Engineering a business

An empirical assessment of methods utilized by a startup to optimize product to market fit

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Abstract

Everyday ideas are born that change the world, ideas that beat the high-risk market of entrepreneurship. Relating to the question, what gives way to an optimal market establishment? The purpose of the thesis is to provide information related to what type of methodologies that contribute to the endeavours of a startup to successfully create a product that serves the markets needs. Achieved through careful and qualitative assessments of relevant sources in an abductive approach. The empirical findings from an observed startup serves as the basis for research, subsequently correlated and defined through scientific findings of the methodologies of the business model canvas, minimum viable product, and Lean Startup Methodology. The foundation of observations revolves around the startup company Swift, whose vision is to eliminate the risk of discrimination in the job-searching process through innovate and technical measures. Furthermore, quantitative data was gathered to assess the applicability of this study to the general startup market. The analyses of the startups utilization of the methodologies indicated flaws revolving human bias factors of interpreting data, and the effects of presenting minimum viable products to the market could effect the market establishment, relating to the customer perception within the innovation-spectrum. Conclusively, by utilizing methods that optimize multi-variable understanding, and continuous feedback by customers to validate market related hypothesises; give way to higher chances of an optimal product-market-fit.
Keywords

Entrepreneurship, Lean start-up, Business Model Canvas, pitfalls of startup, risks of startup, Minimum Viable Product

Glossary & abbreviations

**BMC** – Business Model Canvas. A tool used to map the business idea into a canvas to have a holistic comprehension of the project.

**CEO** – Chief Executive Officer. The leader and director of a company.

**CFO** – Chief Financial Officer. The head of the economics division of a company

**COO** – Chief Operating Officer. The second in charge of a company. Can be associated as the right-hand-person of the CEO

**CTO** – Chief Technical Officer. The head of the technical division of a company. Directs all work related to the technical development.

**Customer** – the group paying for the product

**DI** – Disruptive Innovation. A market with limited knowledge of problems, limited solutions and where innovation can be revolutionary.

**IS** – Innovation Spectrum. A way of defining the level innovation and saturation of a market. Have two sides of the spectrum; Sustainable Innovation, & Disruptive Innovation

**LSM** – Lean Startup Methodology, a methodology created by Eric Ries that surrounds the concept of continuously gathering feedback from the customers

**MVP** – Minimum Viable Product. The absolute minimum version of a product that can represent the solution of the specific problem at hand.

**SI** – Sustainable Innovation. A market with known problems, large amount of solutions to the problems and where innovation is non significant

**Users** – the group utilizing the product, which the customers pay to acquire.
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1. Introduction

In the times of the late 1900’s starting a business was not all that easy. Though with less competition and easy prerequisites for originality and monopolistic advantages in a vast amount of fields, the support and resources to create a thriving business was limited and not as optimal as it is today (Forbes 2014a). Now every day ideas are born. Ideas that thanks to modern days technology with easy information access and eager investors to fuel the innovative ideas, either changes the whole world as we see it, or the world close to home of the observer. These ideas spawn the startup community that give way to today’s fast growing and innovative market, a market that flourishes with entrepreneurs and life changers such as; Richard Branson, Elon Musk & Mark Zuckerberg However, according to an article by Forbes (2015) there’s a high-risk rate of 90 % that start-ups end in failure.

So what exactly gives way to an optimal market establishment? To complement the entrepreneurial endeavours answering this common question; this article will in depth address the issue revolving what type of methods startup companies can utilize to ensure an optimal product to market fit, increasing the overall chances of success. The startup company Swift will serve as a main empirical foundation for assessing this issues; analysing the startups deployment of methodological frameworks through a scientific abductive assessment. So that a basis can be reached to be able to discuss and imply what type of methodologies can give way to reducing the risk of failure; related to the assessment of the likelihood of Swift’s product-hypothesis fitting the market.

Together with the CEO of the startup company Swift (SwEquality); methodological and product-related frameworks from the company was provided to ensure that the article could give way for the empirical observations needed for the abductive assessment of the issue. That moreover can serve as a basis for future reference and knowledge to deal with related entrepreneurial endeavours.

1.1 Purpose

The purpose of the project is to provide information related to what type of methodologies can contribute to the endeavours of a startup to successfully creating a product that serves the
markets needs; and discussing the potential problems and dilemmas that can occur when trying to achieve this.

1.2 Scope
The scope of the project revolves assessing the three observed methods given by the case-company, which can be utilized within the planning phase; spanning between the creation of idea & initial hypothesis, to the first market iteration of the product. Hence, all research and concepts related to post-product launch to ensure market establishment are dismissed. Moreover, due to the abductive approach the research limits itself to the three utilized methods by the observed company, and its implications according to the scope. Hence, other methodologies are not within the implications of this research.

1.3 Research questions
The main issue to be dealt with in this thesis revolves in a full ambiguous perspective: “What type of methods contribute to a successful product-market-fit?”. Other related questions within the scope as well to give a holistic understanding will be answered, such as “How do these methods work?”, “Why do these methods work?”, and to have a two-sided perspective “What pitfalls and risks can occur utilizing these methods?”

2. Methods and Theory

2.1 Research approach and method
This bachelor thesis is put together through careful and qualitative assessments of relevant sources in an abductive approach. The abductive approach revolves around having an initial theoretical foundation of the subject being assessed, to further empirically study the issue to find correlations within scientific researches that match, explain and contribute to concluding arguments of the initial framework. So that the phenomenon which is being assessed can have further theoretical implications. Furthermore, a qualitative method that revolves an in-depth assessment of a specific subject is also at hand (Lipscomb 2012).

Through prior theoretical knowledge within the issue, initial observations were established, which aims to be further studied by correlating frameworks and empirical evidences. These theories and empirical evidences provided mainly from scientific articles, literature and other related sources would serve as a basis for argumentation, to conclude if the observations correlated with Swift’s chosen methodologies and their utilization are in fact optimal.
2.2 Search methods for different sources

2.2.1 Data for startup hypothesis

Information from the startup company Swift was apprehended through constant communication with its CEO and the startup team, and through the insightful knowledge of the company by author due to his position as COO. Information from the startup itself within this article is cited as appendixes by the related confidential documents and data given by the company.

2.2.2 Data for description of methods

To have the optimal prerequisites for assessment, a descriptive foundation of the framework of the methods mentioned has the need to be explained. Hence, sources were gathered from books, scientific articles and seminars by Chalmers Venture to objectively describe the framework of the utilized methods of the main startup company.

2.2.3 Data for abductive assessment

To find validated and scientifically based arguments for assessing the framework and initial observations; scientific articles within journals and known literature within the subject were solely utilized to have a strong theoretical foundation for academic arguments; all literature were searched through two main search engine mediums; Google scholar, and Summon. Moreover, to efficiently find the related articles key words related were utilized to find the articles.

2.2.4 Data for quantitative information

To find be able to examine the level of application of this thesis, quantitative data to represent the market utilization of different related methodologies was investigated. 60 startups were contacted and linked to a survey where answers were collected. However, only 10 of the 60 startups replied limiting the data that could be collected.

2.3 Method of analysis

Abductive reasoning involves exhibiting prior knowledge of the subject at hand, and then further acquiring observations which are cross-analyzed with related theories and frameworks derived from scientific sources to be able to explain and conclude the observations (Kovacs & Spens 2005).
To give way to abductive conclusions, the empirical observations were cross-referenced and analyzed according to its correlated theories and frameworks. Empirical findings with correlated framework from the frame of reference section where cross-referenced to exhibit a scientific basis of analysis. The ambiguous aspects that were assessed from the author’s own orthology, were assessed within the discussion section.

2.4 Reliability and Validity
The concept of reliability defined by Lundahl and Skärvad (1992) correlates to the absence of measurements and information. Relating to if the gathered data is significant and sufficient. While validity correlates with the concept of non existing systematic approach of the data (Lundahl and Skärvad 1992), correlating with how the data was gathered and its possible advantages and drawbacks.

2.5 Theory

2.5.1 Product-Market Fit
Gruber (2014) describes the definition of a product-market fit in his book as “something that both has its niche but also has a supportive economy around it that is willing to pay”. He moreover emphasized that there always is a user for everything, but gaining them does not always indicate a product-market fit. To achieve product-market fit efficiently one must adapt the lean startup methodologies insight of “customer development”, the concept of continuous feedback with the customer to build the product according to their needs (Gruber 2014). In comparison to product development, where the initial customer response is in the “test” phase, shown in Figure 1.

(Figure 1: Trimi & Berbegal-Mirabent 2012)
However, there are risks of failure to achieve an optimal product-market fit. Poor product-market fit is according to Feinleb (2012) factors revolving:

- Failure of identifying a fit within the market due to; lack of feedback from end-customers, pure focus on development for the sake of the build, fear of rejection
- Adapting product-fit to non-profitable markets i.e. smaller markets with no potential of scale or profitability.
- Failure in adaptation of developing trends within the markets
- Structural and internal issues within the company, failing to adapt the business model to the markets needs

2.5.2 Business Model Canvas (BMC)

With the goal of revolutionizing the normal way of building, testing and optimizing businesses, startups and strategies; Alexander Osterwalder created the Business Model Canvas. A tool with the objective of both simplifying and optimizing the endeavours of complex multivariable tasks that are being analysed; correlating the tool with the increasing association of its optimality as a pedagogical tool for entrepreneurial education. The BMC as shown in figure 1, in its most widely know iteration consists of 9 blocks: key partners, key activities, key resources, value proposition, customer relationships, channels, customer segments, cost structure and revenue streams. There are three main factors of the placement of blocks: the first one revolves around the manner of the strength of the relation of each block is placed to border with each other, so that each block in parallel are the most relevant. Moreover, the blocks are placed in order of similarity of the cognitive functionality of the brain, to increase pedagogical and logical thinking. And lastly, the blocks are separated according to its qualitative/abstract vs. quantitative/specific attributes (Jackson, Scott & Schwagler 2015).

The initial thesis made by Osterwalder presented a business model ontology, which consisted of 20 blocks, in comparison to the later iterations that only consists of 9. The one with 9 blocks is the tool associated as the Business Model Canvas which is shown in figure 2. The simplification of the tool eliminated “sub-blocks” that could be utilized in more aggregated terms, and the only remaining blocks from the original are the resource and value proposition.
The aspects in itself that is being assessed is mapped onto the blocks of canvas, and then further investigated for its validity (Merteens et al 2012).

![Business Model Canvas](image)

**Figure 2. The Business Model Canvas (Jackson, Scott & Schwagler 2015)**

Hixson and Paretti in (2014) conducted a study revolving the pedagogical implications of the tool, and when it was examined how and to what extent the BMC could be used to educate entrepreneurial students; it was concluded that the BMC was an optimal tool for; mediating the scope of a business related audiences, and improving the learning process of activities concerning the refinement of the business model. The BMC was a great tool for facilitating 5 pedagogical aspects:

- Evidence collection, organizing and presentation
- As a mutual language that connected participants
- Testing and refining conceptual relationships
- Assessing hypotheses
- Supporting social interactions

The canvas by itself is not highly pedagogical in terms of self-learning. The level of pedagogical application is directly related to the instructor of the tool, and hence requires an extensive learning curve to achieve its full beneficial application; which then requires an
imitable process of consistency within the learning environment to be optimal. This was shown when students within Hixsons & Paretts (2014) study found difficulties implementing, adapting, communicating and mapping the information onto the canvas (Hixson & Paretti 2014). This mismatch and difficulty of information mapping into the canvas is further emphasized by Merteen et al in 2012 where the article assesses how information of a project that will be mapped onto the BMC could either be; deficient, redundant, overloaded or excess. i.e. the BMC can in certain cases potentially be insufficient, overcomplicated, over- under emphasized and result in an insufficient mapped BMC canvas; not representing the true environment being assessed (Merteens et al 2012).

2.5.3 Minimum Viable Product

When beginning to create ones value proposition, the customer segments and their explicit definition has to have been identified and the hypothesis of the need has been validated, to continue to the the next step of developing an initial solution for a problem (Olsen 2015). Within Lean startup methodology, this is denoted as The Minimum Viable Product (MVP), and is the absolute minimum version of functions within a product or service that could either represent the solution, or solve in absolute simplicity the problem that is being assessed. In other words, the simplest way to communicate the value proposition of ones business (Cooper 2013). Moreover, Aulet 2013 defines the core element necessary for the MVP is that it should be sufficient enough to initiative the customer feedback loop, so that the continues iteration process to achieve a better product to market fit is at hand.

The MVP serves as the basis of growth for the entrepreneurs utilizing the concept. The methodology give prerequisites of achieving a product that the identified end user desires, and an optimal environment for hypothesis testing the assumptions of the market (Ries 2011). The MVP is an initial version of the product that founds a continuous process of developing iterations of the product that will ensure that the product features added, are solely engineered according to the needs and preferences of the customers and their problems its supposed to solve. Cause in the core MVP methodology is about the concept of validated learning and developing, where each iteration results in solutions better and more relevant to the problem. A problem that in itself is ambiguous. Hence, the MVP methodology give optimal prerequisites of reducing risk correlated to non-wasted engineering hours, cause what will
only be produced and attached to the product is the engineered solution validated by the customers (Ries 2011).

MVP revolves around the concept of validated learning, and is correlated with the characteristics and uncertainty of the market related to the product being developed. Cooper 2013 presents the innovation spectrum, where market needs and behaviours span between: sustaining innovation (SI), and disruptive innovation (DI). Where in SI the problems are well understood and known, and innovations are limited to improvement and incremental adaptations. While in DI in retrospect exhibit markets with problems that are not well understood, and product-innovations results in game changing occurrences within the markets. Emphasising the relevancy of the MVP concept of validated learning; into the innovation spectrum (Cooper 2013). Further problem with the MVP concept, is that in saturated market certain products has the necessity of being offered in its total form to have the prerequisites of convincing its correlating customers, and proclaim a spot in the market (Cooper & Kleinschmidt 2011).

2.5.4 Lean startup methodology

The lean startup method (LSM) is conceptualized by Eric Ries and revolves around the process of launching a business and creating a product fitted to the market through hypothesis testing. Thus, sets a new perspective and dimension in product development; putting effort in fast iteration and customer focus (Niculecu et al 2014). LSM is a constellation of methods and tools that optimize the work of entrepreneurs, in a way so that product to market fit is both quicker and more cost efficient. The market fit is achieved through continuous testing of the implicit assumptions an entrepreneur makes, to objectively increase the understanding of the market and the needs that of the customer. So that all endeavours are based on validity and hence reduces risk (Harms 2015).

Harms (2015) mentions in a theoretical perspective the implications of entrepreneurs utilizing the LSM within group learning of the methodology; discussing that LSM due to its early integration of customer perspective give way to socio-cognitive characteristic of idea creation within the group. In other words, the methodology of LSM in a pedagogical and social level, give way to easily assessing multi-variable aspects, and in further derive these assessments from validated assumptions, hence give way to more effectively adapt business models according to the customers needs, due to the optimal cognitive communication within the group dynamics (Harms 2015). The LSM can be divided into 7 main around concepts shown
and described in table 1. These methods all inhibit the philosophy of continuous innovation and adaptability, derived from the need and perspective of the customer (Ries 2011). The Lean Startup methodology makes entrepreneurs strive for working effectively during environments of limited time constraints. Hence, when certain decisions are made; intuition, emotion and implicit behaviour are the largest factors for reasoning (Stanovich and West 2000). York & Danes (2014) addressed in their article the basis that entrepreneurs rely on the fact of reasoning with scarce information within the LSM can lead to certain biases that affects the decision making when developing products in focus of the customer. These biases

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Minimum viable product</strong></td>
<td>Building a minimal value proposition with minimal costs, to set a foundation for validated learning and continuous product adaptation according to the customer.</td>
</tr>
<tr>
<td><strong>Pivot</strong></td>
<td>Correcting aspects within the business model, when assumptions and hypothesis showed to be incorrect. Adapting according to validation.</td>
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<tr>
<td><strong>Innovation accounting</strong></td>
<td>The concept consciously improving the outcome of entrepreneurial endeavours, through focus in measuring the progress and work.</td>
</tr>
<tr>
<td><strong>Continuous deployment (Tech software startups)</strong></td>
<td>Continuously launching code within tech startups, to reduce the over all cycle time. Giving way to efficient looping</td>
</tr>
<tr>
<td><strong>BML: Build Measure Learn</strong></td>
<td>The concept of validated learning and continuously adapting, iterating in an effective pace the product, according to its customers.</td>
</tr>
<tr>
<td><strong>Actionable metrics</strong></td>
<td>Metrics that give way to repeatable results and actions. Optimize the assessment of customer behaviour and is a main foundation for innovation accounting</td>
</tr>
</tbody>
</table>

(Ries 2011)
and how to mitigate them are described in table 2, that is derived directly from York & Danes study.

Bias within startup efforts is further assessed when examining entrepreneurial endeavours of wealth creation. Empirical studies conducted are according to the situations favourability; in perspective of the entrepreneur, and correspondingly its recognition of the degree of uncertainty within the situation (Mcgrath 1999). Duchesneau & Gartner (1990) states that due to the complexity of the task of launching a startup with various risks and dilemmas faced, entrepreneurial research have the tendency to pursue empirical evidence of failure and success.

The concept of LSM stresses the focal influence of product development according to the early adopters. However, the early adopter do not represent the market in its whole and only a small fragment of the technology adaptation cycle (Heitmann 2014). Moreover, LSM is written in the orthology of an engineer, hence have limited and lacking guidelines in areas of marketing and sales. Which can result in minimal revenue in the early stages and the essential approach of build-measure-learn can result in depleted financial resources (Heitmann 2014).

<table>
<thead>
<tr>
<th>Table 2: Bias mitigation Techniques within Customer Development</th>
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<tr>
<td>Bias</td>
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<tr>
<td>Selection bias</td>
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<tr>
<td>Representative bias</td>
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<tr>
<td>Acquiescence bias</td>
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<tr>
<td>Current Behavior</td>
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<tr>
<td>------------------</td>
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<tr>
<td>Interpreting information to confirm prior beliefs</td>
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Some general bias mitigation activities include:

- Locating in an environment with other startups and advisors (incubator, co-working) where external feedback is readily available
- Undergoing training in customer development activities to strengthen information-gathering skills
- Conducting all customer development activities as a team
- Engaging a mentor or advisor to play the devil’s advocate role in all customer development activities

(York & Danes 2014)
3. Results

3.1 Empirical findings & observations

The idea that spawned the startup company Swift was founded in September 2015 by three members, all with different backgrounds within: industrial economics, technical engineering and medicine. However through time and due to the need of specific competences revolving tech and recruitment, to successfully develop a solution fit for the market the team grew to six cofounders. The idea was founded by the problem that within the job searching process, there’s a significant level of discrimination; an inevitable problem that is due to the human factor of prejudice and implicit behaviours and associations.

The startup team are in itself like the many other startups within the novice level of entrepreneurship; The Swift startup project being all the team members’ first startup endeavour: Other than the COO’s. The Chief Operating Officer has undertaken academic studies revolving certain entrepreneurial subjects, and has additionally been involved with a previous startup. So a certain degree of entrepreneurial knowledge and experience pertains within the startup.

Swift aims to increase the equal treatment within the job-seeking process. Their initial step towards this vision is to provide the first job-search smartphone application where equal treatment between applicants is guaranteed up to the point of the job-interview. Through their application, applicants can easily find and apply for jobs that are posted by companies, and communicate with the employers totally anonymous until mutual interest is found and an interview is booked.

Employers are presented through a web-based tool; applicants purely by their education, work-experience and competences (anonymous) – hence, can now easily evaluate applicants without letting their subconscious prejudice affect their decision, putting pure focus on the applicants competences and experience, and moreover directly contact interesting candidates through the app for quick recruitment. Making the product that Swift aims to launch within the B2B market, making the employers/companies the customers of the startup.
3.1.1 The problem the company is trying to solve

No human is ever fully neutral in her or his preference in the choices they make. Certain bias or prejudice is always affecting the decision taken, even when humans are not thinking about it. This behaviour is called implicit behaviours, and describes the underlying preference every human exhibit towards certain attributes (Greenwald 1998). This preference can result in unfair discrimination in many situations, specially where Swift steps in; the recruitment process. Where 90% of the discrimination occurs in the initial step of the process i.e. the steps revolving the job-seeking process up to the interview (Riach & Rich 2002).

Moreover, within these initial steps different levels of risks per candidate with different correlated attribute are subdued to different risks of discrimination. For instance, if one is female or has an Arabic sounding name, the candidate pertains a 15% respectively 25% risk that their application will be ignored due to discrimination (Oxford Research 2012).

Moreover, according to Appendix B the startup companies own assessment of the problem; 54% of the actively job-searching candidates have at one point in their lifetime felt discriminated in job-searching process.

3.1.2 Company utilization of methodologies

The startup Swift has since its creation in September 2015 utilized two main concepts to effectively guide their work towards creating a product fit for the market: The business model canvas and minimum viable product testing. The BMC and MVP methods are within the Lean Startup Methodology but were utilized without the knowledge or the experience of the LSM itself and were therefore initially implemented without any influence of the concept. It wasn’t until the beginning of 2016 the startup slowly started to deeply implement the LSM concepts into the BMC, MVP, and the business model itself. The level of implementation of LSM has increased even further due to their entrance in the incubator programme “Chalmers Ventures: Startup Camp” (CV) where the methodology is thoroughly educated and promoted.

Business Model Canvas

In interviews with the CEO of the startup it was stated when the business idea was initially spawned, a forty page business plan was drawn up to serve as a basis to have a framework for the idea. It was not until a certain period in to their first entrepreneurial careers that the team
realized the flaws of the business plan due to its basis as a hypothesis in whole. Subsequently, the first business model canvas was created to effectively study their business model systematically.

The implementation of the business model data was in majority conducted by the COO of the company, due to the COO’s previous experience with the tool. Both having gone through academic guidance with how to utilize the tool itself, and having previous experience drawing up a BMC for another startup company project. The academic guidance of the utilization of the tool thought to the COO was specifically within the area of project management of how to implement aspects of a business onto the tool. However, the other team-members of the startup had no other experience or knowledge of the tool and relied solely on the COO’s knowledge and endeavours of teaching the concept. When asked how the concept was shared and thought to the other team-members of the startup, the answer from the CEO stated that “it was brief and conducted within an hour”. It was moreover implied the data of the features of their initial business plan was in majority translated by the COO, but discussed together with the rest of the team when implementing into the BMC.

The startup company’s main motivation for adapting the tool was to have a systematic overview of the business model and its fundamental characteristics, and see from holistic assessments the relationships between them. So that if a hypothesis was proven incorrect or in need of change, it would be easier to iterate the BMC rather than rewrite and spent copious hours on a business plan. Moreover, the startup found utilizing the BMC optimized their work in terms of transparency and understanding of the business model in whole. The team members concurred that this was a much more pedagogical and effective tool for their current workflow, due to adapting to the LSM with its concept of continuous customer feedback to optimize the product to market fit. In reason of the increase of data collected from customers and user, have resulted in more insights for hypothesis assessment. When post customer data-collection analysis ware conducted: and an aspect was in need of altering, it was more transparent what aspects would be affected.
Figure 3 shows the 2nd iteration of the startup that was created after an alteration of the value proposition was realized due to external consultation. The startup has had 4 iterations since the idea creation of their BMC, mostly due to when the increased quantity of feedback from customers and users were obtained and several aspects were in need of change to adapt to the markets needs. The CEO mentioned that due to their involvement with Chalmers Ventures, they’re now iterating their model into the “Lean Canvas” version, but are not fully done with the process. Hence, implying that, that specific concept is outside the scope of the article due to its lack of data.

**Minimum Viable Product (MVP)**

In the executive documentation, it is mentioned that the concept of MVP was not adapted until the 2nd month after the idea creation. The startup had the initial premise of following the normal new product development steps of:

1. Concept
2. Development
3. Test
4. Release
Planning on developing the initial version of the job-portal according to what they internally viewed as “value” to the customer, subsequently testing it, and then releasing it to the market. After the realization that their value proposition was purely based on hypothesis, and moreover emphasized after a consultation with a business consultant within ALMI, it was conducted that a MVP (Denoted as a BETA within the startup) was in need to increase their chances in releasing a product closer to the needs of the market. Furthermore, another motivation for the development of their MVP was to decrease development costs. The startup had at that time no programmer in the team, hence needed to outsource the development to an external party.

Due to the lack of programming competence within the team, the MVP version of the web-tool and app was generated through detailed photo-shopped images created by the startups art director. The images were then rendered through a mock-up application called Invision, which interlinked the images through applying interactive digital buttons, shown figure 4. Resulting in a version of the product where the user could navigate through the digital platforms, but without real-world application. Limiting the experience and the aspects of what could be investigated within the MVP solely to:

- The interface
- The user friendliness
- What functions needed to be excluded / added

The drawback of this representation of the products was that the supposed “value proposition” for the applicants of being protected against recruitment prejudice could not be investigated.

The initial purpose of the MVP according to the CFO of the startup: was to find aspects within the web-tool and app that were in need of improvement to decrease development costs. Because of their situation of outsourcing the development, their costs went up to roughly half a million Swedish kroners, consequently making every change validated by the need of the customer crucial. Hence, due to the pivotal influence of purely decreasing cost as a focal perspective, when the MVP was created an initial test-run was structured and executed to predominantly investigate the potential flaws of their product for improvement.
The test run was performed was that the startup contacted the HR of companies within their markets segments, booked meetings and showed them the tool and gathered responses. 10 companies were contacted and reviewed, and this lead to few changes within the tool, which resulted in a level of “satisfaction” with the team, believing that this initial response was sufficient to create a product, fit for the market.

(Figure 4. Swift MVP)

The startup had lack of experience with the concept of MVP testing, hence limited their efforts solely to that singular initial test-run / feedback loop. Moreover, the concept and details of MVP was not transparent and fully consistent within the team when asked what they believed was the objective of the MVP, during their first feedback loop. Shown in table 3 where the exact quotations of each team-member are presented.

<table>
<thead>
<tr>
<th>Table 3: Team-members consistency of MVP objective</th>
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<tbody>
<tr>
<td><strong>Team member</strong></td>
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<tr>
<td><strong>CEO</strong></td>
</tr>
<tr>
<td><strong>COO, Marketing and Sales</strong></td>
</tr>
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<td><strong>CFO</strong></td>
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and spend less financial resources on the initial build”

Art Director

“Don’t really find this version of the product optimal. It doesn’t show the true potential and form of the product. So I personally doubt the information we gather will fully represent our market. But it’s a great way to market ourselves to the customer as a teaser”

Recruitment specialist, & product manager

N/A

CTO

N/A

*Both the RS&PM and CTO were not part of the startup when the initial feedback loop was performed

Lean Startup Methodology

The CEO of the company explained that due to the level of novice of the entrepreneurial knowledge that their startup had, all team members continuously indulged in articles, literature and other sources of related knowledge of how to optimize their work. The COO has had a certain experience within LEAN Management, and during a literature review for a project within his academic studies stumbled upon the concept of Lean Startup Methodology. This lead to a team-meeting reviewing the workflow of the startup, deciding that the methodology of LSM was optimal to further optimize their work.

Serendipitously, a month after this decision was made when the startup was in process of implementing LSM methods into their current workflow. The business incubator Chalmers Ventures contacted the CEO informing that their startup got accepted into their startup-camp. Which involved a 15-week boot camp revolving how to structure ones business model according to LSM.

Due to the startup since an early stage already implemented the concept of BMC and MVP, which are concepts within LSM, the transition came natural. The initial stage of LSM involving the investigating the need and problem were previously validated in the initial feedback loop in 2015, hence the focus of LSM was to improve the workflow towards
product-market fit. The CEO explained implementing LSM as “taking our current entrepreneurial efforts to the next level”. He explained it as having a solid and more holistic framework that covered a larger prospect of the startup process enhancing the workflow in a quantitative and qualitative level. The most prominent changes were how the BMC and MVP related work changed as shown in table 4.

**Table 4: Workflow variation within BMC & MVP prior/post LSM adaptation**

<table>
<thead>
<tr>
<th>Method</th>
<th>Pre adaptation</th>
<th>Post adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC</td>
<td><strong>Main purpose:</strong></td>
<td><strong>Main purpose:</strong></td>
</tr>
<tr>
<td></td>
<td>Execution:</td>
<td>Execution:</td>
</tr>
<tr>
<td>MVP</td>
<td><strong>Main purpose:</strong></td>
<td><strong>Main purpose:</strong></td>
</tr>
<tr>
<td></td>
<td>Execution:</td>
<td>Execution:</td>
</tr>
</tbody>
</table>

Addition to the revised structure of utilization of the BMC and MVP, further concepts within the LSM are currently in the process for adaptation; Innovation accounting, actionable metrics
and BML. Though, the startup has not had further implementations of the concepts, having no data or evidence of its implications, they have plans on how to utilize these concepts to optimize their work towards creating a product better fit for the market. This plan revolves revamping their old product launch strategy to a pilot-launch based on the concept of BML. Where instead of introducing their product to the market directly after initial build, it now revolves a two-phased development run:

**Pre-launch**
The product concept is further stripped down to the most essential functions derived from the pilot-company data from previous gathered feedback, before final build of the product by the outsourced company. Here the main purpose is to optimize the needed functionality of the product, reducing development costs.

**Phase 1: Pilot run, continuous feedback loops with subsequent continuous deployment**
Launched as a MVP-pilot version of the product, together with pilot-customer-companies using the product for a designated period, information and feedback is continuously gathered to further improve the products functionality, and moreover investigate and validate the specific value proposition – In other words, utilizing the concept of Build-Measure-Learn. Continuously deploying features within the product and value proposition according to the pilot-customer’s feedback and needs.

**Phase 2: Market introduction of the first commercial iteration of the product**
Phase 1 will expectantly result in both a business model and product; extremely adapted and validated by the customers. That will be launched to the market at this beginning of this phase.

The information gathering strategy utilized by the startup mentioned in the documents revolving the startups customer feedback are based by Fitzpatrick’s “The mom test”, a framework on how to optimally communicate with the customer and learn if business aspects, or the business idea in itself is viable. The CEO of the company further mentioned that they continuously share their feedback data with Chalmers Ventures and other startups, to acquire an objective input and analysis of what is being said by the customers. The startups main mediums for inquiring customer and user response data are shown in table 5.
Table 5: Data gathering structure for customer and user response

<table>
<thead>
<tr>
<th></th>
<th>Method</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers (Companies)</td>
<td>Personal Meetings - interviews</td>
<td>Segmented companies</td>
</tr>
<tr>
<td></td>
<td>Qualitative data</td>
<td></td>
</tr>
<tr>
<td>Users (Jobseekers)</td>
<td>Surveys and test groups</td>
<td>Random individuals</td>
</tr>
<tr>
<td></td>
<td>Quantitative data</td>
<td></td>
</tr>
</tbody>
</table>
Table 6: Quantitative data of utilized methods by startups prior to product launch

<table>
<thead>
<tr>
<th>Startup</th>
<th>Branch of industry</th>
<th>LSM</th>
<th>NPD</th>
<th>BMC</th>
<th>MVP</th>
<th>BML</th>
<th>IA</th>
<th>AM</th>
<th>CD</th>
<th>P.</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soundtrap</td>
<td>Music &amp; Tech</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airinum</td>
<td>Healthcare &amp; Ecommerce</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Twelve.football</td>
<td>Sports &amp; tech</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filtrics</td>
<td>Ventilation</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAAARTLAND</td>
<td>Social Media</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>NEH**</td>
</tr>
<tr>
<td>Startup x1</td>
<td>Marketing</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Startup x2</td>
<td>Tech</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Startup x3</td>
<td>Nightclubs and festivals</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Startup x4</td>
<td>Tech</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Startup x5</td>
<td>Virtual reality</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ASD*</td>
</tr>
</tbody>
</table>

Certain startup companies desired to be anonymous, hence has been denoted as “Startup x”

*Agile Software Development
**Nir Eyal Hooked
3.2 Analysis

This section correlates the empirical observations with the scientific literature findings to abductively assess if the presented utilization of methods and strategy to optimize product to market fit is viable by the studied company. The assessment is presented according to each method to increase pedagogical comprehension and assessment. Moreover, a section cover in a holistic perspective the objective of the paper the subject of entrepreneurial endeavours related to product to market fit.

3.2.1 Utilization of methodologies

The main usage of the BMC is to increase both pedagogical learning and endeavours of multivariable aspects and their relations; through effectively collecting evidence and systematically testing the hypothesis (Jackson, Scott & Schwagler 2015), which the startup utilized accordingly and consistently shown by the amount of BMC iterations resulted by adapting to faulty hypothesis. Moreover, to correctly implement the BMC methods and fully experience its benefits it was implied by Merteens 2012 that a level of pedagogical guidance is essential. The startup had since the beginning of their launch an experienced BMC user, hence could optimize their efforts within this area. However, the optimality can be discussed due to the limited time frame the company spent on educating the other teammates on the concept; being said that the sole time spent on briefing the concept was limited to one hour. Hence, this can give way to the related to the risks of redundancy, deficiency, overload, and excess (Merteens et al 2012).

The startup initially used the MVP to decrease the development costs of the product. To essentially identify the core elements of the product that solely needed to be engineered, not investigating the true value proposition and its validity, through a singular feedback session. This certain usage of the method would be quite insufficient due to the main objective of the tool is to initiate the continuous feedback loop and validated learning; resulting in continuous iterations to truly identify and validate the value proposition according to the customer (Aulet 2013). Moreover, the singular feedback loop correlates with a larger factors not truly validated, hence can result in a counter objective result according to Ries (2011) of increased development costs due to validation insufficiency. However, this insufficiency became redundant due to the change of strategy when the company implemented LSM in its entirety. The 2-phase launch strategy implemented the
concept of validated learning, and put the investigation of the value proposition in the focal point, aligning the endeavours to the true framework of the concept defined by Ries (2011). Correspondingly, utilizing this method by continuously involving the customer in the product development process gives way to three main advantages that can be acquired according to Ries (2011): increased growth in learning, decreasing development costs, but foremost creating a product more fit for the market.

The true value proposition that is being investigated, in the company’s instance of the concept of “anonymous recruitment” can pertain a discussable level of innovation. Correlating with the concept emphasized by Cooper (2013) that a product launched within a market involving: sustaining innovation, or disruptive innovation of the innovation spectrum: makes it is questionable if the startup actually is in true need of the concept of MVP and validated learning. Moreover, dependent on the market affiliated within DI or SI, executing an MVP within these markets can result risks of increased difficulty in customer conversion and market commendation (Cooper & Kleinschmidt 2011).

Implementing LSM give startup companies prerequisites of optimizing the work due to its holistic framework, socio-cognitive implications and logical way of thinking within the process of investigating the viability of a product and its related hypotheses (Harms 2015). This is empirically implied when the company mentions since the implementation of LSM the startup experienced an increased level of productivity, transparency, and overall improvement of their workflow.

The company has not implemented LSM its entirety yet; not integrated certain methods such as innovation accounting and actionable metrics. However, as the creator Ries (2011) implies, utilizing LSM can give way to further optimizing entrepreneurial work towards achieving optimal product-market fit.

The adaptation to LSM has lead to an increased quantity of customer data gathered by the company, subsequently resulting with increased decision making activities in endeavours trying to adapt the business model to this data. This directly correlates with the risks emphasized by Mcgrath (1990), Duchesneau & Gartner (1990) and York & Danes (2014). York & Danes argues that when gathering information certain biases can influence the data gathering process. Compared with the company’s strategy seen in table 6, the biases the startup has the risked to be influenced by are presented in table 2. Assessing by the users and customers the main influences in the companies data gathering strategy can be accordingly.
The pertained biases within the customer data gathering are to a certain degree moderated due to the fact that the company shares and analyses the data together with objective parties within their incubator. Which can correlate with several mitigation propositions given by York & Danes in table 2. The excluded biases are due to the fact that the information gathered are intended to be from the segmented companies. However, from the user perspective all biases are at risk due to the scope of the focus group, and selection is inadmissible. It’s moreover emphasized that entrepreneurs have the tendency of pursuing the empirical evidence to the situations favour (Duchesneau & Gartner 1990). What biases that can potentially affect the data collection is shown in table 7.

<table>
<thead>
<tr>
<th>Pertained risks</th>
<th>Excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customers</strong></td>
<td>Acquiescence bias</td>
</tr>
<tr>
<td>(Companies)</td>
<td>Confirmation bias</td>
</tr>
<tr>
<td></td>
<td>Overconfidence bias</td>
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<tr>
<td></td>
<td>Optimism bias</td>
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<td></td>
<td>Selection bias</td>
</tr>
<tr>
<td></td>
<td>Representative bias</td>
</tr>
<tr>
<td><strong>Users</strong></td>
<td>Acquiescence bias</td>
</tr>
<tr>
<td>(Jobseekers)</td>
<td>Confirmation bias</td>
</tr>
<tr>
<td></td>
<td>Overconfidence bias</td>
</tr>
<tr>
<td></td>
<td>Optimism bias</td>
</tr>
<tr>
<td></td>
<td>Selection bias</td>
</tr>
<tr>
<td></td>
<td>Representative bias</td>
</tr>
</tbody>
</table>

The startup company has not taken in account the risk that is emphasized by Heitmann (2014). Adapting the BML and MVP approach give way to risks of assuming an incorrect market picture, due to the factor of adapting the need according to the early adopters; which as Heitmann describes does not represent the whole market. Increasing the overall factor of risk if the company has the optimal product to market fit strategy.

3.2.2 Holistic assessment: Product-market fit

Referring to Grubers (2014) definition of product-market fit and the ambitions of the company; the aim of the startup is well within orthology of the concept. The startup aims for the job searching market within itself exhibits a permanent and consistent need. However, the
The question at hand is in fact if the specific solution given by the company is viable to the need of the market. The startup initial approach to adapt this solution is based on the product development concept as seen in figure 1 by Trimi & Berbegal-Mirabent (2012), which in itself in comparison to LSM / customer development does not revolve building from the customer. Hence, referring to the analysis of the implications of the LSM approach; continuously testing hypothesis and adapting the solution to the need of the customer and market correlates to a larger mitigation in aspect to what defines as poor product-market fit by Feinleb (2012). Which is failure in identifying the need and adapting the business model accordingly, adapting to trends and overall not continuously accumulating feedback from the customers. Endeavours, that are in focus within LSM.

### 3.2.3 General application of methodologies

Seen in table 6 the data gathered from multiple startups indications show the level of favourability of methods when asked which methods are utilized to optimize the entrepreneurial endeavours to achieve product to market. It’s clear that the utilization of BMC and LSM is in the majority of favourability, while the MVP concept is in total unanimity.

Two of the anonymous startups launched their products in the first quarter of 2016 has already accumulated a significant amount of net sales. Which can correlate to the concepts optimality in creating product-market fit.

### 3.3 Discussion

The main points that are in need of assessment are the ambiguous aspects of the execution of the company’s business model.

In respect to the execution of the MVP and BMC; if the company had remained within the singular feedback loop strategy it would have had a higher risk of poor product-market fit. The amount and quality of information the company would have acquired would be vastly insufficient to represent the market itself. The switch to the LSM from the traditional NPD approach in retrospect to creating a product fit for the market is more optimal, in thought of the increased amount of customer data they will accumulate. That larger data set will represent the market in more totality that the initial singular feedbacks loop. However, now switching to LSM there should be a certain level of awareness of certain key aspects:
Where the company is within the innovation spectrum

This aspect relates to the amount of endeavours a company should focus in acquiring customer feedback in continuous loops to investigate the need and problems of the market. In respect to the market the specific company is in: the job-seeking market, this market is without a doubt within the spectrum of sustained innovation. The problems and needs are well known and solved in various ways; hence a new iteration of the solution is not going to be seen as too substantial. Job-seekers our found by companies in various ways by a vast amount of competitors, hence there is a well established framework of the basic needs the startup company needs to achieve to be a viable product. This basic foundations that the competitors already use to satisfy the current customers, is what can be utilized to found the basic functions of the product through benchmarking, not customer development.

It’s the new concept of “anonymous evaluation” that is in need of investigation. But this needs real world investigation; hence the strategy of pilot launch is well suited for this specific situation. The differentiation of their product does not lie within the functionality of the product, but within implications of it.

The early adopters risk & how the factors of bias can further affect their analysis of data

The strategy adapted when LSM was implemented of introducing the initial product to the market as a pilot, not MVP may lower the standard and expectations of the product from the customer companies to a certain degree. Hence, can mitigate the risk that Kooper and Kleinschmidt discussed that a product needs to be presented in its entirety. In this situation, the company needs to be transparent that the launch is a test, and not a product being sold; to decrease the risk of being associated with a faulty product. Moreover, this approach is more optimal due to it reducing the risk of launching a product with unnecessary features. Only spending financial resources on validated functions; in comparison to the old strategy of direct launch / NPD, where certain aspects could have been overflowing or lacking, resulting in additional development cost. Conversely, the company should be highly aware of the risks within the pilot period due to the users being early adopters – not representing the market. As well as the risks of interpreting the data in a bias fashion, resulting in after the pilot period: a market iteration not fit for the market need.

In a subjective matter, the startup that is being is assessed seems to have a business model and product that is well within a market that is saturated and within sustained spectrum of the
market, hence can derive their basic strategies and functions through a benchmarking approach. However, as implied should be careful how introduce the product to the market. The pilot strategy seems to be viable approach to the risks of market neglect of presenting a non-finished product (in their case the non-investigated value proposition), due to approach giving the association of the product-test. But they need to take in account the human factor within their team of; relating to the risks of bias within decision-making and data gathering within their pilot. If optimal product-market fit is to be achieved, correct gathering and interpretation is to be at hand.

**Objectivity of the research**

An aspect that is in need of consideration is the level of objectivity within the analysis of this thesis. The business model being assessed is within a startup project the writer himself is involved with; thus can pertain a level of bias. However, the assessment was done in goal to find holes in the business model and execution to identify aspects that are in need of improvement, and risks that have been overseen; aligning the goal of the thesis with the goal of the startup, which is to scientifically assess how optimal this product-market strategy is; both in a subjective and academic manner.

**Applicability of the research**

The applicability of the thesis can as well be considered. The empirical data from the company correlated with the quantitative representation of the utilization of methods, indicate that the risks, opportunities and overall aspects that have been assessed revolving the startup endeavours; can only be correlated with a certain branch of industry within startups. The company in itself is within the Tech industry, and has an intangible product. Hence, the utilization of certain methods can differ depending on the industry and the type of product a startup are aligned with. For instance, continuous deployment is not viable for tangible products.

**Reliability and Validity**

Moreover referencing Lundahl and Skärvad (1992) to the concept of the papers reliability and validity. For instance, the reliability can be seen as sufficient given the scope of the paper: investigating the specific three methods, both giving references to advantages and drawbacks of the methods giving a two-sided and holistic perspective of the subject. If the scope were to
investigate the “best” methods, the reliability of the research would be highly doubtful, due to the lack of information of other methods. Moreover, the aspects of validity can be assessed specifically within the quantitative research. The approach was and objective was to gather the favourability of methods of existing startups, hence the method can be seen as sufficient due to its simple objective. Only needing to gather simple data. However, the validity to its implication can be discussed due to the insufficient mapping of the startups. The data gathered were not systematically mapped according to attributes such as geographic location of the startup or other factors. Hence, can indicate that the general application can be seen as flawed and insufficient to represent the actual startup market.

3.4 Conclusion
The purpose of this paper was to assess and provide key information related to methods, which a startup can utilize within the scope of idea creation and initial product launch. It can be concluded that there are several aspects a startup must consider when coordinating the entrepreneurial endeavours to achieve an optimal product to market fit. Utilizing methods that increase the cognitive and pedagogical level of comprehension between the relations of a business model has been implied to optimize the efforts to achieve this. Employing the BMC is a very useful tool to achieve this certain multivariable understanding of the complex concept of launching a startup. Moreover, methods that promote the validation of these multivariable-hypotheses give way to achieve the most ideal chances to create an optimal product market fit. The method of continuous customer feedback within the LSM is the key to validate the assumptions one has of the market; due to all information being derived from the actual end customer the product is trying to serve. However, when considering the adaptation to the LSM methods requiring continuous feedback with basis of a MVP concept; one needs to consider and assess the nature of the market and its customers which the product is trying the penetrate, in respect to the innovation spectrum. Failure of understanding the market can result in poor market introduction and increased difficulty in market establishment; due to that certain markets and niches within the sustainable innovation spectrum habituate companies with higher expectations and needs. In retrospect of penetrating a market with disruptive innovation; a MVP and BML approach give way to optimized product to market fit, due to lower expectations and high acceptance of innovation.
Moreover, to decrease the risks of poor product-market-fit, entrepreneurial endeavours should not be solely focused to external factors such as continuous customer feedback, but also the factors within the startup itself revolving how the information is gathered and interpreted. Bias can outcome in a wrong interpreted picture of the market and the need, hence resulting in a poor adaptation.

In essence, to optimize the endeavours towards the objective of product-to-market-fit, a strong comprehension of the relations between; the market and its innovation spectrum, the products nature, and the methodology and its implications needs to be at hand. Hence conclusively, adapting to methods that correlate with these specific aspects do in fact optimize the chances of creating a product fit for the market.

4. **Further research**

Due to the abductive assessment and scope of the paper, the research was limited to three methodologies. The paper in itself do not conclude that these specific three methods are the best methods, though the three mentioned methods has been proven to give way to optimal endeavours to achieve product-market-fit. However, to broaden the knowledge of this field of entrepreneurial efforts; the author promotes further assessment and research of other methodologies that can be adapted by startups within the planning-phase.
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<td>Appendix B</td>
<td>Customer Feedback Documents: BETA iteration 1 &amp; 2, Problem hypothesis test</td>
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<td>Compilation of Swift BMC / LEAN Canvas iterations</td>
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(To gain access to Appendices an NDA needs to be signed)