Lean Startup Business Planning – The Relevance of Learning in Highly Uncertain Circumstances

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ABSTRACT

Conventional wisdom states that to succeed in a new venture, it is best to plan and strategize to control the outcome, and manage that which is not under our control. However, the Lean Startup theory, developed by Eric Ries, counterintuitively states that to succeed in highly uncertain environments, it is best to fail as soon as possible while planning the least amount possible.

The goal is to learn from those failures as cheaply as possible to avoid waste of precious resources, and put them to use in such a way that the goal is not to succeed, but to learn. Success will come naturally as a consequence of the methodical learning process.

The goals of the traditional business plan and the lean startup framework are inherently opposed. However, traditional business plans require a high degree of certainty to become effective, something that is extremely rare for startups that attempt to differentiate themselves from the competition, and therefore, are flawed in their conception.

This concept has revolutionized the entrepreneurial world by storm, with many tools emerging to fit this theory, and thousands of forums and followers applying this concept to their own businesses, which is derived and adapted from the Toyota Lean Manufacturing framework.

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I. INTRODUCTION

In today's world, it is far more likely for startups to fail in their pursuit of success. The reasons are very varied, almost unique to each endeavor, and can range from lack of adequate liquidity, to a lack of appropriate planning. However, this last reason merits a closer look.

What is appropriate planning considered for a startup? Are conventional business plans really adequate for a startup? Surely, it cannot hurt a company, right? After all, it is better to go into battle with a strategy in mind than to go in, blindly swing a blade and expect to come out victorious.

Traditional planning may be the correct approach for some startups, but not for others. Traditional business planning, that in which every aspect of the company has been laid out, even before the first sale has been made, can only work if the entrepreneur knows all the variables. Which product it is making, for what reason, for whom, and how it will get to the customer. The problem: this is rarely the case. It only applies to startups who are copying another business model. But what happens when an entrepreneur has a new idea? And if this new idea is a disruptive idea of current business models, or better yet, solves a problem that has never been tackled, how can a traditional business plan be expected to lay the ground to take action if it is basically making everything up?

That is the issue that this thesis attempts to tackle by putting into practice the Lean Startup Theory into UserSat, a startup with a new technology, and with a traditional business plan.

The goal is to analyze the business plan via the lean startup methodology, utilizing lean startup tools to see if the traditional business plan is on the correct path, or if a pivot is in order.

UserSat's has been in operation for a year since its conception, and although it has been in talks with potential clients, they have yet to land a client. It is now behind in its sales projections for year 1, and is left wondering if they were too optimistic.

II. ABOUT THE COMPANY, UserSat

UserSat is a startup company that initiated operations in 2016. It was founded by Dr. Julia Kiseleva as a result of her research during her PhD. In that research, she discovered a new way to evaluate effectiveness of a mobile app usage utilizing big data and a learning algorithm. It is currently in an accelerator phase with the collaboration of Ace Venture Lab.

A. How and why to evaluate effectiveness of a mobile app usage?

Evaluation is a central component of e-commerce applications because it helps to understand which direction to take in order to improve a system and increase their key performance indicators (KPIs), e. g. conversion rate (browsers vs buyers), number of users, number of loyal users. Behavioral signals (e. g. clicks, mouse movements) on desktops are widely studied and understood. The common practice is to evaluate user satisfaction with web service explicit relevance feedback such as clicks (if user like, they click) and dwelling time (the time that a visitor spends on a page).

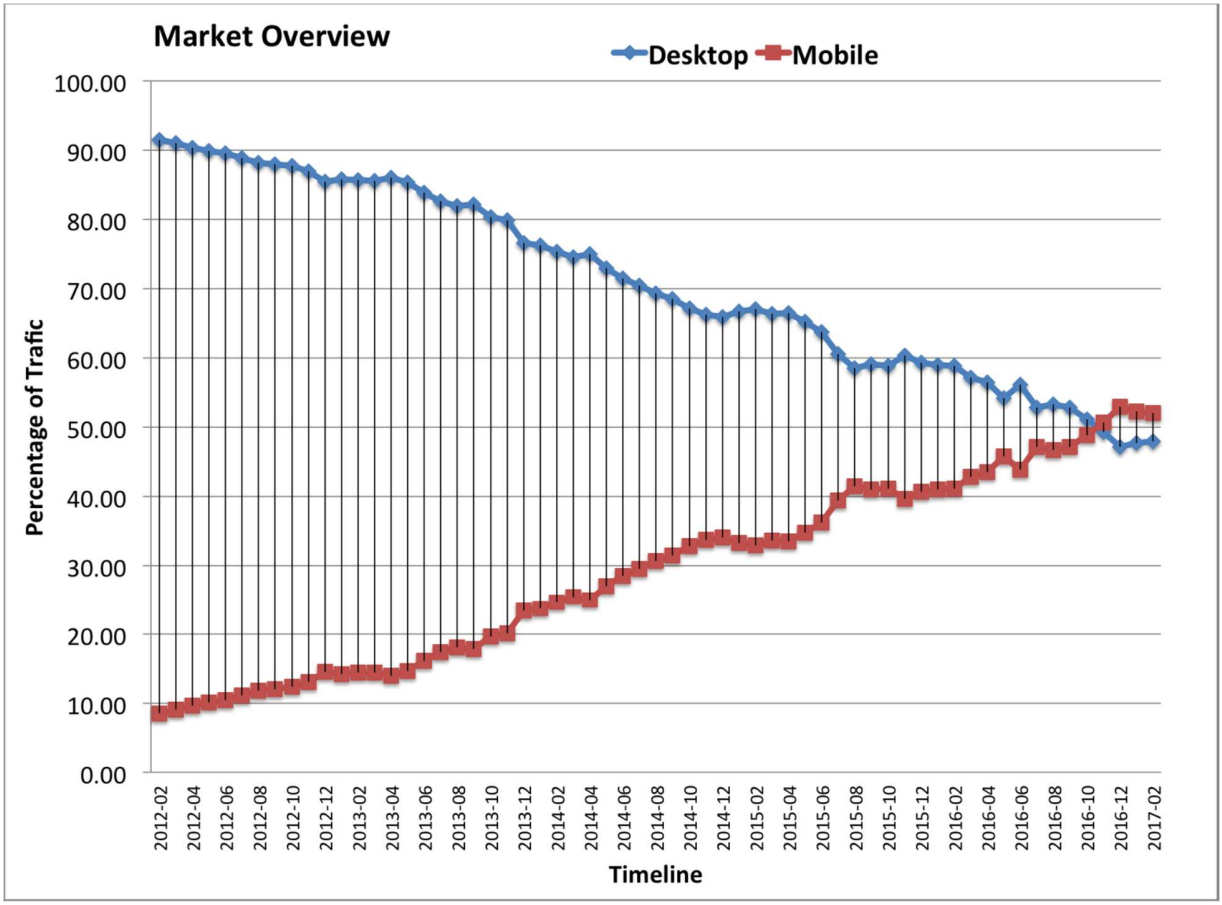
However, recent years have witnessed a rapid explosion in the usage of mobile devices on the web. Internet browsing on mobile devices increased fivefold from 8.53% in February 2012, to 52.01% in February 2017, as we can see from **Figure 1**.

The problem is that user behaviour is very different on mobile devices. Unlike traditional desktops computers with large displays and mouse-keyboards interactions, touch enabled mobile devices have small displays and offer a variety of touch interactions, including touching, swiping and zooming. As a result, usual user behavioural signals to infer satisfaction are not working anymore.

This is where UserSat comes into the picture. UserSat has studied broader variety of user interaction signals that are not based on clicks, such as the previously mentioned, and they have found that they reflect user satisfaction. UserSat proposed an automatic

method to predict user satisfaction utilizing touch gestures. They used a derived list of interaction signals as features to train a machine learning classifier.

Figure 1. Web browsing traffic in mobile and desktop platforms



Source: http://gs.statcounter.com/platform-market-share/desktop-mobile/worldwide/#monthly-201202-201702

Analysing gesture based patterns is an effective way to infer user satisfaction, as it helps to decipher hidden behavioural aspects. Movements of the human body, such as gestures, reflect human emotions. Therefore, by tracking gestures, swipes and touching, UserSat can closely relate these to reveal user emptions, ranging from satisfaction to frustration.

B. Applicability

Nowadays, e-commerce services such as online shops (e.g. debijenkorf.nl, gorillassport.nl, etc.), hotel aggregates (e.g. booking.com) and restaurant aggregates (e.g. opentable.com) have applications or mobile websites to make it more convenient for mobile users to use their services. The e-commerce business is heavily reliant on understanding how satisfied users are with the provided services. To improve these services, their KPI's should be modified to our existing technology, as it can provide with new data that was not available before. However, they all have something in common, they want to improve their conversion rate.

The most practical example one can provide of how the technology works is if one were to imagine a user swiping through a catalogue of dresses on an online shop. However, every time the user sees a dress she likes, she has to tap on the dress to see if the store has the size and colour she wants, which takes her to another screen. If the store doesn't have the size or colour she wants, she has to return to the previous screen and continue scrolling for other dresses. Except, it takes her back to the top of the page. After a few times of doing this, her frustration begins to grow, which UserSat can monitor through her more aggressive swipes and her gestures. Ultimately, the user decides to leave the page as she is frustrated and tired.

The online shop would normally think that the user just didn't find a dress she liked, so she did not buy, ergo it was not a conversion. Normally, the company would track her visit and see that she clicked on some dresses and then went back. This may lead the company to think that the user did not like the dresses, or that she did not find her size or colour, and that they need more types of dresses available for their potential customers. But, as we can see, her decision to leave the online store had little to do with the catalogue itself, but more with the setup of the web page that made the user quit the experience altogether. This is potentially very valuable information for e-commerce businesses as the they can tackle the real issue with the correct information.

III. THE LEAN STARTUP FRAMEWORK

A. Introduction

The lean startup is a framework developed by Eric Ries in which he takes the basic principles of lean manufacturing, a process originated in Japan with the Toyota Production System, and tweaks it to apply it to the entrepreneurial challenge. He first published a book with this idea, “The Lean Startup”, in 2011, and has since blossomed into a global movement, with organized communities who practice this concept in over 100 cities.

The idea originated as a means to revolutionize the way products and services, mainly in the high-tech software industries, were brought to existence by taking super-fast paced design, production cycles to micro cosmos of clients, which led to higher success rates of bringing forward products that clients appreciate and want.

The five principles of the lean startup are as follows:

1. Entrepreneurs are everywhere. The lean startup framework can be applied in any circumstance that has a high degree of uncertainty and chaos, which means it can be applied in any size of institution.
2. Entrepreneurship is management. Albeit, it is not management sense with the classical methods in which planning stems from history and some degree of certainty. However, risk can be managed and therefore requires a new approach to manage the uncertainty.
3. Validated learning. “This learning can be validated scientifically by running frequent experiments that allow entrepreneurs to test each element of their vision.
4. Build-Measure-Learn. The fundamental activity of a startup is to turn ideas into products, measure how customers respond, and then learn whether to pivot or persevere.” (Ries, 2011, The Lean Startup, pg. 9).
5. Innovation accounting. This principle focuses on establishing new ways to measure progress designed for startups.

Ries divides his book into three parts: Vision, Steer and Accelerate, which is the format I will use to discuss his framework, although not all chapters and/or ideas will be discussed.

B. Fundamentals behind the lean startup framework

Vision

A vision statement, a true north, is perhaps the most crucial part of any business. To explain why it is so important, Ries utilizes a very apt analogy between a rocket and a car. He argues that the process of getting a rocket to the moon, for example, requires huge amounts of planning and precise calculation and execution, which if off by only a fraction, could have catastrophic consequences. This serves to equate this process to traditional managerial planning, in which complex plans are made based on a lot of assumptions, and no tests are done to validate those assumptions.

However, driving a car to work, although complex in its own right, requires constant individual steps that altogether compose the necessary strides to arrive at the desired destination. He further explains that if a mistake is made, it can quickly be corrected. But the crucial part about this statement is that just because a mistake is made, doesn't mean one abandons the destination altogether and just stops driving. It only means that we now know better, and can even possibly get there faster. And therein lies the importance of having a mission. Without it, driving has no point other than to drive, which then means that mistakes cannot be made, and therefore, learning is impossible, wondering aimlessly from point to point until we grow tired of the experience and quit it.

From this Ries derives that a product is the result of a strategy, which is in turn the result of the vision. The product changes rather easily through the learning process or optimization. The strategy changes less frequently and is called a pivot, and finally the vision rarely changes. "Entrepreneurs are committed to seeing the startup through to that destination. Every setback is an opportunity for learning how to get where they want to go" (Ries 2011, The Lean Startup, pg.23).

Defining entrepreneurs and startups

In the previous chapter, I talked about two types of planning, seemingly for different purposes. However, this begs the question, does this method only apply for entrepreneurs in the traditional sense? Or could managers in big companies benefit from this framework? The truth is that entrepreneurs exist in all kinds of organizations. When they are found within organizations, in innovation departments, for example, they are called intrapreneurs. This method is useful to them as well because bigger companies tend to have the allure to go big, and plan for it, right from the start. This also leads to a big failure rate. The reason they survive is because they have an established based of products and customers. However, they could be wasting potential.

Now, traditionally, “a startup is a human institution designed to create a new product or service under conditions of extreme uncertainty.” (Ries 2011, The Lean Startup, pg. 27). In this sense, to be considered a startup, there must be a high degree of uncertainty, which is why a business that is a copy of another business, is not considered a startup. Its success only depends on execution, and not on innovation.

Learning

I have already mentioned that having a traditional business plan from the get go is one of the many reasons a startup fails, or at least can take much longer to succeed, and many more resources. The reason for this is that business plans are based on many assumptions. Some may be correct, and some may be so far off that they may cause for a faulty business model, or even the development and marketing of a product that nobody really wants. Traditional business plans rely mainly on research of existing markets for existing segments and products. However, the type of startups that we defined previously exists in a realm of uncertainty, in which current knowledge may not be applicable. Thus, there is a need for learning.

Many of the traditional business plans that are executed run into unexpected hurdles that can vary widely in nature, from business to business. They rely on metrics such as time, budget, revenues, market share, etc., to measure their progress, and even their learning curve. However, if their business plan execution falls short of their metrics and goals, they

have a hard time to understand the reason. After all, they followed their business plan to the letter.

It is only when they approach their customers, if they have any, and their potential customers to try their product and learn from their feedback that they realize that some of their assumptions were off, and that they learn, what Ries calls validated learning. According to Ries, this step can be skipped by making learning the primary goal of a startup, and thus changing the traditional metrics they apply. He states that the scientific method is needed to achieve consistent results in validating or disproving the set of hypotheses that compose the business plan. By doing this, startups have a higher likelihood to derive into the right product, strategy or business model, and therefore, a higher chance of making the startup a success.

Experiment

The Lean Startup methodology is based on an iterative process of learning through the collection of empirical evidence to support or disprove a set of hypotheses. The way to achieve this is through continuous experimentation.

The experimentation is meant not only to validate assumptions, but to understand what customers really need or want. If startups rely only on market research or surveys, they may get answers that seem like the answer to our question, but are in fact answers to other questions. Through experimentation, it is more likely to see what customers want or need, instead of what they think they want or need.

According to Ries, the best way to conduct experimentation is in a small scale while keeping an eye on the vision. This translates into developing a basic prototype that potential customers can use, and use quantitative measures to validate the identified assumptions. It is irrelevant in terms of learning if the metrics are positive or not. The important thing is to understand why the results are the way they are. This leads to learning, which is something that cannot be attained any other way. The reason this is an iterative process is because after the learning has been accomplished, modifications, improvements, or significant changes can be made, to which the product is again put to the test.

This iteration process leads to an almost natural launch and growth of the product because the first experiments are ideally done with early adopters, and after the product has evolved enough, it is ready to be adopted by the majority of possible consumers. This scheme follows the consumer behavior patterns of early adopters and mass consumers because early adopters are more likely to forgive flaws on the product, while the mass majority does not.

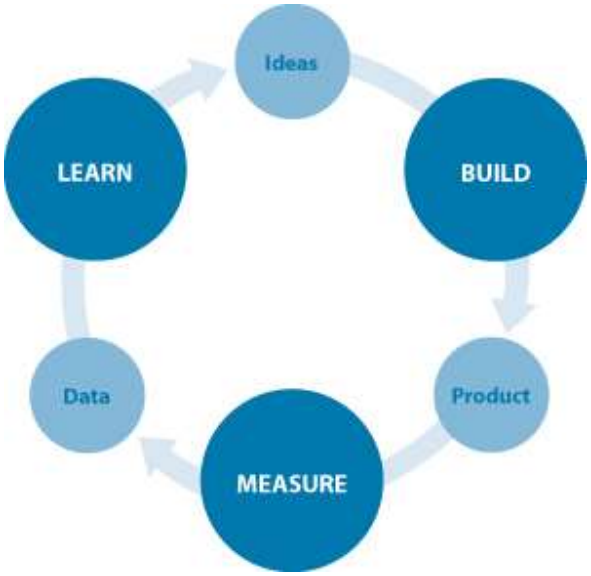
Another important byproduct of this iteration process is that it leads to continuous improvement and adaptability to changing conditions and markets. It is difficult to say when a product is finally ready to be launched. How to determine when a product is complete? It is far easier if this becomes a process in which the product and the consumers grow together.

C. Development of the Lean Startup Framework

As mentioned on the previously described elements of the Lean Startup Framework, the goal is to reach an iterative process. The startup starts with an idea, a vision, then it builds a minimum viable product (MVP), it then puts it through a set of experiments, measures the results to test validate the assumptions, and culminates by taking lessons learned out of the experiments. If one or more of the hypothesis are disproved, it is time to think about pivoting, or persevering. And so, we come full circle and do the process again, as seen on **Figure 2**.

The goal of this loop is to minimize the learning curve by eliminating waste and maximizing existing resources by gradually making improvements and changes, e.g. time and money spent on building and launching a product that nobody wants, and making changes and learning only after the fact.

FIGURE 2. BUILD-MEASURE-LEARN FEEDBACK LOOP



Source. The leans startup, 2011

D. Leaps of Faith

A leap of faith is a hypothesis upon which a product is based and is yet to be put to the test. I have talked about the iteration process through which learning occurs, and which proves, disproves or generates new hypothesis. This process is mainly based on experimentation with early adopters with a minimum viable product. However, this is not the only way learning can occur. Ries states that it is critical to test the leap of faiths entrepreneurs make when conceiving their value proposition. Only by “getting out of the building”, as Steve Blank puts it, can we get to know who potential consumers are, and get to build the minimum viable product to experiment with the early adopters.

Therefore, the sooner this process happens, the better. Startups begin to operate with market research learnt firsthand by taking the time to know their potential customers, and building a customer archetype, personifying the potential customer who the startup intends to create value for.

This also helps to avoid a common trap that startups make when they make their leaps of faith. Oversimplifying other success stories that are similar to their value proposition, and applying it to their situation. As Ries explains it: “Previous technology X was used to win market Y because of attribute Z. We have a new technology X2 that will enable us to win market Y2 because we too have attribute Z.” (Ries 2011, The Lean Startup, p. 82). It may seem that if it worked for X, it surely can work for us. However, it states that it was only because of attribute Z, and no other reason, that the success story took place, which is probably incorrect.

Startups need to go out of the building to test their own leaps of faith, and discover what the conditions are for themselves because conditions are ever changing, and what worked for X and time Y, may not work for Z because conditions are different, and so are consumers, their needs and their wants.

Another important matter to clarify is that it is not so important to have statistically relevant data and go and survey 1, 000 potential customers to have get the picture. The purpose is to come close to understanding the market and the value proposition, therefore validating or disproving leaps of faith. The key point here is getting an idea, a sense of understanding and learning, not coming to complete certainty.

To achieve this, it is crucial to ask why and why again. It is useless to ask if people would buy our product because people tend to give dishonest answers in order to spare our feelings. It is more important to ask them how they normally solve the problem we intend to solve, and why. This helps us understand their problem better, and come to realizations we otherwise would not have been able to stumble upon.

E. The MVP

The Minimum Viable Product, as stated previously, is the product a startup needs to test its most basic assumptions. It should be stripped of any unnecessary addons that do not help to achieve the goal it is set out to accomplish, learning. This is clearly a different

approach from a traditional product development standpoint, as that usually involves a long, thoughtful incubation process which strives for product perfection.

The MVP route has many advantages. First, it helps to reduce waste because it avoids producing a product that may be needed to be tweaked or scrapped altogether, therefore avoiding spending valuable resources on assumptions.

And second, it helps to develop a product according to what customers really want, even if they don't know it themselves. It helps affirm, debunk, or discover new assumptions, and mold the product accordingly, with a far shorter learning curve.

Developers may be reluctant to show a MVP to potential customers partly for fear of false negative results, in which customers reject a flawed MVP that is too small or too limited, and does not accurately represent the value proposition, and therefore try to show their product in all its splendor. However, therein lies another assumption. Startups believe they are providing quality products, when they may not know what quality really is for their customers. To avoid this, here are some ways to develop and test the MVP.

1. A video explaining the product. This method is especially helpful when a product is too abstract, or innovative, and potential customers may not be able to understand its value just by showing it to them, or explaining it to them firsthand. However, in a video, one can show just about anything, even a non-developed product.
2. No product development, but value proposition development. This method focuses on developing the idea, and not the product. This method is especially helpful for service industry based products where the startup focuses on delivering a value proposition to a potential customer, and only after learning what this would look like, does the development of the product occur.
3. The Wizard of Oz testing. This method is based on faking a product development. It fakes the automation that the product requires by doing the work manually. This method is helpful for products that require a high degree of automation and behind the curtain work.

In none of these methods are there final products shown, leaving to the early adopters to fill in the gaps with their imagination. This excites them more, as they can see for themselves, and help give input into what the product could do.

This process demands a commitment to iteration, and an expectation of failure, or rather of learning, and not of validation of self-worth. This in turn demands a systematic and disciplined approach for tracking progress and discovering if validated learning is taking place.

F. Innovation Accounting

A common problem for startups is that they don't know if they are making progress, in the sense that startups should be making progress, which is learning how to grow a sustainable business. Companies usually use accounting practices to set milestones, and when they make changes to a product, if sales go up, they obviously think that they are on the right track through correlation. However, startups are too unpredictable to make accurate predictions and to set milestones. Correlation does not prove causation. This begs for a new way to measure for startups, what Ries calls innovation accounting.

Innovation accounting uses a three-step guide. First, it uses a MVP to establish a starting point for the company. Second, it fine tunes the established baseline towards an ideal. Third, it tracks the progress made and decides whether the current course should be kept or if a pivot is needed.

At the first step, establishing the baseline, some metrics that are commonly used are conversion rates, sign-up and trial rates, customer life-time value, etc. The metrics should be tailored to the business's specific leaps of faith, and should focus on the riskiest of them.

Tuning the engine, the second step in the learning milestone innovative accounting system, focuses on tracking the improvement upon which the company is attempting to zero in.

Finally, the startup, after a defined period of time, looks at the results of their efforts. If the defined measures are better than they were before the fine tuning, it means they are on the right track and that the company should persevere. On the other hand, if the metrics do not move as expected, or at all, it could be a sure sign to pivot.

It is important to avoid misleading metrics which can skew the entrepreneurs' perception of hoe the company is evolving. For example, total sum ups should be avoided because they do not contribute to the tracking of the implemented changes. Instead, monthly, weekly or daily tracking should be performed, depending on how often the changes are being Startups need to go out of the building to test their own leaps of faith, and discover what the conditions are for themselves because conditions are ever changing, and what worked for X and time Y, may not work for Z because conditions are different, and so are consumers, their needs and their wants.

The goal is to track the progress of the implemented changes to see if they have a positive impact, not to make the entrepreneurs feel at ease by looking at an upwards graph because of a sum of total sales. Percentage changes are more helpful in this endeavor.

There are several techniques that help to distinguish between the growth factors startups want to measure and the external factors that are not necessarily improvements. For example:

1. A/B testing. It is the practice to split customers into two groups and handing them different versions of a product to see which features have the desired impact.
2. Kanban. A lean manufacturing principle that means capacity constraint, it is meant to constrain the output of features been done so that the ones that are manufactured are carefully selected and validated, therefore giving a priority to features that help the product move toward the vision according to what has been learnt so far.

However, the metrics are established and controlled, they should include the following properties: be actionable, accessible and auditable.

1. Actionable. It should demonstrate clear cause and effect. Otherwise, it is a vanity metric.

2. Accessible. This property refers to the simplicity of a report. It should be able to be understood by almost everyone. Cohort based reports are considered the gold standard, according to Ries.
3. Auditable. This refers to the credibility of the reports and the data behind it. The mechanisms that generate the reports should favor simplicity.

G. To pivot or to persevere

First, it is important to outline that the Lean Startup is in no way a formula for success. Even though it utilizes the scientific method, it does not mean that by following a certain set of steps or formula, success is guaranteed. There is still a human element involved, which uses a lot of intuition in decision making. Instead, it is a creative process which the Lean Startup framework encourages to follow methodically in order to achieve learning. The culmination of this learning should bring the entrepreneur at a cross roads, one follows the same path, the other is called a pivot.

A pivot is a change in strategy based on the learning curve that the company has gone through. It occurs when the basic assumptions, or hypothesis have been disproven, irrespective of how many of them have done so. Normally, it is only one or two hypothesis that need to be reformulated, and so the process continues. “A pivot requires that we keep one foot rooted in what we’ve learned so far, while making a fundamental change in strategy in order to seek even greater validated learning.” (Ries 2011, The Lean Startup, p. 154).

The important thing to take into account when facing a pivoting/persevering decision is that pivoting does not mean that everything that was built so far was for naught. Entrepreneurs should plan for the decisive moment in a structured fashion. Many companies decide to have meetings every two months, or every month with the expectation to make such a decision. This helps eliminate the fear of failure, and instead celebrates the fact that something has been learnt, and that the goal is closer than it was

before. When pivoting, the goal is to take what was built, and to repurpose it to more productive endeavors, not to discard what has been done so far.

There are many sorts of pivots. Here are a few that a company may encounter:

1. Zoom-in pivot. A feature in a product becomes the whole product.
2. Zoom-out pivot. A product becomes only a feature of another product.
3. Customer segment pivot. The product solves a problem for customers, just not the ones the company initially thought it planned to serve.
4. Customer need pivot. The target customer has a problem that is worth solving, but it is a different one than the one the company set out to solve. The same product could be repositioned, or it may require an entirely new product.
5. Platform pivot. A change in delivery of the product. Example: application to a web based page.
6. Business architecture pivot. The concept is based on Geoffrey Moore's observation that companies follow two business architectures: high margin, low volume (B2B) or low margin, high volume (B2C).
7. Value capture pivot. This refers to the revenue model.
8. Engine of growth pivot. A change in the way a company seeks to expand.
9. Channel pivot. A change in the distribution channel.
10. Technology pivot. A change in the technology used to solve the same problem.

On the other hand, if the company has validated its hypothesis, and has decided to stay the course because the metrics look similar to what they expect them to be, then it is time to improve on the MVP to make it appealing for the mainstream customers, who are far less forgiving and more demanding.

IV. APPLICATION OF THE LEAN STARTUP FRAMEWORK

Now that we have talked about what Lean Startup is about, it is time to put it into practice. To do that, we require the use of some specific tools to analyze UserSat's current

situation, both from within the company, as well as the environment it is in. First, to analyze the company, I will use the Business Model Canvas, which is a very useful tool utilized by hundreds of companies nowadays. Next, I will analyze its environment through the Environment Business Canvas, which is part of the Business Model Canvas. After that, an analysis of UserSat's current chosen customer segments is necessary to understand those clients better, given the information that we have so far, and thereby stating the assumptions that UserSat currently has.

All of the above is necessary to have the overview of the company, and to be able to identify the assumptions it made when it decided to go into business. After the analysis, a list of leaps of faith will be made, which will be put to the test by approaching those customers, with the clear goal to learn about their problems, and how they currently solve them, if at all.

As a result of the learnings, assumptions should be either confirmed or debunked. In any case, UserSat will have more information, and will be at a better position to pivot, if necessary, or to stay the course.

A. Vision statement

The first step discussed in the Lean Startup framework, is the vision statement. Any strategic plan requires a true north, the place where the visionary sees its company in a timeframe of at least 5 years. It should be broad enough so that it doesn't accidentally exclude potential opportunities, and not so vague that it is generic and can be applied to just about any company.

The vision statement agreed with UserSat's owner, Julia Kiseleva, is the following:

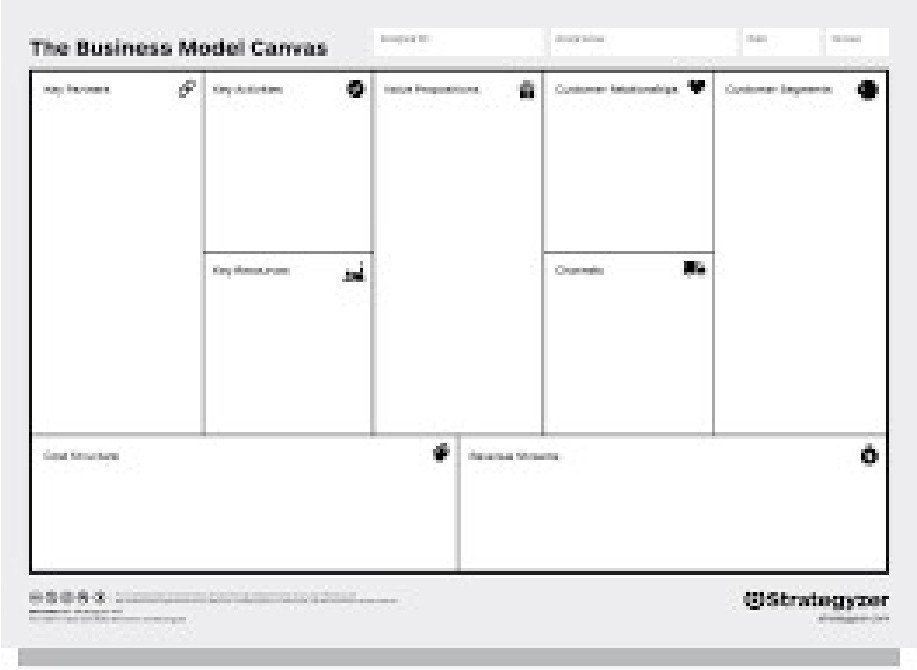
To help our customers improve their interfaces by providing them with accurate information on user interaction with touch screens.

This vision statement is broad enough as to be able to approach other potential customer segments and platforms, but still focused on delivering the value proposition for those potential clients. The business model will be built in order to achieve this vision.

B. Business Model Canvas

The "business model canvas is a strategic management and lean startup template for developing new or existing business models. It is a visual chart with elements describing a firm's or product's value proposition, infrastructure, customers, and finances." (https://en.wikipedia.org/wiki/Business_Model_Canvas). It was first proposed by Alexander Osterwalder in 2008. Below is an example of the template as **Figure 3.**

Figure 3. The Business Model Canvas.



Source. Strategizer.com

The business model canvas is divided into 9 key segments, which are suggested to be filled in the following order: Value proposition, customer segments, channels, customer relationships, revenue streams, key resources, key partners, key activities, and cost structure.

The business model canvas can be filled in two different stages, following the spirit of the lean startup framework: First, with a set of assumptions and ideas that are limited by our own experiences and world view. And finally, after those assumptions have been tested, and corrected. It is a good idea to do this as it will give us a good idea on the changes, adjustments and pivots we need to make to be more likely to make the business a success.

So, let's start by describing each element and applying it to our case in hand, UserSat.

1. Value proposition.

The value proposition answers the question: What are you building and for who? However, it is not about the idea or product itself, but about solving a problem or a need for a customer. It is important to think about the value proposition from the client's perspective. They are trying to fulfill a need or trying to solve a problem. However, the clients don't care about how it is done. That is, they don't care about the features of the product, or the technology behind it. They only care about their needs or problems. In the words of Theodore Levitt: "People don't want to buy a quarter-inch drill, they want a quarter-inch hole" (Clayton Christensen, 2016).

It is helpful to make a distinction between needs and problems for customers. For example, people can have accounting problems, or word processing problems. Then again, people may want to be entertained, or want to go on a date, or communicate with their friends. The latter are needs, not particularly problems. It is important to make the distinction because the markets are comparatively different in size, being the needs larger (The Business Model Canvas - 9 Steps to Creating a Successful Business Model - Startup Tips, https://www.youtube.com/watch?v=IP0cUBWTgpY).

In the case of UserSat, we can see that the product solves problems for customers. Here are some of the propositions we perceive to be of value to the customer:

1. Favorable cost benefit ratio if compared to alternatives (data science team).
   Having a data science team is costly and it is therefore almost solely used by big corporations. The algorithm allows for smaller companies to achieve what big corporations do, and for big corporations to save money on what they are already doing.
2. Insights into mobile usability issues.
   Although there are alternatives to our solution, they do not encompass the spectrum of the problem like our algorithm does because they are unable to measure real user's satisfaction/ frustration while navigating their mobile interface.
3. Tailored KPI based recommendations
   Because UserSat's algorithm is able to learn, it is also able to adapt to the different measures and KPI's different customer segments can have.
4. Improvement on conversion
   Ultimately, the improvement on usability leads to an improvement on conversion from user to paying customers.

2. Customer Segments

The next step is identifying our customers. To do this, it is important to think of all the geographic, economic, social characteristics. In our case, our customers are businesses, not individuals. Therefore, to identify our customers, we need to think who has the problem that our product solves. In this stage, we outline the archetypes of our customers. However, we need to know them in detail, and at this stage it is impossible to know them exactly, or to know in which customer segment to focus first.

However, it is important to note that, although they are all potential customers, they are not all as likely to adopt our solution at the same time. According to Geoffrey A. Moore, the market can be divided into 5 different stages of technology adoption, as can be seen in **Figure 4**.

It is then important to identify and focus on innovators and early adopters as they are more likely to adopt our new technology. At this stage, it is only with a set of assumptions that we can identify our potential initial customers.

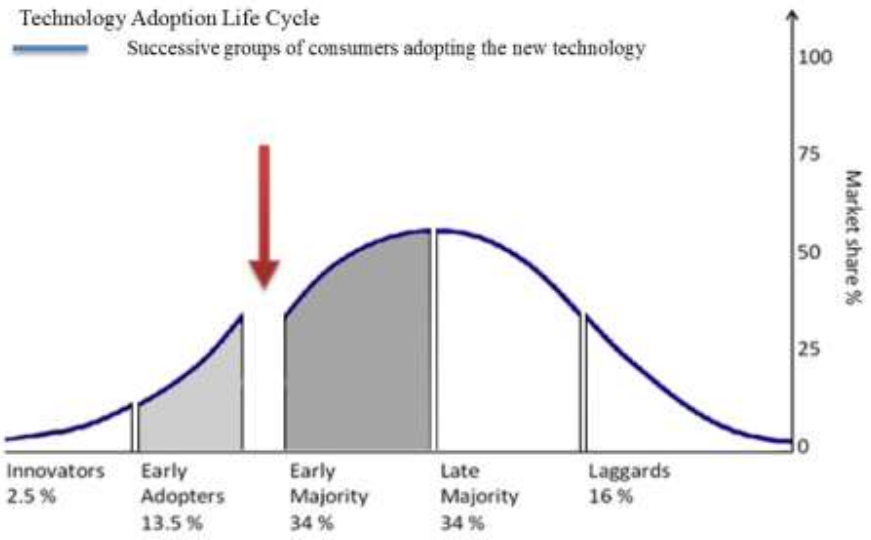


Figure 4. The Chasm in the Technology Adoption Life Cycle (Moore 1991)

For UserSat, the client archetype that has the problem that we intend to solve is the business that has a mobile device based e-commerce. We can then also sub-divide these into online shops, hotel aggregates, and restaurant aggregates.

3. Channels

This element refers to distribution channels. That is, how does our product in outlined in the value proposition gets to our customer segments? This could be physical channels, like stores or sales representatives, or they could be virtual channels, like online shops.

For UserSat, because of the nature of the product, our clients, and the stage where the company is, it makes sense to have physical as well as virtual channels. Specifically, we would need to make contact with potential customers through sales representatives, and have an online presence through which potential customers can learn from UserSat and contact us.

4. Customer relationships

This key element of the Business Model Canvas mainly focuses on answering three questions: How do I get new customers? How do I keep existing customers? And, how do I grow existing customers?

The first question may sound a little like the question answered in distribution channels. However, having a web page does not mean that potential customers will visit the virtual channel. You need a way to get customers to visit that specific distribution channel, for example.

More interestingly are the two questions that follow as they may lead to a more strategic thinking and long-term planning. How to get existing customers to spend more on your company is also associated with companies that already have a strong base of customers, and it mandates to have a good relationship with your customers.

For UserSat, this key element may be solved best through our defined distribution channels. That is, sales representatives would have the responsibility of maintaining a good relationship with existing clients. Although the web page is a good way to attract new customers, promoting the existence of the web page to our targeted customer segments doesn't make sense, as they are businesses. Therefore, customer relationship will be managed by sales representatives.

5. Revenue Streams

This key component answers the question: How does the company make money from each customer segment? This leads to think of a revenue model, not so the pricing tactics of the product, which is of course important, but how this price will be charged is more important.

Some examples of revenue models are direct one-time charging, freemium model (in which a company gives away the product for free and charge for other services, such as maintenance, or unhinged use of the product), subscription model, and license models.

For UserSat, a one-time charge could deter our customers from acquiring our product. A subscription model could make sense, as it is a product that also requires a service, and is also an ongoing service.

The revenue model could be based on our customers' customer user sessions, and it could look something like the depicted in **Table I**. At this point, it is impossible to know how much a company would be willing to pay for this service, but we estimate that it depends on the size of the company itself.

Table I. UserSat revenue model

Subscription	User Sessions	Euro/month
Start	0-1,000	Free
Growth	1,000-50,000	150
Premium	50,000-200,000	500
Go Big	200,000-500,000	1,000
Big	500,000-1,000,000	2,000

6. Resources

This key component asks what key resources are needed to make the laid our business model work. Some examples could be financial resources (loans, capital), physical resources (manufacturing plant, machines, vehicles), intellectual resources (patents, customer lists, people), and human resources.

UserSat mainly requires an office space, a web page, sales representatives, it' s algorithm, and an information storage cloud for the information gathered and analyzed.

7. Partners

Very similar to the previous key component, we need to know who are our key partners and suppliers to make the business model work. What key resources are we acquiring from them and what key activities are they going to perform and when?

UserSat has a few key partners at this stage, mainly its business advisers, both inside and outside of the company (the university accelerator program), banks from which the company intends to fund itself from, and Amazon because of its Web Services Cloud that UserSat intends to use.

8. Activities

What are the most important things the company must do to make the business model work? To answer this question, it is imperative to think back at the value proposition. The key activities that will allow us to give our targeted customers the differentiated value that would make them want to buy our product over the competition.

In UserSat's case, understanding that each business is different, and that it has different metrics is crucial. Therefore, tailored KPI analytics that are based on the type of business are a big part of the activities that need to be performed. From there, we need to provide the client with the analytics and recommendations.

Also, key to making our business model work is the acquiring of sales representatives that have experience with our targeted customer segment.

9. Cost structure

This key point is very straight forward. It demands we think of the most important costs that we will incur in by performing the key activities that we outlined, and the resources needed to perform those activities.

UserSat does not have many costs, but they are fixed. The main costs are the rental of offices and the payment of its human resources. Fortunately, this also means that, because there is low variable cost, it could reach breakeven point faster.

UserSat's preliminary Business Model Canvas

Now that we outlined all the key components of the business model canvas, we can make one for ourselves. It is important to note that this canvas, seen as **Exhibit A**, is filled with assumptions that have not been properly tested, and that further market research is needed, as well as going outside of the building to test assumptions (talking to possible customer segments) to see which assumption are verified or rejected, and make the proper adjustments to our business model, if needed. UserSat has already contacted some potential customers, mainly Bijenkorf's online sales platform, and booking.com. But the intend was not to learn and validate their assumptions, but to sell their product. So, further analysis is needed to understand their needs, validate them, and understand why, even though they say they are interested, a sale has not come of UserSat's approach.

We now have all the elements that comprise the product, the company, ant the value proposition, but further insight into the customer is needed to identify the basic assumptions about the potential customer segments that UserSat is making. For that, the Value Proposition Canvas is of help.

C. Environment Business Canvas

In the Business Model Canvas, I laid out the elements which comprise UserSat, elements that of which UserSat has more or less control over. However, now it is time to analyze the environment on which those elements live. Those elements are important to identify because they could give further insight into opportunities, or threats, that have not been considered. Those elements could lead to further assumptions that were made, but that are unaware of them.

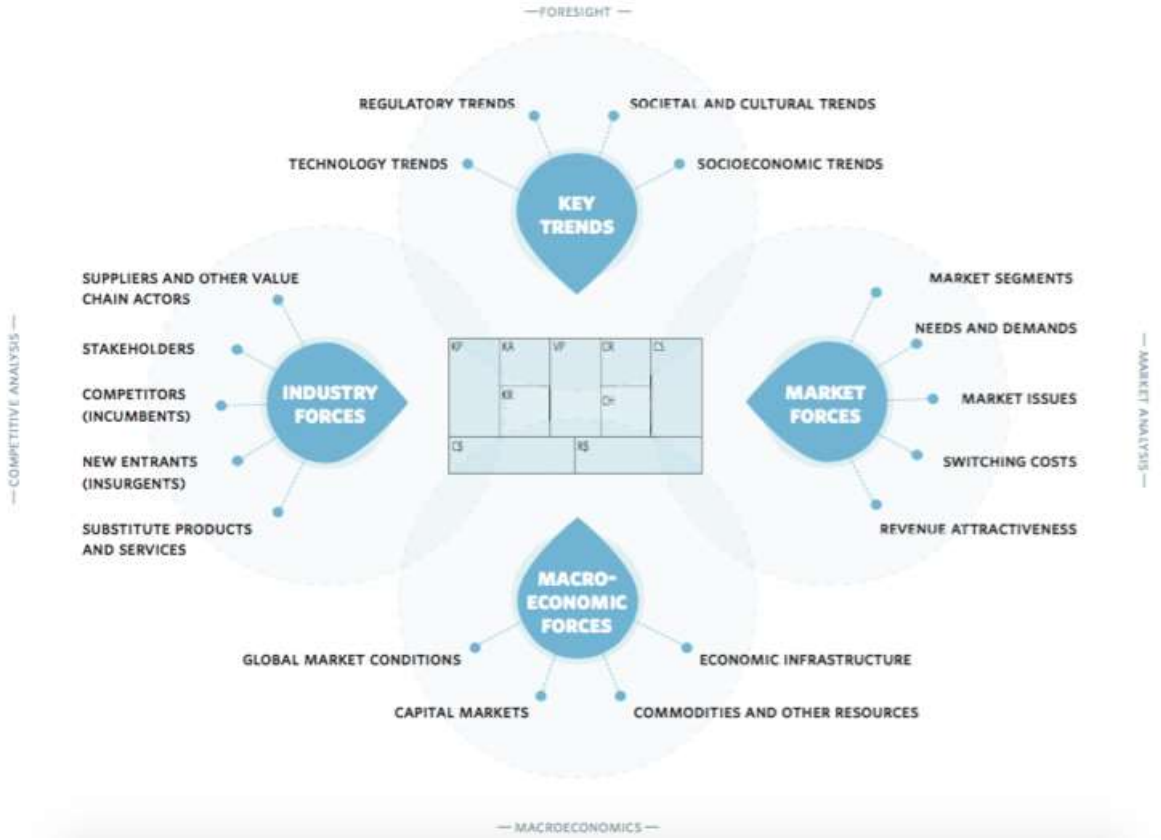
Below is an Environment Business Canvas, which is part of the Business Model Canvas (**Figure 5**). It is comprised by market forces, key trends, industry forces and macro-economic forces.

1. Market forces

This relates to the customer segment selected and invites the user of this tool to think of other possible customer segments that may have been overlooked. Along with that information, the user should think about their possible needs and demands, the reason to take or leave the value proposition, if there are issues with that market, if it would be hard for them to switch from their current solution to yours, and what the revenue percentage might look like.

Just like there may be other factors that may be important to market forces, and that if known, should be established on the canvas, there may be elements that are either not applicable, or just too difficult to determine. If so, it's just as important to state the known, as well as the unknown, so the entrepreneur can prepare scenarios, and when testing assumptions, can assert the outcome.

Figure 5. Environment Business Canvas



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In UserSat's case, we have established that the customer segment for whom the product is designed for is for online selling mobile platforms. However, the product can analyze user interaction satisfaction for other types of companies, just as easily. This could potentially impact completely unrelated industries with mobile web or app presence, such as online magazines, advertisers, social media, etc. The scope is so big, that I will state it as any company that has an online platform that can viewed through mobile devices.

The needs each that each of those customer segments has may be very different. However, it is safe to assume that any company wishes to optimize the user interaction, even if the end result is not conversions. It may be that social media platforms, such as Facebook, would utilize such a tool to increase the permanence rate of its users, for example.

Because the potential customer base is so vast and varied, which is very good news for UserSat, it is useless to speculate further on entry barriers, switching costs, or revenue attractiveness. Each customer segment may be unique in each one of those elements. Therefore, the next tool that will be used, the Value Proposition Canvas, should be filled out for every potential customer segment that is identified.

2. Key trends

Here, the tool addresses new technologies that are, or will be available; regulations that may create opportunities, or threaten the business model; how society in general is behaving; and the socioeconomic trends.

In UserSat's case, there is the potential threat that the smartphone as we know it, ceases to exist. This is of course years from happening, but maybe not decades. UserSat's algorithm is designed to read swipe patterns, as well as facial expressions, which would be obsolete in case the smartphone is no longer the technology utilized. This may mean that UserSat's business model comes with an expiration date, maybe one that is in the ten years, or it may mean that the algorithm could be adapted in case the technology shifts. Although this is speculation, big companies, such as Facebook, and big-name entrepreneurs, such as Elon Musk, are currently investing heavily in augmented reality technology, and in neural link technologies, respectively (Time, 18 April 2017, Will Smartphones ever be obsolete?). Those technologies could make the smartphone obsolete because they change the way we interact with the interface. In any case, it would be worth to keep track of technological trends for future planning.

As for societal and socioeconomic behavioral trends, they may be irrelevant for UserSat as its business model is business to business based. Changes may have an impact, but as of now, they are unforeseen.

3. Industry forces

Here the goal is to identify elements that shape the industry such as competitors, potential competitors, substitutes, stakeholders and supplier chain values, if applicable.

As for competitors and potential competitors, a thorough analysis on their services, their weaknesses and strengths can be seen in **Exhibit B**. It is noteworthy that no competitor

completely offers the services that UserSat offers. Most focus on desktop computers web analytics, which makes them potential competitors only. For actual competitors, they all lack the facial expression analytics that UserSat offers, which is the factor that sets them apart from UserSat. It is necessary to see if the needs of UserSat's potential customer, that are currently using any of the services that competitors offer are really met with their products, or if UserSat's value proposition does a better job at it.

As for substitutes, this is an extremely important point to consider because big companies such as Google, Facebook, Uber, etc., hire their own data scientists to fulfill their needs. Only those companies do this because it's an expensive solution. However, it could be that having an in-house team of data scientists provide them with additional solutions as well. If this is not the case, they could also fall into the scope of potential customers.

4. Macro-Economic Forces

This force includes the analysis of capital markets and global economic conditions in general. Fortunately for UserSat, Europe has enjoyed economic and political stability since 2012 or so, and there does not seem to be any reason why this would be affected any time soon. Unfortunately, economic crises don't give huge warning signals before they happen. So, even though a downturn is bound to happen eventually, economically speaking, UserSat could be poised to ride with the economic growth that Europe, and other parts of the world are currently going through.

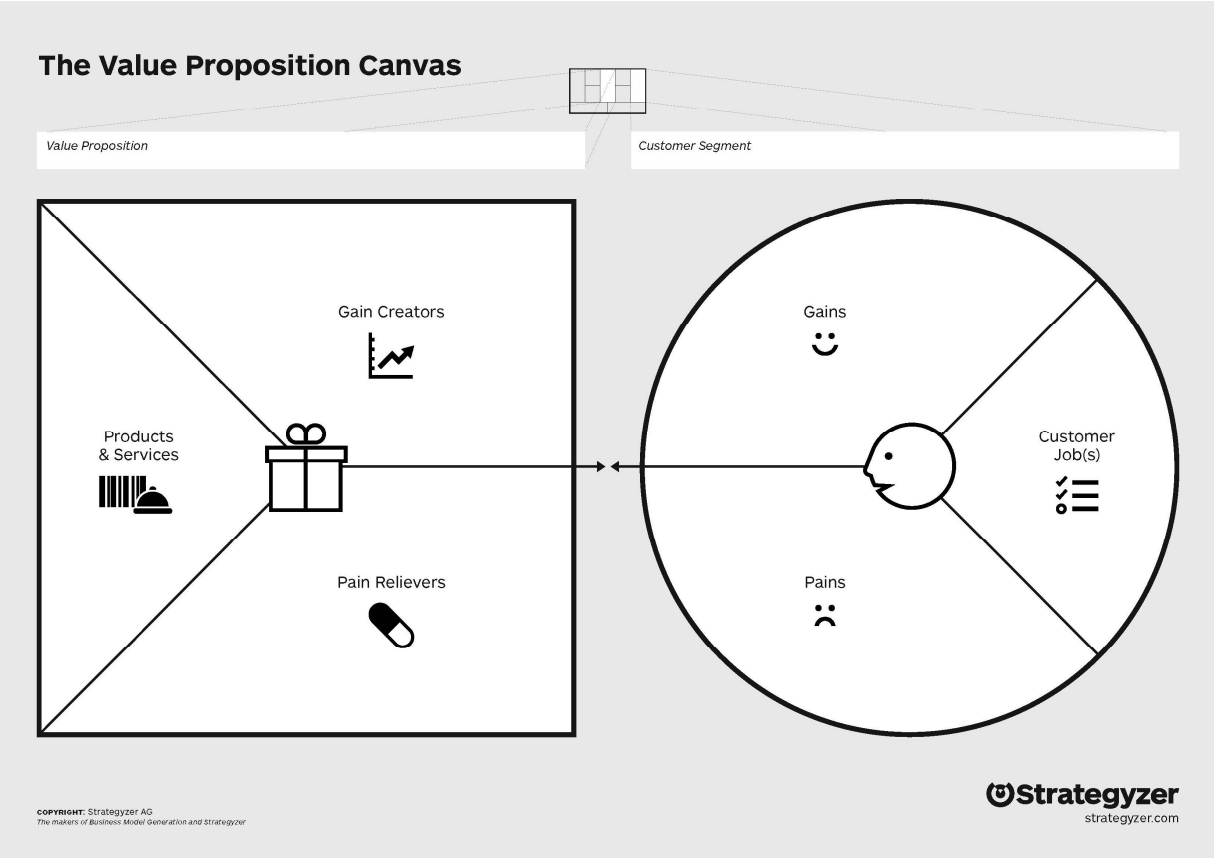
Now that the whole picture has been laid out, it is easier to understand where UserSat is standing, how the market looks, and how its future could look, based on the assumptions that it is making. However, there is one more factor that merits even further analysis, the value proposition that we are making for the selected customer segment. For this, another valuable tool comes in handy, the Value Proposition Canvas.

D. Value Proposition Canvas

The Value Proposition Canvas is a tool that helps to design, test, build and manage the customer value propositions, for a particular customer segment. The design, test, build

and manage aspects are in line with the Lean Startup framework. Because every customer segment has its own peculiarities, a different canvas should be filled for every one of the customer segments chosen to attack. In this instance, because the goal is to test the assumptions already made by UserSat, the value proposition canvas that will be analyzed will be for the online sales platforms customer segment. Below, on **Figure 6,** is the value proposition canvas.

Figure 6. The Value Proposition Canvas



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The tool is like a plug in to for the Business Model Canvas, and it is based on two of the elements that compose said canvas, the value proposition and the customer segment. With the value proposition canvas, both can be mapped with more detail to gain more

insight to the customer and the products that are being offered to show the fit between them. By doing so, it may be possible to discover possible gaps between the two.

The customer segment profile

It describes the characteristics of the potential customers in more detail. It is composed by the customer jobs that customers are trying to get done, the pains they go through or try to avoid getting those jobs done, and the gains that customers have or would like to have.

1. Jobs. This is based on Clayton Christensen's, "The jobs to be done theory of innovation" which states that customers have jobs that need to be done, and that they acquire products that fulfill that in the most efficient way for them. For example, executives of McDonald's observed that customers bought milkshakes at a very early hour during workdays. The reason they preferred that beverage in the morning is because it fulfilled an important need for them: it was a filling beverage which workers could drink on their way to work, without great danger of spilling the beverage all over them, like hot coffee would. It was convenient for them because customers had a job, to grab something filling which could be ingested easily on their way to work, and no other product met their needs quite as well (a burger or a sandwiched carried risk of being too distracting, and of spilling and messing their clothes) (Christensen 2016, Harvard Business Review)

   In UserSat's case, the main job that their potential customers are trying to achieve is the need to maximize their conversion rate. It doesn't matter how they achieve this, as long as it is done. The only reason to make their user interface friendly and easy to use is to get their own customers to buy from them. So, if customers are not happy with their platform, and they don't know about it, it creates a gap between what they provide and what their customers want, which ultimately translates into less sales.

2. Pains. This refers to the costs that the potential customers go through to before, during and after they attempt to get a job done. This could be emotional distress, high costs, or unwarranted risks.

UserSat's chosen customer segment undergo many pains to achieve their goal. Big companies, which have the capital to do data analytics, invest huge amounts on their own teams to get the needed analytics to improve their platforms. Smaller companies have to rely on benchmarks, and on focus group type of data mining. Only by talking to their customer can they get the information they need, which could be insightful, but could also be faulty, as it would be hardly statistically meaningful.

3. Gains. The third aspect of the customer profile analysis describe the benefits that the customers expect or desire. This could be cost savings, positive emotions, social gains, and increased wealth.

   UserSat's customers gains from fulfilling their jobs are increased customer happiness with their own interface, which translates into higher conversion rates, and higher revenues.

Value proposition features

On the other side of the map, there is the value proposition features that the company offers to address the customer's jobs, pains and gains. The features are built around the products and services that the value proposition is built around, the pain relievers outlining how the products and services alleviate the customer's pains, and the gain creators that those products and service provide to the customer.

1. Products and services. It is just a description of the products and services that the startup has to offer to help the customer get a job done, and to address their pains and gains.

   UserSat's product, as has been discussed, is the data analysis for mobile platform interfaces.

2. Pain relievers. They make explicit how the products and services will alleviate specific pains that the customer undergoes while trying to get a job done.

UserSat reduces the cost that the alternative provides, having a team of data scientists. Also, it is more reliable than focus groups because it provides metrics, and is based on actual user interaction data, not on opinions, or on how well the company can get the information they need from the customer.

3. Gain creators. The third aspect of the value proposition make explicit how the products and services offered to the customer provide value when trying to fulfill a job.

   UserSat provides accurate analytics, at a comparatively low cost, with tailored KPIs that help understand user interaction in order to improve upon it.

A problem-solution fit has been achieved when jobs the customer has are done by the products and services provided, while the pain relivers alleviate the pains the customer has, and the gain creators match or surpass the expectation that the customer has. Once the market validates this match with real customers and the value proposition gains traction, it is said that a product-market fit has been achieved. In other words, the startup built a product that perfectly fits the market it incurred. In **Exhibit C,** we can see the value proposition map for UserSat.

E. Leap of Faith Validation

After a detailed analysis of UserSat has been conducted, it is time to see where we made assumptions, and which are more important. It is noteworthy that not all assumptions made impact the company, or the product, in the same way, and therefore, it is necessary to make a list with a prioritization in it. I have arranged the list by priority in accordance what I believe to be the biggest assumptions, and the ones that need confirmation as soon as possible. However, all assumptions need validation, and they will prove their criticality on their own.

Another important note is that a lot of research went into the development of the product, which means some form of validation has occurred in the process, with enthusiasm shown by companies. However, the issue on the reason why it is yet to land a client remains. Therefore, I will focus on validating the assumptions on the customer's end mostly, as seen on **Table II**.

To validate, I approached 5 companies that had an online sales platform and one company that developed mobile applications for other companies. One of the companies approached was booking.com, and the other 4 were small to medium sized companies, 3 in the travel industry and one in the sports and sports clothing industry, Decathlon.

The focus was to have conversations on what their problem was, how they solved, and follow up with a lot of "why" questions. This methodology may not be statistically significant, but that is not the goal. The goal is to have an idea on where UserSat stands and if the path chosen is in accordance with reality.

Table II. UserSat LOFAs

#	LOFA
1	Customer segment best suited to target is the online sales companies with a mobile platform
2	Reason for buying is to know their customers better, ultimately increasing their conversion rate
3	Customers want customized KPIs so they can make their own conclusions and changes to their platform
4	They are willing to pay a subscription fee instead of a percentage of their increased sales due to increased conversion rate
5	There are early adopters within the targeted customer segment because they want the competitive advantage that the product will give them
6	Data scientists are perfect substitutes for our product
7	Customers will replace their analytics with ours
8	Customers only want result, not to be involved in the process

LOFA validation results

1. Customer segment best suited to target is the online sales companies with a mobile platform.

This question was somewhat difficult to answer as it presumes you know the needs of other customer segments as well, which is false. However, the reasoning for this assumption is that their problem is a perfect fit for the product. After talks with the companies, it did indeed seem that they were mostly aware of their problem. Most of them tried to solve it by modifying their platform after having feedback from their customers. They modified it with a trial and error methodology. Only booking.com used analytics from one of the competitors, but it was used for their desktop platform, as most of their sales still came from that platform.

In conclusion, the market – product fit assumption is confirmed.

2. Reason for buying is to know their product better, ultimately increasing their conversion rate.

This assumption turned out to be correct as well. However, they not only have revenue metrics that motivate them. They want to provide the customer with the best customer experience as well, and have metrics (which were not revealed to us, at this time) to measure the quality of this aspect. Surely, conversion rate is one of the metrics.

3. Customers want customized KPIs so they can make their own conclusions and changes to their platform.

Yes, customers want customized KPIs, but they also want solutions. This is an eyeopener because the value proposition does not include giving suggestions to the client on how to fix the identified problem. This is also contradictory to what UserSat wants to do, or better said, does not want to do, which is provide a consultancy service.

4. They are willing to pay a subscription fee instead of a percentage of their increased sales due to increased conversion rate.

Although the companies expressed they would be willing to pay a subscription fee, they also expressed they would be willing to share the profit of the increased revenues.

5. There are early adopters within the targeted customer segment because they want the competitive advantage that the product will give them.

This is one of the biggest assumptions made by UserSat, and it is not true. The companies expressed they would be willing to try the product if it proved to be useful. This is especially true for booking.com, which has many employees, and has to go through many departments to get such a product approved to be introduced in the company. This is probably the main reason UserSat has not been able to close an account yet. They also expressed a fear that the code that has to be introduced into their product would mess up their product, which is also why they would need prove it has worked elsewhere. They do not want to be the guinea pigs for a new startup.

6. Data scientists are perfect substitutes for our product.

This assumption was not able to be validated because none of the companies used a team of data scientists to analyze their data. This assumption need to be validated with companies that use such an alternative, like Facebook or Google.

7. Customers will replace their analytics with ours.

False. Companies will try to validate the analytics provided with their own methods. If UserSat points out a mistake in the user interface, they will approach their clients to verify before making changes to their platform.

8. Customers only want result, not to be involved in the process.

This is also false. Given the options, the companies would like to track the analytics at work. They would like something like a user interface in which they can access their data, and see the analytics through graphs and KPIs. They do not trust a black box, in which they cannot see what is going on, or how the information is being gathered and analyzed. In short, they want transparency.

In conclusion, the customer segment selected, although ideal for the product, is not the customer segment which UserSat should be focusing on because they are not early adopters, they are the mainstream customers which adopt a product once its usefulness has been proven, and that the product has been improved upon to match their expectations.

This helped to uncover another assumption that was not in the list: customers will trust UserSat and the product. This turned out to be false.

However, there is a silver lining as the application developer company seemed very interested in incorporating the product into their apps because it would provide them with the opportunity to make improvements to their applications, giving them the chance to provide continuing service to their clients. Nowadays, they deliver the product that the client asks of them, and if modifications come, they are also based on what the customer tells them needs improvements. This could give them a new revenue stream.

V. RECOMMENDATIONS

After validations of the leap of faith assumptions have been done, it is a bit clear as to why UserSat has not been able yet to land a single client. Even if it did manage to land a client, it would not matter, and in fact, could put the company in even greater peril to fail because it could give them the indication that the ball is to roll, and that the chosen path is the correct one. This, if they do not use a cohort analysis, which would uncover that one client signed, out of all the clients contacted, is almost insignificant. Therefore, here are some recommendations for UserSat based on the analysis performed.

1. Do a customer segment pivot. At the Lean Startup framework description, I talked some of the different types of pivots that Ries has encountered. One of the most common is the customer segment pivot, which is a change on the customer segment that the company focuses on reaching.

   The LOFA validation gave a strong indication that the online sales companies with mobile platforms is not the market that UserSat can break into. This doesn't mean that it is a market that is not interested in the product, it just means that they are not early adopters.

   I would suggest performing another value proposition canvas for the application developers as customer segment, to begin with. There was high interest in either

acquiring the services of UerSat to build the code as part of the application, and provide continuing service to their clients with UserSat's analytics. This could also turn into a partnership, in which UserSat can share the profits of the add on service that is created.

After the canvas is done, LOFAs should be identified and validated, as was done with the online sales customer segment.

Other customer segments could also be attractive, and should be studied as well. The market size of the customer segment, and the size of the customers should be taken into consideration, but not determine the decision to attack that market. The size of the market should be big enough to matter, but small enough to become the dominant player in that customer segment. Of course, they should be early adopters, willing to try the product before anyone else. Only after the company has dominated that customer segment, can it think to incur into other markets that were previously unavailable to UserSat. This principle is discussed amply in the book Crossing the Chasm (Moore 1991), in which it talks about how companies can go into mainstream customer segments, effectively crossing the invisible barrier that exists from early adopter markets to mainstream customers.

2. Revisit the idea of not providing customers with a consulting service. This may be another pivot in the product offered. The logic behind this idea is that it not scalable. However, this is not necessarily true. Providing the customer with solutions could be part of the built expertise, and can be charged as such. Furthermore, it could be that not all customers, or customer segments want this add on service to the product. This can only be asserted if it is validated in each customer segment, and weigh the pros and cons of providing the service.
3. Perform a split test with customers to see which revenue model is more attractive for UserSat and its customers. Once the customer segment has been defined, an A/B test with two different revenue models could provide UserSat with additional revenue. One revenue model I suggest trying is to charge the company with a percentage of the revenue that is generated due to the use of UserSat's product. This could be beneficial to the client as well because they would only pay if they are earning, which,

conventional wisdom would suggest is beneficial to both parties, and therefore, desired.

The other revenue model is the one that is currently being promoted, based on the number of visits the platform has.

4. Make the product more transparent. One of the biggest issues identified was the lack of trust in the product. Not because they didn't trust its people, or thought it would harm them (stealing their data somehow), they didn't have a reason to be guarded in that sense.

   On the other hand, they didn't have a reason to trust it either. The product acts as a black box to them because they have to take the word of UserSat that the analytics are being done by this magic algorithm that somehow detects the emotions of its customers while using their product. It would be a completely different story if they could see how the algorithm is filling with information through graphs that show how the customer is reacting. My expertise does not allow me to go further into this recommendation. However, it does seem that turning the analytics into displayable information is something that could be done.
5. Continue with the build-test-learn loop. The analysis performed has only scratched the surface, and was only one iteration of this never-ending cycle that encourages the entrepreneur to think differently by recognizing potential opportunities that would have been otherwise overlooked.

   This becomes particularly relevant as eventually, the smartphone, the platform which this technology impacts the most, will eventually be replaced. UserSat must keep in mind its vision, if it wishes to stay alive, and even update it if it has outgrown its use. The only way to do this is by providing new products and services.

VI. CONCLUSIONS

The Lean Startup is a useful tool that is meant for scenarios of high uncertainty. It eliminates de fear of failure by encouraging the entrepreneur to fail, constantly. This will

eventually lead to a state of certainty for which traditional business planning is more aptly suited.

There are other tools that could complement the analysis. For example, mapping out the customer journey is very helpful to identify gaps between customer expectations and reality. When trying to build a new product, an entrepreneur should always strive to build something that will give him a competitive advantage and differentiate him from the competition, if there is any.

In line to identifying these gaps, and to complement the analysis to build a unique business model, the blue ocean strategy is also a very good way to separate the startup from competitors and substitutes.

Finally, the analysis was more focused on debunking, or confirming LOFA that had to do with the customer segment, and not with technical aspects of the product. I lack the expertise to advise on the product itself as it was the product of a doctorate degree. However, applying the tools described in this company project, new insights and improvements could come of it.

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VIII. EXHIBITS

Exhibit A, The Business Model Canvas

<table>
<tr>
<td rowspan="2">Key Partners

- Entrepreneurs and Advisers

- University accelerator

- Banks

- Amazon</td>
<td>Key Activities

- Tailor KPI analytics based on type of business

- Send client analytics and recommendations

-Acquire sales talent</td>
<td rowspan="2">Value Propositions

- Favorable cost benefit ratio if compared to alternatives (data science team)

- Insights into mobile usability issues

- Tailored KPI based recommendations</td>
<td>Customer Relationships

- Creating and maintaining clients through sales representatives</td>
<td rowspan="2">Customer Segments

Mobile device based e-commerce service businesses

- Online shops

- Hotel aggregates

- Restaurant aggregates</td>
</tr>
<tr>
<td>Key Resources

- Unique machine learning algorithm

- Amazon Web</td>
<td>Channels

- B2B sales

- Online</td>
</tr>
<tr>
<td colspan="3">Cost Structure

Mainly fixed costs for employee salaries and office rental</td>
<td colspan="2">Revenue Streams

Subscription model with monthly fees based on number of monthly user sessions</td>
</tr>
</table>

Exhibit B. Competition analysis.

Company Information	Product Description
Mixpanel founded in 2009 in San Francisco, CA and total fund-raised was 77 $m. Business model is `volume pricing'	They are mostly concentrated on web. In addition, they measure what people are doing in your app on iOS, Android but only from perspective of user actions such as click, login etc. In contrast with UserSat, Mixpanel just applies the existing solution (with action) for mobile, they don't collect any native types of mobile such as gestures
Kissmetrics founded in 2009 in San Francisco, CA and total fund-raised was 5.50 $m. Business model is `freemium'	They check what's working and what's not across all campaigns, mobile and web. Similar to Mixpanel they don't offer a special solution for mobile
Flurry founded in 2005 in San Francisco, CA and total fund-raised is 63 $m. Business models is `freemium'	It monitors the trends and habits of mobile users across multiple mobile applications. Flurry as well did not give insights how app is used. It was acquiesced by Yahoo in 2014.
Localytics founded in 2009 in Boston, MA and total fund-raising was 60 $m. Business model is subscription	Localytics analyzes users, understands their behavior in the app, and tracks their interactions across every other channel. In contrast with UserSat they don't specialize on mobile marker so don't track gestures features.
Appannie founded in 2010 in San Francisco, CA and total fund-raising was 157 $m. Business model is `freemium'	The company provides the analytics of one's own apps with a granular understanding of the competition and market
App figures founded in 2009 in New York City and total fund-raising was 157 $m. Business model is `freemium'	It is app tracking platform for app developers and publishers. App figures shows statistics about app review etc. In contrast with UserSat it does not provide app usage
Countly founded in 2013 in London. Business model is `volume pricing'	It is real-time mobile and web analytics that provides information on application usage and end-user behavior. In contrast with UserSat it does not provide applications usage.
Adjust founded in 2012 in Berlin, Germany. Business model is `volume pricing'	The company provides open source SDK, app developers can track and analyze user acquisition, feature releases, user lifetime cohorts.
Upsight founded in 2012 in Tel Aviv, Israel and total fund-raising was 3 $m. Business model is `subscription'	Upsight provide a mobile analytics and marketing platform but in contrast UserSat they don't provide gesture analysis.
Appsee founded in 2012 in San Francisco, CA and total fund-raising was 23 $m. Business model is `subscription'	See everything your users do in your mobile app by watching video recordings of real user sessions, but it can be done only for limited number of users (e.g.) user study. UserSat can visualize any user session at scale.
Apsalar founded in 2012 in San Francisco, CA and total fund-raising was 23 $m. Business model is `subscription'	Using apslar an app publisher can identify their best users, segment them into audience groups, and apply data modeling techniques
Appanalytics founded in 2015 in San Jose, CA and total fund-raised was 0.30 $m. Business model is `freemium'	This product allows to see all specific touches, first touch, second touch, etc.) as a heat map analytics. That is most progressive software for now which is taking into account gestures, but they report them as separate statistics not making sense of gestures for the end users as UserSat is doing

Exhibit C. UserSat Value Proposition Canvas

Value Proposition

Customer Segment