Continuous Experimentation In Customer Development

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Abstract—**It's not uncommon for start-ups to fail after the initial launch. This usually is the result of investing more to developing a product or service than what what it will generate in return. To address this problem Steve Blanks wrote a book about his Customer Development methodology [1]. It encourages the entrepreneur to test hypotheses before committing to developing the product extensively and expensively.**

This methodology doesn't differentiate whether you're selling lemonade or providing online service. Agile methods and Lean principles in today's software industry has some different rules than traditional industry. While in both it is not easy to guess what could be a product that sells, creating and delivering a new version of software is much easier than products in traditional industries. This paper revisits the Customer Development process from the point of view of continuous delivery and experimentation.

I. Introduction

At the heart of Customer Development there is the scientific process of making hypotheses, putting them to test and learning from those tests. The Customer Development starts when there is a product or an idea of a product and the focus of Customer Development is in finding, if there is a market for the product and who the customers would be and how to market the product to different customers. Customer Creation also addresses the transition from a startup to an organized company.

With the coming of Agile and Lean principles and continuous development it is feasible to ask which parts of the Customer Development could benefit from these methods. This paper goes through the Customer Development process and addresses where and how some core principles, such as build-measure-learn, minimum viable product, continuous deployment and split testing could be used.

Although the Customer Development process does not differentiate between different kinds of product, this paper assumes a software based product that can be developed iterative and a new release is possible to make virtually automatically.

In the first chapter the Customer Development process is described with added content from continuous experimenting. The second chapter describes some Lean principles and tools and how they affect Customer Development process.

II. Customer Development

The Customer Development process itself is divided into four steps: Customer Discovery, Customer Validation, Customer Creation and Company Building. It emphasizes learning amongst other things. It's an iterative process where the steps can be repeated indefinitely. In a process like this the cost of

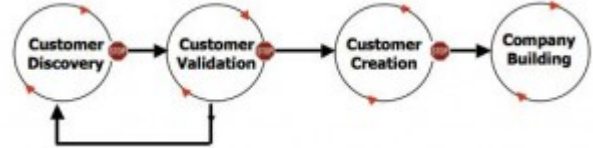and time consumed by the iteration becomes something to be concerned of.

Fig. 1. Customer Development process from The Startup Owner's Manual. Used without permission.

A. Customer Discovery

At the start of Customer Discovery step there needs to be at least a vision of a product or a service. The vision is converted into a several hypotheses (product, customer and problem, distribution and pricing, demand creation, market type, and competitive hypotheses) claiming that the product will solve a problem which potential paying customers are experiencing and that there are feasible ways to get the product to customers and that business will be financially sound.

Steve Blank's famous quote Get out of the building is in the heart of this. There can be educated guesses, gut feelings or faith, but the facts will lie in the real world with the real customers. These hypotheses are sanity-checked with potential customers, the emphasis being on verifying whether you have understood the problem correctly, not whether the product fixes the problem.

This phase requires a lot of finesse from the interviewer to not affect the answers by unintentionally implying what kind of answers are wanted. Secondly when meeting face to face it's possible to read other information (such as attitude, comprehension of the questions) from the interviewee that would be lost if they were answering an online-questionnaire. Thirdly this phase is used to evaluate and categorise customers and spotting the Earlyvangelists from the Saboteurs is easier when meeting face to face.

Once enough of the potential customers have been interviewed the Customer Development team brings the findings back to the company and shares them with the Engineering.

With the help of Engineering team the riskier parts of the solution would be identified and real life tests could be executed for those by building or faking parts of the solution in order to verify that they could work in real life.

Based on this information the product and customer briefs are updated. the potential customers are revisited and it is asked whether, in their opinion, the product features fix the

problem. The downside in this is that asking correct questions and interpreting the answers is difficult and a customers don't always know what they need.

In the final phase of the first step is to gain an overall understanding of the market. For this purpose you need to talk to people in the industry, read books and articles while trying not to give away your business idea to possible competitors.

With all the information you now have to make a decision, whether to abandon project, take a step back and reiterate or go forward to Customer Validation. If it turns out that the startup project as such is not feasible but with some modifications could be or if this step has given ideas for a new product.

In web and mobile industries, however, the Customer Discovery step is started when the first mock-up of the web site or the application is created and online [3]. The users are attracted to site or application with commercials or by social media and word of mouth. Metrics are gathered and the users are analysed and categorized according to their behaviour. The heavy users are then asked for feedback. The product is then continuously being developed according to feedback and periodically published.

The customers of web and mobile applications usually are big in numbers invest only small amounts of money. Having a sales person going over to each of these customers is cumbersome and deemed waste by Lean principles. In this case getting out of the office though other means, such as email, would be sufficient.

B. Customer Validation

In Customer Validation step a repeatable and proven way to sell the product to certain types of customers is being developed. At the beginning of this step there are hypotheses who would buy the product and why. These customers are called Earlyvangelists.

Earlyvangelists are customers who have a problem, are aware they have a problem, have been actively looking for a solution, have already assembled a solution of sorts and have acquired a budget for the addressing the problem. These are considered the most important customer for startups for they are the ones for whom the product is at the beginning developed for.

In first phase the Value Proposition is created. It states what the company stands for, what does the product do and why is it valuable to the customer. This is followed by preparing the sales material, developing preliminary distribution channel and preliminary sales roadmap, hiring sales closer, aligning the executives and formalizing advisory board.

To sell something, one needs to haPennanenve something to sell. In the next phase the Minimum Viable Product (MVP) is created (or defined) and attempted to be sold to the Early-vangelists. Firstly this reveals the customers with whom you are going to be developing the product, secondly it tests that there really is someone willing to pay for the product (i.e it's features solve someone's problems and, even when buggy, with missing features or non-existent) and thirdly, you need to verify that you will have a reusable Sales Roadmap. After this phase there should be enough product orders to justify continuing the development.

Next phase the market type (existing, new or resegmented) is decided and the Product Positioning (What the product is compared to others) and Company Positioning (What the company stands for compared to the Product) are created according to it. These are presented to analysts and influencers for feedback.

In the final phase everything up to this point are verified. There needs to be orders, a working sales roadmap, working distribution channel, updated sales and revenue plan and an operationsPennanen plan to scale the company. If they are verified, then move to next step where the mainstream customers are addressed.

If the product still has not sold, take all the material you've learned and return to step one.

In web and mobile development the success is based on revenue gotten from the working MVP. The application itself does not have to be sold in order to generate revenue. There are several other ways of creating income. There can be commercials in the product, additional content may cost or the features of the "free" version may be limited for example. If the revenue comes from the advertisers, the number of clicks is a good metric to measure.

The continuous iterative process develops the product, the metrics used are being gathered automatically. there are channels that are used to gather other feedback from the customers. These are analyzed and and actions are taken according to the data.

C. Customer Creation

At this point only the technology enthusiasts (Early Evaluators) and the visionaries (Earlyvangelists) of the market section have been addressed. In this step selling to the mainstream market is the focus.

The steps starts with choosing a market type and therefore the Customer Creation strategy. For this purpose the Earlyvangelists are consulted using questionnaires. Existing market has benefits of knowing who the customers are but the competition is more fierce. New market has no competition, but the customers are unknown. Re-segmenting a market challenges and boons depend on how well the market segment was chosen. Pennanen The first year goal is set for sales and Customer Creation. The market is estimated for size, availability and customer budgets. Company's strategy, goals, objectives and milestones are written down. The Customer Creation budget is put together.

The company and product positioning messages are developed (i.e. what the company or product does compared to other). These are done with internal and external questionnaires, usually with the help of PR-companies and they depend on the market type. Pennanen Next the customer audience is defined (what is the mainstream customer segment targeted), the messengers (people or organizations who, when convinced, are effective at spreading the message) are selected and the message (memorable slogan or name which affects peoples perception in a favourable manner) is crafted. The product is launched.

In rare cases there is already a big demand for a product. In this phase we have only just introduced the product to the

big audience. The next final phase of this step is to try create demand for the product and verify whether there product can be successful in the real market. Up to this point the product has been developed for the few, now it's time to see that it scales up.

Targets and strategy is defined for the product demand. Metrics to measure are developed. If there is not enough demand and sales do not go up, it's time to analyse where the problem might be.

AARRR-metrics can help finding out that there is a problem an help pinpoint where the problem might be. Is it a problem with not reaching the customers, customers not starting to use the product, customers not returning to the product, customers are not referring the product to others or the product is not making money. Analysing the metrics can lead to improvements in the product

It also could be that another company is just plain outperforming your company. Being the first on the market doesn't guarantee anything. As soon as your product or idea is out, it's available for others to copy.

D. Company Building

In Company Building the mainstream customer base is created and the startup is transitioned from an informal Customer Development team into an organization.

Depending on the market type the motivations of visionaries and mainstream customers (pragmatists and conservatives) may be different. this creates a chasm between the two groups. In new market the chasm is bigger (and therefore crossing tha chasm is more difficult) than it's in the existing market, while in resegmented market the chasm size is somewhere in between.

First phase of Company Building is to cross that chasm. The scalable sales process created for the visionaries doesn't apply to pragmatists. The pragmatists will not tolerate hard-to-use software that doesn't work. It can be also that the problems of early adaptors are not the problems of mainstream users.

AAARR-metrics can identify users who don't want to use the product and they can be targets for questionnaires trying to find out reasons for their actions. According to these suggestions improvements can be implemented and released in a fast cycle.

There is no need to scale the company until sales process for the mainstream customers has been discovered and the chasm has been crossed. The longer this takes the more likely it is that the market is taken by the competition and the startup has to revisit previous Customer Creation steps or exit.

If mainstream customers accept the product the startup is faced with new challenges. Scaling costs money, which set limits to how fast the startup can grow. Too slow growth may prevent it from scaling rapidly enough to exploit the market. Competitors will do their best to hinder startup's success and outgrow the startup. Also the product life cycle may be limited, measures need to be done to accommodate for when that happens.

If the mainstream customer base as been created it's time for the board to review the CEO and executive staff and decide whether they are capable of scaling the company. The entrepreneurial-drive mindset of learning and discovery of the current executives has to make way for more mission-oriented management mindset.

Next the company mission is created. It's a refinement of the ones proposed in Customer Discovery step.

The Customer Development team has through the previous steps discovered how to build repeatable sales and channel roadmaps. It no longer has the capability and resources to match the grown requirements of the mainstream market and need to transitioned to scalable organization with functional departments. The departmental mission statements are crafted stating why people work there, what they need to do, how can they know they've succeeded and how they contribute to corporate profit goals.

In new market the sales department has to change their tactics, because the Earlyvangelists and the mainstream customers do not necessarily have much in common. They need to find out how the two groups differ and develop a strategy for reaching them.

To survive the everyday life, the company needs to pay attention to what is going on, assess the situation, make decisions fast and carry out the decisions. This OODA-loop (Observe-Orient-Decide-Act) [4] needs to be built into the so-called Fast Response Departments which are created next.

A Fast response Department has in addition to mission statement in is mission intention which states what should be done and why. It leaves the the employers freedom to decide how to achieve the goals.

Employees taking initiative is a big asset to a company in order discover new opportunities. In continuous experimenting this is mandatory. Employees still need to keep the mission and intent in mind and remember to coordinate their actions in the department. Pennanen

Mutual trust and communication between the employees and executives minimizes the need for supervision and employees can trust that executives give then needed leadership and support.

The company also needs to know - in detail and overall view - what is going on in the company (both good and bad news). It needs to keep an eye on the customers and competition. It needs to follow the latest in trends and technology and it needs to be able to view itself from the customers point of view.

When a company has all this, it's easier to make "Good enough" decisions fast enough and to follow those orders with swift actions. n the midst of this everyday turmoil the company needs to make sure all deparments are on the same level with what the missions are.

Finally a leadership culture needs to be built. Things that contribute to this are sense of being a part of a team, delegation with "trust but verify", creating supportive atmosphere, encouraging and reward initiative. The leadership culture depend on the employees with willingness to exercise initiative, to take responsibilities and judgement to act wisely.

III. LEAN PRINCIPLES AND TOOLS

A. Minimum viable product

The minimum viable product (MVP) is a working product with minimal set of functionalities and which is saleable. The product does not need to be easy to use or reliable. It's been purchased and used by Earlyvangelists for whom it solves problems.

MVP can be used to study how customers use the product and analyse what kind of improvements can be done. It's also good for the customers to be able to work with the product and give feedback. All this will improve the product's quality.

B. Build-measure-learn

Build-measure-learn is a loop where a version of product is build and deployed, metrics are taken from its usage and the metrics are then analysed for further actions.
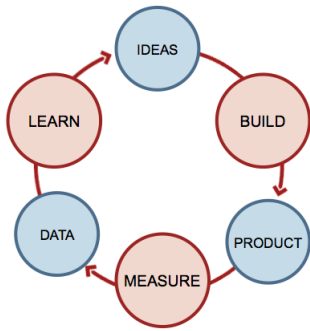

Fig. 2. Build-measure-learn -cycle from Lean Startup. Used without permission.

C. Accountable metrics

One fundamentals of Lean Analytics and build-measure-learn are metrics. In [2] there are described what kind of metrics to use and how to find the One Metric That Matters. These metrics allow important information about the customers and market, when interpreted correctly.

D. Lean Canvas

Thee are a lot statements and definitions made in Customer Creation process. Lean canvas is a tool for Lean startups to make it's business plan. This helps also in Customer Development process

E. McClure's "Startup Metrics for Pirates" (AARRR)

AARRR-metrics are acronym for the five different measurements to use to study user behaviour (Acquisition, Activation, Retention, Referral, Revenue)

If the product is not creating enough revenue from the Earlyvangelist or the mainstream customers, the AARRR-metrics can be used to pinpoint where the problem in the sales funnel is.
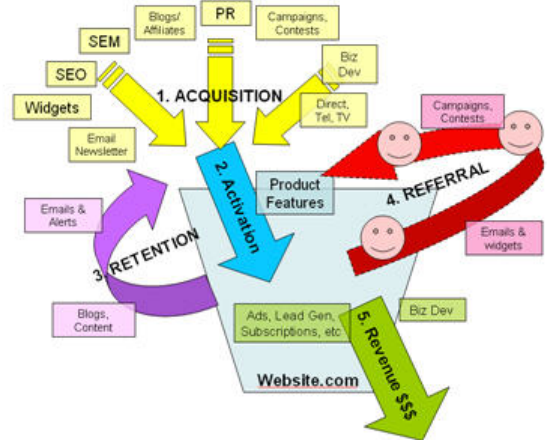

Fig. 3. Customer Lifecycle Behaviour by Dave McClure. Used without permission.

F. How to be happy in business venn diagram

Bud Caddell describes how to choose what to work on as a combination of what we want to do, what we can do and what we can be paid to do.
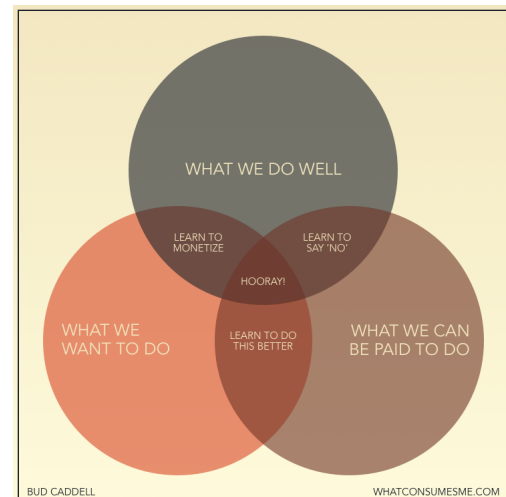

Fig. 4. Venn-diagram by Bud Caddell. Used without permission.

This can be applied in the beginning of or before the Customer Developoment process. List things that you are good at and want to do and then do research which of these you could be paid to do. Alternatively in the Company Building step it would be according to the Information Culture if the sales targeted to areas in which the employees wish to work. In these approaches, there could be an overwhelming amount of possible venues to choose from. It would be advisable to use tools, such as Analysis of Competing Hypotheses (ACH) [5] to narrow down the number of feasible hypotheses by attempting find facts that speak against different hypotheses. As a result, the least unlikely hypotheses will rise on top and should be investigated.

IV. Conclusion

In the beginning of the Customer Development process the information flows manly from Customer Development Team to Engineering. With software development and continuous experimenting Engineering can get more accurate and valuable information faster by testing solution parts in real life with built-it-before-you-built-it and MVP. Creating new metrics will create some extra effort but after that gathering of the statistics should happen automatically.

Engineering can make a big contribution to Customer Development by verifying or dismissing hypotheses with accountable metrics. As these metrics can be gotten automatically in every iteration so they can be compared. This combined wit A/B testing speeds up the process by increasing parallel testing.

Continuously experimenting and learning from the customer and the market adds to Customer Development process. Testing the market with Minimum Viable Products using build-measure-learn could help minimize iterations it takes to create the correct set of features.

Finally in Customer Development the aim is to find customers for a product and in Continuous Experimentation the aim is to develop a product that the customers want. Combining these two gives a more leeway to find that compromise. Continuous Experiment needs customers in order to decide what to build and can help Customer Development in finding those customers by developing the product the market wants.

Acknowledgment

References

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