 5.“ (Cooper, 1990, p.10). The above describes the start of the COM. The core, the process itself, is defined as: “The implementation of both the marketing launch plan and the operations plan.” (Cooper, 1990, p.10). The end of the COM is seen as when the product becomes regular and final reviews for evaluation are executed. This moment is denoted in the model as the Post-Implementation Review. Cooper (1990, p.10) wrote the following about the end of the COM: “The team is disbanded, and the product becomes a "regular product" in the firm's line. This is also the point where the project and product's performance is reviewed. The latest data on revenues, costs, expenditures, profits, and timing are compared to projections to gauge performance. Finally a post-audit (a critical assessment of the project's strengths and weaknesses, what we can learn from this project, and how we can do the next one better) is carried out. This review marks the end of the project.”

2.1.2 Management of accelerating the product development

Now that NPD and its process is explained the next step is to clarify the field of managing the acceleration of the product development. Researchers started to explore this field of research to gain knowledge about creating a competitive advantage. The overall major trends, mentioned by Ragatz et al. (2002), and Primo and Amundson (2002), were that new products needed to be faster on the market and that customer are demanding a higher product quality. Nowadays, being fast and high quality standards is still required. Cooper (2008) stated that smart companies have adjusted their next generation Stage-gate® process by removing waste and inefficiency at every opportunity. In 1991, Vesey studied high-technology products and showed that when products are six months late with entering the market, but were within budget, companies lost 33 percent of their total turnover in the first five years. Consequently, if companies were far over budget, but entered the market on time, they only lost 4 percent of their total turnover in the first five years. This relation, according to Vesey (1991), shows the importance of acceleration. In recent research, the direct link with profitability was analyzed by McNally et al. (2011). They concluded that the impact of speed is larger than of product quality. This conclusion underpins the importance and urgency of speeding up NPD processes.

Defining New Product Development acceleration

Griffin and Hauser (1996, p.2) stated the following regarding the essence of time: “The desired outcome in any New Product Development project is the timely commercialization of a profitable product.” In order to reach the desired outcome, acceleration of the process might be necessary. There are many different terms for this concept. Kessler and Bierly (2002) used the term innovation speed. They see innovation speed as the ability to move quickly from idea to actually selling the product. Cankurtaran et al. (2013, p.1) stated that: “increased speed is achieved by decreasing development cycle time, the elapsed time from the beginning of idea generation to market introduction. Time-to-market (Tatikonda and Montoya-Weiss, 2001), product development time (Lilien and Yoon, 1989), innovation time (Mansfield, 1988), lead time (Ulrich, Sartorius, Pearson, and Jakiela, 1993), project completion time (Terwiesch and Loch, 1999), and total time (Griffin, 1993) are all similar concepts.” All these different definitions and concepts are seen as NPD acceleration related principles.
The development of accelerating the New Product Development process

Clark and Fujimoto (1991) stated that companies were able to reduce time-to-profit by executing some of the product and process activities in parallel, rather than in series. This corresponds with the statements Carlson (1994) and Vesey (1992) made. They also argued that it is a solution to bring products faster to the market.

However, this approach demands more on process adaptations and requires a more cross-functional communication between team members since activities are in parallel. Eisenhardt and Tabrizi (1995) came up with the compression strategy. Their strategy stated that product development is: “a predictable series of steps that can be compressed” (Eisenhardt and Tabrizi, 1995, p.5). Such a process can then be compressed by shortening the time of each step, overlapping the execution of successive steps, and rewarding developers for attaining and/or compressing the schedule.

According to Henard and Szymanski (2001), the main reason to accelerate the NPD process is related to the level of competition. In a strong competitive market it is essential to launch the product at the right moment in time. In the literature this time frame is called the window of opportunity (Cooper and Kleinschmidt, 1987). By speeding up the NPD process this window of opportunity can be reached. Gerwin and Barrowman (2002, p.3) described that: “The extent of overlap and interaction between New Product Development activities, employment of technical tools and formal methods, and the team leader’s organizational influence significantly impact development time”. It is powerful to reach the Window of Opportunity.

Khodawandi (2005) argues that in order to accelerate the process, enterprises should increase either their efficiency or their effectiveness. In general this can be achieved by changing organizational structures and processes, or the product itself. Khodawandi (2005) came up with a theory named the goal setting theory. This theory is an example of a method which is used by companies to improve the efficiency and effectiveness of their product development. Setting up specific challenging goals will convey a greater importance and challenge to the members of a team. By doing this, team members will react with a greater effort and cognition which will lead to acceleration in the NPD process (Swink, 2003). It will lead to increased motivation and a sense of priority amongst employees.

Hultink and Langerak (2008) discovered five significantly approaches that accelerate the NPD. The first approach is focused on involving suppliers. By using this approach, cost and speed reduction can take place by making use of their technical and design expertise. “Joint investments in new technologies, such as flexible manufacturing, mass customization and computer integrated manufacturing are options to create the acceleration” (Dröge et al., 2000, p.6). Lead user involvement is a second approach. By involving these lead users in an early stage of the process, firms will better and quicker understand the customer needs. Furthermore, an early understanding of what to develop will save time (Thomke and Von Hippel, 2002). A third approach is to speed up activities and tasks. This way of accelerating is in fact one of the most common ways since it is directly related to a more efficient and effective way of working. Searching for a time reduction will lead to an increased development speed. A fourth approach is training and rewarding employees. Members of the NPD process will gain a better understanding of
the interrelationships between NPD tasks and processes. Rewarding employees will give them a feeling of appreciation. Employees are more able to simplify, eliminate steps and identify opportunities. The last effective approach, according to Hultink and Langerak (2008), is the simplification of the organizational structure. A simple organizational structure will make processes, communication and interface easier to perform and manage. This corresponds with Cooper’s Stage-gate® Model (2008). Cooper argued that acceleration of the NPD process could be reached by effective and timely gate keeping. If a project has to wait three weeks before going through a gate, and this happens at all five gates, that’s 15 weeks or almost four months of dead time.

Langerak et al. (2008) discovered that the association between development time and costs is U-shaped. Other researchers (e.g. Gupta et al., 1992) were also suggesting this. However, there are also contradictory results in this field, as in certain studies no evidence was found on the relation between those two factors (Kessler and Bierly, 2002). McNally et al. (2011, p.5) tried to reconcile the conflicting results regarding the speed to market and product quality relationship. They stated the following: “Speed to market and product quality both enhance product profitability, but the impact of speed to market is larger than that of product quality. The results suggest that trade-offs are made not only between time, quality, and expense (i.e., if additional expenses are incurred at all), but also trade-offs relate to when (i.e., in which NPD phase) additional development expenses are incurred.”

As just discussed, there are many accelerators of speeding up a NPD process successfully defined through the years. Henard and Szymbanski (2001) and Pattikawa et al. (2006) were one of the first who tried to summarize previous findings by executing a meta-analysis. Also Chen et al. (2010) combined all the research done in the past. In total they defined 17 accelerators regarding the acceleration of NPD processes. They found that clear project goals, process concurrency, number, and frequency of design iterations, effective leadership, team experience and dedication, and internal integration have the greatest effect on speed. They also categorized the accelerators into strategy, project, process and team related accelerators and discovered that process and team characteristics are more generalizable and are cross-situational consistent determinants of NPD speed than strategy and project characteristics.

Recently, Cankurtaran et al. (2013) did a similar job. By extending previous research they not only identified accelerators, but also validated the findings of previously executed meta-studies. They used a similar categorization as Chen et al. (2010). In appendix A an overview of the accelerators is shown. All these potential accelerators were analyzed to determine the influence and significance. In addition, the definitions of each accelerator is also shown. For this thesis, these accelerators are used as a base. The main finding of Cankurtaran et al. (2013) their meta-analysis is that NDP speed is associated with increased new product success. They argued that these findings are independent of whether success is measured overall, as an operation outcome, or as an external outcome. The results are similar to the study McNally et al. (2011) did. In addition, Cankurtaran et al. (2013, p.15) stated the following: “Decreasing NPD cycle time has the largest correlation with proficiently managing market entry timing. Furthermore, two separate tests suggest that this finding (and only this finding) is robust across research design decisions and contexts.” In conclusion, from a managerial perspective, managing NPD speed in particular is important for products and industries that have a very narrow strategic window of
opportunity. This group starts to grow rapidly due to the faster changing environment. Realizing quick sales would therefore contribute to an increase in sales and, consequently, more product success.

Subdividing the accelerators

The breakdown of the NPD process into separate stages is done because the activities and goals to be realized are changing over time. Booz et al. (1982) were one of the first who visualized the behavior of an NPD process whereby stages were defined with each having its own characteristics. Many other researchers created similar processes. Those models all start with activities whereby the team or company has to come up with new idea(s) and end with the realization of sales and follow up. Those different activities and goals per stage also mean a different set of approaches for realizing a successful execution. Consequently, if the activities are different it might also be that the way to realize acceleration differs per NPD stage. For example, one of the accelerators mentioned by Cankurtaran et al. (2013) is ‘formal process use’. Herstatt and Verwom (2001) stated that the “Fuzzy Front End” is the least well-structured part of the innovation process. In this phase there is a need to systematize activities to enhance the efficiency. However, room for creativity should also be kept in mind. Flint (2002) argues that structuring this phase would help to speed up the process. From this perspective, it might be that structuring this phase might lead to a more accelerated process than structuring the rest of the development phases. Another example is the moment of involving a customer, also denoted by Cankurtaran et al. (2013) as an accelerator. Dahlsten (2004) and Martin and Horne (1993) stated that customer involvement is more of importance in the ‘Fuzzy Front End’ than in the back end of the NPD process due to the complexity and fuzziness of the stage. This might also mean that the accelerator ‘customer involvement’ could realize more acceleration in this phase compared to the other accelerators. From this perspective, it is to say that (some) NPD accelerators could specifically be assigned to a certain phase of the NPD process to realize acceleration. Additionally, Eling et al. (2013) also emphasize the need to conduct performance effect studies of NPD cycle time at a stage level rather than at the monolithic process level. Subdividing the accelerators to specific stages is in line with their reasoning.

2.1.3 Contextual influencers

In order to come up with a final model there is also requested to check for important moderators since the context of where The Bridge has to assist its customer differs. It might be that some contextual influencers (moderators) affects the power of the acceleration as discussed in the previous chapter. This chapter will now go further into detail about what those moderators might be.

Griffin (1997) did research regarding the effects of project and process characteristics on product development cycle time. She made a distinction between project (complexity and newness) and process (formality and cross-functional teams) characteristics that might influence the process of reducing the NPD cycle time. The characteristics of the influencer ‘product’ were denoted as ‘complexity’ and ‘newness’, and characteristics for the ‘process’ were denoted as ‘level of formality’ and ‘use of cross-functional teams’. She discovered that for the project characteristics, the more complex and newer the projects are, the longer the cycle time would be. Regarding the process characteristics she discovered that a more formal style and more cross-functional team use would decrease the cycle time. These
findings are also described in the literature study ‘Speeding up New Product Development Processes’. In addition, Gerwin and Barrowman (2002) argued that the interaction between NPD activities, employment of technical tools and formal methods, and team leader’s organizational influence significantly impact development time. Note that development time and cycle time can be seen as similar concepts. Khodawandi (2005) discovered similar relations. He argued that the speed of a NPD process in general is dependent on the organizational structures and processes, or the product itself.

Kessler and Bierly (2002) were doubtful about the relation between acceleration and NPD success. They first wanted to know if a faster NPD process is really better. They built a model and investigated this relation and possible moderators. They found that project success is positively related to quality and is the greatest influencer on success. Next to this important finding, they also discovered that there indeed are moderators, internal (e.g. technology sourcing and product radicalness) as well as external (e.g. technological and demographic) factors, which influence the behavior. Overall, Kessler and Bierly (2002, p.1) concluded that fast paced innovation strategies are best when “you know where you’re going”.

By conducting the literature research, several different moderators were found. In order to determine which moderators to select and to discover which moderators are relevant for the conceptual model, the expert opinion of employees of The Bridge is used. A main criteria from the experts was related to the ease of use. The model should be easy to understand since it needs to be understandable for their customers as well. In other words, the number of moderators to include and the complexity of moderators was demanded to be taken into account. Based on the findings from the discussions with the experts the moderators Product (Newness), Market (Competition), Team (Autonomy), and Process (Formalization) were proposed and accepted.

### 2.2 Conceptualization

Now that there is clarified what is meant with the COM, where to selected the accelerators from and which possible moderators to include, a research model could be drawn. See Figure 2.3 below. This model is used as a base and was further developed while conducting the research.

![Figure 2.3: Conceptual Research Model](image)

In Figure 2.3, there is one box (red) denoted for the accelerators of the COM. When setting up the conceptual model there was not yet known which accelerators were seen as relevant. In other words, which of those accelerators of Cankurtaran et al. (2013) realize the most COM speed. Determining the ‘most’ important accelerators for the COM was the first design step (research step) to be taken. After the execution of the first step the accelerators were separately integrated within the model. The second design step (research phase) is than to verify and further explore those accelerators.
3 Method

This chapter will highlight the research plan. Firstly, the project design is presented to show which research type will be used for this project. Secondly, the research model is described and finally, the research methodologies used is discussed. The findings from the orientation phase, presented in the Cause-and-Effect diagram (Figure 1.4), and literature research are used as a base to determine which research decisions to take. This approach is proposed by van Aken et al. (2007).

3.1 Project design

This chapter will first present the project design and research methodologies used.

3.1.1 Research design

In order to explore, test and complement the conceptual research model a design design-oriented method is used. Van Aken (2004) stated the following regarding design science: “the mission of a design science is to develop knowledge that the professionals of the discipline in question can use to design solutions for their field problems. The aim is to develop ‘a means to an end’ or ‘an artifact to solve a problem’.” (Holmström et al., 2009, p.67). In other words, describing the problem, explaining it, and predicting possible outcomes are the explanatory nature of descriptive-oriented research. The next step is to design a solution for the problem, done by prescriptive-oriented research. Van Aken (2004, p.220) describes this way of research as “developing research products which can be used in designing solutions for management problems”.

The reflective and regulative cycle

The method just described is making use of the reflective cycle (Van Aken et al., 2007) and the regulative cycle design by van Strien (1997). The regulative cycle follows the logic of the problem-solving cycle. The learning or reflective cycle and the regulative cycle are combined in Figure 3.1.
3.1.2 The design approach
Regarding van Aken et al. (2007), an empirical analysis, theoretical analysis and process-oriented analysis should be combined in order to produce a diagnosis. In Figure 3.2, the explanation by van Aken et al. (2007) of these three analyses is highlighted.

<table>
<thead>
<tr>
<th>Type of analysis</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empirical analysis</td>
<td>The symptoms, their potential causes and their potential consequences have to be identified and evidence to support the analysis has to be gathered</td>
</tr>
<tr>
<td>Theoretical analysis</td>
<td>Theoretical analysis and empirical analysis should strengthen each other, but there is no standard recipe for doing so</td>
</tr>
<tr>
<td>Process-oriented analysis</td>
<td>It supports the analysis of the business problem and its causes. A focus on causes and effects is needed to eventually yield a validation of the business problem and a valid analysis of the causes of that problem.</td>
</tr>
</tbody>
</table>

Figure 3.2: Approaches to produce a diagnosis based on van Aken et al. (2007)

For this master thesis, each analysis is conducted. The executed literature study and research proposal covers the theoretical analysis and empirical analysis. This should be interpreted as the base of the research. A more elaborate empirical analysis is conducted in combination with the process-oriented analysis, in order to determine and fulfill the exact need of The Bridge. During the whole process, theoretical analysis is conducted to derive a general model which could also be used by other companies, customers and/or managers.

Furthermore, only the design part of the regulative cycle will be executed, which includes the problem choice, diagnosis (analysis), and plan (design). This part of the regulative cycle is also denoted as the design process. According to van Aken et al. (2007, p.23) designing involves the making of three designs (also shown in Figure 3.3):

- The object design, the model of the system or process to be realized;
- The realization design, a model of the material process through which the object design is to be realized (not always a big effort, as often a realization process is already available, or can be easily adapted to the needs of the newly designed entity);
- The process design, a design of the process of analysis and design that is to produce the object and realization design.

Figure 3.3: Process, object and realization design (Van Aken et al., 2007)
For this research project the above mentioned design approach is used. The conceptual model, Figure 2.3, is seen as the object design which is further tested and iteratively developed into a final model, see Figure 6.1. The realization design is the design of how the object design will be implemented, in this case the explanation and presentation of the model to the employees of The Bridge. An overview of how to analyze the problem, designing the object design and to realize/further develop the design could be seen as the process design. In Figure 3.4 the process design of this research process is shown.

![Process Design Diagram]

**Figure 3.4: The process design**

### 3.2 Methodology

In this chapter, the research strategy and research scope will first be presented. After that, the quality of research is discussed.

#### 3.2.1 Research methodologies

In order to answers the research questions, this research is separated into two different phases. The accelerators for the COM first needs to be determined and is denoted as the first phase of this research. The second research phase includes, finding support for the accelerators selected from the first research phase, finding out how to stimulate those accelerators and discovering the influences and relationships of the moderators (process, team, product, market) on those accelerators. The research methodologies
used for both phases will now elaborated separately. Note that research phase one was an internal research and is also be denoted in this thesis as ‘Internal’, or ‘internal research’. Research phase two was an external research could also be denoted by ‘external’ or ‘external research’. The findings of both phases were constantly shared and discussed with supervisors of The Bridge.

**Phase one: Discovering the most important accelerators and moderators for the Commercialization phase**

As explained earlier, the accelerators defined by Cankurtaran et al. (2013) are used to select from. The selection is done by ten experts from The Bridge. The Fleiss’ Kappa selection methodology is used to discover the accelerators for the commercialization phase. Each expert had to categorize each accelerator to one category of where the expert believes it has the most acceleration power. By summing the results of each individual participant, an overall ranking of the ‘most’ important accelerators was created. Consequently, selection criteria were set to determine which accelerators are to be assigned to each separate stage. The Pi agreement needed to be at least 0.4, the accelerators needed to be significant in the research done by Cankurtaran et al. (2013), and more than half of the participants (>5) needed to rank the accelerator to a specific category.

Furthermore, for the categorization the model of Cooper (1990) is used since it is a widely accepted model, clearly separates the activities per stage and is expected to be the most familiar model among the interviewees. Furthermore, models whereby specific phases overlap each other might be confusing when executing this research phase as is discussed later on. The exact Fleiss’ Kappa method will now be explained.

**The Fleiss’ Kappa inter-rater agreement**

The Fleiss’ Kappa method is a statistical measure for assessing the reliability of agreement between a fixed number of raters when assigning categorical ratings to a number of items or classifying items. The method can be used to calculate the degree of agreement of a specific classification and the overall agreement. The agreement can be calculated as follows. If a fixed number of people assign numerical ratings to a number of items, then the Kappa will give a measure for how consistent the ratings are. The kappa can be defined by the following formula:

\[ \kappa = \frac{\hat{P} - \hat{P}_e}{1 - \hat{P}_e} \]

The factor \(1 - \hat{P}_e\) will provide us with the degree of agreement that is attainable above chance, and \(\hat{P} - \hat{P}_e\) will provide us with the degree of agreement above chance. If \(K=1\) it means that there is a complete agreement, and if \(K=0\) it means there is no agreement. Note that there are more formulas to calculate the Kappa; these are shown in appendix 1. In addition, based on the Kappa value there is an agreement rating scale defined by Landis and Koch (1977). In Table 3.1 the rating scale is shown. However, there is some discussion of how representative the rating is, since it is dependent on the variables someone is working with. Also a bias in interpretation does have influence on the rating scores. For this research, the scores will be relatively analyzed.
<table>
<thead>
<tr>
<th>$n$</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0</td>
<td>Poor agreement</td>
</tr>
<tr>
<td>0.01 – 0.20</td>
<td>Slight agreement</td>
</tr>
<tr>
<td>0.21 – 0.40</td>
<td>Fair agreement</td>
</tr>
<tr>
<td>0.41 – 0.60</td>
<td>Moderate agreement</td>
</tr>
<tr>
<td>0.61 – 0.80</td>
<td>Substantial agreement</td>
</tr>
<tr>
<td>0.81 – 1.00</td>
<td>Almost perfect agreement</td>
</tr>
</tbody>
</table>

*Table 3.1: The inter-rater agreement scale (Landis and Koch, 1977)*

In addition, the kappa method could also be used as a ranking system, since the number of raters is fixed and each rater is forced to use the same binary method. For each row an expert is allowed to only assign one point to one of the categories which are the different phases of the Stage-gate® process (Cooper, 1994). The point should be given to the category the expert thinks the accelerator fits the best and could realize the most acceleration. In the end, all values of the raters were summed up and compared to each other to determine the internal agreement about the most important accelerators regarding the acceleration of the COM of a NPD process. In appendix F, the overview which is filled in by each expert is shown. By providing all the participants with one similar sheet whereby the stages of a clear product development process (Cooper, 1990) are used and each accelerator was provided with a clear definition, there is tried to keep the bias as small as possible. Additionally, the moderators were selected from the literature. Expert opinions are used to come up with the moderators to include.

**Phase two: Exploring and confirming the most important accelerators and moderators of the Commercialization phase**

The results of research phase one, a list of most important accelerators per different stage of the NPD Stage-gate® process of Cooper (1990) created by participants of The Bridge, are added to the conceptual model and used as an input for research phase two. The goal of this phase was to find support for the findings of the first research phase and to explore the effects of the selected moderators. For this research phase, interviews were held with experts, customers, in the area of study since this is an unexplored field of research.

**Sampling**

For the interview, convenience sampling is used. Stakeholders of The Bridge were asked if they knew someone who has had, or still has, a major role in introducing products to the market. Out of this a list of potential respondents has been made by using the network of The Bridge. By using this approach interviewees were found. In appendix D the respondent list for this research phase is presented. Contacting them is done by firstly sending a mail. When they did not reply, a reminder was sent, and if there still was no reaction they were called.
Data collection

One approach of doing these interviews is a so called experience survey, seeking the ideas on aspects of the subject and discovers what is of importance across the field of study. One of the methods which could be used to gather the information is a semi structured interview or open interviews. According to Blumberg et al. (2008), these two interview types are particular useful in an explorative study since the flexible set up enables the researcher to explore for factors and subjects not yet known. On the other hand, such interviews usually make it more difficult to compare and analyze. Although, there is decided to use this approach due to the explorative nature of the research that allows for the interviewer to follow his thoughts later or to use probing techniques to evoke additional information. In addition, the creation of an open and comfortable environment allows the respondent to share his or her unrestricted opinion. The use of probing questions during the interview also results in more in-depth answers. This will create a more holistic understanding of the respondent’s view on the topic. (Fontana and Frey, 1994).

This study used a semi structured interview instead of an open interview, because a research model was already derived based on the literature review and research phase one. The goal of this phase was to find support for those findings from research phase one and to further explore the relationships within the research model. The interviews were set up based on a general interview guide, see appendix E, whereby there was the ability to adjust the question or to ask a more in depth question based on the responses of the previous questions (Turner, 2010).

To organize a qualitative interview protocol there is searched for literature. Blumberg et al. (2005) provides an overview of question types and techniques which can be used for semi-structured interviews. This literature and research model are used to determine what questions were asked, how they were asked, and in what order. The respondents were asked about their thoughts on the accelerators and moderators discovered by the literature and execution of research phase one. Phase one serves as a basis for the interviews to respond and to discuss. At first a preliminary interview protocol based on (Blumberg et al., 2008) was set up. According to Blumberg et al. (2008) an interview protocol should start with a list of necessary materials needed to properly execute the interview. Followed by the different phases/subjects that needs to be discussed including the questions to be asked. After setting up the interview protocol there was a pilot test organized. By doing so, flaws, limitations or other weaknesses could be discovered and adjusted for the following respondent (Kvale, 2008). A tip from the pilot test was to make use of so called ‘Praatplaten’, Story boards. These story boards could be used to introduce the topic, to fill in the specific Likert scale questions and to reduce the possibility to bias the interviewees. In appendix E the final interview protocol together with the story boards are shown. As can be seen, the moderators are split up into two extremes. For example, the extremes of moderator ‘Product’ are ‘Radical’ and ‘Incremental’. These two extremes represents the newness of the product. Due to the explorative nature of this research, there is decides to only use two extremes in order to force the interviewees to make a decision regarding the newness, so that the rough lines become visible. Additionally, this also simplifies what is meant by each moderator and would therefore reduce the possibility of biasing an interviewee. There is tried to define the two best extremes
for each moderator by looking into the literature. Consequently, future research is needed for further clarification.

Furthermore, there is also chosen to ask the respondents to come up with three successful commercialized NPD cases. By doing so, there is tried to help the interviewees practically visualizing the acceleration power of each accelerator. Moreover, there is specifically asked for successful cases in order to be able to realize a consistent comparison. The selected cases were divided into several categories based on the moderators, see storyboard 6 in appendix E. Next, there was asked to determine the percentage of positive or negative impact the accelerators had. Additionally, the order of the moderators in the decision tree is sometimes changed to spread the cases. By doing so, there is tried to subdivide the cases as much as possible.

3.2.2 Research scope
This research project is based on the organization of realizing COM speed at customers of The Bridge. A final model will give The Bridge insights in how to control specific organizations regarding the COM speed. As earlier explained, the focus was on companies which expected to have a ‘Point of No Return’, a final gate, whereby the decision made to ‘go national’ results in high investments in marketing and production related activities to research the goal. This corresponds the best with large companies who have substantial part of the market they are in. Furthermore, the model should be a guideline for The Bridge for organizing the acceleration. Expertise and understanding the principle is necessary to make it customer specific. The selection of the interviewees is done based on their involvement into previously executed market introductions. Interviewees who work in a specific field, e.g. pharma, and/or at a relatively small company were filtered out and left out of scope. In addition, due to the time restriction the number of interviews to be done was limited. The point of saturation was strived for. Note that the limitations shown in chapter 0 also resulted in some restrictions.

3.2.3 Quality of Research
Van Aken et al. (2007) stated that the quality of empirical research is based on controllability, reliability, construct validity, internal validity and external validity. This chapter presents how these criteria are applied in this research.

Controllability can be defined as the possibility to control academic research. The reader should understand and assess the way in which the research output is reached (Van Aken et al., 2007). By using a design oriented method (van Aken, 2004), explaining how the data is collected and analyzed (see chapter 3.2.1), and including the fill-in forms used for both research phases (see appendix A, E and F) a proper level of controllability is tried to be realized.

Controllability is also necessary to determine the reliability (van Aken et al., 2007). Additionally van Aken et al. (2007, p.158) stated that: “results are reliable when they are independent of the particular characteristics of that study and can therefore be replicated in other studies.” By making use of existing research approaches this is tried to be achieved. Additionally, the protocols (see appendix E and F) made upfront were meant to reduce the possible influence of the researcher as much as possible. Furthermore, when conducting the second research phase, there is first objectively asked what the
respondents believe are accelerators for the COM phase, so without showing the results of research phase one. By doing so, there is tried to reduce the dependency on one individual research technique. However, this research is an explorative Business Problem Solving whereby qualitative methods are used. Fully excluding all the possible influencers is therefore hard to achieve.

The quality of a research is also related to the validity of the research. Validity is the manner in which the researcher is measuring what he wants to measure correctly and adequately (Van Aken et al., 2007). According to van Aken et al. (2007), there are three types of validity, namely construct validity, internal validity and external validity. Construct validity can be realized when establishment of correct operational measures for the concepts being studied is realized. By building a first model based on the literature and involving employees of The Bridge to complete the model this is tried to be realized. Additionally, by involving customers of The Bridge, the research model is further verified. The internal validity refers to the realization of causal relationships whereby certain conditions are shown to lead to other conditions, as distinguished from undefined relationships (van Aken et al., 2007). By presenting a final model there is tried to clarify the relationships. However, quantitative data analysis is necessary to support those presented relationships. Since this was not the nature of this research, the internal validity is limited. External validity is realized when the conclusions from the research can be generalized (Yin, 2009). In this case, the final model presented, Figure 6.1, is not only useful for The Bridge, but could also be used by other companies as a guide to accelerate their COM speed. However, the model is expected to be only valid for large companies since NPD within small companies is expected to act differently. Additionally, the models is meant for NPD situations with ‘a point of no return’ whereby high investment costs are involved for full production or service delivery and marketing. Furthermore, other consultancy firms which perform in the same context could also use this model as a guidance for advising their customers.
4 Findings

During the execution of this research the importance of the COM and its acceleration is supported and underscored by the customers of The Bridge. This chapter will start with an analysis about the entire NPD process. From thereon, the focus shifts towards the COM. The following chapters refer to the themes and questions that recurred in the interviews of research phase two. Note that the numbers, for example ‘respondent [1]’, refer to a specific interviewee. In appendix D there is shown which number is assigned to each interviewee.

4.1 The need to accelerate

First it is important to map the presence of need and urgency with the customer to accelerate. Respondent [9] stated the following: “Time is one of the most important factors when developing a product.” This statement underscores the importance of the negative relation between product development and time. The longer the cycle time of the NPD process, the less attractive the development will become. All the respondents agreed on this and made similar statements. One of the main reasons regarding the importance of accelerating the development of a new product, so increasing its attractiveness, is the competition an organization is into. The competition is often high which reduces the window of opportunity and therefore the difficulty in realizing sales. Respondent [2] supports these observations and said: “The market competition increases and, consequently, the market is becoming faster and faster. Therefore, you have to be innovative and fast in order to remain the market leader.” Also respondent [3] confirms the fast changing market and stated the following: “You see the market changing rapidly, so you have to act quickly in order to stay competitive.” One of the reasons of a fast developing and changing market is that products are copied by competitors very fast. When a new product enters the market, competitors see the success and will try to penetrate the same market by making a replicate. This is particularly true for services, because services are more easier to copy compared to physical products, keeping exceptions out of scope. Respondent [1] made an interesting statement about this behavior: “We are in a me too market, If I launch a product, than it is really hard to put the product in the market as a unique one, because it will be copies really fast.”

However, there is a certain optimum regarding the acceleration of a NPD process. Executing the entire process too fast might be dangerous as well since it might negatively affect the quality of the new product and that customers perceive the new product as insufficient. This might not only lead to bad sales for the product, but it could also damage the brand value. Respondent [7] stated: “It could go at the expense of the innovation itself, so the quality, that’s off course something you should avoid.”, and respondent [4]: “You have to strive for a certain quality, if there goes something wrong once the product is at the customer it could be catastrophic.” Both statements support the priority that quality should be guaranteed.

The upcoming chapters will discuss the acceleration more in detail. Next, findings about the COM of the NPD process will be discussed. The insights and opinions of The Bridge as well as the customers of The Bridge will be highlighted in order to develop a ‘final’ model as stated earlier.
4.2 Where to accelerate

Now that the need for acceleration is confirmed, it would be interesting to know at which moment in time most of the acceleration could be realized. This is measured both internally (The Bridge) as well as externally (Customers of The Bridge). Results show that acceleration could best be realized from the moment the product is in the development stage. Before the development stage it might even be better to not speed up the process, because it could lead to the elimination of ideas or valuable discoveries regarding the potential of the new product, as some respondents suggested. These findings will now be elaborated.

The first research phase, which was done internally, was about categorizing the accelerators of the NPD mentioned by Cankurtaran et al. (2013). The results of the categorization are shown in Figure 4.1. The orange color represent the accelerators assigned to the testing and validation phase, the blue color represents the accelerators assigned to the development phase and the green color represents the accelerators assigned to the full production and market launch phase of the NPD process. The selection criteria were set to a Pi agreement of at least 0.4, the accelerators needed to be significant in the research done by Cankurtaran et al. (2013), and more than half of the participants (>5) had to rank the accelerator to a specific category. Additionally, the overall inter-rater agreement of all accelerators was 0.23 which is, according to the Landis and Koch inter-rater agreement scale (1977), an overall fair agreement. However, as also mentioned in chapter 3.2.1, the number of accelerators (subjects) and NPD stages (categories) does affect the inter-rater agreement (Kappa). By only including the accelerators which meet the selection criteria, the inter-rater agreement is 0.37. This value is substantially higher. From this perspective there was decided to not only focus on the inter-rater agreement value, but to also check the scores per each individual accelerator.

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<table>
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<tr>
<th>Antecedent</th>
<th>Planning</th>
<th>Detailed Investigation</th>
<th>Build Business Case</th>
<th>Development</th>
<th>Testing &amp; Validation</th>
<th>Full Production &amp; Market Launch</th>
<th>Agreement (P*)</th>
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</tbody>
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Figure 4.1: Results from the categorization of accelerators which meet the selection criteria (The Bridge)
A remarkable and interesting finding is that there is no accelerators that could be assigned to the first two stages, the ‘Preliminary investigation’ and ‘Detailed investigation (Build Business Case)’. The accelerators assigned to these two phases did not meet the selection criteria. From this view it might be stated that The Bridge is less certain about if there should be accelerated in those first two phases. Note that Figure 4.1 only shows the accelerators that meet the selection criteria. From this view it might be stated that The Bridge is less certain about if there should be accelerated in those first two phases.

Comparing this with the external findings a similar result has been found. The external experts, customers of The Bridge, were asked to define where in the Product Development process acceleration could take place and what the impact would be. Respondent [5] stated the following, “The most acceleration can be realized in the development phase. There you could use partnerships to find the right competencies to develop the right product.” This is also mentioned by respondent [9], “We could probably accelerate the most in the development phase, because there you could internally realize a lot of speed by correctly organizing the processes.” In addition, respondent [9] sees the validation as a point in time where acceleration can be created. “If you involve one member from the top management at the moment in time where the product needs to be validated, you will see that it will speed up the upcoming rest of the process.” According to respondent [1], the best moment to accelerate is once the product is ready, “As soon as the product is ready, acceleration could be realized by faster rolling out the product. This will lead to an increase in sales.” Similar thoughts are mentioned by respondent [2], “We often come up with an idea, but there is no follow up. If we can realize a faster follow up, acceleration can be realized. Customers do like our developments, but how can you accelerate in order to reach more? That’s where time reduction and success can be realized.”

There are also statements made by respondent [5] about where not to accelerate the process. The respondent stated the following: “Do not accelerate at the beginning of the process, because than you will end up with wrong ideas. It’s better to have a pearl outside your funnel than a brick inside.” Respondent [10] also argues that at the beginning of the product development process a certain amount of freedom is essential, “We structure the process from the moment we have a concrete idea. Before that everybody is able to do what he wants and we should stimulate that.”

### 4.3 Speeding up the commercialization phase

In order to fulfill the need of The Bridge and to find answers to the research questions findings about the COM in particular will be discussed next. The previous chapter already suggested that accelerating the COM is possible. The following chapters will discuss the findings concerning the COM more in detail.

#### 4.3.1 The essence of the commercialization phase

Before focusing on the acceleration of the COM the essence will be highlighted. The Bridge sees the start of the COM as the moment a decision is made to go ‘national’ or in other words, full production and execution of the market plan. In general this phase is associated with high investment costs and the moment where sales are generated. Small mistakes could already have a big impact on sales. Respondent [5] described the COM as “The moment that big cash needs to be earned.” In addition, respondent [9] stated that “The commercialization is not a phase where something starts, but it is the beginning of where we could earn money with our innovation.” These two statements match with the
beliefs of The Bridge. The importance of the COM is also highlighted by Respondent [4]. “During the commercialization you really have to show who you are and all processes must be in full operation. In order to get this done huge budgets are needed.” Respondent [6] did a somewhat similar statement, “In this phase you have to promote your product which is very capital intensive.” These statements show that both groups, The Bridge and the customers of The Bridge, view this phase as a critical one. A phase where the success of a new product is depending on since it is the most riskiest part as is shown in Figure 1.3.

4.3.2 The ability to accelerate
As stated in the previous chapters, speeding up the COM might be possible. The fact that the first research phase shows a certain agreement about which accelerators are most useful for accelerating the COM already suggests that such acceleration might be possible. Similar results are also found in the second research phase of the external interviews. Respondents were specifically asked if the COM could be speeded up. All respondents answered that this is possible. Respondent [3] argued that, “We as company X see a bottleneck in this stage in our own process. The process is slow and could be speeded up. An increase in speed means a bigger win.” In addition, respondent [8] stated the following, “For sure you can speed up the commercialization, but you are partly dependent on the external factors like partners.” Respondent [7] and respondent [2] indicated that acceleration of the COM can be reached by creating a certain focus. Respondent [7]: “Because when the focus in an organization is right, there for sure can be accelerated.”. Respondent [2]: “You do not have to sell everything. The last few years we have deployed on focus, this helps us to accelerate, also in the commercialization phase.” Respondent [4] sees the COM as the most important phase to speed up the process, “Because once you start communicating your product to the rest of the world, time is becoming an issue, and you have to be sure to deliver the product on time. The faster you can deliver the better it is.”

4.4 The accelerators
The first research phase showed that The Bridge sees Team stability, Organizational support, Marketing proficiency and Organization integration as main accelerators that could realize the most power to speed up the COM. Comparing these results with the second research phase (external), it might be concluded that their thoughts only differ regarding team stability. The interviewees (external), in general, do not believe that team stability leads to a certain speed when commercializing a product. This chapter will now go into detail regarding the findings on the accelerators suggested by The Bridge. Additionally, next to the just mentioned accelerators, the interviewees mentioned some other accelerators. Those accelerators were left out of scope, but will be highlighted in chapter 6.

The Commercialization accelerators, the customer’s perspective

In order to not bias the interviewees (customers of The Bridge), respondents were first objectively asked what they think are important accelerators of the COM. This chapter highlights the statements made by the customers of The Bridge which correspond to the accelerators selected from the first research phase. Those statements underpin the importance of each accelerator in order to reach COM speed.
Organizational support
Respondent [4] stated the following that could be seen as organizational support and how to realize organizational support: “The product development is always a specific group of people. To accelerate you need support and in order to get that you should involve someone from the board of directors. Because otherwise decision taking could take too long and could destroy the success of an innovation.” Also respondent [6] stated that organizational support can be seen as an accelerator for the COM. “There must be a certain focus from the top management towards specific innovations, and they should also empower the innovation teams.” The level of empowerment can be related to trust. The more the top management empowers their product development teams, the more developments a team makes. Additionally, respondent [10] argued “I believe that it is important to know who has the need, but also who the internal decision maker is. You need a certain support. We do this by showing successes from the pilot. Actually we ensure that our pilots are always successful.” Note that organizational support should not only be seen as giving permission to commercialize a product, but also as a stimulator for the team to realize more sales.

Marketing proficiency
One of the interviewees opinion with regards to accelerating the COM is related to the internal competencies to commercialize the product. Such thoughts could also be seen as being market proficient. Respondent [1]: “The level of knowledge is an absolute key-factor when a product needs to be commercialized.” Respondent [3], [7] and [10] made similar statements. Respondent [3]: “I believe that doing something with your brand would increase the speed of the commercialization.” Respondent [4]: “You also have to create PR for your new product or process. That will be an important factor if you want to accelerate.” Respondent [10]: “I think it is important that you also know in which market you are into. You have to know what is going on, what the trends are and what the needs are. There also needs to be a certain business sense.”

Organizational integration
Respondent [6] made a statement regarding the essence of alignment. The internal alignment could be considered as having a shared mission and vision within the organization. She stated that, “Alignment and good communication within the organization is really important and could accelerate the process.” Also respondent [4] made a similar statement, “Exposure within the organization is important to create one shared vision and to deliver faster.”

Team stability
Some interviewees made statements which are related to team stability as an accelerator. For example, respondent [4] stated: “The innovation team should be a team on itself. Specific competencies are needed in such a team in order to realize success. Keeping everything together would be the first step to not delay the process.” Respondent [3] argued that teams must work integrally. “Our sales people sometimes do not understand the techniques we use. Therefore, the challenge we have is to create a matrix organization so that all the knowledge can be shared within the team. The team will than grow and would be better able to faster sell the product.” Additionally, an important note should be made regarding team stability. Most of the interviewees did not agree that team stability could contribute to
the acceleration of the COM of a NPD process. Later on, chapter 4.4.4, this will be discussed more in detail.

**Importance ratio of the accelerators**

Each interviewee (external) was asked to subdivide a total of 100 percent to the by The Bridge selected accelerators. Figure 4.2 shows the results. As can be seen, team stability has a lower percentage score than the other accelerators. The ratio suggests that organizational support, marketing proficiency and organizational integration could be seen as accelerators that are more important than the accelerator team stability. This corresponds with the results shown in chapter 4.4.4 which specifically highlights the results regarding this accelerator.

![Importance ratio of the accelerators](image)

**Figure 4.2: Importance ratio of the accelerators**

### 4.4.1 Organizational support

Results of both research phases show that organizational support contributes to the acceleration of the COM, because it enables more internal possibilities to accelerate. By showing success, motivation and assigning a sponsor to the project, organizational support could be created for a NPD. This chapter will elaborate the findings stated above.

One of the main reasons why organizational support is denoted as an important accelerator for the COM is assigned to the dependency of the development team. In other words, organizational support, support from the top management, is needed to get things up and running. Consequently, if there is no organizational support, it would be harder to accelerate or even realize success. Respondent [7] confirmed this by saying: “*If there is support from the top management, everything will start to fly.*” This statement indicates that organizational support could accelerate the NPD. This could be assigned to the amount of resources that is available to a certain new product. respondent [3]: “*They, the top management, can provide you with the essential resources.*” This statement underpins the dependency. Resources should not only be seen as money, but could also be seen as knowledge or equipment. More of such resources would help to accelerate. Next to providing resources, the top management could also simply “*give permission to act and accelerate*” (Respondent [6]). Such a permission could already be valuable, because the internal believe that the product has potential might grow. This may result in a positive atmosphere which can be seen as a stimulator on its own. Additionally, Respondent [4] argues
that the top management has a certain role model that confirms the essence of believe, “In fact they have a role model position. If the top management supports the idea, everybody will follow.” This could be summarized by a statement made by respondent [1]: “Are you allowed to invest? Are you allowed to act? Are you allowed to reinvest? These questions determine the speed and the answer is dependent on the support by the top management, so yes, organizational support contributes to the acceleration of the commercialization.”

Knowing that organizational support contributes to the acceleration of the COM is interesting. But, knowing how organizational support could be realized/stimulated would be valuable since it enables The Bridge to better assist its customer. Showing success to the top management would be one of the elements which might help to convince the top management. Such a success could be shown by presenting the results of a pilot test that was executed during the development. This idea is also suggested by Respondent [3]: “Show success by showing the results of your pilot for example.” Consequently, if success of a pilot helps getting organizational support, it would be smart to ensure the success of a pilot by for example selecting the target group with the most potential to realize success.

Another possibility to get organizational support is by showing your motivation. The top management might start to believe in the product when they see the enthusiasm and willingness of the product development team to make a success of the new product. The same thought could be applied to the organization. If everything is well organized within the team, so the way of working looks professional, it could convince the top management to support the idea and to assign resources. Respondent [7] underscores this by saying: “You have to show the top management that everything is well organized, and everybody in the team is highly motivated to make a success out of the innovation.”

Assigning a sponsor/owner from the top management might also help to realize organizational support. Respondent [1] confirmed the essence by stating the following: “A sponsor has to be assigned from the top of the management department.” Having a sponsor within the top management may increase the power to convince others from the top management. This person knows all the ins and outs and could directly answer the questions of the top management. Additionally, the project owner and project leader should be to two different persons, because otherwise there is one person who is in charge of controlling his own actions. Respondent [9] did mention this relationship by saying: “An owner is necessary, because the owner is the blueprint of the project. However, the owner should not also be the project leader, because then he will determine his own path, and time in this case. If you point an owner from the top management you could create organizational support more easily.” Respondent [6] also mentioned that it depends on the culture, “In the Netherlands you should involve the entire management in the process when you want to get organizational support. In China, you only have to involve the boss within the process.”

Furthermore, the interviewees were also asked to rate statements regarding each accelerator and moderator. In each chapter, the overall view, regarding the particular accelerator or moderator to be discussed and ranked on a Likert scale (1 to 5), of the interviewees is shown. Table 4.1 shows the statistics on the statement: ‘Organizational support contributes to the acceleration of the commercialization phase’.
Organizational support contributes to the acceleration of the commercialization phase (1=strongly disagree & 5=strongly agree)

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<tr>
<th>Parameter</th>
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Table 4.1: Organizational support, contribution towards acceleration of the commercialization phase

Out of the findings discussed above the following proposition is set up.

**Proposition 1: Organizational support contributes to the acceleration of the commercialization phase.**

### 4.4.2 Marketing proficiency

Regarding marketing proficiency, there might be a positive relationship with speeding up the COM. In other words, marketing proficiency is expected to contribute to the acceleration of the COM of a new product. Results show that marketing proficiency increases by defining the required competencies for a specific product development and by working together with the entire team. This chapter will go further into detail regarding the accelerator marketing proficiency.

First of all, marketing proficiency is seen by all the respondents as an essential element which is especially needed in the COM of a NPD process. According to Respondent [9], marketing proficiency is a precondition for the COM: “This accelerator does not need any clarification, if you speak about the commercialization phase and you are not marketing proficient, well it for sure will go wrong.” Additionally, the product should be commercialized in such a way that it clearly fulfills the need of the targeted customer. In other words, the customer should understand the product and recognize the problem that the product solves. However, the only way to reach this is by understanding the needs of the customer and being able to translate those needs. Respondent [3] underpinned the importance of understanding the customer needs: “Knowing how to generate knowledge in order to get a feeling with the needs of the environment and to really understand those needs is essential, doing this properly would result in a better market position and in the end the realization of more sales”. However, understanding the customer and knowing how to sell the product could be very difficult. Respondent [5] mentioned an example of how difficult it is to promote a new product: “I had six sales men who were promoting the new product for 0.2 FTE, but nothing came out, because the new product did not get any attention. These sales men only mentioned the new product at the end of their conversations, in fact only because they had to. I decided to decrease the number of sales man and to increase the promotion time to 0.8 FTE per sales man. This has led to a direct sales increase. And by the way, those sales man, the real fighters, the entrepreneurs, who dared to sell the new product are now one of the best in our organization.” Additionally, it is also important to internally communicate the customer needs through the entire team. The sales department, for example, should communicate the discovered needs to the marketing department, because for them such information is valuable as well. Regarding this,
Respondent [1] stated the following: “Those market developments and needs, structurally communicate this within the organization.” However, the overall market proficiency of a team might also be dependent on the cohesion between the different set of targets for each department or individual of a team. If those targets do not match with each other, they might even negatively affect the acceleration. Respondent [1] argued that there always is a battle between marketing and sales: “Marketing gets the target to deliver 10 new products, however, sales prefers 3 really good products above 10 just basic new products. This dilemma is difficult for us to get grip on.”

Based on the above findings, communication and working together can be seen as important elements to increase the overall marketing proficiency of a product development team. Respondent [1] stated this as well: “I think if sales communicates the needs they hear from their clients to the marketing department, the overall proficiency will increase.” Also Respondent [2] highlighted the essence of working together: “Internally working together and having a qualitatively good proposition should be the base.” However, as discussed earlier, understanding the customer needs is essential. This could only be reached by communicating with the customer. Therefore, communication with the customer could also be seen as a stimulator to increase the market proficiency. Respondent [3] said the following about this: “Be sure that you talk to the customer or end-user and really analyze what he wants.”

Knowing the required competencies would help the organization to better understand how to become market proficient. Respondent [6] says: “Take care that the people with the right skills and willingness are participating in the way the market needs to be approached.” The market approach might differ per situation and per market. Respondent [9] stated that there is a difference between markets and how they should be approached: “You need different skills dependent on the situation, so you also have to search and find those people per situation.” Doing this in a proper way will create positive stories about the product. The creation of such positive stories can be seen as a factor to become more market proficient. Respondent [7] underscores this as an essential part as well: “You really have to be sure that people are speaking positively about your product.”

Table 4.2 shows overall statistics, rated by the external interviewees, regarding the statement: ‘Being marketing proficient contributes to the acceleration of the commercialization phase’.

| Being marketing proficient contributes to the acceleration of the commercialization phase (1=strongly disagree & 5=strongly agree) |  |
|---|---|---|---|---|
| Average | 4,1 | | | |
| Median | 4 | | | |
| Mode | 5 | | | |
| Standard Deviation | 0,83 | | | |

Table 4.2: Marketing proficiency, contribution towards acceleration of the commercialization phase

Out of the findings regarding marketing proficiency the following proposition is set up.
Proposition 2: Being market proficient contributes to the acceleration of the commercialization phase.

4.4.3 Organizational integration
Realizing full integration of the new product into the organization could be seen as the third important accelerator for the COM. Organizational integration is also needed to deliver and sell the product in a fast way. If the organization has a shared vision, the context will be more clear which makes it easier to sell. This accelerator is also of importance to ensure that the effects of the NPD in the long term could be realized. According to the customers of The Bridge, the main approach to reach organizational integration is by organizing internal marketing through the entire organization. This paragraph will go more into detail to explain the findings regarding organizational integration as an accelerator for the COM.

One of the main reasons to denote organizational integration as an accelerator could be assigned to the effect that it has on efficiency in the short term. Furthermore, organizational integration influences the fulfillment of the exact need of the customer and company in the long term. If there is no organizational integration, employees might do more irrelevant work and could slow down the existing organizational processes. Understanding what is to be asked by the customer and what the internal vision and mission of the organization is, as well as for the product, might increase the efficiency and therefore accelerate the NPD process. In other words, scaling up the product could be done faster with organizational integration. If new products are truly radical, it might even be better to not integrate it into the existing company, but to separate it. Respondent [5] is clear about the importance of organizational integration and promotes separating ideas from the organization when becoming ‘really’ radical: "No shared vision about the product is a killer! The internal understanding is essential, and therefore we sometimes separate a really radical product from the entire organization. It could disturb the processes of the already existing organization. Another reason to separate such a really new product is that you can involve the ones who really have a shared vision about the new product. However, if we see such a development we try to separate the product development as early as possible.”

Additionally, the efficiency of the NPD process would in all likelihood have impact on the success of a new product. But, in the long run it could affect the continuity of the entire organization, due to a structurally wrong and maybe inefficient mindset at employees within the organization. Respondent [2] and [4] described the impact it would have on the long term. Respondent [2] stated: "The product must be in line with the goal of the organization, because otherwise the long term vision would be different than expected.", and Respondent [4] stated: "You really have to involve the ones who are going to sell, install or roll out the product. If they do not feel a certain involvement, no shared vision will be created which will, in the end, have impact on the success.”

On the other hand, if there would be organizational integration it might be suggested that it could lead to acceleration. The employees then share the same vision and mission for the product as for the company overall. This means that everybody understands what is going on is able to work effectively and in the end more efficiently. Respondent [3] did a statement supporting these findings: "If there is no organizational integration within the commercialization you have not made the right decisions and you will never be able to deliver the right product to your customer. So, on the other hand, if there is a shared
vision about the product you for sure can speed up the process.” In addition, Respondent [6] confirms that organizational integration could accelerate the product development process. However, the acceleration could only be reached if the organization keeps a certain focus. Too little or too much focus could both be catastrophic for the success of the product, “Organizational integration could only accelerate the commercialization if the right level of focus within the organization could be retained.”

The level of organizational integration is dependent on the internal communication. In order to increase the organizational integration the internal communication should be increased. Respondent [3] highlights this relation and the contradictory feeling it could have by stating the following: “Internal marketing communication is important, but instinctively it could feel wrong because it takes a lot of time to arrange the internal promotion while you are busy in speeding up the process. It might feel inefficiently, but in the long run it really helps.” Additionally, many different skills are needed to develop and commercialize the product. A team should therefore have members from different departments to support all the expertise needed, a so called cross functional team. When having such a diverse team it is important to communicate one common goal and to make clear where each individual is responsible for. Respondent [6] stated the following about this: “Organizational integration could be reached by having a group of cross-functional team members who have a shared commercialization goal and who make each other responsible based on everybody’s own expertise.” Respondent [8] confirmed the essence of having a clear vision about the product. He proposed the idea of organizing fixed meetings to discuss and present the internal developments of each product within the pipeline. By doing so, the right people will feel attracted to the idea with each having their own qualities. He stated: “To create a shared mission and vision about the product it would be good to organize fixed meetings for the entire organization. You can show your developments and attract the people who really feel something for the product. If you involve those people within your product, the shared vision within the team will increase which will in the end lead to more sales.”

Table 4.3 shows overall statistics, rated by the external interviewees, regarding the statement: ‘Organizational integration contributes to the acceleration of the commercialization phase’.

<table>
<thead>
<tr>
<th>Organizational integration contributes to the acceleration of the commercialization phase (1=strongly disagree &amp; 5=strongly agree)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average 3,6</td>
<td></td>
</tr>
<tr>
<td>Median 4</td>
<td></td>
</tr>
<tr>
<td>Mode 4</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation 0,8</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3: Organizational integration, contribution towards acceleration of the commercialization phase

Out of the findings discussed above the following proposition is set up.

**Proposition 3:** Organizational integration contributes to the acceleration of the commercialization phase.
4.4.4 Team stability

Team stability might not be seen as an accelerator for the COM. Although, the stability of the core of a product development team is denoted as an element that is always needed. It is suggested that team stability is more of importance in the development phase of a NPD process, because being in line about the decisions that must be taken regarding design aspects and possible constraints is essential. Due to the higher level of importance it might also be an accelerator in this (development) phase. However, apart from where in the NPD process it might lead to acceleration it is still interesting to know how to realize a more stable team. Results show that team stability can be created by having clearly stated goals, communication and responsibilities. This chapter goes further into detail by discussing the findings about team stability.

Team stability can be seen as a factor that might also lead to a certain dependency. If a team is more stable, it in fact means that the success of the product is also depending on the ones who are involved. Such a dependency might not lead to acceleration within the COM. Respondent [1] stated the following about this: “It would be bad for an organization if the commercialization is built around specific persons. It will reduce the power of exposure. This would be better to have in the developing and testing phase. A certain know-how creation takes place and is sometimes hard to understand by outsiders.” Additionally, if the product gets commercialized, it should be understandable for the customer who is going to use it, see also chapter 4.4.2. Respondent [4] stated the following about team stability and its relationship with the acceleration of the commercialization phase: “I do not see team stability as an accelerator. If you are in the commercialization phase most of the development is already executed, so the product should than easily be transferable to others within the organization.” The easiness of transferability to others within the organization during the commercialization phase might in fact have a positive relationship towards the power of exposure is mentioned by respondent [1]. At the moment a product gets commercialized, so when sources for scaling up are required, the team size needs to be increased. When it is easier to transfer the idea to others within the organization at the moment of scaling it might lead to an accelerated process. The essence of increasing the team size when commercializing a product is also mentioned by Respondent [10]: “an oil spot needs to be created. And one of the restrictions would be if only a few people know the exact meaning of the innovation. If you are going to commercialize a product you have to concretize to get the oil spot of people who know about it. I think a stable team could increase the speed earlier in the funnel. The moment you are really busy developing the product would work better with a stable team.” However, team size is something different than team stability. This will also be highlighted in the discussion, chapter 4.4.4. Moreover, both factors, team stability and team size, are seen as accelerators regarding Cankurtaran et al. (2013).

There is always a certain level of stability necessary to ensure the internal know-how of a specific product development. A stable core of a few people who have the responsibility of certain product is essential. The surrounding people who support the core might or even should be flexible, because such flexibility may lead to more input and creativity. Respondent [3] and [7] confirmed these findings. Respondent [3]: “A stable core is essential in order to ensure the quality of the innovation that is essential, but I think if the rest must be flexible. I even believe that if there is a focus within an organization on team stability the commercialization would be slower, because it will block the
integration of other competencies.” Respondent [7]: “I think the inner core should be stable, but the rest of the team absolutely not. A different team, also in the commercialization, could improve the quality of the project by the contrasts that might occur. As I have said earlier, quality should be kept in mind when speeding up the product development process.”

As could be seen in some of the statements above (Respondent [4] and [10]), team stability might be an accelerator somewhat earlier in the product development process. When the product is in the development stage of the NPD process, processes are difficult to understand for outsiders as one of the respondents also argued. If a team is stable internal knowledge would be kept inside which might have a positive effect on the efficiency of the process.

Although team stability is not defined as an important accelerator for the COM, it is still interesting, but less relevant for this research, to know how team stability can be created. In short, communication, motivation and a well-organized process might increase the team stability. With internal communication members feel attracted and more responsible for the success of the idea and would find it more difficult to leave the team. Motivation might help as well to create more attractiveness. A well-organized processes might also increase the team stability due to the professionalism a member experiences. The following statements underscores those activities that possibly help to increase team stability. Respondent [6] said the following: “It is important to have clear task descriptions and responsibilities. The team and each individual have a shared vision and goal and needs to know how they can add value to the developments going on. Culturally seen, the team should have the possibility to some experimenting. From thereon they could learn and adjust their route in order to reach the most success.” Similarly respondent [2] mentioned that, “making the process transparent and well organized would help. Also communicate internally. Forced changes, someone who becomes very ill for example, are than more easier to realize.” Respondent [4] made a statement about motivation. “Motivate the people within the team, because then they feel attracted to the product development and will motivate others on their turn.”

Table 4.4 shows overall statistics, rated by the external interviewees, regarding the statement: ‘Team stability contributes to the acceleration of the commercialization phase’.

<table>
<thead>
<tr>
<th>Organizational integration contributes to the acceleration of the commercialization phase (1=strongly disagree &amp; 5=strongly agree)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>2,8</td>
</tr>
<tr>
<td>Median</td>
<td>3</td>
</tr>
<tr>
<td>Mode</td>
<td>3</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>0,87</td>
</tr>
</tbody>
</table>

Table 4.4: Team stability, contribution towards acceleration of the commercialization phase

Out of the findings discussed above the following proposition is set up.
Proposition 4: Team stability does not contribute to the acceleration of the commercialization phase, but contributes to the acceleration of the development phase

4.5 The contextual influences

In order to better understand the acceleration power, it is crucial to understand the possible influences of the context. An example of such a contextual influence is the newness of a certain product. For example, if a product is new to the world it might take much more time before the customer understands the product and the benefits he or she would experience. The newness of the product might influence the power of each accelerator of the COM. As stated in the chapter research method, it is decided to choose two extreme sides per selected moderator. This chapter highlights the findings concerning the influences of each analyzed moderator.

4.5.1 Product newness

Product newness is an important moderator for the accelerators of the COM. The findings suggest that the accelerators realize more COM speed for radical products.

A first underlying reason could be assigned to the difference in understanding the product by the customer. In general, incremental products start from a certain fundament where the organization is already familiar with. As respondent [7] says: “Incremental products are already built on a certain fundament which is by definition more efficient.” From there on, the sales department should understand and integrate the product within their current product portfolio easier. In addition, the marketing department also has to find a way how the product needs to be communicated in such a way that the potential buyer would understand it. Respondent [3] did the following statement about the difference in understanding the product: “With a really new product you have to translate a lot more information, so from data to product and translating it also to marketing communication. Here you could realize more acceleration.”

The understanding of a product is also related to the vision and strategy of a company, in particular for the product. If the product is better integrated within the organization, the employees would quicker understand the meaning of it. Respondent [1] argued that the integration is more important for radical products and said the following: “If a product is radical, it could really be accelerated by having a clear vision and strategy about the product.” This statement is related to the accelerator ‘organizational integration’.

Another big difference is the time horizon where a product needs to be developed and launched for. In general, radical products are more focused on the long term compared to incremental products that are more focused on the short term. A longer time horizon simply enables an organization to realize more speed. Respondent [5] made the following statement about this: “Our innovation center goes about the radical innovations, there the horizon is five year versus a horizon of an incremental idea of three year.”

The overall product development speed is also expected to be dependent on the willingness of an organization to change. If there is no internal need to change, it is more difficult to push the product through the funnel and to speed up the COM. Respondent [6] argued that the willingness to change is
on its turn dependent on the urgency to change. He stated the following: “If newness of the product is important for the future of your company, more acceleration could be realized which often arises automatically.” This is somehow also related to the environment of the company. This will be discussed in the following chapter.

Table 4.5 shows overall statistics, rated by the external interviewees, regarding the influence on the accelerators of the commercialization phase.

<table>
<thead>
<tr>
<th>Product Newness influences the impact of the accelerators of the commercialization phase (1=strongly disagree &amp; 5=strongly agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
</tr>
<tr>
<td>Median</td>
</tr>
<tr>
<td>Mode</td>
</tr>
<tr>
<td>Standard Deviation</td>
</tr>
</tbody>
</table>

![Frequency Distribution](image)

*Table 4.5: Product Newness, influence on accelerators of the commercialization phase*

The table below, shows the results from the analysis of 26 cases. Those 26 cases were divided into several categories related to the moderators, see storyboard six in appendix E. These results showed a similar relationship as discussed above. From the case analysis it might be suggested that the accelerators would have a bigger impact regarding the acceleration for radical products. Only marketing proficiency would have a bigger impact within an incremental environment. This may seem logical, because when a product is incremental, the job to make the product attractive would be more difficult. However, as discussed, more information needs to be gathered for radical ideas which is in fact contradictory result.

An important note to make is that the case study results does not show big differences. This can be assigned to the difference in cases, the number of cases, the lack of clarity of the question, or to the prudence of the respondents. These uncertainties apply for each result gathered from the case analysis.

<table>
<thead>
<tr>
<th>%</th>
<th>Radical</th>
<th>Incremental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational support</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>Marketing proficiency</td>
<td>43</td>
<td>57</td>
</tr>
<tr>
<td>Team stability</td>
<td>52</td>
<td>48</td>
</tr>
<tr>
<td>Organizational integration</td>
<td>54</td>
<td>46</td>
</tr>
</tbody>
</table>

*Table 4.6: Relation of accelerators per product type (%)*

Out of the findings discussed above the following proposition is set up.

*Proposition 5: The level of product newness strongly influences the power of the accelerators for the commercialization phase. More acceleration could be realized with radical products.*
4.5.2 Market competition

A second moderator for the acceleration of the COM is the level of competition. In a high competitive market the accelerators is expected to have more impact.

The influence of the moderator ‘market’ can mostly be assigned to the difference in urgency to accelerate. In other words, the accelerators could better reduce the time to profit and/or time to volume in a high competitive market, because it would have a bigger impact on market position and in the end overall sales. As respondent [3] and [4] said: “Within a highly competitive market you have to know much more, because you have to take care of much more.” (Respondent [3]), “With a high competition you have to better understand what you are doing.” (Respondent [4]). An example would be that a company has to know how the competitors position their product to determine how to position its own product to be as attractive as possible. A certain customer focus could for example be necessary to increase the sales potential. Such a positioning is mainly dependent on the marketing proficiency of a NPD team. Respondent [1] and [3] made statements that support the bigger need of marketing proficiency within a highly competitive market. Respondent [1]: “For sure, in a lower competitive atmosphere marketing, for example, would have less impact on speeding up the process.” Respondent [3]: “Within a high competitive market you need more marketing proficiency to realize acceleration.”

Additionally, it is also essential that the ones who are involved believe in the product when commercializing it. By internally communicating the idea and thereby creating a shared vision and strategy, which refers to the accelerator ‘organization-integration’. Out of the results there might be suggested that such a shared vision and strategy is more valuable within a high competitive market and that it, therefor, will have a bigger effect of speeding up the COM.

Organizational support might be seen as an accelerator whereby the difference in impact in level of competition is smaller compared to marketing proficiency. Overall, in order to realize success, a certain level of organizational support is needed in both situations. Not only in the stage of selling the product, but in the entire NPD process. Respondent [3] stated the following: “Organizational support needs to be present in both situations, the type of market competition does not have much influence on this. You could accelerate both situations by increasing the top management support.” Respondent [2] also mentioned that there is not much of a difference.
Table 4.7 shows overall statistics, rated by the external interviewees, regarding the influence on the accelerators of the COM.

| The level of competition influences the impact of the accelerators of the commercialization phase (1=strongly disagree & 5=strongly agree) |
|---|---|
| Average | 3.7 |
| Median | 4 |
| Mode | 4 |
| Standard Deviation | 0.78 |

Table 4.7: Competition, influence on accelerators of the commercialization phase

From the conducted case-study analysis, it can be suggested that the accelerators will have had a bigger impact on acceleration in a high competitive market. Only team stability is denoted as having a bigger impact within low competitive markets. The reason why this might be true is unknown.

<table>
<thead>
<tr>
<th>%</th>
<th>Low competition</th>
<th>High competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational support</td>
<td>47</td>
<td>53</td>
</tr>
<tr>
<td>Marketing proficiency</td>
<td>47</td>
<td>53</td>
</tr>
<tr>
<td>Team stability</td>
<td>55</td>
<td>45</td>
</tr>
<tr>
<td>Organizational integration</td>
<td>49</td>
<td>51</td>
</tr>
</tbody>
</table>

Table 4.8: Relation of accelerators per market type (%)

Out of the findings discussed above the following proposition is set up.

**Proposition 6:** The level of market competition influences the power of the accelerators for the commercialization phase. More acceleration could be realized when the competition is high.

### 4.5.3 Process formalization

A third moderator selected for this research is the level of process. The findings suggest that the accelerators will have more power within a non-formalized process. The reason for this may be assigned to less structured processes that therefore need more guidance from the top management. Such non-formalized processes also have a greater chance to become delayed due to the uncertainties. Having a formal process is also an important factor to speed up the entire product development process, as also stated by Cankurtaran et al. (2013). The more formalized the process is, the faster the entire product development will be.

The naturalness to innovate can be seen as the biggest difference between formalized and non-formalized processes. When development processes are formalized within the company, its core is more focused towards inventing new ideas. Respondent [3] says: “Innovation will be a bigger part of your DNA if you have a formalized process. You, as a company, are more used to developing and launching new products in a faster way.” Consequently, this might mean that formalized processes are more stable and less sensitive for acceleration.
In other words, non-formalized NPD processes are more sensitive for influential factors and could therefore be steered more to create acceleration. This means that the accelerators would have more impact on COM speed as just suggested. Respondent [3] stated for example, “Within non-formalized processes more organizational support is necessary.” A similar statement is made by respondent [1]: “If there is no process, support from the top management is essential.” The same could be argued for organizational integration. Organizational integration is more necessary within non-formalized processes, especially when acceleration needs to be realized. If the organization knows exactly what the product is, it would make it easier to take decisions that could accelerate the process.

Additionally, most of the respondents argued that having a well formalized product development process would be better for the acceleration of the NPD process. So, not only a moderator, but also an accelerator. Although this is something different, the findings are shortly presented. Respondent [2] stated that: “Formalizing a New Product Development process is really good, because you have described the KPI’s. Those KPI’s will be used by the top management to determine the progress, and if one of the KPI’s scores bad, they will directly escalate the problem.” Respondent [5] also mentioned that it reduces the risks involved and stated the following: “The level of formalization for sure realizes speed, but also reduces risks. In the commercialization it is about big money, you have to be sure everything is well organized. Look, risks is chance times effect. And the effect of a mistake at the end of the funnel is enormous so you have to reduce the chance of failure.”

However, over-formalization could have negative side effects as well. Two implications can be assigned to this, namely the slowdown of the process and the possibility to be creative. The following statements support this: “Sometimes, over-formalization could lead to slowdown the processes and is forgotten to think differently. A formalized process is important, but a certain combination is essential. There must be a certain freedom for creativity.” (Respondent [6]). The level of formalization of the process is expected to also have an effect on the level of organizational integration. The more formalized the processes, the more organizational integration. However, this is something different than the acceleration power of organizational integration per type of process.

Table 4.9 shows overall statistics, rated by the external interviewees, regarding the influence on the accelerators of the commercialization phase. As can be seen, there is one outlier.
The results from Table 4.10 do not confirm that the accelerators would have had a bigger impact regarding acceleration within a non-formalized process. One does not particularly scores higher than the other. The reason for the lack of clarity of these case results is assigned to the same limitations as mentioned in chapter 4.5.1.

<table>
<thead>
<tr>
<th></th>
<th>Formalized</th>
<th>Non-Formalized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization support</td>
<td>49</td>
<td>51</td>
</tr>
<tr>
<td>Marketing proficiency</td>
<td>51</td>
<td>49</td>
</tr>
<tr>
<td>Team stability</td>
<td>48</td>
<td>52</td>
</tr>
<tr>
<td>Organizational integration</td>
<td>52</td>
<td>48</td>
</tr>
</tbody>
</table>

Table 4.10: Relation of accelerators per process type (%)

Out of the findings discussed above the following proposition is set up.

**Proposition 7:** The level of process formalization influences the power of the accelerators for the commercialization phase. More acceleration could be realized when the process is non-formalized.

### 4.5.4 Team autonomy

Team autonomy is seen as a moderator for the accelerators of the commercialization phase. However, the influence on the accelerators is found minimal. In other words, the level of team autonomy might have a light weighted effect on the power of each accelerator. The findings suggest that the accelerators could slightly realize more COM speed for autonomous project teams. Note that having an autonomous team could also be seen as an accelerator. Though, for this research the level of team autonomy is seen as a moderator.

It is found that within autonomous teams more acceleration can be realized. For example, without having support from the top management, which refers to the accelerator ‘Organizational support’, an autonomous team would not be able to develop and sell a new product. Respondent [6] highlighted the importance of organizational support for an autonomous team. He said the following: “Within the boundaries of the organization an autonomous team indeed could help, however, they must feel the support from the top management.” Within non-autonomous teams organizational support is necessary, but in that situation the top management has already a certain level of control and is seen as more naturally and would therefore have less impact on speed.

Additionally, team autonomy is also denoted by many respondents as an accelerator. The higher the level of autonomy of a team, the more acceleration might be realized. Although, this is something different, the findings are shortly presented. When developing a product it would be good to create an autonomous team. By doing so, the members will start to feel a certain responsibility to gain success from. Furthermore, decisions could be made faster, because less communication is needed. Communicating only the essentials could be seen as enough to build a product that fits with the company strategy as well. Respondent [7] confirmed this negative relationship between communication and acceleration and stated the following: “I believe an autonomous team would be better able to speed up the product development process. A non-autonomous team is always busy with getting everyone on the right track instead of focusing on the product itself.” Additionally, autonomous teams would also
lead to a wider variety in new products. The more autonomous a team is, the more creative the ideas. Looking specifically to the COM, this might for example be the way of organizing the marketing and the speediness to adjust to what is happening in the environment. If a team is autonomous it can quickly decide how to react (creatively) on the developments in the market. Reacting quickly is especially important within a highly competitive market as discussed before. Respondent [4] underpinned the essence of being creative and stated the following: “If you have to show each team what you have done, the focus would be more towards achieving milestones. That is good for the efficiency, however, it could also eliminate your level of creativity, and then you will have a way bigger problem.”

However, according to the respondents, the influence of team autonomy is less in comparison with the other moderators. Some respondents even stated that the level of team autonomy does not matter. They argued that it is all about organizational support, because if there is support from the top management, the idea will be accepted and acceleration could be realized. Therefore, it might help to involve someone from the top-management into the product development team. This is also stated by respondent [4]: “You have to involve the board of directors in order to have direct communication lines, but if we talk about acceleration there would not be a difference regarding the autonomy of a team.”

Table 4.11 shows overall statistics, regarding the influence on the accelerators of the commercialization.

<table>
<thead>
<tr>
<th>The level of team autonomy influences the impact of the accelerators of the commercialization phase (1=strongly disagree &amp; 5=strongly agree)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>3.4</td>
</tr>
<tr>
<td>Median</td>
<td>4</td>
</tr>
<tr>
<td>Mode</td>
<td>4</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.28</td>
</tr>
</tbody>
</table>

Table 4.11: Team autonomy, influence on accelerators of the commercialization phase

The results from Table 4.12 show similar results as discussed above. According to the respondents, the accelerators organizational support, marketing proficiency and organizational integration have a bigger impact on autonomous teams than one within a non-autonomous team. However, the difference in autonomy is seen by the interviewees as the factor with the lowest influencing power.

Note that the uncertainties regarding the results of the case-study analysis, mentioned in chapter 4.5.1, are also applicable to these findings.

<table>
<thead>
<tr>
<th>%</th>
<th>Autonomous</th>
<th>Non autonomous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational support</td>
<td>56</td>
<td>44</td>
</tr>
<tr>
<td>Marketing proficiency</td>
<td>58</td>
<td>42</td>
</tr>
<tr>
<td>Team stability</td>
<td>49</td>
<td>51</td>
</tr>
<tr>
<td>Organizational integration</td>
<td>54</td>
<td>46</td>
</tr>
</tbody>
</table>

Table 4.12: Relation of accelerators per team type (%)
Out of the findings discussed above the following proposition is defined.

**Proposition 8:** The level of team autonomy slightly influences the power of the accelerators for the commercialization phase. More acceleration could be realized when a team is autonomous.

### 4.6 A Model of the findings

The findings of this explorative research can be combined into one model of acceleration. Capturing the relationships into one model would lead to a clear vision and overview on which accelerators contribute the most in order to realize commercialization speed and what the influential power of the moderators are on those accelerators. In Figure 4.3 a model which represents the results from the findings is shown:

**Figure 4.3: A model of the findings**

**Explanation of the model**

Horizontal and vertical arrows are shown with each having a different thickness and number. The horizontal arrows represent the accelerators whereby the thickness represents the impact that the accelerators have on COM speed. As can be seen, the thicknesses of each arrow is related to the numbers next to the arrow. Those numbers are average numbers based on the Likert scores as specified by the customers of The Bridge. The values match with the figures shown in each chapter. For example, Table 4.1 shows the statement “Organizational support contributes to the acceleration of the commercialization phase” with a Likert scale of 1 to 5 where the average score is 4.5. The vertical arrows represent the power of each moderator. The higher the number, the thicker the line and the more it influences the power of each accelerator. For this, the values are also shown in the previous chapters. There is also a plus or a minus assigned to each moderator. A plus represents a positive effect and a
minus a negative effect. For example, the plus at product newness indicates that the newer a product is, the more acceleration there could be realized by the accelerators.

However, knowing which accelerators have the biggest positive impact for the COM is not enough for The Bridge to properly assist its customer. Knowing how to stimulate each specific accelerator is also seen as relevant. The model also presents an overview of how the accelerators can be stimulated. The ‘stimulators’ are defined by the customers of The Bridge and are presented in each accelerator box and summarized by making use of bullets.

Consequently, in order to derive a ‘final’ model, this model will be compared with the literature. This will be discussed in the coming chapter.
5 Discussion

This chapter presents a comparison between the findings presented in the previous chapter and the academic literature. By doing so, support for the model is studied to fine-tune the final model. It is denoted as the detailing phase of the design approach presented in chapter 3.1.2. Moreover, if there is little support for some specific parts of the model in academic literature there is decided to not include it in the final model. Additionally, suggestions for future research are made.

5.1 Speeding up the process, underlying relations

The findings suggest that there is a need to accelerate the NPD process which could mainly be assigned towards an increase in speed and competition within a market. Hanard and Szymanski (2001) also described this relation. They stated that the main reason to accelerate the NPD process is related to the level of competition. Especially launching the product at the right moment in time within the so called window of opportunity, is essential. If the product can be launched in an earlier stage, it would lead to a better competitive position and a bigger market share which both determine the NPD success. The findings also suggest that speed is positively related to NPD success. According to the review of Chen, Reilly and Lynn (2012), the following researchers discovered the same relation: Lynn et al. (1999), Carayannis and Alexander (2002); Gonzalez and Palacios (2002); Calantone et al. (2003). However, they also mention others who did not found such a relationship. These are Meyer and Utterback (1995), Griffin (2002), Dröge et al. (2004). It can be concluded that there is no consensus about effective acceleration. Too much acceleration reduces the quality of a product. The findings suggest that quality should always be guaranteed. As respondent [7] stated: “It could go at the expense of the innovation itself, so the quality, that’s off course something you should avoid.” Some researchers, e.g. Ragatz et al. (2002) and Kessler and Bierly (2002), confirm the importance of controlling the level of quality. However, there are also researchers, e.g. McNally et al. (2011), who argue that speed to market is of bigger importance than the quality. Although, the author believes that accelerating the process is important, but not at the expense of the quality of a product, as the findings of this research also indicate.

These findings show that if there is a need to accelerate the process, most of the acceleration speed could be realized from the development phase of Cooper’s model. These are the development, testing and validating, and full production and market launch stages of the Stage-gate® model of Cooper (1990). The reason for this is that those phases are better structured and more certain compared to the first two stages. It would make it easier to accelerate, because there is knowledge about what the processes and activities exactly are. In the first stages there is more uncertainty and, consequently, there are more needs to be predicted. The difference in uncertainty is also underscored by The Bridge and by academic literature. The Bridge uses Figure 5.1 to make their customers aware of the uncertainty reduction over time.
Within the literature the first part of the NPD process is known as the ‘fuzzy front end’. According to Khurana and Rosental (1997, p.7), quality, costs, and timings are mostly defined during the front end where the effects on the whole innovation process will be extremely high. They also defined the relation from a managerial perspective. They found that managers describe the front end as “The greatest weakness in product innovation”. Cooper and Kleinschmidt (1994, p.4) underscored the essence of a well-executed start of the NPD process: “The greatest differences between winners and losers were found in the quality of execution of pre-development activities”. The importance is also marked by Henard and Szymanski (2001), Langerak et al. (2004) and Montoya-Weiss and Calantone (1994). Cooper and Kleinschmidt extended their research and found that for successful product innovations twice as much money and 1.75 time was spent on the front end stages of a NPD process compared with non-performing projects. In other words, spending more time at the beginning of the process might clear things up in such a way that time could be saved in the following phases (Burchill and Fine, 1997; Khurana and Rosenthal, 1998; Thomke and Fujimoto, 2000). By these findings, it can be stated that it is better to not focus on acceleration within the fuzzy front end. Respondent [5] underscored this by saying: “Do not accelerate at the beginning of the process, because than you will end up with wrong ideas. It’s better to have a pearl outside your funnel than a brick inside.”, as presented earlier. Consequently, bending those ideas in a later stage to something valuable means more costs and time to change. Figure 5.2 shows these relationships. In addition, spending a lot of time also shortens the remaining time to launch the product within the window of opportunity. Efficiently managing the rest of the phases might than be required. In this situation, knowing how to accelerate the last phases is expected to be preferred.
Overall, if acceleration is necessary in order to keep a competitive position or to become competitive, the focus might should be at the moment of starting the development to the commercialization phase.

However, there are also researchers (e.g. Kessler and Charabarti, 1999; Murmann, 1994; Swink, 2003), who argue that there should also be an overall focus on cycle time reduction, because it becomes an integral and clear project goal. In other words, in the beginning of the NPD process there should be a certain attention towards acceleration. The results from a research done by Eling, Langerak and Griffin (2013) showed that all stages of the NPD process need to be accelerated in order to increase the performance of a product. This is in contradiction with the findings from this research. The reason for this difference can be related to interactive effects between the different phases which was not analyzed in study. As can be seen in their research, analyzing the phases separately showed that more time spent in the fuzzy front end might increase the product performance. However, they argue that the Fuzzy front end affects the other phases and should consequently not separately be analyzed. Knowing this, it might be good to communicate a clear vision about the essence of acceleration. Informing employees about the importance of decision making at the beginning of the process could have a positive effect on the rest of the process.

Focusing specifically on the COM, the results show that accelerating this phase is possible and does contribute to an increased product performance. The findings of the literature study shown in the chapter 2 and stated above show similar conclusions. The following chapters will discuss how the COM could be accelerated.

5.2 Speeding up the Commercialization phase

This chapter will discuss the findings regarding the acceleration of the COM. A discussion on the accelerators will be presented and followed by a discussion regarding the influences of the moderators on those accelerators.

5.2.1 Organizational support

The results suggest that organizational support is one of the most important factors concerning the acceleration of the COM. This could logically be clarified by the dependency of the development team on the top management, as stated by most of the respondents ([1],[3],[5],[7],[8],[10]). Overall, top management could give permission to take action and provide resources in order to realize success. According to Baker et al. (1986), and Lee and Na (1994), properly assigning the resources is one of the determinants of product success. As mentioned by The Bridge and in the literature, the COM is often the most expensive and riskiest part of the overall NPD process (Calantone and Montoya-Weiss, 1994; Langerak et al., 2004). Therefore, having such support which enables the resources and permission to accelerate contributes to acceleration of the COM. According to Swink (2000), a high level of visible support for the project generates enthusiasm, and committed top level managers are more willing to fight for resources needed for the project. This underpins the essence of having organizational support within the COM. Additionally, Sun and Wing (2005) also argued that senior management commitment, a similar concept as organizational support, and the availability of production resources and persons are success factors for the COM.
In addition, an important note needs to be made. The fact that organizational support is an important accelerator for the COM does not mean that it is not important in the preceding phases. In those phases it is also an important accelerator (Sun and Wing, 2005). The first research phase shows that some of the participants assigned organizational support towards the development phase, as shown in Figure 4.1. According to Sun and Wing (2005), organizational support has the most acceleration power in the development phase. This indicates that this accelerator is of importance in this particular phase. Note that these statement made above are also applicable for the other accelerators.

5.2.2 Marketing proficiency
Marketing proficiency may be denoted as the most logical accelerator for the COM. When commercializing a product, the level of marketing proficiency influences the acceleration and therefore the overall success. This is suggested by the findings. According to academic literature NPD outcomes are strongly influenced by the capability of a firm to generate, to disseminate, and to use market information (Griffin and Hauser, 1992; Hutt et al., 1988). If the overall proficiency increases, more market information will be gathered. A more market oriented organization probably has a positive effect on the success of a product due to the increased capacity to take better decisions. Additionally, Langerak et al. (2004, p.12) stated that: “A market oriented culture’s influence on new product performance is restricted to the launch phase of the NPD process rather than also being pervasive to other phases (i.e. predevelopment and development) of the NPD process.” The researchers argue that the reason for this is that the COM phase is the phase where the marketing department is responsible for. The prior phases, pre-development and development, are often in control of the R&D and engineering departments. This might also be the reason why the accelerator ‘marketing proficiency’ is assigned in the first research phase to the COM. Furthermore, Langerak et al. (2004) stated that managers should ensure that marketing orientation is not only the responsibility of the marketing department, but that it should be embedded across all departments and process phases. Additionally, being more market proficient will also help in the long run, for other product developments, because the customer needs are better known by the organization.

5.2.3 Organizational integration
The third accelerator for the COM is organizational integration. The main reasons, as highlighted in the chapter ‘Findings’, are that it results in a more efficient process and better communication towards the outside world. Both effects are directly related to the success of a product introduction. The efficiency reduces the costs and a clear communication, first intern and secondly extern, increases the quality of the product which results in a better product-customer fit. This could be seen as a risk reduction due to a faster process and more acceptance by the customer. This effect can be seen as the reason why it is denoted as an important accelerator for the COM because high costs and risks are involved in the COM, as discussed earlier (Calantone and Montoya-Weiss, 1994; Langerak et al., 2004). As the results suggest, organizational integration reduces both, the costs as well as the risks.

Another interesting discussion is that some respondents mentioned a certain interdependency between organizational support and organizational integration. As respondent [9] stated: “You will not get support from the top management if there is no organizational integration with one shared goal.”
Consequently, it might also be that organizational integration could not be reached if there is no support from the top management. This dependency would be something for further research.

### 5.2.4 Team stability

The results suggest that team stability is necessary for the core of the NPD team, but a flexible layer should always be around it. It is not seen by the customers of The Bridge as an accelerator for the COM, but only as a precondition. As respondent [1] argued, keeping a team stable is suggested to be more of importance in preceding phases because those phases are relatively more difficult to understand for outsiders. Moreover, the difference in result between the two research phases are interesting to further analyze. A reason for the difference in result between the first research phase (internal) and second research phase (external) might be related to the difficulty of assigning team stability to a certain phase. The definition of team stability, see appendix A, refers to the overall stability of the team through the entire product development process. It could be that the participants from the first research phase (internal) all assigned team stability to the COM by chance. The definition/interpretation of team stability might also be the reason why some respondents maybe refer to the essence of having a stable core, but added that when acceleration needs to be realized more manpower is needed. This suggests that team stability is not an accelerator for the COM, but team size might be. The increase in manpower (team size) which is also an accelerator according to Cankurtaran et al. (2013) and van Oorschot et al. (2010), can therefore be suggested as an ‘alternative’ accelerator for the COM. Consequently, this is for future research.

### 5.3 Contextual influences

The following chapters will discuss the findings regarding the specified moderators.

#### 5.3.1 Product newness

As the findings show, product newness has a relatively big influence on the acceleration power of the accelerators. The newer the product, the more power the accelerators of the COM will have because everything is less organized, less understandable, more information is needed and the time horizon is bigger.

Olson, Walker and Ruekert (1995, p.12) did research regarding the relation between difficulty of executing tasks and newness of a product. They argue that: “When a firm and its potential customers are relatively unfamiliar and have little previous experience with a new product concept, the functional tasks involved in developing the concept and bringing it to market are more difficult and challenging than when the project involves a more straightforward modification or extension of an existing line.” This might also suggest that more guidance is needed for radical products and, consequently, could be accelerated more easily.

Langerak and Hultink (2006, p.9) indicated a difference in need to accelerate and the way it affects the profit with product innovativeness as moderator. They stated the following: “Profit maximization occurs at a higher development speed for product improvements than for additions to existing product lines.” Assuming that product innovativeness and product newness are overlapping concepts and are positively related to each other.
positively related to each other this indicates that there indeed is a difference regarding the essence to accelerate a product and its newness. Figure 5.3 shows the difference regarding product newness.

![Figure 5.3: The effect of Development Speed on New Product Profitability for Product, Langerak and Hultink (2006)](image)

5.3.2 Market competition

By analyzing the results from both research phases, market competition seems to be a second moderator on the accelerators. It is argued that when the market competition is high the accelerators would have more impact and would therefore be better able to accelerate the process. According to the respondents, more knowledge is needed in order to better understand the market and to realize acceleration. This could be assigned to the level of being market proficient. The respondents confirmed this with statements shown in the findings. Also the case analysis shows that marketing proficiency has slightly more impact within a high competitive market. Within the literature the degree of market competition is related to uncertainty. According to Kessler and Bierly (2002), there are different contradictory studies between uncertainty and the effect with speeding up the process. They stated that uncertainty leads to created caution and better intelligence for situations and decisions that involves a certain risk or failure. However, Schumpeter (1961), for example, argued that uncertainty is one of the most important conditions of entrepreneurial opportunity and profit and could provide more opportunities and benefits when the response is faster.

According to Chen et al. (2005) there are different types of uncertainties. This might be the reason why there are contradictory results as discussed above. Based on their definitions ‘Market Turbulence’, a type of uncertainty, fits the best with the degree in market competition used as a measure for this study. Chen et al. (2005, p.4) stated that “market turbulence refers to the rate of change in the composition of customers’ needs and their preferences.”

When the competition is low it is argued that there is less market turbulence which reduces the impact of decision making. In other words, acceleration is seen as less important and might therefore also has less impact. Chen et al. (2005, p.11) indicated this by saying: “Market Turbulence moderates the speed-success relationship.”

In conclusion, findings of this research are in line with the academic literature.
5.3.3 Process formalization
As the findings suggest, process formalization can been seen as a third moderator for the COM whereby the accelerators could generate more speed within a non-formalized process.

This sounds logical, because non-formalized processes are less structured and more space for interpretation and acceleration is possible. In other words, when formalizing and generalizing a NPD process too much, there is not enough space to quickly adapt to changes in the environment or to the type of product that needs to be invented. It might become too static. The following problems mentioned Cooper (1994, p.5) confirms the inefficiency that occurred regarding formalization in the past: “Product must wait at each gate until all tasks have been completed, products must go through all gates, and the system does not lead to product prioritization and focus.”

The improvements done by Cooper on its own model in fact symbolize the inefficiency of generalizing the process. Later on, Cooper (1994) also proposed changes to his own Stage-gate® model so that the model becomes fluid, adaptable and flexible. “The end results should provide companies with a much more efficient roadmap, bringing products to the market faster and improving their use of scarce resources.” (Cooper, 1994, p.1). Moreover, the open innovation paradigm needs even more flexibility regarding the ability to adjust to the environment.

Furthermore, many researchers describe the relation between the level of formalization and product newness or innovativeness. For example, Olson et al. (1995), and Gupta et al. (1986) argued that organizations should always strive for formal coordination mechanisms to manage products in involving familiar line extensions and product modifications. On the other hand, with more unfamiliar ill-defined and innovative concepts there should be more focus towards participation and self-governing structures. This indicates that the level of formalization, and therefore the way of realizing acceleration differs per product type. This effect might be something for future research.

In summary, the above mentioned findings suggest that formalization reduces the possibility to adapt to a certain situation. If acceleration is needed there is less freedom to do so. Furthermore, formalizing the NPD process is also seen as a direct accelerator, as shown in appendix A. However, according to these findings there should be taken care of not losing effectiveness.

5.3.4 Team autonomy
As the results suggest, team autonomy can be seen as a relatively ‘small’ moderator for the accelerators of the COM whereby the accelerators realize more commercialization speed within autonomous project teams.

The reason might be again related to the level of structure that reduces the power to accelerate as explained in the previous chapter. Both moderators, formalization and team autonomy, are organizational mechanisms that determine the degree of structure of a development process. If a team has less autonomy it is more structured on forehand. Griffin (1997) mentioned that successful product management is determined by the balance between autonomous problem solving of the team, the discipline of a leader, top management support and having an overarching product vision. Consequently, the environment is changing. The level of competition increases, environments are changing rapidly, the
rates of technical obsolesce are higher, and life cycles are shrinking. A different balance is required whereby quicker adjustments and accelerations are needed.

Furthermore, the respondents also argue that having autonomous teams increases the development speed, as also confirmed by the research of Cankurtaran et al. (2013). Nowadays, less fixed structure is required in order to adapt more quickly to a specific situation. As discussed, less structure might give the accelerators more power to accelerate. Some respondents argued that more top management support means less autonomy. This indicates that those respondents might see top management support only as giving permission. However, as the literature shows (e.g. Griffin and Hauser, 1996), top management is more than that. Therefore, top-management support creates more acceleration for non-autonomous teams as mentioned by some other respondents. However, it must be stated that the results, especially the case study analysis, only show little difference and also the analyzed cases do show a difference. Future research is needed to clarify the moderating effect of team autonomy on the acceleration of the COM.
6 Conclusions

By conducting this research, insights are gathered concerning the acceleration of the COM. This chapter presents the conclusions. With the insights The Bridge can better assist their customers regarding speeding up the COM of a NPD process. The research question as defined in chapter 1.2.2 is:

“How could The Bridge speed up the commercialization phase of its customer’s New Product Development?”

The following chapter will give answer to this question by making use of the final model. Recommendations are done in regard to how to read and use the model. By doing so, the sub questions will be answered as well. These are, Which accelerators are important to speed up the commercialization phase of a New Product Development process?, With what tactics should The Bridge stimulate these accelerators?, and To which degree are these accelerators affected by contextual influencers (moderators)? Next, the implications, limitations and suggestions for future research will be discussed.

6.1 Recommendations

Before focussing on the COM, some conclusions can be drawn about the overall NPD process. When a customer of The Bridge wants to accelerate its NPD process, The Bridge should advice that most of the effective acceleration could be realized from the moment a team starts to develop their idea. With effective acceleration there is meant that the acceleration does not harm the quality of the ideas which is expected to be the case when accelerating the front-end. Acceleration could be realized through the entire process, but doing this in the front end reduces the overall product success. In addition, through the entire process, it must clearly communicate that speed is important in order to realize success and should always be kept in mind. For the COM, a final model is drawn to have one visual overview which represents all conclusions of this study. In Figure 6.1 the end model is shown.

Figure 6.1: The final model for accelerating the commercialization phase
The first sub question is about the discovery of the accelerators for the COM. As can be seen in the model, Organizational support, Marketing proficiency and Organization-Integration are denoted as accelerators that are of importance when acceleration in the COM is preferred. Organizational support is an important accelerator due to the enthusiasm it realizes within the development team and the power of assigning resources to the project. Marketing proficiency accelerates the COM because it enables to better understand and serve the customer. Additionally, the COM is also seen as the responsibility of the marketing department. Organization-Integration is an accelerator because it results in more efficient processes and better communication to the outside world. This is important because of the high risk and costs involved in this stage. If The Bridge advices on accelerating the COM, it should focus on these accelerators. The model also shows how to stimulate the accelerators. This answers the second sub question from this research. Additional explanation about this can be found in chapter 4.4. Moreover, such information can also be found in management literature. The third sub question is drawn up to find out what the contextual influences are and what the effect is on the acceleration power in the COM. With this knowledge, The Bridge is able to adjust its advice towards its customer regarding the possibility to accelerate the COM to a specific situation that might occur. Product newness is denoted as the biggest moderator. The newer the product, the more acceleration will be realized. The moderating effect of Market competition and Process formalization are almost similar. The power of the accelerators would be stronger within a high market competition with non-formalized processes. Finally, Team autonomy is also a moderator. However, this effect is small.

Overall, the conclusions drawn above answers the main research question and helps the experts of The Bridge to assist its customer regarding the acceleration of the COM of its NPD. In addition, the value of the model and its conclusions should always be taken in consideration since nothing is verified, but based on explorative research.

### 6.2 Improving the services of The Bridge

The insights from this research could be used by The Bridge to improve its services. As is shown in appendix I, The Bridge has defined three separate steps and deliverables per NPD stage which they offer as a service to their customer. The insights of this research could mostly be used for step one and two of the delivery phase whereby the focus lies on helping the customer with setting up sales and marketing, boosting it, and expanding volume. The findings and model of this research helps with faster realizing the deliverables offered by The Bridge to its customer. To quickly realize the deliverables offered, The Bridge is dependent on the customers’ organization it assists. By knowing the relevant accelerators and knowing how to stimulate them within the customer’s organization, The Bridge is better able to create the right environmental setting whereby they could faster realize the deliverables promised. Consequently, a faster realization of the deliverables results in a faster realization of sales for the customer his new product. An example a deliverable The Bridge offers to its customer is ‘a set of key new market contacts and sales leads’. By having stimulated the accelerators, e.g. marketing proficiency, the set of market contacts and sales leads promised could be realized faster.
Moreover, accelerating the deliverables also corresponds to the main goal of the delivery phase which is ‘realizing business success through effective implementation with a focus on time to profit’, as shown in appendix I.

However, The Bridge should make its customers aware of the fact that they know how to quickly realize the deliverables promised. For this, it would be valuable to create a tool or checklist which can be offered to the customer. With such a tool, consultants of The Bridge could first check what the power of acceleration is by analyzing the environment the customer’s NPD process is in. Secondly, The Bridge could use the tool to analyze which activities are already being conducted, but even more important which activities still to be realized. Consequently, consultants of The Bridge could assist the customer with realizing these activities to create acceleration.

For the implementation, the tool or checklist needs to be explained to the consultants of The Bridge who are focused on the COM of the NPD. The explanation could be done by a presentation or a business case. The development of a full communication plan is not needed since The Bridge has fifteen employees.

By promoting the tool or checklist, The Bridge extents its service and distinguishes itself from competitors. Because The Bridge shows to know how to quickly realize sales and thereby shorten the time to profit, the customer should be convinced to make use of the consulting qualities of The Bridge.

6.3 Limitations and implications for future research

The methodology used for this research was a design approach, as stated in chapter 3.1. In general, such final solutions are in particular only useful for the situation of the company where the research is executed. However, The Bridge is a consultative company that assists many different companies and preferred to have a general model that provides overall insights and insight on contextual influencers. The model could be used to get an idea per each specific situation its customer is in. Consequently, this means that the model can also be used by other managers or advisors who want to know how to accelerate the COM. By determining their current situation they could estimate what the power of the accelerators would be to get an idea about how much potential acceleration there might be. In addition, the model also shows where to work on and how to realize acceleration. Based on this, a certain cycle time reduction strategy can be defined. However, the model is established on an qualitative study and should only be used as a rough guideline whereby managerial experience is required. As Eling et al. (2013) mentioned, product performance implications have not been fully understood. The biggest limitation of this research is the set of respondents. In total twenty people were involved within this research. Therefore, conclusions could be drawn from this model, but generalization is hard. Although, this should not be seen as a problem since the aim of this study was to explore this field of research. Future research needs be done to validate the propositions and end model. Another possible bias in the first research phase might be the difference in level of structure per NPD stage. The beginning of the process is often less structured which might mean that it was more difficult for the respondents to assign an accelerator to one of the front-end stages in comparison to the back-end stages. The first research phase of the accelerators is also done internally which might has led to a certain bias as well. However, by using an objective approach in the second research phase there is tried to reduce the bias
as much as possible by showing the results from the first research phase after asking independently which accelerators there might be assigned to the COM. Moreover, this approach has led to some other suggestions (budget, ownership, partnering, focus or team size related) that could not be assigned to one of the selected accelerators from the first research phase.

A limitation for the second research phase is that the respondents were selected based on their experience with market introductions of new products. Those respondents were all from big companies. This limits the model to be only useful for this particular group. Future research on the differences of organizational size in relation with speeding up the COM could clarify if the model is also applicable for smaller companies. In addition, there is no distinction made between the type of organization, e.g. product or service oriented, or other differences when selecting the respondents. This might have affected the results as well. Future research needs to conducted to determine the impact of this and to discover possible differences.

In conclusion, future research needs to be done to verify and validate those accelerators and to find out if the accelerators in the model are the most important ones. Especially the accelerator “Team stability” is interesting to re-analyze because the findings were contradictory. Fourthly, assumptions are made regarding the moderators presented. There is assumed that e.g. the level of market competition represents the market influences. However, this might not be the only influencer and could therefore lead to a certain bias. Possible interaction effects between moderators, choosing for two extremes (e.g. low competition vs. high competition), other possible moderators or wrong interpretations (moderators is seen as accelerator) might also influence the accelerators. This is also a suggestion for future research. Next, the findings could only be applied to companies who are using the Stage-gate® model with a final decision moment to commercialize the product. Approaches with many iterative phases or overlapping product development stages, as Brown (2008) and Hauser et al. (2006) described, may affect the situation and therefore the way of assisting a company.
7 Bibliography

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## 8 Appendices

### A. Explanation of definitions of each accelerator

**Definitions of the Accelerators regarding NPD speed** (Based on the article “Consequences of New Product Development speed: A Meta-Analysis” by Cankurtaran, Langerak and Griffin (2013)) Note that antecedent and accelerator is seen as similar concepts.

<table>
<thead>
<tr>
<th>Category</th>
<th>Accelerator/Antecedent</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project characteristics</td>
<td>Complexity</td>
<td>A multi-dimensional concept including product complexity and technical interdependency in the development tasks (Swink, 2003), e.g. “The difference between designing a picnic basket and a car.” (Griffin, 1997, p.3)</td>
</tr>
<tr>
<td></td>
<td>Firm perspective of innovativeness</td>
<td>“The firms’ view on the product radicalness or newness (Li and Atuahene-Gima, 1999), technology novelty (Swink, 2003), and technological unfamiliarity (Tatikonda and Rosenthal, 2000).” (Chen et al., 2010, p.3)</td>
</tr>
<tr>
<td></td>
<td>Market perspective of innovativeness</td>
<td>“The markets’ view on the product radicalness or newness (Li and Atuahene-Gima, 1999), technology novelty (Swink, 2003), and technological unfamiliarity (Tatikonda and Rosenthal, 2000).” (Chen et al., 2010, p.3)</td>
</tr>
<tr>
<td></td>
<td>Mixed/unspecified perspective of innovativeness</td>
<td>Also named as “composite/not specified perspective of innovativeness.” (Cankurtaran, Langerak &amp; Griffin, 2013, p.13)</td>
</tr>
<tr>
<td></td>
<td>Project newness</td>
<td>“Project newness is a matter of how much of the product must be (re)designed, independent of the complexity or technical difficulty of making that change.” (Griffin, 1997, p.3)</td>
</tr>
<tr>
<td></td>
<td>Project size</td>
<td>The number of tasks (discovered and undiscovered) that needs to be executed for a specific project. (van Oorschot, Langerak, Sengupta, (2011)</td>
</tr>
<tr>
<td>Process characteristics</td>
<td>Standardization</td>
<td>“The use of explicit rules and standard procedures in the NPD process (Li and Atuahene-Gima, 1999).” (Chen et al., 2010, p.3)</td>
</tr>
<tr>
<td></td>
<td>Formal process use</td>
<td>“Having and following a well-documented product development process.” (Griffin, 1997, p10)</td>
</tr>
<tr>
<td></td>
<td>Supplier involvement</td>
<td>“The integration of the capabilities that suppliers can contribute to NPD projects.” (Dowlatshahi, 1998, p. 143)</td>
</tr>
<tr>
<td></td>
<td>Customer involvement</td>
<td>“Customer involvement refers to ways which customers become part of the process and the extent of their participation.” (Krajewski, Ritzman &amp; Malhotra, 2010)</td>
</tr>
<tr>
<td></td>
<td>Use of other outside assistance/information</td>
<td>The remaining (other than supplier/customer) external involvement, e.g. consultancy, investors, patent databases, desk research.</td>
</tr>
<tr>
<td></td>
<td>Goal effectiveness</td>
<td>“The extent to which an NPD project’s vision, mission, goals, and definition are clearly identified and communicated.” (Chen et al., 2010, p.3)</td>
</tr>
<tr>
<td></td>
<td>Process concurrency</td>
<td>“The extent to which stages of the NPD process overlap or are conducted concurrently (Tatikonda and Montoya-Weiss, 2001).” (Chen et al., 2010, p.3)</td>
</tr>
<tr>
<td></td>
<td>Iteration/build frequency</td>
<td>“The process of building and testing a prototype in an NPD initiative.” (Chen et al., 2010, p.3)</td>
</tr>
<tr>
<td></td>
<td>Testing</td>
<td>“Testing throughout the design process is closely related to frequent iterations. Testing reveals problems that can then be addressed in subsequent design iterations. (Gupta and Wilemon, 1990).&quot; (Eisenhardt &amp; Tabrizi, 1995, p.10)</td>
</tr>
<tr>
<td>NPD Team characteristics</td>
<td>Cross functional team use</td>
<td>“The degree of implementing a cross-functional core team which remains in place, is stable and actively participating through product introduction.” (Griffin, 1997, p.6) A Cross-functional Team is a group of people whose members hold different backgrounds, expertise and functions working toward shared objectives. A CFT is also known as a multidisciplinary team or an interdisciplinary team.</td>
</tr>
<tr>
<td></td>
<td>Organizational integration</td>
<td>The degree of having a shared vision and the same strategies towards the product. (Kester, Griffin, Hultink &amp; Lauche, 2011).</td>
</tr>
</tbody>
</table>
|                           | Teamwork quality        | “The teamwork quality construct as proposed by Hoegl and Gemuenden (2001) provides a comprehensive concept of collaboration in teams. To describe the complex nature of team members working together, Hoegl and Gemuenden conceptualize and empirically validate teamwork quality as a multifaceted higher order construct. The six teamwork quality facets (open sharing of relevant information, coordinating team tasks, utilizing all team members’ knowledge and expertise, mutually supporting each
<table>
<thead>
<tr>
<th>NPD Competences</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team size</td>
<td>“The number of members in the New Product Development team (Sarin and McDermott, 2003).” (van Oorschot, Langerak &amp; Sengupta, 2011, p.7)</td>
</tr>
<tr>
<td>Team stability</td>
<td>“The degree to which a project’s leader possesses skills, knowledge, and experience relevant to both management and technical aspects of the project (Sheremata, 2000).” (Chen et al. 2010, p.4)</td>
</tr>
<tr>
<td>Team dedication and commitment</td>
<td>“The degree to which team members dedicate and commit themselves to an NPD initiative.” (Chen et al. 2010)</td>
</tr>
<tr>
<td>Management style</td>
<td>“The degree of decision-making autonomy of the project team (Kessler and Chakrabarti, 1996).” (Chen et al., 2010, p.4)</td>
</tr>
<tr>
<td>Strength and influence of team leader</td>
<td>“The degree to which a project’s leader possesses skills, knowledge, and experience relevant to both management and technical aspects of the project (Sheremata, 2000).” (Chen et al. 2010, p.4)</td>
</tr>
<tr>
<td>Team proximity/same site location</td>
<td>“The extent to which the NPD project team members work at the same location.” (Chen et al. 2010, p.4)</td>
</tr>
<tr>
<td>Up-front planning proficiency</td>
<td>The degree of proficiency of planning the upcoming New Product Development project tasks.</td>
</tr>
<tr>
<td>Marketing proficiency</td>
<td>“The degree of proficiency with which a firm conducts its marketing activities.” (Henard &amp; Szymanski, 2001, p.4)</td>
</tr>
<tr>
<td>Technical proficiency</td>
<td>“Proficiency of a firm’s use of technology in a new product initiative” (Henard &amp; Szymanski, 2001, p.4)</td>
</tr>
<tr>
<td>Problem solving proficiency</td>
<td>The proficiency of solving the problem. “Problem solving is defined as a behavioral process which (a) makes available a variety of response alternatives for dealing with a problematic situation, and (b) increases the probability of selecting the most effective response from among these alternatives.” (D’Zurilla &amp; Goldfried, 1971, p.110)</td>
</tr>
<tr>
<td>Team learning</td>
<td>“The process through which a project team gains or creates knowledge in performing NPD activities (Lynn et al., 2000).” (Chen et al. 2010, p.4)</td>
</tr>
<tr>
<td>Experience &amp; alignment with core competencies</td>
<td>“The degree to which team members possess experiences, knowledge, and skills.” (Chen et al., 2010, p.4)</td>
</tr>
<tr>
<td>Availability of resources and facilities</td>
<td>“The availability of resources and facilities (e.g. office space, infrastructure, internal database).” Borgh, Cloodt &amp; Romme, 2012, p.14.</td>
</tr>
<tr>
<td>Organizational support</td>
<td>The degree of internal support which is mainly dependent on the acceptance by the top management. The top management is, in general, able to remove or create barriers regarding a certain New Product Development. (Griffin &amp; Hauser, 1996)</td>
</tr>
<tr>
<td>Project priority</td>
<td>“The priority of the NPD project in the organization, resources commitment, or senior management involvement (Lewis et al., 2002; Swink, 2003).” (Chen et al. 2010, p.3)</td>
</tr>
<tr>
<td>Speed emphasis</td>
<td>“The relative importance of time in comparison with other performance criteria (Kessler and Chakrabarti, 1996).” Chen, Damanpour, &amp; Reilly, 2010, p.3)</td>
</tr>
<tr>
<td>Presence of time-based rewards and incentives</td>
<td>“The presence of formal rewards for time performance (Carbonell and Rodriguez, 2006a).” (Chen, Damanpour, &amp; Reilly, 2010, p.2.)</td>
</tr>
<tr>
<td>Company size</td>
<td>“The size of the company which can be measured by annual 62adical and/or number of employees.” (Chen, Reilly, &amp; Lynn, 2012, p.17)</td>
</tr>
<tr>
<td>Innovative firm climate</td>
<td>“The degree of innovative capabilities of a firm. It can influence the profit impact of long development cycles since new capabilities must be developed for a new type of project (Chen et al., 2005).” (Stanko, Molina-Castillo &amp; Munuera-Alemán, 2012, p.6)</td>
</tr>
<tr>
<td>Technological turbulence</td>
<td>“Technological turbulence (TTURB) is the rate of change associated with technology used to develop new products in an industry (Jaworski and Kohli 1993).” (Chen, Reilly, Lynn, &amp; Ma, 2012, p.9).</td>
</tr>
<tr>
<td>Competitive intensity</td>
<td>The level of competition, the number of firms in the same market. (Griffin, 1997)</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Market attractiveness/ease of entry</td>
<td>“The degree of attractiveness and ease of entry to the market. Market size, market growth, future, margins and competitiveness are influencing variables.” (Cooper, 2008, p.16).</td>
</tr>
</tbody>
</table>
B. List of participants, The Bridge

Removed due to anonymity
C. Fleiss’ Kappa equations

Additional equations of the Fleiss’ Kappa inter-rater agreement method. Note that these formulas are Fleiss (1971).

Equations:

Let N be the total number of subjects, let n be the number of ratings per subject, and let k be the number of categories into which assignments are made. The subjects are indexed by i = 1, … N and the categories are indexed by j = 1, … k. Let nij represent the number of raters who assigned the i-th subject to the j-th category.

First calculate pj, the proportion of all assignments which were to the j-th category:

\[ p_j = \frac{1}{Nn} \sum_{i=1}^{N} n_{ij}, \quad 1 = \frac{1}{n} \sum_{j=1}^{k} n_{ij} \]

Now calculate \( P_i \), the extent to which raters agree for the i-th subject (i.e., compute how many rater—rater pairs are in agreement, relative to the number of all possible rater—rater pairs):

\[ P_i = \frac{1}{n(n-1)} \sum_{j=1}^{k} n_{ij}(n_{ij} - 1) \]

\[ = \frac{1}{n(n-1)} \sum_{j=1}^{k} (n_{ij}^2 - n_{ij}) \]

\[ = \frac{1}{n(n-1)} \left[ (\sum_{j=1}^{k} n_{ij}^2) - (n) \right] \]

Now compute \( \bar{P} \), the mean of the \( P_i \)'s, and \( \bar{P}_e \) which go into the formula for \( \kappa \):

\[ \bar{P} = \frac{1}{N} \sum_{i=1}^{N} P_i \]

\[ = \frac{1}{Nn(n-1)} \left( \sum_{i=1}^{N} \sum_{j=1}^{k} n_{ij}^2 - Nn \right) \]

\[ \bar{P}_e = \sum_{j=1}^{k} p_j^2 \]
D. Respondent list
Removed due to anonymity
E. Interview guide

Interview Guide:

(de vragen zijn in het blauw getypt)

Benodigde materialen

- Een geprinte interview guide
- Geprinte praatplaten
- Notitieblok
- Telefoon (voor opname)

Ten eerste hartelijk dank voor uw bereidheid om mee te werken aan mijn onderzoek.

Persoonlijke introductie (2 minuten):

- Kort en bondig

Doel (1 minuut):

- Inzicht verkrijgen in welke mate bepaalde versnellers, die de commercialisering fase kunnen versnellen, van belang zijn.
- Inzicht verkrijgen in welke moderators de versnellers beïnvloeden
- Inzicht verkrijgen in hoe men hiermee om dient te gaan

Toestemming vragen (1 minuut):

- Mag dit gesprek opgenomen worden?
- Wilt u en het bedrijf anoniem blijven?

Planning (1 minuut):

- Persoonlijke introductie klant
- Algemene onderzoeksvragen (Inclusief scores)
- Vanuit cases bekijken

Introductie geïnterviewde (5 minuten):

- Kunt u kort omschrijven wat uw raakvlak is met innovatie?

Algemene onderzoeksvragen (5 minuten):

Beantwoorden op basis van ervaring. Niet vanuit bedrijfsperspectief.

- Hoe belangrijk vindt u het versnellen van een productontwikkelingsproces? (schaal 1t/m 5)
- Waarom?
- Op welke moment in het productontwikkelingsproces kunnen we de meeste tijd winnen?
Zoals aangegeven focus ik mij op de commercialiseringfase van het productontwikkelingsproces.

**Onderwerp: Omschrijven van commercialiseringfase (3 minuten):**

- Komt dit overeen met uw gedachten?
- Waarom wel/Waarom niet?
- In hoeverre denkt u dat men tijd kan winnen in de commercialiseringfase (Launch)? (schaal 1t/m5)
- Welke factoren/karaktereigenschappen kunnen voor deze versnelling zorgen? (noem er 3)
- Waarom?

**Onderwerp: beoordeling belangrijkheid versnellers ter validering (10 minuten)**

Vanuit de literatuur zijn een aantal versnellers benoemd die het New Product Development process kunnen versnellen. Deze zijn in een eerdere onderzoeksfase gerangschikt. De volgende stap is om dit extern te valideren en te achterhalen wat de onderlinge relaties tussen de versnellers zijn.

De versnellers:

- Organisatieondersteuning = De mate waarin men wordt ondersteund door de organisatie. De ondersteuning van het top-management is vooral van belang
- Marketingbekwaamheid = De mate van bekwaamheid waarmee een organisatie haar marketing activiteiten uitvoert
- Teamstabiliteit = De mate waarin de samenstelling van het NPD team hetzelfde blijft
- Organisatie-integratie = De mate waarin men een gedeelde visie en strategie heeft over het nieuwe product

**Praatplaat 1:**

- Hoe belangrijk zijn deze factoren (los van het versnellen) in de commercialiseringfase? 100 %punten toedelen.
- Stelling: ‘Organisatieondersteuning’ draagt bij aan het versnellen van de commercialiseringfase’
  - Likert schaal 1 t/m 5 (1 = Absoluut niet, 5 = absoluut wel)
  - Waarom?
  - Hoe moet men hiermee omgaan?
- Stelling: ‘Marketing bekwaamheid’ draagt bij aan het versnellen van de commercialiseringfase?
  - Likert schaal 1 t/m 5 (1 = Absoluut niet, 5 = absoluut wel)
  - Waarom?
  - Hoe moet men hiermee omgaan?
- Stelling: ‘Teamstabiliteit’ draagt bij aan het versnellen van de commercialiseringfase?
  - Likert schaal 1 t/m 5 (1 = Absoluut niet, 5 = absoluut wel)
  - Waarom
  - Hoe moet men hiermee omgaan?
Luuk Nijland
0753129
Eindhoven University of Technology
IEIS, Innovation Management

- Stelling: ‘Organisatie-integratie’ draagt bij aan het versnellen van de commercialiseringsfase
  o Likert schaal 1 t/m 5 (1 = Absoluut niet, 5 = absoluut wel)
  o Waarom
  o Hoe moet men hiermee omgaan?

Onderwerp: De moderators op de versnellers betreffende de commercialiseringsfase middels case analyse (15 minuten)

Het doel van de volgende onderzoeksvragen is om te achterhalen in welke mate elke moderator invloed heeft op de versnellers. De volgende categorisering is geformuleerd:

- Product: Radicaal/Really new vs. Incrementeel (Zie praatplaat 2)
- Team: Autonoom vs. Niet autonoom (Zie praatplaat 3)
- Markt: Lage competitie vs. Hoge competitie (Zie praatplaat 4)
- Proces: Geformaliseerd vs. Niet geformaliseerd (Zie praatplaat 5)

- Stelling: het type product heeft invloed op de kracht van de versnellers. (Likertschaal 1t/m5)
  - Waarom?
- Stelling: het type organisatie heeft invloed op de kracht van de versnellers. (Likertschaal 1t/m5)
  - Waarom?
- Stelling: het type markt heeft invloed op de kracht van de versnellers. (Likertschaal 1t/m5)
  - Waarom?
- Stelling: het type proces heeft invloed op de kracht van de versnellers. (Likertschaal 1t/m5)
  - Waarom?

Case analyse (15 minuten)

Het voorgaande ging specifiek over de versnellers. Het doel van de volgende onderzoeksvragen is om praktijkvoorbeelden hieraan te koppelen. (Zie praatplaat 6)

Bedenk een succesvolle case/product introductie:

- Kunt u omschrijven geven van de case die u in gedachten heeft?
- Was het product Radicaal/really new of incrementeel? (Product)
- Was het een autonoom of niet-autonoom team? (Team)
- Was er een hoge of lage mate van concurrentie in de markt? (Markt)
- Was het proces geformaliseerd of niet geformaliseerd? (Proces)
- Was het product/service/dienst op tijd klaar?
- Was er “Organisatieondersteuning” in de commercialiseringsfase van deze case?
  o Indien ja, wat was procentueel gezien de positieve invloed op het versnellen van het proces?
  o Indien nee, wat was procentueel gezien de negatieve invloed op het versnellen van het proces?
- Was er “Marketingbekwaamheid” in de commercialiseringfase van deze case?
  o Indien ja, wat was procentueel gezien de positieve invloed op het versnellen van het proces?
  o Indien nee, wat was procentueel gezien de negatieve invloed op het versnellen van het proces?
- Was er “Teamstabiliteit” in de commercialiseringfase van deze case?
  o Indien ja, wat was procentueel gezien de positieve invloed op het versnellen van het proces?
  o Indien nee, wat was procentueel gezien de negatieve invloed op het versnellen van het proces?
- Was er “Organisatie-integratie” in de commercialiseringfase van deze case?
  o Indien ja, wat was procentueel gezien de positieve invloed op het versnellen van het proces?
  o Indien nee, wat was procentueel gezien de negatieve invloed op het versnellen van het proces?

Bedenk een tweede succesvolle case/product introductie die verschilt van de voorgaande:

- Zelfde structuur vragen als voorgaande case...

Bedenk een derde succesvolle case/product introductie die verschilt van de voorgaande:

- Zelfde structuur vragen als voorgaande case...

Afsluiting (1 minuut):

- Hebt u nog vragen?

Dankwoord
### Versnellers Commercialiseringfase

<table>
<thead>
<tr>
<th>Versneller</th>
<th>100 %punten verdelen</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisatieondersteuning</td>
<td></td>
<td>Absoluut Niet 0 0 0 0 0 Absoluut Wel</td>
</tr>
<tr>
<td>De mate waarin men wordt ondersteund door de organisatie. De ondersteuning van het top-management is vooral van belang</td>
<td></td>
<td>Absoluut Niet 0 0 0 0 0 Absoluut Wel</td>
</tr>
<tr>
<td>Marketingbekwaamheid</td>
<td></td>
<td>Absoluut Niet 0 0 0 0 0 Absoluut Wel</td>
</tr>
<tr>
<td>De mate van bekwaamheid waarmee een organisatie haar marketing activiteiten uitvoert</td>
<td></td>
<td>Absoluut Niet 0 0 0 0 0 Absoluut Wel</td>
</tr>
<tr>
<td>Teamstabiliteit</td>
<td></td>
<td>Absoluut Niet 0 0 0 0 0 Absoluut Wel</td>
</tr>
<tr>
<td>De mate waarin de samenstelling van het NPD team hetzelfde blijft</td>
<td></td>
<td>Absoluut Niet 0 0 0 0 0 Absoluut Wel</td>
</tr>
<tr>
<td>Organisatie-integratie</td>
<td></td>
<td>Absoluut Niet 0 0 0 0 0 Absoluut Wel</td>
</tr>
<tr>
<td>De mate waarin men een gedeelde visie en strategie heeft over het nieuwe product</td>
<td></td>
<td>Absoluut Niet 0 0 0 0 0 Absoluut Wel</td>
</tr>
</tbody>
</table>

### Product

<table>
<thead>
<tr>
<th>Product</th>
<th>Rating Impact op versnellers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radicaal/Really new:</td>
<td>Absoluut Niet 0 0 0 0 0 Absoluut Wel</td>
</tr>
<tr>
<td>• Product had/heeft unieke functies</td>
<td></td>
</tr>
<tr>
<td>• Product was/is anders dan andere</td>
<td></td>
</tr>
<tr>
<td>• Product vroeg om een verandering in gedrag/aanpak bij de klant</td>
<td></td>
</tr>
<tr>
<td>• Producttype is nieuw voor het bedrijf</td>
<td></td>
</tr>
<tr>
<td>• Product is in een nieuwe markt gezet</td>
<td></td>
</tr>
<tr>
<td>• Onafhankelijk van een eerdere product</td>
<td></td>
</tr>
<tr>
<td>Incrementeel:</td>
<td></td>
</tr>
<tr>
<td>• Verbetering van een product, dienst of proces</td>
<td></td>
</tr>
<tr>
<td>• Zijn vaak relatief onzichtbaar, waardoor de buitenwereld in veel gevallen niet eens in de gaten heeft dat een bedrijf innovatief is</td>
<td></td>
</tr>
<tr>
<td>• Lage mate van complexiteit voor het bedrijf</td>
<td></td>
</tr>
</tbody>
</table>
Team

<table>
<thead>
<tr>
<th>Organisatie NPD team</th>
<th>Rating impact op versnellers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonoom:</td>
<td></td>
</tr>
<tr>
<td>• Autonoom staat voor zelfstandig of zelfsturend. Wanneer verwacht wordt dat je autonoom werkt, wil dit zeggen dat je geen sturing of leiding zult krijgen</td>
<td></td>
</tr>
<tr>
<td>• Zelfsturend binnen zekere grenzen, met vrijheid van keuze en handelen binnen een vooraf afgebakend speelveld en met vooraf afgesproken spelregels</td>
<td></td>
</tr>
<tr>
<td>• Gezamenlijke verantwoordelijkheid binnen de groep</td>
<td></td>
</tr>
<tr>
<td>• Resultaatgerichtheid</td>
<td></td>
</tr>
<tr>
<td>Niet-autonoom:</td>
<td></td>
</tr>
<tr>
<td>• Het tegenovergestelde van autonoom</td>
<td></td>
</tr>
<tr>
<td>• Men heeft geen tot nauwelijks bevoegdheid om zelf keuzes te maken</td>
<td></td>
</tr>
<tr>
<td>• Men is afhankelijk van bovenliggende organisatielagen</td>
<td>Absoluut Niet 0 0 0 0 Absoluut Wel</td>
</tr>
</tbody>
</table>

Markt

<table>
<thead>
<tr>
<th>Markt</th>
<th>Rating impact op versnellers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lage competitie:</td>
<td></td>
</tr>
<tr>
<td>• Een lage mate van competitie</td>
<td></td>
</tr>
<tr>
<td>• Weinig concurrenten</td>
<td></td>
</tr>
<tr>
<td>• Weinig macht van leveranciers</td>
<td></td>
</tr>
<tr>
<td>• Weinig andere soortgelijke producten/diensten</td>
<td></td>
</tr>
<tr>
<td>• Relatief lage dreiging van mogelijke andere toetreders</td>
<td></td>
</tr>
<tr>
<td>• Interne concurrentie is laag</td>
<td>Absoluut Niet 0 0 0 0 Absoluut Wel</td>
</tr>
<tr>
<td>Hoge competitie:</td>
<td></td>
</tr>
<tr>
<td>• Een hoge mate van competitie</td>
<td></td>
</tr>
<tr>
<td>• Veel concurrenten</td>
<td></td>
</tr>
<tr>
<td>• Veel macht van leveranciers</td>
<td></td>
</tr>
<tr>
<td>• Veel andere soortgelijke producten/diensten</td>
<td></td>
</tr>
<tr>
<td>• Relatief hoge dreiging van mogelijke andere toetreders</td>
<td></td>
</tr>
<tr>
<td>• Interne concurrentie is hoog</td>
<td></td>
</tr>
</tbody>
</table>
**Proces**

<table>
<thead>
<tr>
<th>Proces</th>
<th>Rating Impact op versnellers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geformaliseerd:</td>
<td>Nioot-geformaliseerd:</td>
</tr>
<tr>
<td>*Het hebben en volgen van een goed gedocumenteerde NPD proces. (<em>Er ligt een vaste en goede basis voor productmanagers om de productontwikkeling goed uit te voeren</em>.) <em>Vaak vind er rapportage plaats waarop men beslissingen neemt</em>.</td>
<td><em>Het tegenovergestelde van geformaliseerd</em> <em>Beslissingen worden op basis van gevoel genomen</em> <em>Er is geen officiële route die men moet doorlopen om het productontwikkelingsproces uit te voeren</em></td>
</tr>
<tr>
<td>Absoluut Nioot</td>
<td>Absoluut Wel</td>
</tr>
</tbody>
</table>

**Case-analyse**

![Case-analyse diagram]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisatieondersteuning</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
</tr>
<tr>
<td>Marketingbekwaamheid</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
</tr>
<tr>
<td>Teamstabiliteit</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
</tr>
<tr>
<td>Organisatie-integratie</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
<td>Ja/nee</td>
</tr>
</tbody>
</table>

*Note: the order product, team, market and process is randomly chosen. The order has been changed a few times in order to spread the cases as much as possible.*
### F. Fill-in-Form for first research phase

<table>
<thead>
<tr>
<th>Category</th>
<th>Antecedent</th>
<th>Preliminary Investigation</th>
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<th>Development</th>
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**Note 1:** The grey colored areas do not have to be filled in by the experts. These rows and column will be used to calculate and represent the agreements per situation.

**Note 2:** Some accelerators are in italic which indicates its significance of <0.05. However, this was not shown to the participants.
G. Article published by The Bridge

Lean Startup Management: sneller commercieel succes behalen met innovaties

Geplaatst op 27 november 2013 door Bas van Wieringen

Time-to-market van innovaties bij Nederlandse bedrijven duurt een jaar langer dan in buurlanden!

"De BV Nederland heeft gemiddeld bijna 138 weken nodig om een radicale innovatie op de markt te brengen, waar de rest van de wereld daar slechts 82 weken over doet." (Prof. Abby Griffin)

In mijn praktijk zie ik het vaak: bedrijven die nieuwe kansen hebben geïdentificeerd en producten technisch hebben doorontwikkeld, maar waar commercieel succes achterblijft.

Steeds vaker voelen bedrijven de urgentie om te innoveren en steeds meer zijn ze goed in staat om nieuwe busineess kansen te identificeren en proposities te ontwikkelen. Echter, veel bedrijven slagen er niet in om snel een succesvolle nieuwe business op te zetten. Bedrijven spenderen jaren aan het bouwen en perfectioneren van hun nieuwe product of dienst, om tijdens de marktlantering pas te ontdekken dat ‘de doelgroep’ niet op deze(invulling van) de propositie zit te wachten of dat resources lastig zijn vast te houden door de focus op ‘running business’ en de eigen bureaucratie.

Dit is zonde. Want een kortere time-to-profit van innovaties kan je veel opleveren. Volgens de Lean Startup gedachte zijn dit de belangrijkste elementen:

1. Snellere marktintrouductie leidt tot meer omzet en winst, waarbij snelheidson en zelfs belangrijker dan de kwaliteit.
2. In een vroeg stadium betrekken van klanten essentieel, want dit verhoogt de kans op een goede aansluiting bij marktbehoeften, en daarmee hogere klantwaarde.
3. De voorgaande punten zorgen voor lagere investerings- en ontwikkelkosten.

Een venture/start up is geen kleine versie van een groot bedrijf, maar moet worden gezien als een project met een einddatum, concrete resultaten en een budget.

"Iets nieuws doen" (innovatie) is in essentie anders dan reguliere bedrijfsvoering in een corporate. Waar het bij innovatie draait om het zoeken van nieuwe mogelijkheden en kansen, is de reguliere bedrijfsvoering gericht op het vermijden van afwijkingen en het verlagen van risico’s. Het innovatieproces vereist daarom andere competenties, aansturing en beoordeling.

Lean start up management als versneller voor nieuwe business

Naar mijn idee is het valideren van het business model een eerste essentiële stap om snel en succesvol nieuwe business te genereren. Door het business model eerst als een hypothese te stelden en dit iteratief met de klant te bespreken controleer je of het idee ook daadwerkelijk is wat de klant echt wil. Voor een snellere time-to-profit en meer aansluiting op klantbehoeften, kun je de volgende drie fasen hanteren:

1. Opstellen en toetsen van het business model (klantverkenning en business model validatie)
2. Het aanscherpen, of omgooien, van het business model en het vinden van eerste klanten
3. Uitvoering van het business model (sales, ontwikkelen minimum viable product, roll out plan en financial forecast).
Lean Startup Management werkt iteratief, vraagt om flexibiliteit en ondernemerschap en kent snelle feedback loops. Hierbij is de rol van de Startup Manager cruciaal. Deze moet, op locatie, daar waar het gebeurt, kunnen versnellen en aanjagen. De kunst is om hierbij samen, als partners, opte trekken in ontwikkeling, sales en het behalen van resultaten. Als business innovator draag ik graag bij aan de realisatie van nieuwe business, waarbij ik bereid ben om zowel risico als succes te delen. Durf jij het aan?
**H. Overview results research phase 1**

The NPD process based on the stage gate model developed by Cooper, 1990.

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| n  | 10 |
| N  | 42 |
| sum of Pi | 18.4 |
| P average | 0.43809524 |
| Pe average | 0.26837868 |
| kappa | 0.23197322 |
I. Product Development process, The Bridge

**Discovery**
*Main goal: Managing the creation and selection of valuable ideas and concepts in alignment with organizational capabilities and strategic intent.*

- **Step 1:** Strategic visioning
  - Strategic guidance
  - External and Internal Analysis, Define strategic gap
- **Step 2:** Portfolio Planning
  - Opportunity Scanning
  - Technology Scanning
- **Step 3:** Portfolio Planning
  - Creative and analytic process to create ideas
  - Success Criteria 4Q Business plan

- **Deliverables step 1:**
  - The strategy translated into practical guidelines
  - A list of key future demands from your market
  - A set your strengths that you can offer new markets
- **Deliverables step 2:**
  - The strategy translated into practical guidelines
  - A list of key future demands from your market
  - A set your strengths that you can offer new markets
- **Deliverables step 3:**
  - A ranked, qualified portfolio of feasible new product/service ideas
  - A ranked, qualified portfolio of feasible new business (model) concepts

**Development**
*Main goal: Choose your scope. Apply rigor to concept development. Drive Speed and Efficiency. Prepare for implementation*

- **Step 1:** Market
  - Market and Customer Analysis
  - Customer Engagement in Development
  - Go to market planning, preparation for launch
- **Step 2:** Product/Service/Technology
  - Disciplined multistage Idea to Launch Framework
  - Milestones and go/no go decisions
- **Step 3:** Organization
  - Expand 4Q Business Plan requirements
  - Establish Roles & Responsibilities

- **Deliverables step 1:**
  - Clear specific market requirements for your product/service
  - Customer strongly involved in your development
  - External expert input and network mobilized
- **Deliverables step 2:**
  - Inter-departmental cooperation and coordination
  - Clear, actionable plans and contained risks
- **Deliverables step 3:**
  - A ranked, qualified portfolio of feasible new product/service ideas
  - A ranked, qualified portfolio of feasible new business (model) concepts

**Delivery**
*Main goal: Business Success through effective implementation. Drive Speed and Efficiency in time to market. Focus on Time to Profit.*

- **Step 1:** Supply chain & Sales + Marketing
  - Priming supply chain, Set up Sales + Marketing
  - Develop route to market
- **Step 2:** Launch & Use
  - Boost sales, expand volume, drive cash curve
  - Customer Experience feedback
- **Step 3:** Learning
  - Product Lifecycle Management
  - Recycle & Process Improvement

- **Deliverables step 1:**
  - Turn-key management of set-up of the new supply chain
  - Functional design of plant process
  - Developed new product sales process and material
- **Deliverables step 2:**
  - Set of key new market contacts and sales leads
  - Productive customer feedback for improvement
  - Trained and coached sales force
- **Deliverables step 3:**
  - Ranked and qualified product replacement and development
  - Faster learning from markets and implementing lessons

**Enablement:**
*Effective leadership and decision making processes that foster an organizational culture and structure capable of sustaining innovation*

- Innovation Climate Culture
- Innovation Management
- Talent & Team management
- Innovation Success Criteria
- Organization Alignment
- Governance
- Strategy Strategic guidance
- Venturing (Intrapreneurship)