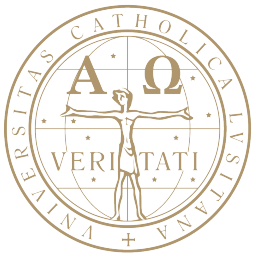

CATÓLICA LISBON
SCHOOL OF BUSINESS & ECONOMICS

UNIVERSIDADE CATÓLICA PORTUGUESA

The Lean Startup Toolkit

An Assembly Of Ready To Use Tools To Build A Lean Startup

MASTER THESIS

Dissertation submitted in partial fulfillment of requirements for the degree

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Abstract (English)

Dissertation title:
The Lean Startup Toolkit - An Assembly Of Ready To Use Tools To Build A Lean Startup

Author:
Markus Balser

The Lean Startup Methodology (LSM) has become a popular approach for many early stage startups. However, related literature is very fragmented with no clear instructions on how to use the methodology properly.

Therefore, the aim of this thesis is to create a comprehensive and ready to use toolkit for the LSM, which can be used by anyone who is involved in the process of starting a business.

In a first part of this thesis, the Business Model Canvas, Customer Development and Agile Development are identified as the key principles of the LSM. After the principles have been outlined and defined, the section continues to describe the logic of how the different principles interconnect with each other throughout the Lean Startup process.

In a second and main section of the thesis, the three key principles are explained separately in greater detail. Every principle is linked to a set of specific tools and examples of how to facilitate their usage successfully are described. Those tools do not only draw on known approaches of the LSM, but also new methods from adjacent areas have been analyzed, adapted and applied for a comprehensive analysis.

In conclusion, the thesis developed a ready to use toolkit, which comprises the newest adaption on the original Lean Startup manifesto and combined new and old concepts with practical examples. Herewith, the hampering gaps between theory and practice, which were not yet closed through the already presently available literature, have been closed.

Abstract (Portuguese)

Título:
O Lean Startup Toolkit – Um conjunto de ferramentas para a construção de uma Lean Startup

Autor:
Markus Balser

A metodologia de Lean Startup tem vindo a tornar-se numa abordagem popular para muitas startups em fase inicial. No entanto, a literatura disponível é bastante fragmentada e não apresenta instruções claras sobre a metodologia de abordagem correcta.

Consequentemente, o objectivo desta tese é criar uma ferramenta completa e de fácil utilização para o LMS, de forma a poder ser utilizada, por qualquer pessoa, no desenvolvimento inicial de um negócio.

Na primeira parte deste trabalho o Modelo de Negócio Canvas, Desenvolvimento do Cliente e Agile são identificados como princípios fundamentais do LSM. Posteriormente aos princípios terem sido identificados e delineados, segue-se uma descrição lógica de como os diferentes princípios se interconectam através do processo de Lean Startup.

Na segunda, e principal secção da tese, os três princípios principais são explicados separadamente com mais profundo. Cada princípio está ligado a um conjunto específico de ferramentas, que são descritos com exemplos de utilização sucedidas. Estas ferramentas não são só baseadas em abordagens conhecidas, mas também em novos métodos de áreas adjacentes foram analisadas, adaptadas e aplicadas de forma a conduzir uma análise mais abrangente.

Em conclusão, esta tese desenvolveu uma ferramenta pronta a utilizar, que inclui a mais recente adaptação do original método de Lean Startup e a combinação de novos e antigos conceitos com exemplos práticos. Com este trabalho as limitações que dificultaram a teoria e prática, que ainda não foram abordadas e resolvidas na existente literatura, foram solucionadas.

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List of Abbreviation

ARPA	-	Average Monthly Revenue Per Account
ARPU	-	Average Monthly Revenue Per User
BMC	-	Business Model Canvas
B2B	-	Business-to-Business
B2C	-	Business-to-Consumer
CAC	-	Customer Acquisition Costs
COAC	-	Cost Of Customer Acquisition
LSM	-	Lean Startup Methodology
LTV	-	Customer Lifetime Value
MVP	-	Minimum Viable Product
SaaS	-	Software-as-a-Service
SAM	-	Served Available Market
SEM	-	Search Engine Marketing
SEO	-	Search Engine Optimization
TAM	-	Total Addressable Market
VPC	-	Value Proposition Canvas

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1 Introduction

1.1 Problem Definition and Objective

Startups usually develop products under conditions of great uncertainty. Therefore, the concept of the Lean Startup, which adds a scientific component to starting a company, gained wide popularity over the last years and is a process a lot of startups follow today. The approach is already practiced in 631 cities and 83 countries around the world, and is growing further.[1] Its main benefit for startups is to get feedback from an early stage onwards on their business or idea, thereby reducing the risk of wasting time and money on something nobody is interested in.

However, while searching through the literature one can notice that there is no sufficient tool, which can be used to follow step by step during the entire Lean Approach. In addition, the original Lean Startup manifesto is already four years old, a long time in this fast moving environment. This deficit is enhanced when considering the fact that one of the three main principles the Lean Approach draws on nowadays was not yet developed, when Ries´ book "The Lean Startup", which builds the core of the movement, was initially published. Over time the developed content and methods were evolved and updated and new approaches have been brought together through blog posts, articles and presentations from several practitioners. Nevertheless due to their nature, these newly added methods and recommendations are usually fragmented and tied to a specific issue, without showing the big picture. Furthermore, a lot of times the recommendations are general in nature and do not indicate a specific action. To implement them, one has either to conduct further research or sign up for expensive one-on-one workshops.

> *"Though Business Model Generation was already pretty practical we didn't really follow a step-by-step approach, which is typically something you would get in a training workshop or from a consultant."*
>
> -Alexander Osterwalder

Being interested in entrepreneurship myself; I was personally confronted with the described research gap. Therefore, the aim of this thesis is to fill this research gap by creating a ready and easy to use toolkit, which includes all principles and the newest approaches used in

[1] Effective 19.03.2015 (http://lean-startup.meetup.com)

practice. The toolkit is intended for everyone who is eager to start a business using this approach, professors that teach it or incubators or mentors, who are involved in the process of building a business.

1.2 Course of Investigation

The thesis is split into three parts; The first part is a literature review on the principal of the Lean Startup. This part will outline the main principles and the logic behind the Lean Startup Methodology (LSM). The second part presents the development of the toolkit, with the focus on the three pillars: Business Model Canvas (BMC), Customer Development and Minimum Viable Product (MVP). All three pillars are looked at in more detail, by providing explanations on how to use them and by providing examples from the real world. The last part of the thesis will be the conclusion with the final outcome of the research and the recommendation for the future.

1.3 Data Collection

Being still a quite young approach, the data collection for this thesis is more practical oriented. Most of the concept's success has not yet been proven empirically and therefore relies on stories from peopled who pioneered the approach or entrepreneurs that gathered practical experience by applying the approach. Therefore, the collected data for this thesis will not just be limited to classical literature, such as books and academic journals, but rather extended to experience reports, blogs, videos and lecture slides. Nevertheless, trying to ensure validity of those, only protagonists who showed experience and knowledge about the methodology have been included. Knowledge has either been demonstrated through written work or teaching and mentoring engagement, which reflects in reputation, popularity and activity. In addition, practical experiences from applying the methodology or being involved in a startup have been anticipated, with the aim to gather best practices and real life examples.

2 Lean Startup Movement

The Lean Startup is a term popularized by Eric Ries, first through his blog and later through his bestselling book "The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses". Ries' inspiration for the idea of the Lean Startup can be found in the philosophy of lean manufacturing (Ries, 2011). Lean

manufacturing has its origin within Toyota in Japan and describes the process of decreasing cycle time and minimizing waste throughout the entire production process, in order to create value through qualitative products (Womack & Jones, 1996). Ries adapted this process to entrepreneurship, with the idea of bringing a new development approach to building innovative products and startups (Ries, 2011). The aim is hereby to decrease waste in order to increase the probability of successfully building a startup, given the fact that startups are creating products or services under conditions of great uncertainty (Ries, 2011). The improvement of success is reached through fast iterations and validated learning, which means learning how to build a sustainable business by constantly running experiments. This calls for startups to pass through a build-measure-learn feedback loop relentlessly, which lies at the core of the Lean Startup model. The build-measure-learn loop describes a process that starts by generating ideas, leading to build a product or experiment and finally measuring the expectations throughout the experiments. Moreover, its central aim is to learn from the experiments´ outcomes and as a result possibly update the old ideas respectively, generating new ones, before entering the loop again. It is important to note that the step "build" does not necessarily imply a final product as an outcome, but rather something that can be used for testing (Blank, 2015). Figure 1 shows a graphical illustration of a standard build-measure-learn loop. Blank recently updated the loop by renaming the terms to reduce ambiguities. The adopted loop is illustrated and explained in Appendix 1.

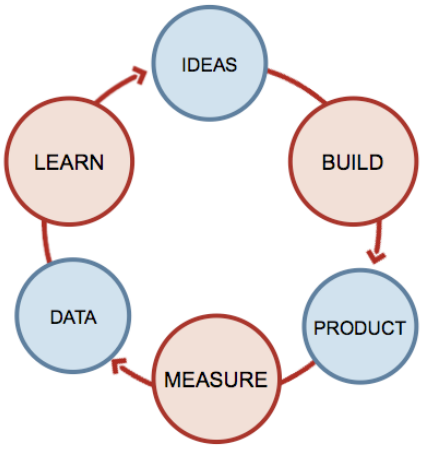

Figure 1: Build-Measure-Learn Loop

In order to execute the loop properly, the LSM draws on three key principles. Firstly the "BMC", a tool to describe a business model in one page using the nine core building blocks of a business. Secondly "Customer Development", a process for testing hypotheses and assumptions made about the product or service by talking to potential customers. Thirdly, Agile Development, by using a "MVP", a product with core features to gather feedback

(Blank, Engel, & Hornthal, 2014). Each of the three tools has a specific function within the Lean Startup process, as explained in the following.

At the beginning of every venture an entrepreneur starts with a vision. This vision and its underlying business assumptions are captured in the BMC. However, the BMC is not static, but rather a scorecard, which is updated regularly with new insights throughout the further progression (Blank & Dorf, 2012b). In the next step of the process, a startup translates the assumptions of the BMC into falsifiable hypotheses. Those hypotheses are then tested, utilizing the Customer Development model and the MVP, which is embedded in the Customer Development process.

In the first phase of the Customer Development model, the Customer Discovery phase, several rounds of interviews to potential customers are conducted. In the first round of interviews, a startup wants to test its problem hypotheses in order to validate whether the identified problem is worth solving. In case the hypotheses have been invalidated, a startup has the option to exit, iterate or pivot, meaning it changes strategy while keeping the overall vision. (Cooper & Vlaskovits, 2010). Using the terminology of the build-measure-learn loop for the just described process: A startup "builds" a problem interview, it "measures" the interview outcome against the expectations and "learns" from the outcome in order to update the BMC and retrieve further actions. This loop is repeated until a startup validated its problem hypotheses and found a problem worth solving (Osterwalder, Pigneur, Bernarda, Smith, & Papadakos, 2014).

After the problem has been identified a startup enters a new loop and "builds" its solution accordingly, representing the first Prototype. Afterwards it "measures" the responses to the proposed solution through another round of interviews, in order to "learn" if the solution matches the identified problem. From the outcome of the interview a startup has again to decide whether to exit, iterate or pivot (Osterwalder et al., 2014).

In case all hypotheses of the problem and solution were validated, a startup found problem/solution fit and continues with the next step of the Customer Development process, the Customer Validation phase (Osterwalder et al., 2014). During the Customer Validation a startup "builds" a MVP and starts selling it to early customers. The selling process is then "measured" by using priorly defined metrics in order to "learn" and propose new actions. After every round of testing, a startup has still to decide whether to exit, iterate or pivot. This

process is repeated until a scalable business can be validated (Blank & Dorf, 2012b). If scalability cannot be found, a startup might pivot within the Customer Validation phase or pivot all the way back to Customer Discovery phase.

To summarize the LSM, it can be concluded that the three principles: BMC, Customer Development and MVP are means to test hypotheses while running as quick as possible through a build-measure-learn loop in order to reduce waste.

3 The Lean Toolkit

After the three main principles of the LSM have only been introduced briefly in the previous chapter, this section of the thesis will present the developed toolkit and explain the principle in more detail. The toolkit will start with tools for the BMC, followed by tools for the Customer Development model and conclude with those of the MVP.

3.1 Tools For Business Model Canvas

As the BMC is used to capture a founder's initial vision, the BMC is the first principle that will be elaborated for the toolkit, in the following section.

The BMC by Alexander Osterwalder is a tool with the aim to create a shared language for describing, measuring and manipulating business models and accordingly creating new strategies. A business model is hereby defined as the foundation of how an organization creates, delivers and captures value. The canvas itself consists of nine building blocks, which reflect the core areas of a business, in order to make money (Osterwalder & Pigneur, 2010). Another practitioner, Ash Maurya, adapted the canvas with a stricter focus on early startups. Therefore, Appendix 2 will take a closer look at this canvas as well.

In the following section, the building blocks of the original canvas, which can be seen in Figure 2, are analyzed in greater detail, presenting practical examples of Nespresso, Nespresso is a brand by Nestlé, which popularized portioned premium coffee through capsules. Another example of a successful business model can be found in Appendix 3.

Against natural intuition, the BMC is used from right to left starting with the Customer Segments, which embrace the heart of a business. Afterwards, the Value Proposition is defined, followed by the Channels, Customer Relationship and Revenue Streams. Lastly, the

Key Resources, Key Activities, Key Partners and the Cost Structure are filled (Strategizer, 2011).

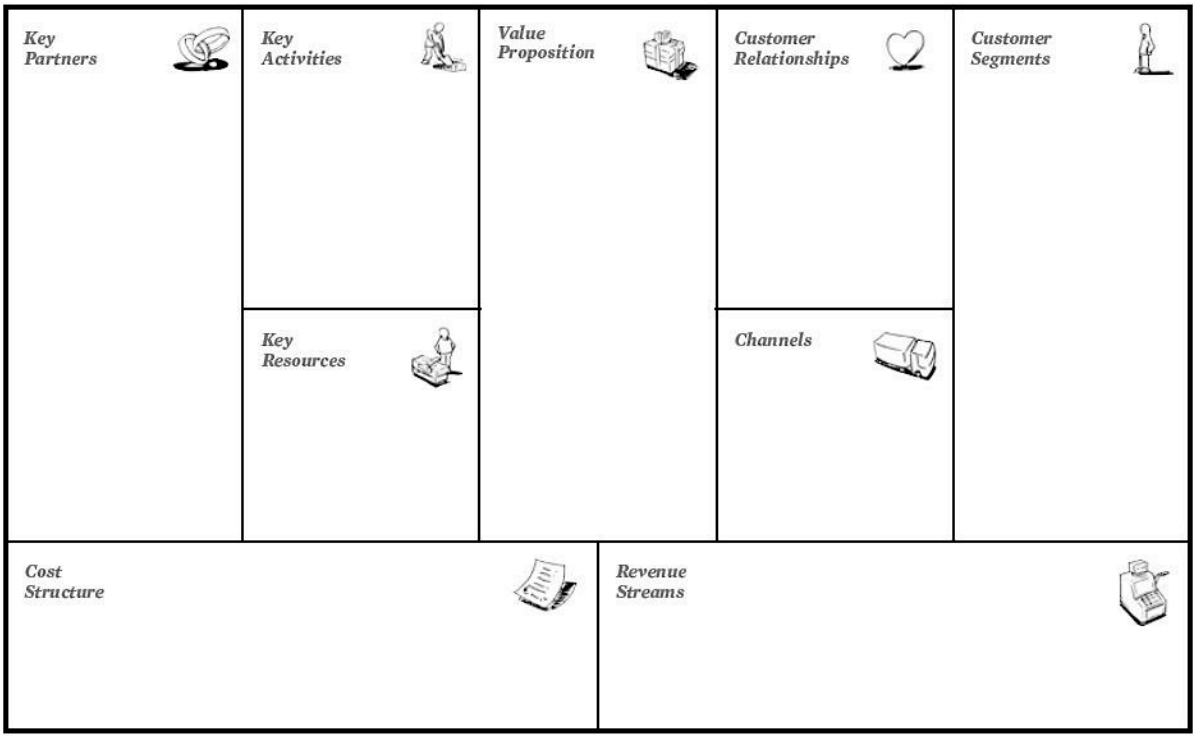

Figure 2: Business Model Canvas

3.1.1 Customer Segments

A customer segment represents the different groups of customers or enterprises a business wants to reach and serve. Since customers are at the heart of every business, a startup should start with segmenting the customers into different groups, to better serve and satisfy their needs. The different types of customer segments are presented in the following (Osterwalder & Pigneur, 2010).

Mass Market: In this case a business does not distinguish between different customer segments and addresses rather a large group of customers with mostly similar interests. An example would be Nescafé from Nestlé, serving instant coffee to households in general.

Niche Market: A business that targets a niche market is focused on a small subset of the market, which represents a specific and specialized customer segment. Often times an example for niche market can be found in the automotive industry, where small car part manufactures are specialized in producing a specific part for an automobile manufacturer.

Segmented: A segment defines a group of people with the same problem and needs. Some business models focus on more than one target customer and therefore define different segments, which differentiate slightly in their needs and problems. Nespresso for example focuses on two customer segments, households and offices. Both segments have similar, but slightly varying needs and problems (Osterwalder & Pigneur, 2010).

Diversified: In contrast to a segmented market, a diversified customer segment occurs, when a business focuses on customer segments, which are unrelated to each other, having different needs and problems. Amazon for example diversified its retail customer segment by offering online storage space and on-demand server usage.

Multi-sided Platform: A multi-sided platform or multi-sided market occurs when a company serves two or more independent segments. Both segments are hereby necessary in order to make the business model function (Osterwalder & Pigneur, 2010). EBay for examples needs buyers as well as sellers in order to make the platform work.

Customer Segmentation Tool

In order to define the right customer group and address the according segment adequately, specific segmentation criteria should be applied. The following segmentation tool section will outline an overview of categories and variables, which give assistance in the process of defining a meaningful customer segment.

In general a market can be separated by using four types of segmentation: Demographic Segmentation, Geographic Segmentation, Psychographic Segmentation and Behavioral Segmentation. Each category consists of different variables, as it can be seen in Figure 3.

Hereby, Demographic and Geographic variables are hard facts and therefore easier to measure. Even though, Psychographic and Behavioral variables are rather soft facts, which cannot be measured easily, they can give a higher predictability of the consumer choice behavior, which is relevant to create the right product for the right customer.

Category	Variables	
Demographics	- Age - Gender - Social Class - Stage in life	- Occupation - Income - Ethnics Group/Religion - Purchaser vs. User
Geographics	- Region - Country differences	
Psychographics	- Self-concept - Personality - Lifestyle	
Behavioral	- Brand loyalty - Extent of Usage - Usage situation - Benefits desires	

Figure 3: Customer Segmentation

In order to create a valid customer segmentation, different criteria should be met, such as those outlined below (Solomon, Bamossy, Askegaard, & Hogg, 2013):

- Consumers have similar product needs within one segment, which differ with needs of other segments
- Differences among segments can be identified
- Segment is large enough to be profitable
- Consumers in a segment can be reached through certain marketing activities
- Consumers within a segment will react to the designed market activities

Example: **Urban Ladder**, an Indian ecommerce shop for furniture, defined its target segment as, families who live in urban cities, earning upwards of one lakh[2] per month and are digitally savvy, probably married and who have recently bought a new house or are set to move into a newly rented house. As it can be noticed from this practical example, Urban Ladder used at least one variable of each category to narrow down its target customer (Rammohan, n.d.).

3.1.2 Value Proposition

The Value Proposition describes the value that is created through the company's product or service for a specific customer segment. Hereby, it solves the customer problems and serves its needs and is the reason why customers choose this particular product over another.

[2] One Lakh represents the number 100.000 and stands in the context for 100.000 rupee (≈1.435 Euro)

Value for the customer can be created through a mix of characteristics, whether they are qualitative, such as design, or quantitative, such as price. Elements, which can contribute to the creation of value are:

- ***Newness*** by satisfying a new need
- ***Performance***, by improving a product or service
- ***Customization***, by tailoring products and services to a customer's individual needs
- ***Design***, creating value for some, but is hard to measure
- ***Brand/Status***, creating value to an owner of a product by showing value to others such as wearing a Rolex
- ***Price***, by offering lower price for price sensitive users
- ***Cost reduction, Accessibility***, making products and services available for a wider user group
- ***Convenience/Usability*** by making it easy to use *(Osterwalder & Pigneur, 2010)*

After identifying the appropriate Value Proposition, a startup should come up with a clear statement, which states how the product is solving the customers' problems, how it is delivering value and why the customer should choose the product instead of a competitor (Laja, 2012). In addition, this statement should be clear and easy to communicate to stakeholders (MaRS, 2012a).

Nespresso's Value Proposition for example is: "High-end restaurant quality espresso at home" (Osterwalder & Pigneur, 2010).

Value Proposition Tools

In the following two tools, which help to define the Value Proposition, are presented and explained. Those tools are the Value Proposition Canvas and the Value Curve.

Value Proposition Canvas

The Value Proposition Canvas (VPC), also introduced by Alexander Osterwalder, is a plug-in tool for the original BMC. Instead of focusing on the entire business model, the VPC specifically focuses on the Value Creation for the identified Customer Segments in the BMC (Osterwalder, 2012). The aim of the VPC is to explain in detail how products and services are created, which are desired by the customers (Osterwalder, 2014). Hereby, the VPC consists of

two elements, the Customer Profile on the right and the Value Map on the left, which create a fit between each other. Similar to the BMC, the VPC is used from right to left. First the Customer Profile has to be understood, to create a matching Value Map.

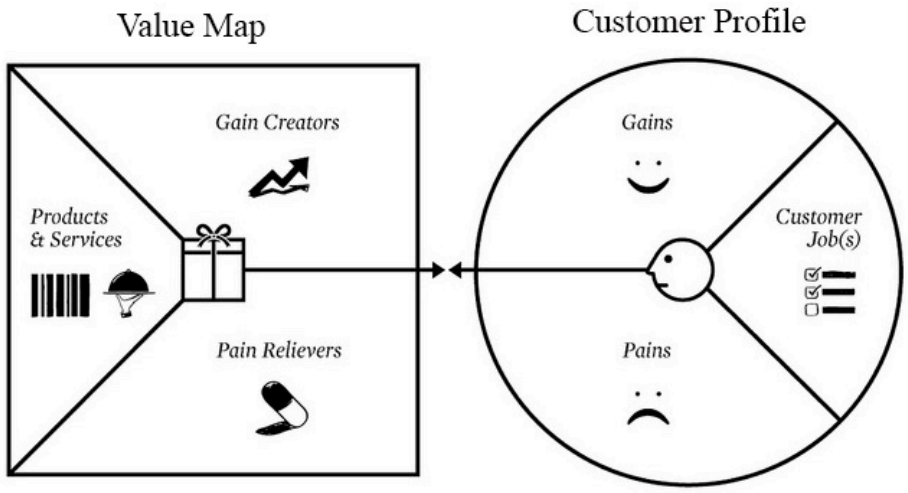

Figure 4: Value Proposition Canvas

The **Customer Profile** represents a specific customer segment previously defined in the BMC. To better understand the needs of this specific customer segment, the customer profile uses three building blocks: The first block describes the ***Customer Jobs***, which are tasks a customer wants to accomplish, either in his private live or professionally. The next field describes the ***Pains*** a customer is experiencing before, whilst or after solving his jobs. Finally, the last field of the customer profile lists the ***Gains*** a customer is hoping to get from solving the job. Some outcomes are hereby expected or desired and others would surprise the customer (Osterwalder et al., 2014). Similar to the BMC, the VPC should use different Customer Profiles for different Customer Groups (Garner, 2015).

As an example for private persons, Nespresso could define the ***Customer Jobs*** as, brewing high quality coffee, enjoying good coffee at home and serving good coffee to guests. The ***Pains*** a customer is experiencing are expensive espresso machines and the maintenance of machines. The ***Gains*** a customer is hoping for are fast and tasteful espresso and easy to handle machine.

The **Value Map** on the left breaks down the value proposition of a business and describes it in a more detailed way, by also using three fields. The first field describes the ***Products & Services*** a startup is offering, in order to help the customer accomplish the jobs. The next field describes the ***Pain Relievers***, which represent the solution to the experienced customer

pains before, during or after accomplishing the jobs. Hereby, a startup is focusing on the most urgent pain, instead of trying to address every pain point. The last field, ***Gain Creators*****,** lists how the products or services create a customer gain. Similar to the pain relievers, a startup should only focus on the important gains and not on every gain (Osterwalder et al., 2014).

The ***Products or Services*** in the Nespresso example are coffee machines with an easy to use capsules system. The ***Pain relievers*** are realized through moderately priced machines and true espresso experience. Finally, the ***Gain creators*** are the brand and shopping experience as well as the elegant machine design.

Value Curve

The Value Curve or Strategy Canvas is a strategy framework to map one's own Value Proposition against the current state of the market space. The concept emerged originally from the Blue Ocean approach, because it shows where a company can differentiate itself from other market participants and find a niche, respectively a Blue Ocean, to market itself. Hereby, the horizontal axis accounts for the range of factors important for the industry and the vertical axis for the offering level, where high means the company is offering more and vice versa (Kim & Mauborgne, 2005).

The Figure on the next page shows an example of the Value Curve of Cirque du Soleil in comparison to regular circuses. As one can observe, Cirque du Soleil differentiates itself in the offered value and even added some new factors on the horizontal axis. Contrastingly to regular circuses, Cirque du Soleil does not include any start performers or animals in their show. They also cut out aisle concessions and multiple show arenas, which are usually found in a circus. In this characteristics Cirque du Soleil already differentiated itself. Even further, Cirque du Soleil added themes, a refined watching environment, multiple productions and artistic music and dance, things a regular circus does not offer at all. Therefore, Cirque du Soleil was also able to charge a higher price for their shows.

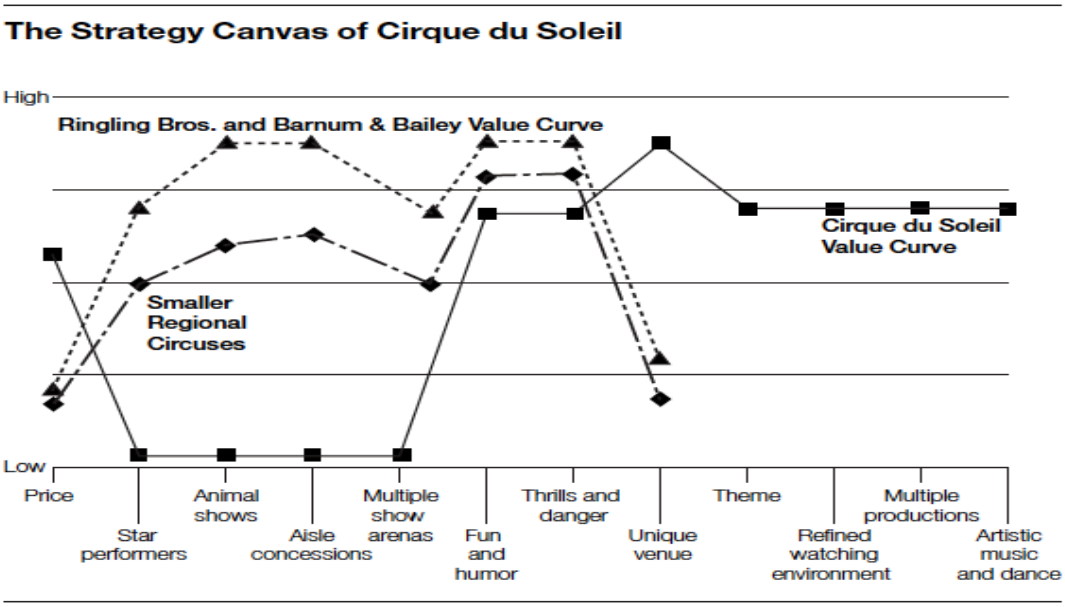

Figure 5: Value Curve Example Cirque du Soleil

Since an entrepreneur usually tries to solve a problem, which has not yet been solved, the value delivered should differentiate itself from existing solutions. Existing solutions do not necessarily have to come from direct competitors, but also from indirect competitors solving the current customer`s pain. This can be seen currently in Germany, where startups for intercity busses are on the rise, competing mainly against German Railways.

The Value Curve offers a nice overview, which sets the base for the Value Proposition hypotheses that need to be tested afterwards.

Appendix 4 includes two additional tools, which are not directly part of the BMC, but which logically follow the Customer Segmentation and the Value Proposition. The two tools enable a startup to predict the market size and identify the market a startup is operating in.

3.1.3 Channels

Channels define how the company is reaching and delivering its value proposition to the pre-defined customer segment. The communication, distribution and sales channels connect the company with the customers and have several functions, such as raising awareness of the products, helping the customers to evaluate the value proposition, allowing to purchase the product or service, delivering the value proposition or providing post-purchase service. The channels can be differentiated into direct and indirect channels, as well as owned and partner channels. Owned channels include a Sales force, Web sales or Own Stores and Partner

channels include Partner stores and Wholesaler. An overview of the channel types and the phases are can be found in Figure 6.1

Channel types			Channel phases				
Own	Direct	Sales Force	**1.Awareness** How do we raise awareness about the company's products or services?	**2. Evaluation** How do we help customers evaluate our organization's Value Proposition	**3.Purchase** How do we allow customers to purchase specific products and services	**4.Delivery** How do we deliver a Value Proposition to customers?	**5.After sales** How do we provide post-purchase customer support?
		Web sales					
	Indirect	Own Stores					
Partner		Partner Stores					
		Wholesaler					

Figure 6: Channel Types and Channel Phases

Within the five phases, a startup is not fixed of choosing just one channel type, but also a mix is possible (Osterwalder & Pigneur, 2010). This means a startup could create Awareness through a Salesforce and the purchase is made through the Owned Stores.

Besides from differentiating between Partner and Owned types, Channels can additionally be differentiated between Paid and Free. Free channels are Search Engine Optimization (SEO), Social Media and Blogging. Important to note is, that free channels are not completely free per se, since they involve costs for human resources. Paid channels are: Search Engine Marketing (SEM), Affiliates or Offline ads (Maurya, 2012a).

Again in the example of Nespresso, a mix of channel types was chosen. Nespresso uses its website nespresso.com, which is owned and direct, as well as Nespresso boutiques, which fall in the same category. Both are used for sales, as well as marketing and brand building. In addition, Nespresso uses call centers for customer support, which are partner and indirect. Finally, Nespresso also uses the partner and indirect channel of wholesale for its machines as well as mail order.

3.1.4 Customer Relationship

The block Customer Relationship explains the relationship between the company and the customers, which can either be very personal or automated and impacts the customer experience. Customer Relationship is also influenced by the motivations of a company, whether it uses Customer Relationship for acquisition, retention or boosting sales. In addition, Customer Relationship is also tied to the customer segments and value proposition, because

based on those two blocks the customers might already have an expectation of the relationship (Osterwalder & Pigneur, 2010). For example, if a customer buys a new security software product, the expectation would be to have a personal service with updates, help and support (MaRS, 2012b). Osterwalder categorizes Customer Relations into six groups, which may co-exist within a company's strategy.

- ***Personal Assistance***, which is based on human interaction throughout the sales and aftersales process as described in the previous software example. Interactions may hereby occur at the point of sale, via telephone, email or other mediums
- ***Dedicated Personal Assistance,*** representing the deepest form of relationship with a dedicated customer representative for a specific customer, as often found in private banking
- ***Self-Service***, with no direct relationship to the customers, such as a self-service gas station
- ***Automated Services,*** which is a mix of self-service and automation in order to offer a more sophisticated relationship. Examples are online profiles, which recognize customers and their data, in order to provide information related to their account. Amazon is using automated services, by showing the order history and by recommending books and other article based on previous purchases
- ***Communities*** can be used to interact with more customers and prospect customer and facilitate connections to a community. GlaxoSmithKline, a pharmaceutical company, used a private online community to understand challenges of overweight adults to manage expectations for their new weight loss product
- ***Co-Creation*** occurs when companies use customers to create value for other customers. Examples are Amazon inviting customers to write reviews for other customers or YouTube using users to create content of consumption for other users

In the example of Nespresso, the customer relationship is managed through the Nespresso club, which offers advice from coffee specialists, technical support, personalized contact, invitation to exclusive events in boutiques and convenient delivery service. The Nespresso example can therefore be seen as a mix of Personal Assistance and Automated Service.[3]

[3] n.A., Website Nespresso Club

3.1.5 Revenue Streams

Revenue Streams is the block that defines how a company will make money from the Customer Segment. Revenue Streams can either be transactions based on one-time payments or recurring revenues based on ongoing payments. Osterwalder divided the ways of generating revenues into seven categories.

- ***Asset sale***, where a company sells the ownership of a physical product, such as Fiat selling a car.
- ***Usage fee*** occurs when a customer pays per amount of service. This is usually found in mobile contracts, where customers pay per minute or in hotel where customers pay for the usage of a room
- ***Subscription fee***, generates revenues through selling continuous access, such as a monthly gym membership
- ***Lending/Renting/Leasing*** generates revenue through giving away the right to use a product for a restricted time, such as renting a car for a weekend.
- ***Licensing*** gives permission to customer to use protected intellectual property for a licensing fee. Lego for example used licensing, to use characters from movies such as Star Wars or Batman
- ***Brokerage fee*** generates revenues through providing service on behalf of two or more parties. Examples are Credit card companies, which keep a percentage of each transactions or real estate agents taking a commission for matching buyer and seller
- ***Advertising*** creates revenue through advertising products or services (Osterwalder & Pigneur, 2010)

Even though pricing is part of the final revenue, it is a different decision. However, pricing should not be decided on day one when filling out the BMC. First of all, the value of the solution should be explored throughout the Customer Discovery phase, as it will be described below, because without knowing the value of the solution it will be difficult to decide on a price (Morelli, n.d.).

In the Nespresso example, revenue streams are generated through the sale of the machines and accessories representing one-time sales. However, the main revenue stream is coming from recurring sales of capsules.

Another example from the information publishing industry, which shows how a startup can derive several revenue streams from one business, can be found in Appendix 5.

3.1.6 Key Resources

Key Resources define the resources a company needs in order to deliver the Value Proposition, reaching the Customer Segment or maintain the Relationship and is therefore crucial for having a functional business. Key Resources can be:

- ***Physical***, such as machines, buildings or manufacturing plants
- ***Intellectual***, such as brands, copyrights or patents
- ***Human,*** especially in knowledge intensive and creative industries
- ***Financial***, such as cash or credit lines (Osterwalder & Pigneur, 2010)

In the Nespresso example, Key Resources are the distribution channels, which offer direct access to customers. Other Key Resources are the patent on the system and brand, which represent intellectual resource and the production plants for the coffee pads, as a physical resource.

3.1.7 Key Activity

Key Activities are main operational activities the company needs to take in order to support the Value Proposition, the Channels, the Relationship and the Customer Segment. Similar to Key Resources, Key Activities depend on the business type. Hereby activities can be either:

- ***Production,*** which includes designing, making and delivering a product
- ***Problem Solving,*** where a company comes up with new solutions to a customer problem; thinking of consultancies
- ***Platform/Network*** activities such as platform management, service positioning or platform promotion in business models with a platform as a Key Resource (Osterwalder & Pigneur, 2010)

Nespressos Key Activities are marketing, production of the coffee pads and logistics for the direct distribution.

3.1.8 Key Partnerships

Key Partnerships are the partnerships with supplier or other partners to keep the business model active. Partnerships can be strategic partners with non-competitors, coopetition, which

is a strategic partnership with competitors, joint ventures or buyer-supplier partnerships. The reasons to adapt to a partnership structure can be:

- ***Optimization or Economy of Scale*** by sharing infrastructure or outsourcing,
- ***Reduction of risk and uncertainty*** in competitive environments
- ***Acquisition of resources or activities***, for example mobile phone manufactures, such as Samsung use licensing for the operating system instead of developing it in-house (Osterwalder & Pigneur, 2010).

In the Nespresso example, Key partners are the coffee machine manufactures and the coffee growers, because they are not produced in-house.

3.1.9 Cost Structure

Finally the Cost Structure lists all costs in order to operate the business. Hereby, businesses usually can be differentiated between a cost-driven model, where costs are held to minimum with a maximum of automation and outsourcing, as it can be found in the cases of Ryanair or easyJet and value-driven models, which represent the opposite. Additionally, the cost structure can be subdivided into:

- ***Fixes costs***, such as rents and salaries,
- ***Variable costs***, that rise with the produced volume,
- ***Economies of scale***, where costs sink with increasing output and
- ***Economies of scope*** where costs are reduced through an increase in operations, for example when one marketing or channel activity can support different products (Osterwalder & Pigneur, 2010)

In the case of Nespresso, the costs that are needed to run the business are manufacturing, marketing, the distribution and channels.

3.2 Tools for Customer Development

The next principle that will be developed for the toolkit is the Customer Development model, the next step in the Lean Startup process, by taking the captured assumptions of the BMC to test and validate them through interviews.

Customer Development is a four-step model, developed by Steve Blank, with a close to the market approach to discover and validate a business idea with the help of customer interaction.

The aim of the interaction is to minimize uncertainty, by identifying the right market and developing a product and product features that are requested by customers of the identified target, in order to solve their problems and needs (Cooper & Vlaskovits, 2010).

The four steps of the model are: ***Customer Discovery***, with the aim to validate the identified problem, product and customer hypotheses through customer interviews; ***Customer Validation***, where a startup starts selling to early adopters to validate a repeatable sales process and the scalability of the business; ***Customer Creation*** with the goal to grow the business further by focusing and investing on marketing and sales to create demand; ***Company Building***, the step where startups transit into a mission oriented company with structures and departments.

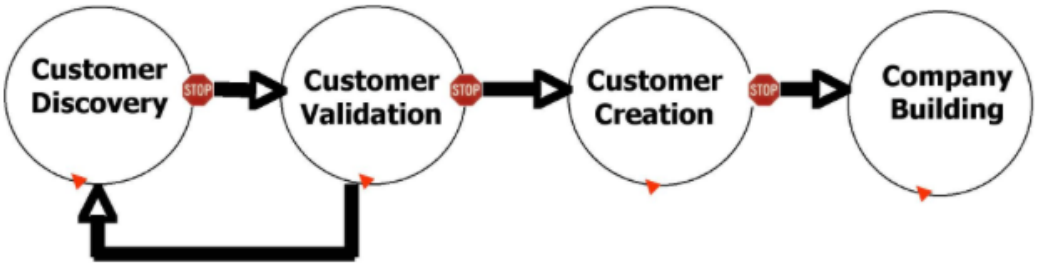

Figure 7: Customer Development Model

The first two steps act hereby as a search process for finding a business model and therefore imply to stay agile while making iterations and adoptions, whereas the last two phases are execution oriented (Blank, 2013a). Due to the focus on early stage tools for this thesis, the last two steps of the process will not be examined in greater detail in this work. The following section therefore presents tools for the first two phases of the Customer Development process.

3.2.1 Customer Discovery Phase

The following section will outline the customer discovery phase, which can be divided into a pre-interview phase, the problem and solution interviews and a post-interview phase. The pre-interview phase has the purpose to prepare the interviews, in order to gain the greatest learning from those. The problem interviews try to validate the identified problem, whereas the solution interviews try to validate the proposed solution using a prototype (Maurya, 2012a). During the solution interviews a startup is additionally learning about the market segment, the pricing strategy and sales channels, in order to acquire customers more efficiently in the subsequent Customer Validation phase (Cooper & Vlaskovits, 2010). Throughout the problem and solution interviews a startup wants to validate the right side of

the BMC, which includes the blocks Customer Segment, Value Proposition, Channels, Customer Relationship and Revenue Streams. Therefore, a startup might conduct several rounds of problem interviews and several rounds solution interviews. In this process of deciding whether to iterate or not, the post-interview phase provides insights and guidelines for validation.

Pre-Interview

Before a startup can start to interview potential customers, it should translate the assumptions from the BMC into testable hypotheses (Blank, 2013b). Afterwards, potential interview candidates have to be found and contacted and the interviews have to be prepared. Therefore, the following section will outline how to translate hypotheses and how to get in contact with the target group, as well as it will explain how many interviews are necessary and finally give advice concerning the interview process itself.

Translate Hypotheses

In order to understand how to translate assumptions into hypothesis, first of all it has to be understood what a hypothesis really is. A definition of a business hypothesis can be given as: "*Something that needs to be true for your idea to work partially or fully but that hasn`t been validated yet."(Osterwalder et al., 2014)* In addition, to make a hypothesis a falsifiable hypothesis, it has to be a statement that can be clearly proven wrong. A definition can be given by the equation:

Falsifiable Hypothesis = [Specific Repeatable Action] will [Expected Measurable Outcome] (Maurya, 2012a)

An example Maurya uses for a channel hypothesis is: "Being known as an "expert" will drive early adopters" versus "A blog post will drive 100 signups". The first statement is formulated vague and cannot be proven clearly wrong, whereas the second statement can (Maurya, 2012a). However, since a startup is in its early days, it is sometimes difficult to set a specific hypothesis goal. To overcome this uncertainty, benchmarks from similar companies can provide a guideline (Ries, Dillard, & Eisenmann, 2014).

Contact Target Group

Even though the target group has been defined, getting in touch with them can be challenging. In order to initiate, the following steps should be undertaken:

1. Founders should write down five names of friends they know who share the same characteristics as their target group and contact them.
2. Founders should search through Facebook, Twitter and LinkedIn in order to contact another five people with similar characteristics.

In addition, both groups should be asked, if they could enable introductions to other people, which share the same characteristics. However, one has to be aware to handle the answers from friends with care, since those might rather be friendly than honest about an idea. Therefore, the idea is to use friends as a finder for other people (Cooper & Vlaskovits, 2010). Appendix 6 discusses this technique, which is also known as snowball sampling, and additionally includes an email template for referrals.

Two other steps that can be undertaken are Cold Calling or Emailing, where however response rates are most likely to be lower. Especially, emailing can be useful, when a landing page for the product and its UVP have been set up and people already signed up for it. Those signups can be reached out to for potential interviews (Maurya, 2010). Appendix 7 provides an example template for cold calling and cold emailing.

Apart from landing pages, also a blog with useful content about a problem can be helpful to get in contact with the target audience (Maurya, 2012a). A great example for a blog, which is providing relevant content for its target audience, is HubSpot a company for inbound marketing and sales software.

How many interviews?

Analyzing the recommendations of practitioners such as, Blank, Maurya and Wilcox, it can be concluded that a range of ten to twenty interviews should be dedicated for each round of interviews (Blank, 2013a; Maurya, 2010; Wilcox, 2014). A study by Griffin, Hauser, Gaskin, Katz, and Klein (1993) also showed that in a homogenous customer segment, 20-30 customer interviews are sufficient to identify 90% of all possible product requirements. However, it is important to note that the recommended amount is per round. Since a startup is taking several

iterations to test different hypotheses, the total amount of interviews might be as high as 100 interviews. This amount of data is also necessary to later extract insights (Guggenheim, 2013a). To start the interview process, both Maurya and Blank, recommend scheduling three interviews per day (Blank, 2013a; Maurya, 2010).

Even more important than the number of interviews are the patterns and insights gained throughout the interviews. After some interviews, the same problems and needs should arise and form a pattern. In case there are no new problem insights occurring, the amount of interviews can also be considered sufficient enough to stop the interviews (Wilcox, 2014). In order to identify patterns, a technique will be introduced in the section ***Insights*** further down**.** In addition to the solution interviews, Maurya adds that these can be considered over when: Demographics of early adopters can be identified, a must have problem is identified, the minimum features set can be defined, a price is found, which the customer is willing to pay and ultimately when a business can be build around the solution (Maurya, 2010).

Interview Advices

In general, before starting the interview process there are some advices to take into consideration. First of all, an interview is not about pitching a solution, but rather listening and learning about the customer and the problem. Therefore, it is recommended to ask open-ended questions about a specific event in the past. Future questions containing "would you" or "will you" should be avoided, because they lead most likely to a positive answer out of politeness (Fitzpatrick, 2014). Sometimes, it can also be helpful to bring a partner for taking notes to allow the interviewer to focus on the actual behavior of an interviewee to extract insights from the behavior (Garbugli, 2014a).

Problem Interviews

The problem interviews are the first interviews a startup should conduct, because it validates whether the identified problem is relevant enough. In the following, a problem interview structure, as well as a compilation of ready to use questions, which can be used to customize an interview script, is outlined.

Problem Interview Structure

In the beginning of an interview, an entrepreneur should ask some demographic questions to qualify the customer segment. For example, if the product is related to kids, the interviewee

can be asked how many kids (s)he has, how old they are and how they do spent their free time. Afterwards, a short story should introduce the wider problem context to see whether the context resonates with the customer. The next and main concern is now to test the problem, with the below provided questions and afterwards ask for referrals. Immediately after the interviews the results should be documented for later analysis (Maurya, 2012a).

Problem Interview Questions

In the following a list of questions, considered to be good questions, as well as bad questions will be presented. Bad questions are dangerous, because they might lead to a false positive outcome, which means it is concluded that the customer has a problem, when in reality he has none (Osterwalder et al., 2014). A good question is characterized by being open ended, tied to a specific event in the past and about the life of the customer and not about one's solution. Bad questions on the other hand can be characterized by being yes/no questions, future and hypothetical questions formed with will or would you.

For the compilation of the list, blogs, slides, articles and videos have been analyzed to gather practical proofed questions. The list of sources can be found in Appendix 8. The questions, that were mentioned most frequently were selected and included in the presented excerpt.

Good Questions:

- Do you find yourself doing X?
- Do you find process X painful?
- Take me through the last time you had this problem? What happened?
- What was the hardest part? And why?
- How do you currently solve this problem?
- What do you like/dislike about the current solution?
- What is the impact of the pain?
- What do you wish you could do, that is currently not possible?
- How much money does this problem cost you?
- Is there a budget for this?
- Who else has this problem? Can you refer me?
- If I would not have called on you personally, how could I reach you?
- 5 why´s method[4] (if appropriate)

[4] The 5 why´s method is a approach to ask 5 times why in a row to every answer to get to the bottom of a problem

Bad Questions:

- Would you use this product?
- Do you think it is a good idea?
- Do you want feature X? (Most likely answer: yes)
- How much would you pay for this?
- If we built a product that solved Problem X, would you use it?
- How would you pay for something that did X?
- Would you like your existing solution better, if it did X?
- Would you want an app that does X?

On the other hand there are not just bad questions, but also bad answers that have no value and do not offer any learning. However, some of those answers can be retaliated to make them more actionable as it can be seen in Appendix 9.

Solution Interviews

After a relevant problem has been identified, a startup is able to take the next step and develop its solution. The developed solution in this phase is through a prototype, which is not yet a MVP (please consult section 3.3. "Tools to Create a MVP" for further information). After the solution has been crafted, the solution interviews can be started. The next two paragraphs again present an interview structure for solution interviews and a template of questions to create an interview script.

Solution Interview Structure

The Solution Interviews should also start with collecting demographics and introducing the problem with a story. Additionally, the problem should be reflected with the interviewee to make sure the problem of the interview partner is addressed. In case the interviewee does not have the problem, presenting the solution will be useless for him. After the problem has been confirmed a potential solution can be presented to gather feedback on the solution and potential pricing. After this main part, it should be asked again for a follow up and potential referrals, before documenting the results (Maurya, 2012a).

Solution Interview Questions

In terms of characteristics, the questions of the solution interview meet the same requirements as the problem interview questions. The questions of the solution interviews aim specifically at testing the responses of customers to the proposed solution.

Good Questions:

- Does this product solve your problem?
- Which screenshot resonates most with you? Which could you live without?
- Is there any additional feature you think you are missing?
- If you could use this product right away, would you use it? How?
- What does prevent you from using it?
- What <*product category*> do you buy now? Why? How long?

Have to be asked together

- If this product would be available today and free, would you implement/use it immediately? If no, why?
- If the product would cost (100 times the planned price) per year, would you be willing to implement it/use it immediately?

- How do you or your company buy products like this?
- How does the approval process look like? Could you walk me through the process? Who else is involved?

Post-Interview

The post-interview phase is about validating learning and retrieving insights from the interviews, in order to indicate the next steps of action. Therefore, the next paragraph covers how to extract insights from qualitative interviews and it introduces methods to validate or invalidate hypotheses. The post interview process is executed after every round of interviews.

Insights

As stated above, in the Customer Discovery phase, insights are created using qualitative data, which is derived from the interviews. To analyze this qualitative data and gain insights, literature provides diverse and useful techniques. The most appropriate and easy to use technique is called “Cutting and Sorting” (Bernard & Ryan, 2010).

Cutting and Sorting, uses quotes and expressions, which occur during the interview and arranges those quotes and expressions into similar piles, creating themes by using post-it cards. The post-it cards can either be physically or digitally and should include the quote itself and an indication of the person who stated the quote. While compiling the quotes, it can be differentiated between splitters, which maximize the difference between the quotes, and lumpers, which reach for more overarching themes. As a recommendation, it is helpful to first split the quotes into a greater range and lump later (Bernard & Ryan, 2010). After the quotes

have been grouped a startup is able to quantify its data. In Appendix 10, a visual example from Wilcox can be found, who uses post-it notes with different colors, indicating different persons, before sorting the notes and summarizing the findings in an email for the team. By using this technique Wilcox can for example conclude that his potential customers do not know how to price their product.

Validation/Invalidation Customer Discovery

After the insights have been retrieved, the next step is to compare the previously stated hypotheses with the actual outcome of the interviews. Using the introduced technique of "Cutting and Sorting" a startup can clearly ***validate*** or ***invalidate*** its hypotheses from the Customer Discovery phase. Taking the example from Wilcox of the Insight section, Wilcox could have crafted his hypothesis as: "At least 4 people will mention that they do not know how to price their product." Through "Cutting and Sorting" he quantified the answers and would have been able to clearly validate his hypothesis (Wilcox, 2013b).

Another indication for ***invalidation*** can occur, when the customer does not mention the identified problem during the problem interview. If the problem is not mentioned directly, the interviewer can use the previously presented question and ask when the customer tried the last time to solve/use/do the specific problem and what he has undertaken to solve the problem. In case the customer has to be introduced to the problem and does not already take action towards solving the problem, he will not use the solution, because the pain is not big enough. The hypothesis can be seen as invalidated (Wilcox, 2013a).

In case a startup invalidated one or more of its assumption, it is has the chance to ***pivot***. A pivot describes when a startup changes one of its strategies, which are captured in the BMC, to reach its vision (Ries, 2011). For example, a startup might pivot on their Channel assumption, because the Channel hypothesis has been invalidated. This pivot in Channel happens while the overall vision stays the same, which is the main characteristic for a pivot.

An example for a successful pivot can be found with Zingy, a mobile media company selling ringtones and wallpapers. Zingy originally started with the assumption to deliver a B2C product, charging customers through the carrier, which was not possible on the operational side. Afterwards, it pivoted to a B2C approach, with a direct pay system through credit cards, which proved as to complicated. Finally, it pivoted one more time to a B2B2C revenue model,

where content was provided through the carrier to the customer and succeeded reaching $ 200 million in sales in 2005 (Cooper & Vlaskovits, 2010).

3.2.2 Customer Validation Phase

As elaborated above, in the Customer Validation phase, a startup starts selling its first MVP, which is optimized based on the learning from the prototype, and gathers quantitative data during the sales process. Therefore, the next section will introduce metrics, which can be used to analyze quantitative data, in order to make decisions. The section will close with a test to indicate whether a business has validated all its assumptions in order to proceed to the next stage.

Startup Metrics

As described in the introduction to this chapter, metrics enable a startup to gathered quantitative data, while selling to customers. Therefore, it is important for a startup to set up necessary tools to measure those metrics, before starting the selling process. Even though there are several analytic solutions on the market, the most diffused tools mentioned throughout the literature were Google Analytics, Mixpanel and KISSmetrics. Since every tool has a different focus and different features, Figure 8 shows an overview of the three. Additionally, segment.com has been added to the list, because it is a tool, which allows using all three tools and more at the same time, in order to compare them and choose the most suitable.

Tool	Characteristics	Price
Google Analytics	Measures based on pageviews Good for traffic analysis, everything that comes from outside	Free
Mixpanel	Measures based on events (real-time) Good for retention, allows push notifications based on event	Free (Data Points < 25.000)
KISSMetrics	Measures based on person-level Actionable web analytics software good for funnels	14 day free trial Starter $ 200/month
Segment.com	Allows to integrate all of the above mentioned tools and many more. Therefore good for testing different providers	Startup 99/month

Figure 8: Overview Analytic Tools

In order to use the full potential of quantitative metrics, a startup has to be cautious about focusing on the right numbers. When looking at data, it can be differentiated between good metrics and bad metrics, more specifically vanity metrics.

Vanity metrics are metrics, which look good on the outside, but do not indicate a change of action. Examples for vanity metrics are: Total Sign-ups, Time on Site, Emails Collected, Number of Downloads or Number of Visits. For example a startup could generate growing sign-ups, the metric however does not indicate whether customers are returning to the product. In case they do not and a startup focuses only on sign-ups, they see the number rising but since engagement is low to not existent, the business cannot be viable.

Good metrics on the other hand are "Actionable" and indicate a change in behavior. Examples for good metrics are: Funnel metrics, cohorts, number of sessions per user or user activations (Humble, Molesky, & O'Reilly, 2014).

Besides from being Actionable, metrics should be "Accessible" and "Auditable". Ries calls it the three A´s of metrics. Accessible means, making the metrics as understandable as possible by using simple reports and making them available for every employee of the company. Auditable stands for making the metrics credible for the employees, in order to help them understand decisions. In the best case, the master data should be available for every employee to reproduce data reports (Ries, 2011).

In the following two tools will be presented, which can be used to measure the progress while selling the MVP. The two tools are Pirate Metrics to measure customer behavior and the three Engines of Growth, which help to focus on the efforts of growing.

Pirate Metrics

Pirate Metrics is a metric tool, which uses customer behavior in addition to conversion and web analytics to assist marketing and product decisions, throughout the customer lifecycle. The tool is divided into five categories of behavior: Acquisition, where do users come from? Activation, do users have a great first experience? Retention, do they come back? Revenue, do they spend money? Referral, do they tell others? The starting letters of the variables lead to the acronym AARRR, which sounds like a pirate and hence it is called Pirate Metrics (McClure, 2007). In this tool, the data of each funnel is captured in an AARRR Dashboard, as it can be seen in the example below.

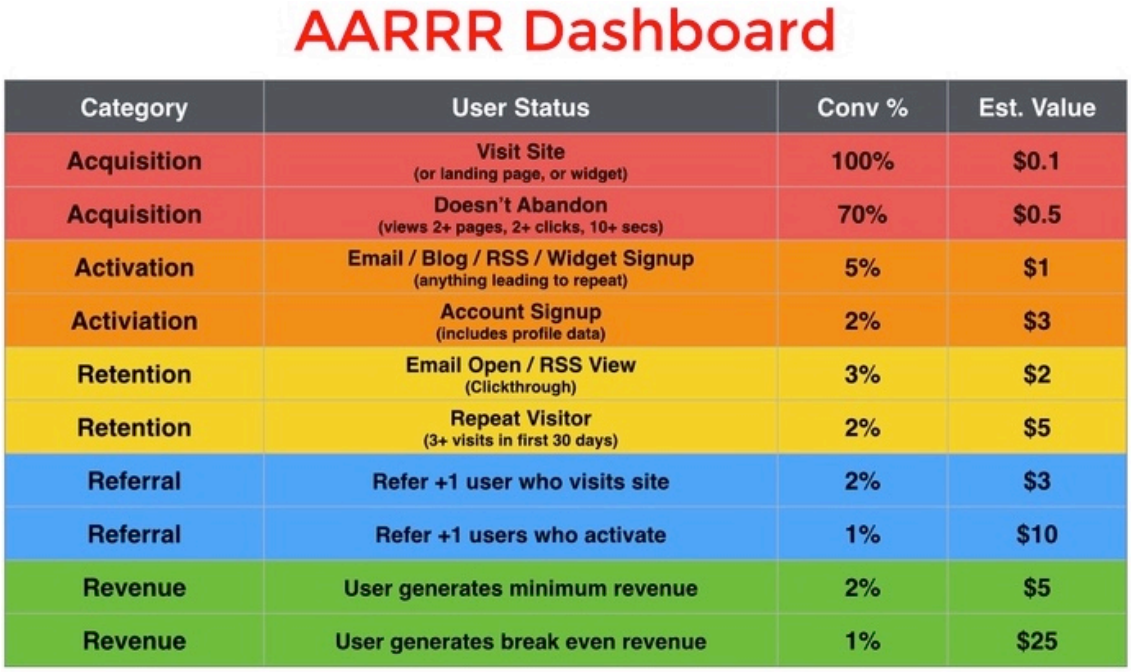

Figure 9: AARRR Dashboard

The example dashboard shows the customer lifecycle, which allows having an overview of the macro conversion funnel. This lifecycle is different for every startup, but it should reflect, how a founder hypothesizes the customer lifecycle for the company. In the specific case above, it starts with Acquisition measuring the visits of the page. In the example, 70% of the overall visits do not bounce[5] and view different pages within the website. The next step describes the Activation rate of the previously acquired visitor. In the example, this is measured by sign-ups. After the customer signed-up, the company is interested to know how many of those sing-up customers come back, which is measured through newsletter click-through or the number of visits per user per month in the example. In addition, signing up oneself a customer might also refer the product to a friend, which is measured in Referral, broken down in referees that visit and referees that activate. After the customer went through the described lifecycle, Revenue is the final step. In the example, it is measured by minimum revenue and break-even revenue generated. It can be noted, that only 2% of the initial 100% that visited the website converted into paying customers.

In order to improve the lifecycle steps, the macro levels can be broken down into sub-funnels, allowing a greater level of detail on variables that drive each step. The next section will give an introduction to those steps and explain what information a startup can extract from each metric based on the example of Evernote (an online service for creating, organizing and

[5] Bounce means, that people only visit one site and leave the site without interacting with it

sharing written notes online). For an extensive explanation of the single sub-funnels, its relevant metrics, measurement techniques and action steps for improvement, please consult Appendix 11.

Acquisition

Acquisition describes the process of turning the visitors of a website or a business facility into interested customers (Maurya, 2012a). Customers will hereby come from different channels, such as SEM, SEO, Blogs, Affiliates, Campaigns, Email, Social Networks, PR or Domains. A startup is interested in choosing the channels with the largest volume, the lowest cost and the best performance. The metrics a startups wants to measure in this step are the traffic that is coming to the page through a channel, the number of page views per customer, to see whether customers show interest and finally the bounce rate, to learn whether customers interact with the page (McClure, 2007). Evernote for example could measure from which channels the customers convert the best and focus their effort on those or optimize the channels that do not perform well.

Activation

In the Activation step, a startup is measuring the customers' first experience with the product. To measure the experience a startup should use selected qualitative customer interviews, as well as quantitative analytics. The customer interviews serve the purpose of gathering feedback and observing how customers interact with the product and whether they are experiencing the intended value proposition (Croll & Yoskovitz, 2013). Given the experience of the MVP, a startup is mainly concerned about the visitors triggering the key activity. Therefore a startup could define their key activity as sing-ups and measure them using a sub-funnel and cohorts. In the case of Evernote, the key activity would be customers creating their first note (Lofgren, 2012).

Retention

Measuring Retention, a startup is worried about the users coming back to the product or service. Retention is therefore defined by the continuous engagement and repeated use of the product or service and is measured by the churn rate, visits in the last X days or monthly active users (Croll & Yoskovitz, 2013). For Evernote, Retention would mean that the users come back to the service continuing to use the service by creating documents or notes.

Referral

Referral, is an advanced form of acquisition and a business wants to measure, whether current customers refer the product or service to other customers (Maurya, 2012a). Referrals can be measured by the Viral Coefficient, which gives an indication of how many additional customers will be generated by every new customer that signs-up. In order to grow virally this coefficient has to be greater than one (Ries, 2011).

Revenue

Finally, Revenue is measured when the customers place an order and spend money on the product. In the example of Evernote, it could be the upgrade of the account after the free trial period ended. Revenue is measured by Customer Lifetime Value (LTV)[6], which describes the net profit from a customer over his lifetime.

Engines Of Growth

Influenced by the Pirate Metrics, Ries developed a framework, which he calls 'The Three Engines of Growth'. The aim is to give entrepreneurs a small amount of metrics to focus their efforts, without wasting time or losing the big picture. The three engines are: The Sticky Engine of Growth, which focuses on customer retention and a low churn rate; the Viral Engine of Growth, which focuses on high amount of referrals; the Paid Engine of Growth, which focuses on the cost of acquisition versus the revenue per acquisition. However, Ries recommends focusing only on one engine at a time, to avoid confusion (Ries, 2011). The three engines will be explained in greater detail in the following.

Sticky Engine of Growth

The Sticky Engine focuses on a high retention by keeping the attrition rate and churn rate low. Growth is reached by keeping the customer acquisition rate higher than the churn rate (Ries, 2011). The Sticky Engine can be compared to the Retention phase in the Pirate Metrics and therefore use the same optimization tactics as described in 12.

[6] Sometimes also referred to as CLV or CLTV

Viral Engine of Growth

The Viral Engine describes the growth reached through a high referral rate. For the Viral Engine the same criteria apply, as for the Referral stage in the Pirate Metrics. The key metric to focus is the viral coefficient K, which measures the converted referrals per customer (Ries, 2011).

Paid Engine of Growth

The Paid Engine is driven by the margin between the Cost Of Customer Acquisition (COAC)[7] and the Customer Revenues expressed in LTV (Croll & Yoskovitz, 2013). In order to grow, a startup needs to reinvest a portion of the revenue per customer for the acquisition of new customers. This margin is called marginal profit, and the higher the marginal profit, the higher the growth rate of the startup. In order to increase the margin, a startup has two options, either increasing LTV or decrease the COAC (Ries, 2011). In general, it can be said that the LTV:CAC ratio, which is calculated by LTV/CAC, should be greater than three (Skok, n.d.). For the more detailed calculation consult 12.

The difference between the two approaches is, that the Pirate Metrics focus on acquiring and converting customers with a focus on the overall lifecycle and the Engines of Growth provide a strategy to grow by using one of the engines (Croll & Yoskovitz, 2013).

Validation/Invalidation Customer Validation Phase

To measure the progress of a startup, Ries introduced a tool called Innovation Accounting. Innovation Accounting describes the process of using quantitative data for continuous testing and learning (Ries, 2011). As in the Customer Discovery phase, a startup should formulate falsifiable hypotheses about the metrics they are testing. This can be done by using a dashboard, such as a Pirate dashboard, or simple reports in order to track the progress and validate or invalidate the hypotheses.

After a startup gained some traction, it should measure its product/market fit. Product/market can be seen as the ultimate validation for a startup. By reaching this point a startup has proven it found the right market and developed a product that satisfies the market (Andreeson, 2007). In order to measure Product/Market Fit, Sean Ellis created an online survey tool. This tool,

[7] Sometimes referred to as Customer Acquisition Cost (CAC) or Cost Per Acquisition (CPA)

which can be customized to a specific product/company (click here), is built around one key question:

How would you feel if you no longer could use [product]?

1. *Very disappointed*
2. *Somewhat disappointed*
3. *Not disappointed (it is not really that useful)*
4. *N/A – I no longer use [product]*

If more than 40% answer with "Very Disappointed", the chances that a company identified a "must have" product and therefore a scalable business are great. The benchmark of 40%, was identified by the analysis of over 100 startups. However, this is not where the tool stops. Due to its open-ended questions, the survey also gives an indication on how to improve positioning, converting users to "Very Disappointed" in case a startup did not yet reach 40%. Ellis recommends sending the survey to a random sample of customers that fulfill one of the following three criteria:

1. Experienced core of the product
2. Used product at least twice
3. Used the product in the last two weeks (Ellis, n.d.).

3.3 Tools To Create A MVP

Finally, the last of the three main principles, the MVP, will be elaborated in the following section. As one could notice from the previous parts of the thesis, the MVP has already been mentioned in the Customer Development model, as it links to the Customer Validation phase.

The MVP - as part of agile development - is an approach with the mean to be able to change directions quickly and be responsive to changing product requests based on the business requirements (Ries, 2011). The main aim of a MVP is to generate learning and test hypotheses (Guggenheim, 2013b).

Due to the lack of rules for drawing a clear line between minimum and viable, the MVP has many definitions. Frank Robinson, who coined the term in 2001, described it as a unique product with the least risk or effort and the highest return on investment for the supplier and the customer (SyncDev, n.d.). Ries later defined the MVP as the version of the product that gives the greatest feedback for the Build-Measure-Learn loop, while at the same time having

the least amount of effort and developing time (Ries, 2011). Maurya uses a stricter definition by defining it as the smallest thing, which is viable enough to create value for the customer (Maurya, n.d.).

Prototype vs. MVP

Blank differentiates in his MVP definition between low-fidelity MVP and high-fidelity MVP. For Blank a high-fidelity MVP allows the user to complete the key activities, which are central to the value proposition. The high-fidelity MVP is used in Customer Validation, in order to validate whether the product is on the right track to solve the problem (Blank & Dorf, 2012b). Contrastingly a low-fidelity MVP is a draft of the final product and is more common during the Customer Discovery phase. For instance in a web startup it can be a single landing page (Blank & Dorf, 2012b) and in other cases, it could also be a PowerPoint or paper mockup to test the problem assumption (Blank & Dorf, 2012a). However, as described, some practitioners such as Maurya or John have a stricter definition and would not count the methods of the low-fidelity MVP as MVPs, but rather as prototypes. For them a MVP has to capture value from the customer, which is usually represented by charging money (John, 2013; Maurya, n.d.).

Also for this thesis the stricter definition for the MVP will be used to provide a more distinct and unambiguous definition. Therefore, prototypes are used in the Customer Discovery phase to present the future product through mockups, presentations or drafts and a MVP is used to start selling to customers in the Customer Validation phase.

In order to find and define the line between minimum and viable, the following section provides two tools: Story Mapping a tool to visualizing the solution and the Kano Model a customer satisfaction tool. Both tools help to find and define the initial features of the product. After that, the section will show the various types of MVP´s, which can be used to validate hypotheses, called the MVP Techniques.

3.3.1 Story Mapping

Story Mapping, an Agile Software Development approach, is a tool, which helps with planning and prioritizing features by visualizing the solution as a whole and in a user centric way. To visualize the ideas, Story Mapping uses a two-dimensional map, which focuses on the user flow on one site and the criticality of a feature on the other side (Patton & Economy,

2014). In the following, this process will be explained using the example of a retailer presented in Figure 10. To create a Story Map, the first step is to understand the primary goal of the product and the customer segment it addresses. The retailer might have the goal to sell items at the point of sale. The next step explains the user flow and how a user is going through the product. Hereby, the idea is to collect features with a focus on outcomes. For example the retailer wants to create an order, receive the order shipment, sell items and analyze sales. In order to model the features, three details should be added to the feature card. The details should answer who the user of the features is, how often it is used and how valuable the feature is. As an example, taking the feature of "creating an order", the user is the merchandise buyer, (s)he uses it weekly and the value is medium. Afterwards, the cards are arranged in a sequential order from left to right to represent the user flow through the product. Additionally to the flow from left to right, the features are sorted by importance from top to bottom. The feature placed on the top is used always and the one on the bottom only rarely. After the features have been arranged by sequence and importance, one has to look for logical breaks within the flow, which then can be summarized by a headline. The retailer might have the logical breaks: Buying, Receiving, Selling and Analyzing. Finally, the model can be divided into horizontal system spans, which represent a group of features, which work together logically. Hereby, the set of features within the first span represents the MVP, because it represents the smallest set of features to be useful for the business (Patton, 2005).

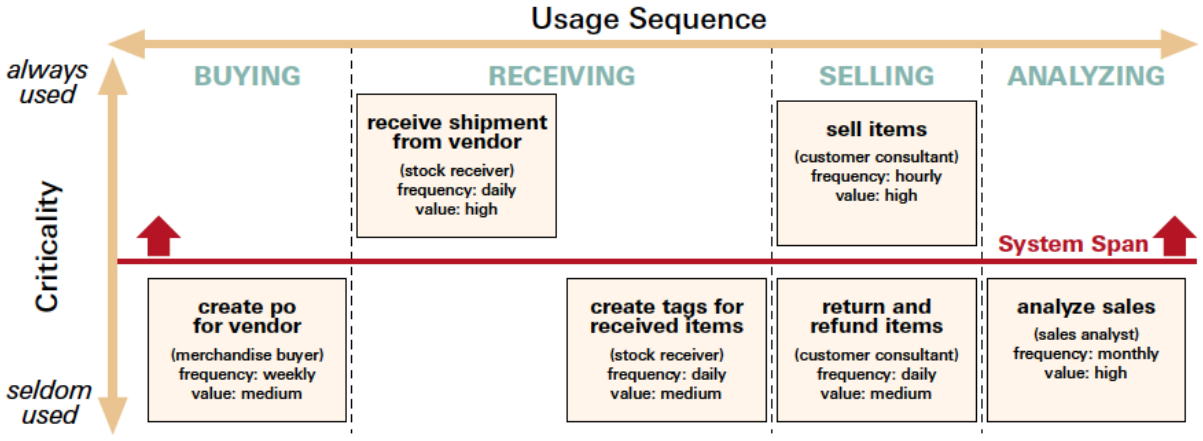

Figure 10: Story Mapping Example

3.3.2 Kano Model

The Kano Model is a two dimensional model, which describes the relation between product function and customer satisfaction. The model measures hereby the customer´s satisfaction by classifying and prioritizing features based on their effect on the customers' satisfaction. The classification of the product features is partitioned into quality categories.

The main three categories are:

- ***Basic or Must-be*** quality features are features a customer takes for granted. Therefore the satisfaction does not increase when the feature is present, but decreases when it is not present.
- ***Performance or One-dimensional*** quality is a linear function, meaning the higher the performance of the attributes the higher the customer satisfaction and vice versa.
- ***Attractive or Excitement*** quality represents attributes the customer does not expect. Therefore, satisfaction rises exponential when the attribute is present. However, satisfaction will not decrease if attributes are not present, because the customer does not expect it (Chen & Chuang, 2008).

In addition to the three main categories, the model uses two more quality categories: Indifferent and Reverse. The Indifferent attribute causes neither satisfaction nor dissatisfaction when present. On the other hand the Reverse attribute is a one-dimensional negative attribute and causes dissatisfaction when present (Sharif Ullah & Tamaki, 2011).

However, over time the quality categories will change and attractive attributes will become performance attributes and performance attributes must-have attributes (Ullman, 2009). An example can be found in mobile phone sector. In the past, not every mobile phone had a camera and if it had one, it was an excitement factor. However, over time every phone got equipped with a camera and therefore a camera became a performance attribute, measured by the megapixel it had. Nowadays, cameras are standard and the improvements in quality are only minor, which makes the camera a basic attribute.

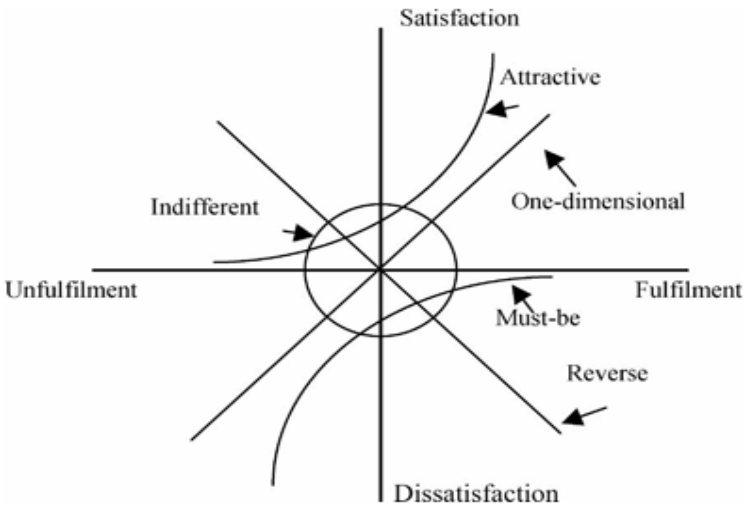

Figure 11: Kano Model

The Kano Model can be especially helpful, because it uses a predesigned questionnaire to classify the customer requirements into six different categories. The categories are:

- Attractive
- Must-Have
- One-Dimensional
- Indifferent
- Reversal
- Questionable (Sharif Ullah & Tamaki, 2011)

Therefore, it is a great tool to find out on which features to focus and which not. Applying the Kano Model to the Lean Startup the best way is to use the questionnaire during the Solution Interviews to test how the product and its proposed features resonate with customer (Matzler, Hinterhuber, Bailom, & Sauerwein, 1996). The questionnaire, as well as a description on how to use it, can be found in Appendix 13.

3.3.3 MVP Techniques

The following passage presents techniques and different types of MVP`s, which can be used in the Customer Validation phase, in order to learn and collect quantitative data. Each of the following techniques includes one practical example. For more examples refer to Appendix 14.

Wizard of Oz

The Wizard of Oz MVP is a mockup of the final product, but instead of running automatically, it is managed manually in the background. Customers think they interact with a functional product, but in reality the work behind is not automated. The Wizard of Oz is great to test the market validation of an idea (Ries, 2011). However, one has to bear in mind that scaling big is not possible when running on pure manpower (Bank, Cao, & Zuberi, n.d.).

Example: The founder of **Zappos.com**, an online shoe retailer, first took pictures in a nearby shoe store, which he put online to test his hypothesis that people like to buy shoes online. Whenever a customer bought a shoe, he would go to the nearby shoe store buy the shoes and ship it (Bank et al., n.d.).

Video MVP

The video MVP is a simple explainer video of what the product is about and what the user can do with the product. Usually, after watching the explainer the customer has the chance to sign up for a beta waiting list if he is interested. Hereby, a business can validate if the market is demanding the product.

Example: **Dropbox**, used a video that explained the service and was able to drive sign-ups from 5.000 to 75.000 over night (Ries, 2011). Find the link to the original video here.

Concierge MVP

The Concierge MVP is similar to the Wizard MVP, but instead of faking a final product and working on the backend, the work is done manually on the frontend (Bank et al., n.d.).

Example: **Rent the Runway**, a company who rents out dresses online, used a Concierge MVP, for testing if women would actually rent dresses. Before renting out the dresses online, they provided an in-person rental service where students could first try on the dresses before renting them. However, first 34% and then 75% rented a dress, which validated their assumptions and they continued (Taylor Thompson, 2013).

Piecemeal MVP

The Piecemeal MVP is a mix of the Wizard of Oz and Concierge MVP. Instead of building something from scratch with individual features or doing everything manually, a Piecemeal MVP uses existing tools rather than building an own infrastructure to test a product idea.

Example: In the beginning, **Groupon**, a website for discounted gift certificates, used a combination of WordPress, AppleMail and AppleScript to generate coupons manually and sent them, as orders were received through the website (Bank et al., n.d.).

Fundraising MVP

The fundraising MVP is simply a fundraising campaign on platforms such as IndieGoGo, Kickstarter, RocketHub or Seedmatch. By using a fundraising campaign, a startup can on the one hand validate its idea at a low risk by letting customer pay before the product is released and on the other hand simultaneously raise money. Another positive side effect is that most likely early adopters will pledge for the product and therefore, the connection to this group is already established (Bank et al., n.d.).

Example: **Pebble Watch**, a smart-watch, initially used a campaign on Kickstarter with the goal of raising $100.000. In the end Pebble was able to raise over $10 million, which gave a great indication of demand for the product (Casserly, 2013).

One Feature MVP

The One Feature MVP, is as the name tells a product with only on feature. It keeps the customer focused on the key feature and does not distract him from the actual purpose of the product.

Example: **Foursquare**, a local search and discovery service mobile app which gives recommendations based on one's personal tastes, started for example just with letting user check-in their location on the social network (Bank et al., n.d.).

To summarize the MVP techniques, it can be concluded that the MVP is really about learning and not about building unwanted products. It also shows that a product not always has to be build from scratch in order to provide value and test hypotheses with it.

4 Conclusion And Outlook

Even though startups face uncertainty as they emerge, the LSM can minimize the risk of failure and guide startups to success. However, entrepreneurs are confronted with a lack of tools while applying the approach. Additionally data is very fragmented and has to be gathered in a time consuming process.

The toolbox, presented in this thesis, has been compiled through a thorough research of existing principles and methodologies, which are spread over several resources and mediums. In this thesis alone, 18 books and 61 online resources such as blogs, article, videos, slides have been incorporated. To gather best practice examples every pillar of the three key principles, including the BMC, Customer Development and MVP, have been analyzed in depth. Since, the different principles have been originally developed as solitary models, each one of them showed some key evangelists writing and talking about their experience and giving advice to the respective model. As a comprehensive approach to the LSM, this thesis analyzed the principles at their source and connected them, respecting the logic of the Lean Startup. Even further, the presented toolkit incorporated some adjacent theoretical approaches and examples to the single models, in order to provide a better understanding and a clearer description of the practical implementation. For the BMC, a Customer Segmentation tool, the Value Curve and Value Proposition Canvas have been identified and adopted. In the Customer Development several steps have been added to the original approach to give more actionable guidelines. First of all, clear recommendation to contact customers has been given by explaining the principle of snowball sampling and providing pre-written email templates. In addition, a ready to use block with specific questions has been developed, which allows customizing one's own interview script. Moreover, a new approach to analyze qualitative data has been drawn from theory and applied to the LSM. Lastly, Pirate Metrics to better track a startups lifecycle, and a tool to measure Product/Market fit, have been incorporated. Finally, for the MVP, literature from the Agile Development approach has been analyzed, identifying the two approaches of Story Mapping and the Kano Model to bring a clearer guidance to the origination of a MVP.

These added tools and guidelines, which aim to facilitate the process of starting a business with the LSM, have either been solely explained in general in the original manifestos or have been completely neglected. Therefore, the toolkit reflects the up-to-date practices and methodologies that can be found in association with the LSM and beyond. However, instead

of presenting the single tools for the specific tasks, this toolbox provides an accumulation of those, summarizing them to a logical process, which can be followed by startups and others that are interested in using the methodology saving valuable time. Additionally, the startup failure rates, which are related due to a poor implementation of the LSM, are reduced.

Further research should be conducted describing the transition from the search process to the execution steps, which are represented by the second two steps of the Customer Development model. As this thesis ends with a test to indicate the moment of transition, it does not explain the transition itself and how to continue afterwards. At this point a startup is no startup anymore and not yet a large company and needs an own process. Blank describes it as: *"The transitional period between a startup and a company is a different organizational entity" (Blank, 2010)*. To go even further, this toolbox could be extended into a toolbox series of three, using this thesis as a starting series with a focus on early stage Startups. The second series would focus on the Transition phase and the last series on the Company phase. Even though the third series could be covered with existing management literature, startups still function different from normal corporations in various aspects, such structures, strategy, skills and working lifestyle as it can be seen with Google, Facebook etc. Therefore they need an own approach.

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Appendix

Introduction

Appendix 1: Build-measure-learn loop update

The build-measure-learn loop was recently updated by Steve Blank to emphasize the process of the Lean Startup using more appropriate terms to clear out misconceptions. The new loop is designed as a Hypotheses-Experiments-Test-Insights diagram. A startup starts with its "Hypothesis", afterwards it creates "Experiments" to "Test" the hypotheses and finally generates "Insights" from the tests. Even though the same can be explained by the build-measure-learn loop, as it is done in the introduction, the new definition of the loop uses a clearer wording.

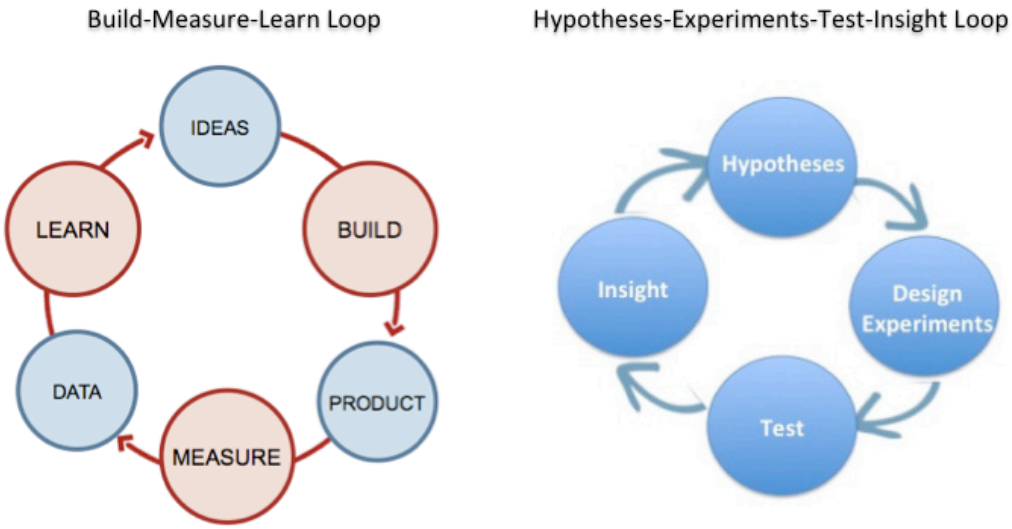


Figure 12: Build-Measure-Learn Loop Update

BMC

Appendix – 2: Lean Canvas

The Lean Canvas, by Ash Maurya, is an adaption of Osterwalders Business Canvas as instead of focusing on new and existing businesses, the Lean Canvas focuses only on startups.

The reason why Maurya changed the canvas in first place was, because in his opinion some risk factors were not covered in the original canvas, whereas other factors, which he identified as low risk, were included.

The first block Maurya added was the Problem block. The reason is that most startups do not fail because they are not able to build what they planned to build, but rather because they build something no one wants. Therefore instead of making the problem part of the Value Proposition he created an own block for it. The second block, the Solution block is linked to the Problem. Once the Problem is understood, the Solution can be crafted. The next block, Key Metrics, was included because startups should focus on one key metric in order to avoid wasteful activities. Finally, the block Unfair Advantage was added to encourage startups to work towards a competitive advantage over potential competitors and copycats.

Key Activities and Key Resources have been excluded, because for Maurya those blocks rather presented an outside-in view for outsiders to understand the model instead of being entrepreneur focused. The Customer Relationship box was excluded, because Maurya personally starts every business with a direct relationship and then identifies a way to reach the customer. For him this could be reached with the already existing Channel block. Finally, the last block that has been excluded was the Key Partners. Even though, some businesses rely on Key Partners to scale, Maurya argued that most startups do not fall into this category, which led him to exclude this box.

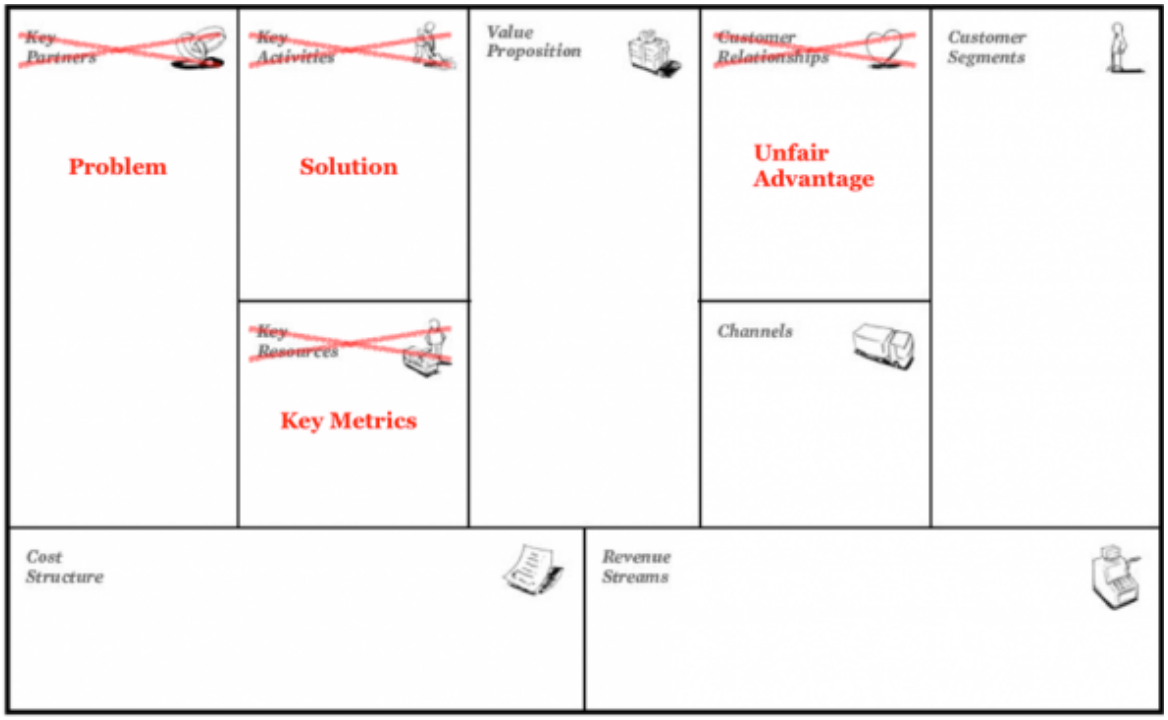


Figure 13: Lean Canvas

Even though, Maurya adopted the Canvas to his personal needs, a blog post about it indicated vast interest, which led him to use it also in workshops for other startups (Maurya, 2012b).

Appendix – 3: Further Business Models

The following appendix will present the business model of Ryanair, a low-cost airline based in Ireland. Ryanair managed to revolutionize the airline industry with its low-cost approach.

In the process of its business model creation, Ryanair focused intensely on deconstructing the value creation process, in order to minimize cost and maximize revenue. The Customer Segment of Ryanair is focused on self-directed, cost-conscious travellers that do not mind the missing extras (without frills). Based on this, the value creation of Ryanair is to provide cheap and direct flights on time. In Ryanair's opinion a customer is just paying for the utility from being transported at the lowest rate possible. The Customer Relationship can be categorized as a self-service and automated, to keep costs low. The Channel, which is used is just the website, meaning Ryanair flights cannot be booked through agencies. Revenue sources are on one hand generated through fares and on the other hand through in-flight sales, luggage handling, partner referrals and credit card fees. Two additional Revenue sources that are unique for Ryanair are Online-ads and Airport fees. Through the high volume of website visitors, Ryanair capitalizes on this traffic by selling ads to their partners. In addition, usually the airport charges airport fees, but Ryanair managed to reverse this order by making airports pay for receiving their traffic. The Key Resources that are needed to serve the model are the airplanes, the staff and the website. In terms of airplanes, Ryanair only uses one type of airplane in order to keep costs for maintenance low. The Key Activities include web sales, training, maintenance, network management and airport and destination relationship. Key Partners of Ryanair are local airports, car rentals, hotels and hostels as well as bus companies, which represent supplements to the flight service. Finally, the Cost Structure is defined by the airplanes, fuel, website and non-unionized labor (MaRS, 2012b).

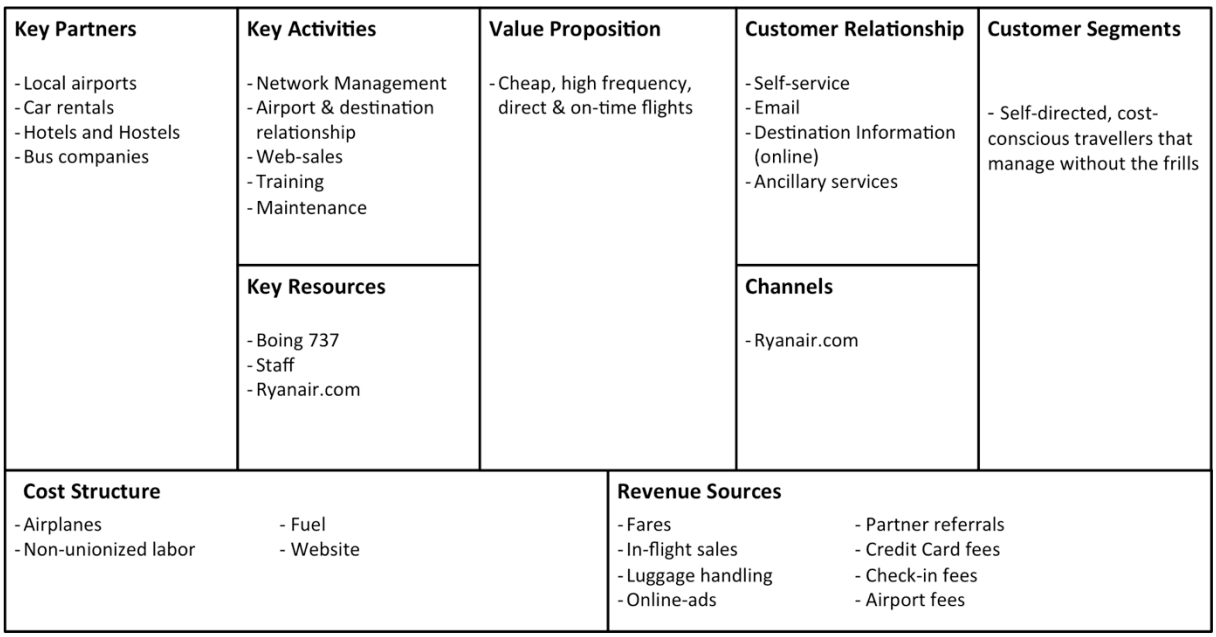


Figure 14: Business Model Ryanair

Appendix – 4: Predict Market Size & Market Type

Mart Size

Even though the market size is not a part of the BMC, it helps to evaluate the scalability of a business by looking at the potential market. Therefore, it is helpful to predict the market size of the defined customer segments, and decide whether the market is big enough to further pursue the idea (Guggenheim, 2014).

A help to predict the market size of an idea is the approach of breaking down the market into three numbers: Total Addressable Market (TAM), Served Available Market (SAM) and Target Market. TAM describes the entire market of a product category, whereas SAM is the market that will be addressed and which can be reached by the sales channels. Finally, the Target Market is the percentage of SAM, which is planned to be converted into customers (Blank & Dorf, 2012b). The prediction of the market size can either be accomplished by a top-down approach or bottom-up approach. The top-down method usually uses secondary market research such as industry reports or market research reports to break down the market in a reverse pyramid until the Target Market is reached. The better approach is the bottom-up approach, which takes the identified end-users to project the potential market size. While the top-down method might include different customer segments, the bottom-up method only focuses on the identified segments. In addition, the bottom-up includes factors such as

capacity of sales channels and expected price and can therefore also be used as a financial projection and for operational planning later on (Davis, 2007).

Top-down example for Smartphone App: The TAM for an App would be all smartphone owners of the world. In case the App is only available in English and for the iPhone the SAM is accordingly smaller. The Target Market is then a guessed percentage of the SAM.

Bottom-up example for a Toy producer in the US: Every year, about two million girls are born in the US from which 50% can afford a 90$ doll. Therefore the US target market for 6-8 years old is three million (Blank & Dorf, 2012b).

Market Type

Additionally to the Market Size, a startup should also analyze the market type it is entering. Blank divides the market into four distinct categories:

Existing market

In an existing market, the market, the customers and the competitors are known. Therefore, the benefit of an existing market is, that it is easy to understand. However, the drawback of this market type is, that the competitors define the market. If a startup is entering such a market, it is going to compete on product performance and features (Blank, 2013a).

New market

A new market describes a new product, which is introduced in a new market. Usually it is an innovative product, which allows a large customer base to do something they were not able to do before. The benefit of such a market is, that there is no competition and product features are not relevant at first, due to the innovative characteristics of the product. The negative side of this market is, that the market as well as the customers are undefined and unknown. This means a startup also has to identify customers themselves and convince them from the product (Blank & Dorf, 2012b).

Re-segmentation of an existing market as a low-cost player

According to Blank, half of the startups choose this approach, where they enter an existing market with a new product, which re-segments the existing market. In case of a low-cost segmentation, a startup targets the lower end of the market by offering a product, which just

has an ok performance but is substantially cheaper. An example herefore are low-cost airlines. The service and comfort is kept to a minimum, but flights are cheap (Blank, 2013a).

Re-segmentation of existing market by employing a niche strategy

A niche strategy is used when a startup picks a specific segment of the market and targets this segment with specific needs even if the product costs more. The idea is, that a customer with specific needs is willing to pay more if his needs are addressed (Blank, 2013a).

There are two steps to be considered when assessing the market type.

1. Is a startup entering a market where a similar solution already exists?
    a. Yes → the startup is entering an existing market
    b. No → the startup is creating a new market
2. Determine the strategy and focus irrespective of above assessment
    a. Startups should focus on a niche, due to its lack of resources (MaRS, 2011)

Appendix – 5: Revenue Streams in Media Publishing

The following Figure represents a list of potential revenue streams for the field of information publishing. The graphic is great to get an overview on the possibilities of diversifying revenue.

One method to publish information is the traditional approach of publishing a book. Besides from publishing a physical book one can also publish information through an e-book or audio book. However, if one thinks a little further, the possibilities to publish information are not limited to written works, but could also represent corporate training programs, public speaking, keynote speeches, Licensing or Bootcamps. In total, a report from Mission Publishing identified 55 ways to generate revenue from information publishing (Eggen, n.d.).

Even though this overview is specific to the information publishing industry, it shows that revenue streams are not always the most obvious ones that come to mind at first glance. Therefore, this overview should encourage startups to discover a wider possibility of generating revenues.

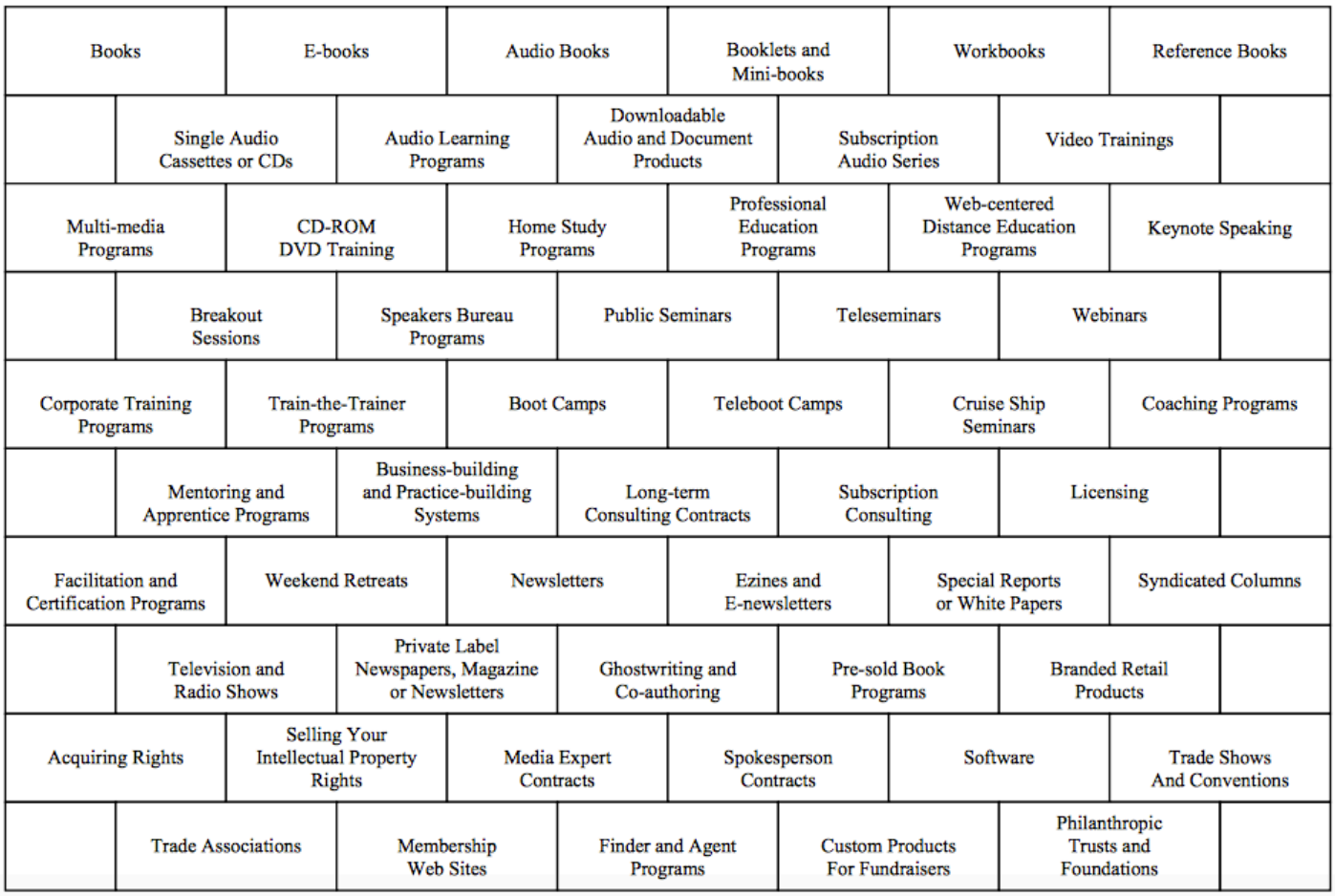


Figure 15: 55 Tested Information Products

Customer Development

Appendix – 6: Snowball Sampling and Referral Templates

Snowball Sampling

Snowball sampling or chain referral sampling is a technique to create a sample size, using a series of referrals from people who know each other (Berg, 2004). However, the technique has some advantages and disadvantages, which will be discussed in the following.

Advantages: Snowball sampling allows researchers to reach populations that are usually difficult to reach. Furthermore, it is easy to use and cost efficient. Finally, even though only a small subgroup of the population can be reached, this is an advantage for a startup that is looking for a specific customer group, i.e. in a niche.

Disadvantages: Often, the snowball system is misconceived as a self-running mechanism as soon as it is started. However, a researcher has to actively develop and control the progress. Another disadvantage could be the sampling bias. Since subjects usually know each other, they probability is high that they share the same traits and characteristics. When the referrals

are too similar to the referrer, new insights might be left out (Biernacki & Waldorf, 1981). Another problem is, that a researcher has little control over the sampling method. In addition, representativeness is not guaranteed, since the real distribution of the sample and population is not known (Explorable.com, n.d.).
To overcome the sampling bias, a startup could try to diversify and use different customers within the segment to start the snowball.

Ask Friends for Referrals Template:

Hey (Friend),
Hope all is well. I have a quick favor to ask.
I´ve got a product idea that I´m trying to validate with wedding photographers. My goal is to chat with local photographers to better understand their world and evaluate whether it´s worthwhile pursuing this product.
I´d really appreciate if you could send this message along to people you know who fit this target.

(Feel free to change it a bit if you like)

Hello,
We are an Austin-based software company currently working on a new service to simplify how photographers showcase and sell their images online. Specifically, we are building better and faster tools for online proofing, archiving and selling.
I would love to get 30 minutes of your time to help us understand your current workflow. I´m not selling anything, just looking for advice.
Thanks,
(Your Name)

- *Template retrieved from Running Lean*

Introduction-mail template 1:

Subject: Referral from (*reference name*)

Hi (*Name*),

(Reference Name) suggested I speak to you about an idea I am working on that we hope will help marketing managers measure the return on specific marketing activities more effectively. I hear from marketing professionals that existing solutions are too expensive, too hard to deploy, and tend to display non-actionable metrics "out of the box". We hope to change all that.

(Reference Name) recommended you as a marketing executive who might have key insights into this problem. I assure you that I am not selling you anything, but rather I hoping to speak to you about this market and learn what the real pain points are.

If possible, could I buy you a cup of coffee at your convenience? I look forward to hearing from you and thank you for you consideration.

Best,

(Your Name)

- *Template Retrieved from Guide to Customer Development p.58*

Introduction-mail template 2:

To: Don Jones
cc: Joe Smith

Subject: Referral from Joe Smith

Hey Don,

Joe may have mentioned that I would drop you a quick note to ask for your advice. I'm exploring a start-up idea around making it easier for people to carpool, using iPhones or other location-based mobile devices. Joe suggested that I talk to you given your passion for reducing carbon emissions through ridesharing.

Do you have time for a quick call this week? I'm not selling anything, just looking for advice.

Thanks in advance,

(Your Name)

- Template retrieved from http://kevindewalt.com/2010/01/12/the-magic-word-in-customer-development-emails/

Interview follow up email with Referral Template:

Subject: Follow up

Hi (*Name*),

Thank you for taking the time to speak [meet] with me today/yesterday. Your insights were extremely helpful. As we discussed, here is a link to [website, presentation deck, whatever he or she was interested in seeing]. Any additional feedback would be greatly appreciated. You also mentioned that you had a couple of people in mind who might be interested in my idea or might give me valuable feedback. I have included a blurb here for you to forward.

[blurb. *(Your name) is building a new mobile ad network linking a person´s current geographic location with personalized ad content. She is looking to speak with experts in the mobile space to discuss the market and opportunities. Because of your expertise in this space, I recommended she talked to you. She assured me she is not selling anything, but merely looking for market and customer insights. Here is her contact information.]*

Finally, here is the contact information for the marketing person we spoke about. If there is anything I can do for you, please do not hesitate to ask.

Best,

(*Your name*)

- Template Retrieved from Guide to Customer Development p.61

Appendix – 7: Cold Calling Example

Uber, the mobile-app transportation network, for example used cold calling in the beginning. The founder searched through Google for chauffeurs and limousine in San Francisco and started to call them (Efti, 2014).

Cold Calling Script:

"Hi, this is (your name), and as you remember I was referred to you by [insert helpful reference name here]. I appreciate you taking my call. We are starting a company to [*problem field*]. We are currently in the development phase and are hoping you might provide us some insight into the market. I assure you that I am not selling you anything. I would just like to understand your perceptions of the market and how you and your company [*target the area of interest*]. In exchange, I'd be happy to tell you about some recent innovations in [*problem field*]."

Cold email template:

Subject: Remote coding

Hi (*Name*),
I read your article on volunteering your professional skills in Guatemala – it was really inspiring. I'm looking to travel more and you've got me thinking about incorporating volunteering when I do!
I have a software company trying to improve remote medical record coding.
I'm not looking to sell anything, but since you have so much expertise with remote coding, I'd love to get your advice on our product so we don't build the wrong thing.
If you're available, I'd love to chat for just 20 minutes – (*day or day*) morning?
Thanks for any help,

(*Your Name*)

Appendix – 8: Question Sources

Alexander Cowan

- http://www.alexandercowan.com/creating-a-lean-startup-style-assumption-set/
- http://www.alexandercowan.com/yellow-walkman-data-art-of-customer-discovery/

Alexander Osterwalder

- Value Proposition Canvas

April Dunford

- http://www.rocketwatcher.com/blog/2010/04/startupcustomer-discovery-questions.html

Ash Maurya

- Running Lean (book)
- http://leanstack.com/customer-development-checklist-for-my-web-startup-part-1/

Cindy Alvarez

- http://www.cindyalvarez.com/communication/customer-development-interviews-how-to-what-you-should-be-learning

Étienne Garbugli

- Leanb2bbook
- http://leanb2bbook.com/blog/b2b-customer-discovery-interview-questions-the-master-list/

Justin Wilcox

- https://www.youtube.com/watch?v=RNwX0-KJfeo
- http://customerdevlabs.com/2013/11/05/how-i-interview-customers/

Kevin Dewalt

- http://kevindewalt.com/2013/01/21/bad-customer-development-questions-and-how-to-avoid-my-mistakes/

Mike Fishbein

- http://mfishbein.com/the-ultimate-list-of-customer-development-questions/

Rob Fitzpatrick

- The mom test (book)
- http://www.slideshare.net/robfitz/how-to-actually-do-customer-development-and-not-waste-your-time?related=1
- http://thestartuptoolkit.com/blog/2011/06/the-2-or-4-most-important-custdev-questions/

Rob Johnson

- http://www.mindtheproduct.com/2014/09/2-questions-nail-products-initial-price/

Steve Blank

- Four steps of the Epiphany (book)
- https://vimeo.com/groups/190717/videos/68458606

Appendix – 9: Bad Answers without learning

Bad Answers + Counter question:

1. Customer: You should have feature X. Ask: What would feature X let you do?

→ Intent is to know why the customer wants a certain feature.

2. Customer: When are you letting me do task Y? Ask: How are you solving Y today?

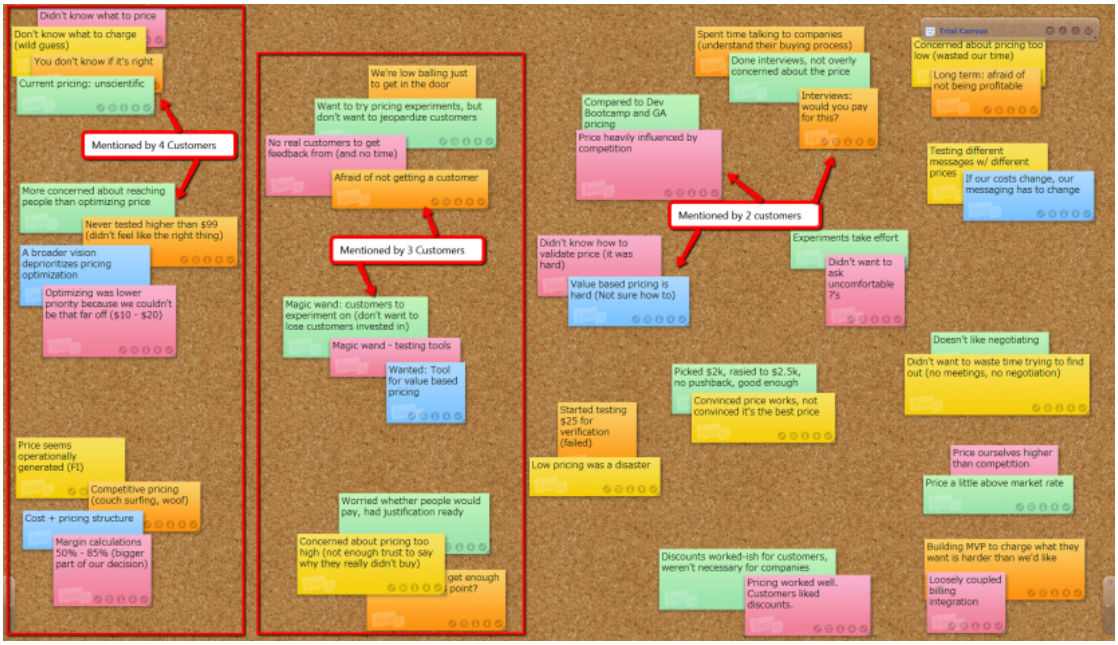
→ As in earlier questions, the intent is to switch from feature requests to learning on how things are managed and solved at the time.

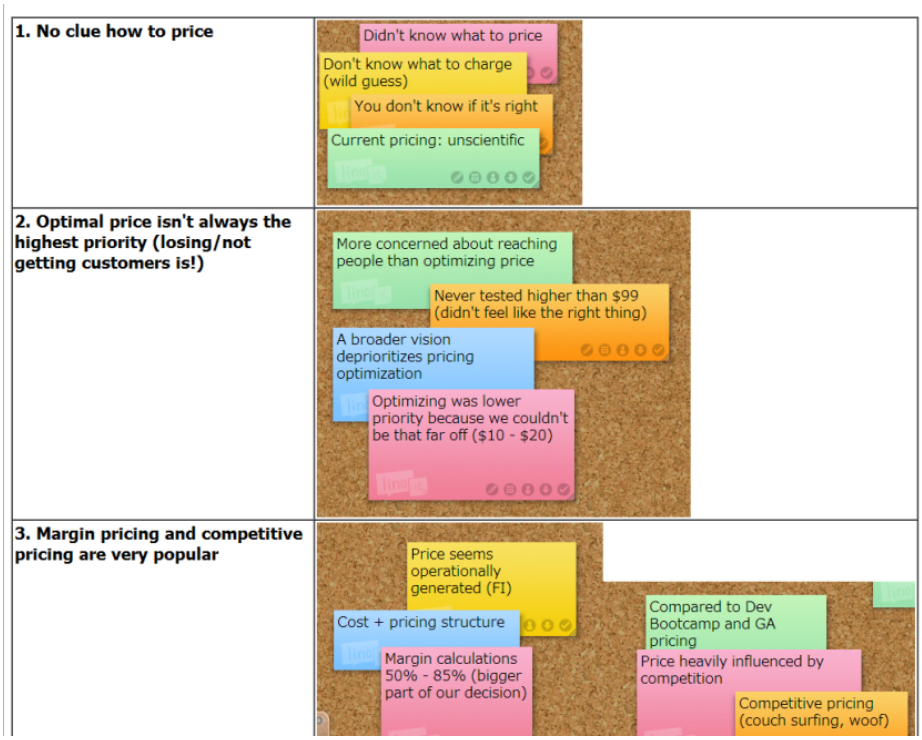
3. Customers: I love it or I would buy it. → Push for commitment: How much money do you have with you? I will keep it till the product is ready and when you love it and it does what we say I keep the money.

→ The aim is to see how serious a customer is about using the product and test if he was bluffing

Appendix 10 – Qualitative Data Analysis

The example below shows, how the technique "Cutting and Sorting" can be used in practice. The first screenshot shows all notes that have been taken throughout the interviews. The colors indicate different persons. The quotes are already piled to similar concepts and prioritized from left to right. On the very left, four persons expressed a similar quote, whereas on the right side only two persons mentioned a quote. Wilcox, leaves one time mentions out of the analysis. The second screenshot shows how this grouping easily can be used to send out an email to the team to inform about the outcome of an interview (Wilcox, 2013b).





Appendix – 11: Details Conversion Funnel Metrics

The following Appendix will go into the micro level of the AARRR metrics and give an overview of the metrics that need to be measured in every step, how they are measured and how they can be improved providing practical examples.

Acquisition

As described in the main part in the Acquisition funnel a startup wants to measure the performance of the channels, bounce rates, cost per click, open rate or search results. To measure the performance of an Acquisition cannel for a SaaS business, a sub-funnel could have the following steps where the visit of the sign-up page is the targeted goal: Customer Viewed Homepage → Visited Pricing Page → Visited Sign-up page (Maurya, 2012a).

For an ecommerce website the funnel could have the steps: Viewed Homepage → Visited Product Page → Visited Product Detail Page → Added Product to Basket.

Activation

To recap, during the Activation step a startup wants the customer to trigger the key activity and have a good first experience with the product. In the SaaS example the Key Activity was defined as sign-ups, for an ecommerce company on the other hand the key activity could be the purchase of the product and for a Blog the key activity would be signing up for the RSS feed or reading a blog post.

In order to measure the Activation, a sub-funnel can be used, which describes the steps to a previously defined key activity. To make this sub-funnel actionable, cohorts have to be used. A cohort is a group of people who share a common characteristic or experience within a defined period, i.e. sign-up date. In addition to using cohorts, a startup should set up the metrics in a way that they enable to also break down each of the sub-funnel events. In the below example it could be a breakdown of "Downloaded". This will later help removing friction from the activation funnel, as it will be explained in the following (Maurya, 2012a).

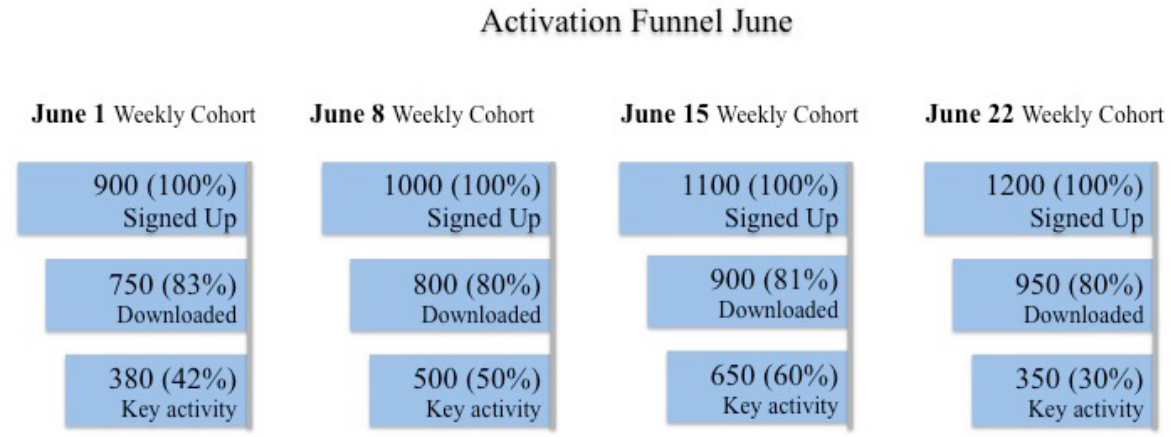


Figure 16: Cohort Activation Funnel

In the fictive example above, one can see the progress, which is made in the activation funnel and where customers drop out throughout the funnel. For example in the fourth week there are more sign-ups compared to the previous weeks, but downloads and the key activity is relatively lower. At this point, it is helpful to use the above-described break down of the sub-funnel. In this case, the breakdown of the sub-funnel, could allow to see all email addresses of people that failed during the download process. In case the non-completion was not due to a technical problem on the startup side, those email addresses can be used to reach out to the customer and ask for feedback on the non-completion of the Activation. The following image shows an email of Dropbox, a cloud based file-hosting company, following up on a not completed installation.

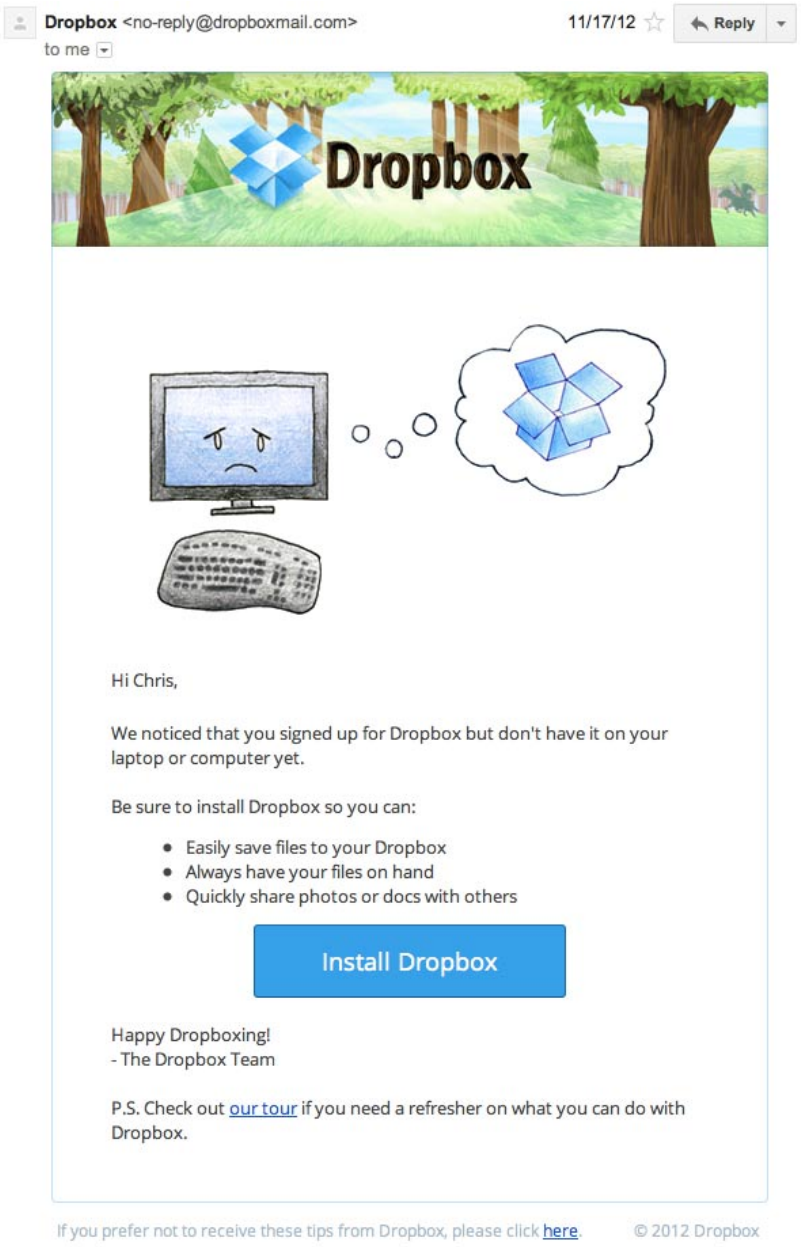


Figure 17: Dropbox - Activation follow up

Retrieved from http://blog.crazyegg.com/2013/03/20/examples-retention-emails/

A further activity, to optimize the experience and the funnel, is to use A/B testing. A/B testing or split testing describes the process of offering customers two different variations of attributes within the product, while keeping the rest equal. Afterwards, the impact of the change is statistically measured based on a predefined outcome, i.e. revenue. On a website this would mean 50% of the visitors see Variation A and 50% see Variation B, in order to measure, which variation performs better in terms of revenue. The chosen variations can vary from website color, the call-to-action text, headline text, font-size or a background image.

Example: Picatic, an online ticketing company, increased its click-through rate on offers by 376% by changing the call-to-action text from “Get started free” to “Try it out free” (Croll & Yoskovitz, 2013).

Retention:

In the Retention phase a startup wants a continuous engagement from the customer. Engagement is from startup to startup different. In the SaaS example it was usage of service, for an ecommerce company it could be the recurring purchase of the product and for a Blog it is the customer coming back to the site reading more blog posts.

Before starting to measure Retention, the activity, which is wished to be repeated, should be defined based on the specific needs of the business type. After this activity has been defined, Retention is best measured by using Cohorts, for example based on Join Date as in the following example.

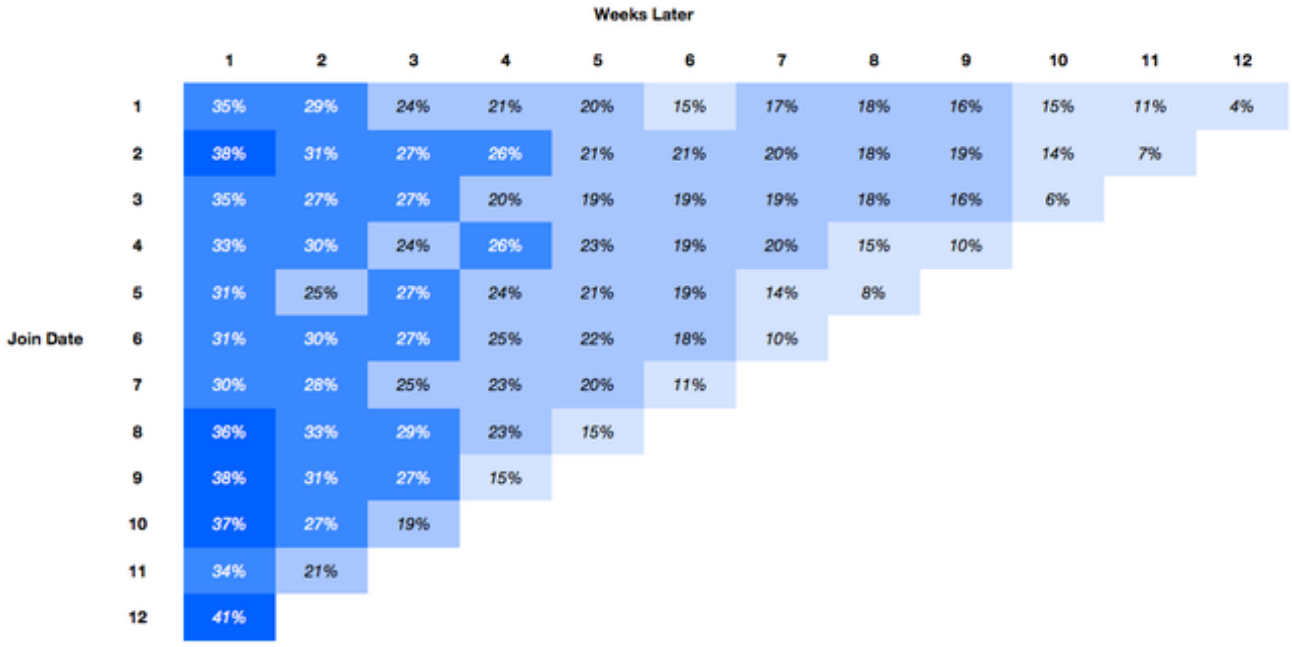


Figure 18: Retention Cohort by Join Date

The Figure above shows a fictive example of a cohort chart measuring active users by weekly join date over a period of twelve weeks. Hereby, the first cell in the first column indicates the activity of the user in the first week. In the provided example, it can be seen that the number rises from 35% to 41%, which indicates an improvement in engaging for new onboarding customers. Moving to the right side, the numbers indicate the activity rate over time. In the first row one can see that only 29% stay active in the second week, compared to 35% in the

first. This decrease stays also constant within every cohort, indicating that the product improvements have not made an impact.

The goals for Retention should be defined by the each individual startup depending on the own target. Goal examples for Retention could be: Open rate of 20% or click through of 2% for Newsletter, 1-3+ visits per month for ecommerce, and a long customer lifecycle and low decay for SaaS.

Activities to increase Retention, driving customers back to the website, can be product improvements, blog posts, notifications, invitations or automated emails. Especially, automated emails can be helpful, when they are set with a trigger of +3, +7 or +30 days of inactivity. Meaning, when a customer was inactive for more than 30 days, an automated e-mail is send. However, emails, notifications and invitations should always offer something relevant to the customer, such as updates when something happened within the startup or product, offering help, voucher codes or a weekly/monthly best of "something" information.

Example: **Groove**, a customer support app for startups and small businesses, was able to reduce its churn from 4,5% to 1,6% by sending out retention emails. Groove found out that customer that abandoned stayed on average stayed less time on their first session and used the product on average fewer times per day, compared to loyal customers. As consequence Groove targeted users with an email, which spent less than two minutes on the first session and users that logged-in less than two times in the last ten days. Users that already created their mailbox received the email shown below. This email had a response rate of 15% and 50% of the users remained beyond 30 days, which was the time when free trail ended (Turnball, 2013).

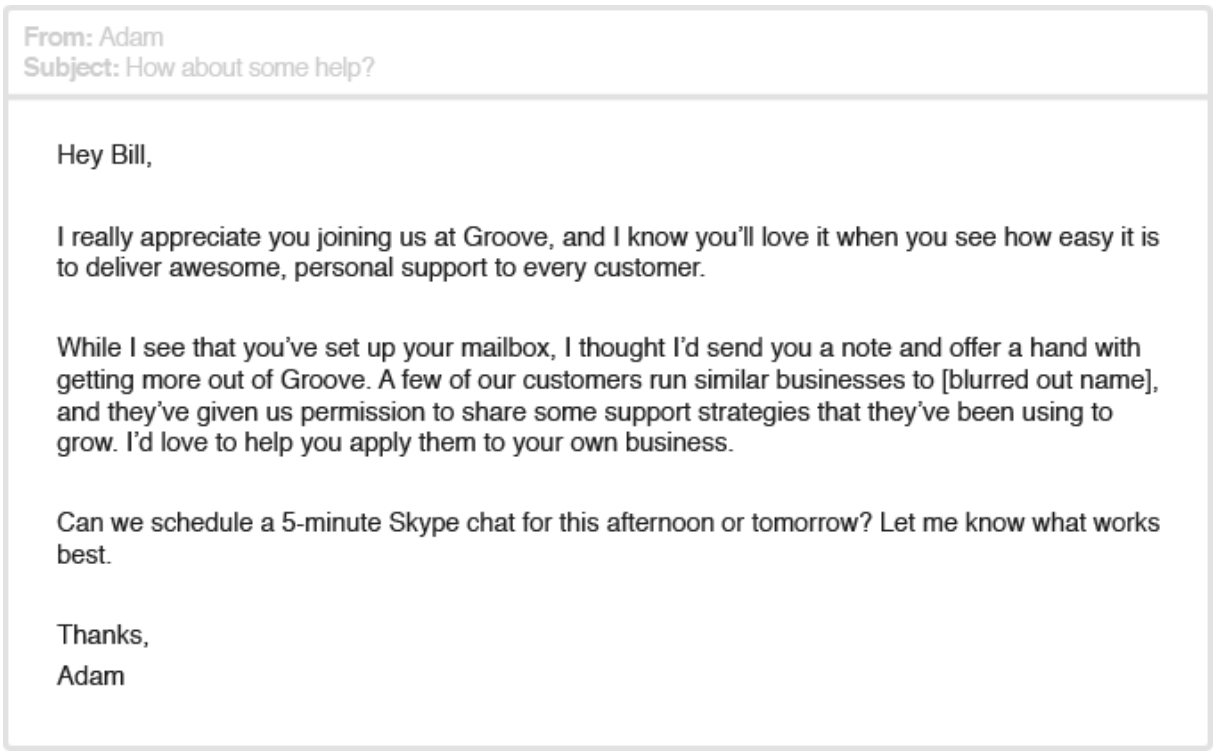


Figure 19: Groove - Retention Mail

Retrieved from https://blog.kissmetrics.com/using-red-flag-metrics/

Example: **Urban Ladder**, the ecommerce company for furniture mentioned earlier, put a lot of emphasize on customer service. Since third party delivery could not meet there standard, they stopped third party delivery, which first caused a loss in revenue of 30%. However, through the improvement of customer service, they generated positive word of mouth and increased retention over 30%. This not only covered the initial loss, but also shows an example of an improvement in retentions through better customer service and product quality (Rammohan, n.d.).

Referral:

As described in the main part, Referral is measured by calculating the viral coefficient, which describes how many additional customers will be generated by every new customer.

The formula for the viral coefficient K is explained by:

$$K = no.of\ invites \times the\ conversion\ (\%)$$

For example, if five customers send out a total of ten invitations and the conversion is 20%, the viral coefficient is two. Accordingly, every customer will generate two new customer and

those new customer will also generate two new customer and as a consequence the company will grow virally.

$$K = 10 \times 0{,}2 = 2$$

A more important factor in viral growth is the viral Cycle Time, which describes the time that is used for the process of a user first finding out about a product, testing it, liking it and then referring it to a friend who starts the process from the beginning. The time through the circle should be made as short as possible to increase growth.

The formula to predict the Customer Growth by including Cycle Time (ct) is determined by:

$$Customer\ (t) = \ Customer\ (0) \times \frac{K^{\left(\frac{t}{ct}+1\right)-1}}{K-1}$$

Taken the example from above with K = 2 and Customer (0) = 10 and adding t = 20 days with a ct = 2 days, respectively 1 day.

$$Customer\ (20) = \ 10 \times \frac{2^{\left(\frac{20}{2}+1\right)-1}}{2-1} = 20.470$$

$$Customer\ (20) = \ 10 \times \frac{2^{\left(\frac{20}{1}+1\right)-1}}{2-1} = 20.971.510$$

Given the hypothetical example, it can be noted from it that by cutting the cycle time from two days to one day the customer growth within 20 days can be increased from around 20 thousand to around 20 million (Skok, 2009a).

To increase viral growth it is therefore important to decrease Cycle Time (ct) and increase the Viral Coefficient (K). Activities to improve both variables are: Incentives that are provided to a referrer and a referee for sharing/inviting and share buttons for various platforms such as Google+, Facebook, LinkedIn or Twitter, sharable promo codes and affiliate links. Especially for Cycle Time it is important to make sharing as easy as possible. In order to decrease Cycle Time it is important to lower friction, when it comes to entering email addresses of friends. This can be reached, by providing “Facebook connect”, to invite Facebook friends, or by providing an adapter to import email addresses to avoid having the user type in addresses manually (Skok, 2009a).

Examples: A great example, for viral growth through referral is **Dropbox**. Dropbox allows users to upgrade their free storage space up to 2.5 GB by referring friends. For every friend that signs up for the service a user earns 500 MB of additional storage. In 2008 to 2010, Dropbox grew within 15 month from 100.000 registered users to four million registered users. Hereby, 35% of daily sign-ups were accounted for the referral program (Houston, 2010).

Another example of viral growth is **Hotmail**, an email provider now part of Microsoft, back in 1996. Hotmail was launched in 1996 and already in the first week 80% of the new users were acquired through word of mouth. Hotmail then included into every email that a hyperlink at the bottom, which said "Get your free email at HoTMaiL", which redirected to the homepage of Hotmail. This tactic was responsible, at least for the greatest part, to grow Hotmail from almost zero users in July 1996 to over 10 million in December 1997 (Penenberg, 2010).

Revenue

In this stage the startup is interested to know the Customer Lifetime Value (LTV)[8], which describes the net profit from a customer over his lifetime. To get to the LTV, a startup additional has to measure, the Average Monthly Revenue Per User (ARPU) or Average Monthly Revenue Per Account (ARPA), whether it is a SaaS company and the churn rate. The churn rate describes the percentage of users that discontinue the subscription of a service in a given period. If one out of 20 discontinues the subscription at the end of the year, the annual churn rate would be 5% (Croll & Yoskovitz, 2013).

A simple LTV calculation can be expressed by the following equation (Skok, n.d.):

$$LTV = \frac{ARPA}{Customer\ Churn\ Rate}$$

A more accurate formula, which is also used in the HubSpot example at the end of the section, is the following including Gross Margin.

$$LTV = \frac{ARPA * Gross\ Margin\ \%}{Customer\ Churn\ Rate}$$

Since Revenue is an outcome of the above-mentioned variables, it is difficult to improve revenue by its own. As it can be seen by the formulas, LTV and Revenue are mainly driven

[8] Sometimes also referred to as CLV or CLTV

by Retention and Churn. However, one more possibility is to test different pricing and margin strategies.

Example: HubSpot, a company for inbound marketing and CRM solutions, tripled its LTV by cutting down the churn rate from 3,5% to 1,5% and increasing the average monthly recurring revenue from $429 to $577 as shown in the below table.

HubSpot	Q1'11	Q2'11	Q3'11	Q4'11	Q1'12	Q2'12
LTV:CAC	1.7	1.9	1.9	2.6	3.5	4.7
CAC	$6,025	$7,876	$8,541	$7,809	$6,880	$6,793
MRR CHURN	3.5%	2.7%	2.8%	2.3%	2.0%	1.5%
AVG MRR	$429	$507	$548	$560	$583	$577
SOFTWARE MARGIN	83%	81%	80%	82%	81%	82%
LTV	$10,074	$14,964	$15,919	$20,325	$23,775	$31,806

Figure 20: HubSpot LTV overview

To conclude, it can be seen that there are different metrics to measure depending on a startup's focus and their business type. Therefore, Figure 21 provides a summarized overview of different metrics, which could be considered when choosing the metrics to focus attenton. Usually, startups want to focus their early attentions on Activation and Retention before trying to grow.

Funnel	Metric
Acquisition	Traffic, mentions, cost per click, search results, cost of acquisition, channel performance, open rate
Activation	Enrollments, signups, completed onboarding & used service at least once, subscription
Retention	Engagement, time since last visit, daily or monthly active users, churn
Revenue	Customer lifetime value, conversion rate, shopping cart size, click-through revenue
Referral	Invites sent, viral coefficient, viral cycle time

Figure 21: Metrics Overview

Appendix - 12: Paid Engine Calculation

Approaches to increase the LTV have already been described in the previous section; therefore the following will explain the COAC site of the equation.

The COAC can be defined by the following formula:

$$COAC = \frac{Sum\ of\ Sales\ \&\ Marketing\ Expenses}{Number\ of\ Costumers\ added}$$

On the one side a startup has the opportunity to break down the costs by channel and see, which of those perform good and which do not and focus accordingly to save money. An even more important factor is represented in the nominator of the equation, the number of customers added. The nominator can be increased, by optimizing the conversion rate. A tool to do so has already been introduced earlier with A/B testing. Another opportunity to improve the acquisitions costs is to automate sales processes, which usually involve labor. For example, instead of having a sales person walking the customer through the sales process, automated videos or answers for frequently asked questions can be provided to decrease the labor input (Skok, 2009b).

MVP

Appendix – 13: Kano Questionnaire

As already described earlier, the best way to use the following questionnaire is during the solution interviews, when the prototype is presented to the customer or during interviews to improve Activation with the final MVP.

The Kano Questionnaire is divided into two parts, the Questionnaire itself and the Evaluation Table. As it can be seen in the Figure 22, the questionnaire consists of two different pairs of questions. The first pair measures the customer's reaction, if the feature is present and is called functional form and the second pair tests the reaction of the customer, if the feature is not present and is called dysfunctional form. Both forms are answered by using the predefined answers:

1. Satisfied
2. It should be that way

3. I am indifferent

4. I can live with it

5. Dissatisfied.

Afterwards, both answers are combined in the evaluation table, which answers the question whether the attribute is attractive, must-be, reverse, one-dimensional, questionable or indifferent.

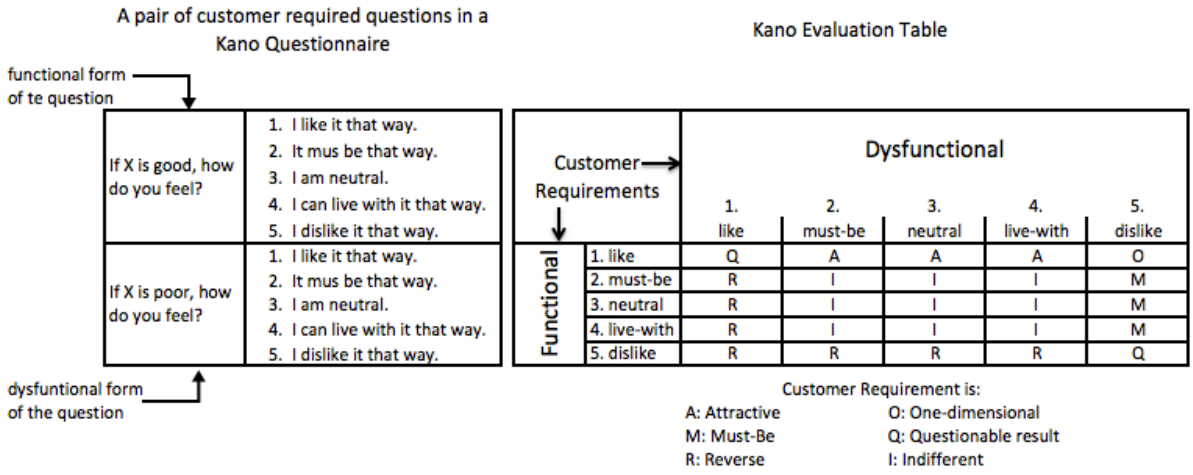


Figure 22: Kano Questionnaire

For example if the customer answers the functional form with “I like it that way” and the dysfunctional form with “I am neutral”, the table gives the indication that the feature is a “Attractive” attribute (Garbugli, 2014b).

Appendix – 14: Examples of MVP Techniques

The following part describes some additional examples of some successful implementations of MVP techniques.

Piecemeal MVP

Another successful usage of a Piecemeal MVP was used by a student group of Steve Blank. The group of students had an idea to scan crop fields using drones and high-spectral cameras to provide high-spectral images to farmers, who would be able to analyze how healthy their crops are. Instead of building a MVP by buying a hyper-spectral camera, image processing software and a drone, Blank could them convince otherwise. Instead of utilizing those early investments in time and money, they rather rented a camera, rented a helicopter to scan a field

and processed the image data manually in order to see whether farmers would actually buy the data.

Concierge MVP

Food On The Table, a mobile app for meal planning that creates weekly meal plans based on a customers tastes and the sales item of a supermarket, originally started with a Concierge MVP. To use Food On The Table customers choose their favorite food items, nearby grocery stores to compare prices, how many meals they want per week and characteristics such as price, variety or healthy. Based on the selection the app scans recipes and provides the fitting recipes with an according grocery shopping list. However, before this process was automated, Food On The Table started with only one customer and visited her personally each week to review the sales item and the preferred food items and would based on this create a list of recipes. The reason for this was to learn what their product would make a success. After a while they accepted more and more customers and got new insights with every new customer. However, at some point the founder of Food On The Table were not able to serve the customers manually anymore and started to automate the process (Ries, 2011).

Fundraising MVP

Oculus Rift, a virtual reality headset, which got bought by Facebook for $2bn in 2014 (Constine, 2014), originally launched a Kickstarter campaign raising ten times more than the set goal of $250.000 (Casserly, 2013).