Customer Pattern

(1) Appealing Idea

Motivation: Without an idea there is no business. Business ideas are based on problems or needs. Existing businesses execute business models, startups look for them.

What to do: Choose a problem or need you wish to address. Plan a potential solution to tackle it.

If you do not already have an idea, start thinking about problems you personally face, or a need that you have that no current product can address. For additional inspiration, you may wish to look at new, emerging technologies, demographic or societal shifts, or simply watch other people online or offline.

Common mistakes: Falling in love with your idea and becoming unwilling to change it later on. Being afraid to share your own ideas.

Sources: *[1] Alvarez, S. A., and Barney, J. B. (2007). Discovery and creation: alternative theories of entrepreneurial action. Strategic Entrepreneurship Journal, 1(1-2), 11-26.*
[2] Blank, S. (2013). Four Steps to Epiphany. K&S Ranch.
[3] Ries, E. (2011). The Lean Startup - How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Crown Publishing.

Customer Pattern

(2) Great Pitch

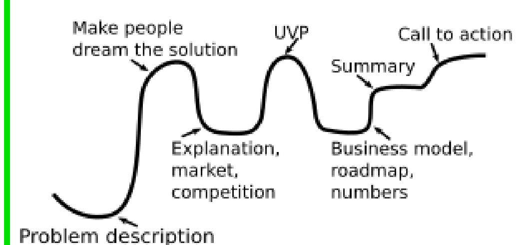
Motivation: Pitching means presenting your idea and your business in a concise manner. I.e., selling your idea.

What to do: Prepare a pitch for your startup and keep it up to date as you progress. Practice until you know it word-to-word. A pitch is usually 1 to 10 minutes. The focus of the pitch depends on your progress and your audience. Pitches typically include at least:

(1) Problem: what problem are you solving?
(2) Solution: how are you solving the problem?
(3) Customer/User: who is your target audience?
(4) Business: how do/will you make money? Numbers!
(5) Market: how big is it? Is there competition?
(6) Team: who are you?

Use evidence to back your claims up. Convince your audience you are not just selling them your hallucination.

Common mistakes: Unclear explanations. Failing to explain core aspects of your startup, e.g. business model. Not practicing your pitch beforehand.



Sources: *[1] Colin Clark (2008) The impact of entrepreneurs' oral ‘pitch’ presentation skills on business angels' initial screening investment decisions, Venture Capital, 10(3), pp. 257-279.*
[2] Moss, J. (2018). How to Make A Winning Pitch Deck for Your Startup. Retrieved from <https://www.forbes.com/sites/forbesnycouncil/2018/08/28/how-to-make-a-winning-pitch-deck-for-your-startup/>

Customer Pattern

(3) Validating the Appealing Idea

Motivation: Before building a solution, it is crucial to ensure that the problem or need your startup is trying to address with it is real. Without a market there is no business.

What to do: Validate the existence of the problem by collecting data. Based on the data you gather, change or improve your idea as needed.

The most straight-forward way to do validate your idea is to ask people directly (e.g., interviews, surveys). When pitching your startup idea very early on, you can also simply ask if anyone in the audience has faced the problem you plan on tackling. Additionally, you may use other, less direct ways of validation such as searching the Internet for data supporting the existence of the problem.

Common mistakes: Not validating whether people would actually pay to have the problem solved. Asking biased or leading questions while validating the idea. Insufficient validation.

Sources: *[1] Blank, S. (2013). Four Steps to Epiphany. K&S Ranch.*
[2] Maurya, A. (2012). Running Lean: Iterate from Plan A to a Plan That Works. O'Reilly Media Inc.
[3] Ries, E. (2011). The Lean Startup - How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Crown Publishing.

Endeavor Pattern

(4) Get the Right Team Together

Motivation: Many investors consider the team to be the most important part of any startup. An idea is only worth something once a team successfully executes it.

What to do: Understand the capabilities of your startup team. Divide responsibilities in your team based on the strengths of the members. Be committed.

If your team lacks key capabilities such as programming skills, leverage your personal networks in an attempt to find the missing pieces. Depending on the audience, you can also mention it in your pitches if you are looking for new team members for your startup. Alternatively, you may simply have to learn to do new things yourself.

Common mistakes: Failing to divide responsibilities in the team according to the strengths of each individual. Failing to adapt to your team's needs; if new skills are needed, you may have to learn them. Not being committed to your startup.

Sources: [1] Kemell, K. -K. et al. (2020). Business Model Canvas Should Pay More Attention to the Software Startup Team. In proceedings of the 46th Euromicro Conference on Software Engineering and Advanced Applications (SEAA), Portoroz, Slovenia, 2020, pp. 342-345.
[2] Seppänen, P. (2020). Yes, We Can! Building a Capable Initial Team for a Software Startup. In: Nguyen-Duc A., Münch J., Prikladnicki R., Wang X., Abrahamsson P. (eds) Fundamentals of Software Startups. Springer, Cham.

Finance Pattern

(5) Create a Business Model

Motivation: Having an idea you think is great is the first step. Figuring out how to monetize that idea is the next one.

What to do: Decide on how you will make your idea into a business. Where will the money come from? Who will use your product, and how will they pay for it? If the users are not the ones paying for it, who is?

Perhaps the most commonly used tool for describing a business model briefly is the Business Model Canvas (BMC). The BMC splits business models into nine parts: (1) Key Partners, (2) Key Activities, (3) Key Resources (4) Value Propositions, (5) Customer Relationships, (6) Channels, (7) Customer Segments, (8) Cost Structure, and (9) Revenue Streams. Do not forget to place emphasis on your team. As a new startup, you do not have much else going for you yet!

Keep your business model plan up-to-date. Early on, it is likely to keep changing. However, once you are more confident in it, supplement it with financial calculations. Refer to card (14).

Common mistakes: Having advertisements as your only planned revenue stream. Though potentially feasible, it can make getting investors on board harder early on. Making very detailed business plans early on. Unless they are made for a clear reason, think twice about making some, as you might just pivot tomorrow!

Sources: *[1] Osterwalder, A., Pigneur, Y., & Clark, T. (2010). Business Model Generation: A Handbook For Visionaries, Game Changers, and Challengers. Hoboken, NJ: John Wiley & Sons.*
[2] Kemell, K. -K. et al. (2020). Business Model Canvas Should Pay More Attention to the Software Startup Team. In proceedings of the 46th Euromicro Conference on Software Engineering and Advanced Applications (SEAA), Portoroz, Slovenia, 2020, pp. 342-345.
[3] Zott, C., Amit, R., and Massa, L. (2011). The Business Model: Recent Developments and Future Research. Journal of Management, 37(4), pp. 1019-1042.

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Customer Pattern

(6) Mapping the Competition

Motivation: As a startup, it is important to understand your competition. Someone is likely to already have carried out your idea or something close to it – or someone may have tried to do so in the past.

What to do: Search the Internet, in-depth. While searching, also use synonyms and think of alternative ways to express your idea. While pitching, be mindful of any notions the audience may have about having seen similar ideas in the past. If competition for your idea exists, your startup needs to have a unique value proposition that gives you an edge over your competitors. Think of ways to become better than your competitors, or pivot.

Common mistakes: Not doing a thorough job searching for your competition. Forgetting the idea of substitutes. E.g., though your mobile game idea may be completely unique, you are still competing with other mobile games: your hypothetical users have a limited amount of spare time they can spend on digital games.

Sources: *[1] Maurya, A. (2012). Running Lean: Iterate from Plan A to a Plan That Works. O'Reilly Media Inc.*

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Endeavor Pattern

(7) Establish Your Initial Way-of-Working

Motivation: To work efficiently, your startup team has to agree on a way-of-working. A way-of-working encompasses work from team communications to programming.

What to do: Agree on the tools and methods your startup team will use. How will you communicate? When and where will you work? What software will you use?

Your way-of-working should evolve as you progress. Practices and methods should be changed based on what is the most effective in any given situation. As you work, reflect on what you are doing and ask yourselves if you could be doing things better.

Common mistakes: Failing to reflect on your way-of-working in order to improve it. Working in an unsystematic fashion.

Sources: *[1] Jacobson, I., Ng, P., McMahon, P. E., Spence, I., and Lidman, S. (2012). The Essence of Software Engineering: The SEMAT Kernel. ACMQueue, 10, pp. 40-52. [2] Paternoster, N., Giardino, C., Unterkalmsteiner, M., Gorschek, T. and Abrahamsson, P. (2014). Software development in startup companies: A systematic mapping study. Information and Software Technology, 56, pp. 1200-1218.*

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Customer Pattern

(8) Validating the Potential Solution

Motivation: Once you have validated that the need or problem your startup is trying to address is a real one people are willing to pay to have addressed, the solution needs to be validated. Your solution might still not be the right one for addressing it.

What to do: Gather data. Use different means of data collection to understand whether people 1) are interested in your solution, and 2) willing to pay for it. Combine different data to gain better insights.

At the early stages, surveys and interviews can help with validation. However, iteratively working with Minimum Viable Products is a great way to validate your solution. Other means of data collection for gauging interest include social media, setting up a website for the company etc.

Ultimately, though, the best validation is having users or having pre-orders for your solution.

Common mistakes: Falling in love with your idea and being afraid to change it based on the data. Asking leading questions. Failing to consider that when confronted face-to-face, people are likely to agree with you simply to avoid conflict and to please you. Failing to understand the needs of the potential users or customers.

Sources: *[1] Nguyen-Duc, A., and Abrahamsson, P. Minimum Viable Product or Multiple Facet Product? The Role of MVP in Software Startups. In: Sharp H., Hall T. (eds) Agile Processes, in Software Engineering, and Extreme Programming. XP 2016. Lecture Notes in Business Information Processing, vol 251. Springer, Cham [2] Lanrduzzi, V., and Taibi, D. (2016). MVP Explained: A Systematic Mapping Study on the Definitions of Minimal Viable Product. In Proceedings of the 2016 42th Euromicro Conference on Software Engineering and Advanced Applications (SEAA). [3] Blank, S. (2013). Four Steps to Epiphany. K&S Ranch.*

Solution Pattern

(9) Frequent Early Pivots

Motivation: The act of changing direction, business-wise; a strategic decision. Knowing when to pivot or to persevere is crucial for a startup. Few ideas are perfect from their inception; e.g., YouTube was originally a video dating service.

What to do: Use data to support decision-making. Tracking metrics provides valuable data on when to pivot. What metrics to track depends on your progress and your business. For example, early on, if surveying potential users indicates that people simply are not interested in your idea, do not hesitate to change it.

Pivots can be made in relation to any aspect of your startup. For example, customer need pivots change the core problem being solved, while customer segment pivots change the target users or customers.

Common mistakes: Failing to pivot despite data pointing towards a need for a pivot. Failing to track relevant metrics. Blindly believing that your idea will find its market once it is finished.

Sources: *[1] Ries, E. (2011). The Lean Startup - How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Crown Publishing. [2] Bajwa, S. S., Wang, X., Nguyen-Duc, A., and Abrahamsson, P. (2016). How Do Software Startups Pivot? Empirical Results from a Multiple Case Study. In: Maglyas A., Lamprecht AL. (eds) Software Business. ICSOB 2016. Lecture Notes in Business Information Processing, vol 240. Springer, Cham*

Customer Pattern

(10) Utilize Metrics

Motivation: For a startup, metrics are performance indicators. Utilizing metrics can help you evaluate your startup's current performance and the successfulness of your idea or solution. They help you make informed decisions instead of relying on intuition alone.

What to do: (1) Collect data, even if you have no clear use for it right now. Hard-drive space is cheap. Later on you can analyze the data to discover valuable lessons. (2) Identify key metrics for the current state your startup is in. For example, if your service is a game, the most important metric for you might be whether your players perform a specific action in the game, and how often. This might predict user retention/churn etc.

Combine metrics for more insights. For example, comparing Daily Active Users (DAU) and Monthly Active Users (MAU) gives you a better understanding of your user activity than either metric alone.

Common mistakes: Not collecting data. Not combining different types of data. Having no goal for your metrics.

Sources: *[1] Kemell, K.-K., Wang, X., Nguyen-Duc, A., Grendus, J., Tuunanen, T., & Abrahamsson, P. (2018). 100+ Metrics for Software Startups : A Multi-Vocal Literature Review. In S. Hyrynsalmi, A. Suominen, C. Jud, X. Wang, J. Bosch, & J. Münch (Eds.), SiBW 2018 : Proceedings of the First International Workshop on Software-intensive Business: Start-ups, Ecosystems and Platforms, pp. 15-29.*

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Solution Pattern

(11) Minimum Viable Product (in One Day)

Motivation: The idea of a Minimum Viable Product (MVP) is to launch your product as early as possible in order to further validate and improve your business idea. Each MVP should have a goal.

What to do: First, build an MVP in a day. Decide what the MVP should be and what is your goal in making it. Collect data! Use the MVP to validate something.

An MVP is not necessarily about users being able to use your solution in practice. An MVP can also be something that convinces potential future users to pre-order your solution or to at least track your startup's progress through e.g. an email list. To this end, a simple early MVP can e.g. be an ad on Google, a landing page, or a mock-up software application. More complex MVPs, such as functional prototypes, come later.

Be creative with MVPs and work iteratively: use the data to improve your idea.

Common mistakes: Defining your MVP to be an almost finished solution. Forgoing an MVP altogether while working on a supposedly definitive solution. Having no goal in mind for your MVPs.

Sources: *[1] Nguyen-Duc, A., and Abrahamsson, P. Minimum Viable Product or Multiple Facet Product? The Role of MVP in Software Startups. In: Sharp H., Hall T. (eds) Agile Processes, in Software Engineering, and Extreme Programming. XP 2016. Lecture Notes in Business Information Processing, vol 251. Springer, Cham*
[2] Lanrduzzi, V., and Taibi, D. (2016). MVP Explained: A Systematic Mapping Study on the Definitions of Minimal Viable Product. In Proceedings of the 2016 42th Euromicro Conference on Software Engineering and Advanced Applications (SEAA).
[3] Blank, S. (2013). Four Steps to Epiphany. K&S Ranch.

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Endeavor Pattern

(12) Startup Spirit

Motivation: Being a startupper is almost never smooth sailing. However, it's only truly over once you stop believing in your own idea.

What to do: Get into the mindset of being a startup founder. Learn from your experiences, especially the negative ones, and do not get disheartened by pivots. Forget counting hours spent working; no one will pay you for them until you can do so yourself or get funded.

Tasks are done when you decide they are done, not when you have spent n hours on them. You are your own boss. Manage your own time well.

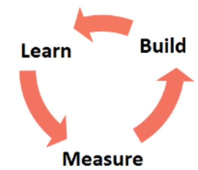
Common mistakes: Treating your startup as just a course project and not a real startup (in the context of this course). Losing motivation in the face of setbacks.

from @tobiasstraka (https://twitter.com/tobiasstraka/status/750399141260460033)

Solution Pattern

(13) The Learn-Measure-Build Loop

(a.k.a. Build-Measure-Learn)



Motivation: Learning is vital for a startup, and in order to learn you need data to learn from.

What to do: Build MVPs. An MVP is the core of the Learn-Measure-Build loop. Using an MVP you can gather data that helps you learn.

Before you start building an MVP, plan. Do not build without having an objective. First, you need to decide what you want to learn. Then, you plan on how you can learn it. What is the MVP that will answer your question(s) best, and with the least amount of time wasted? I.e., what data do you collect and how?

The process is iterative. Test different hypotheses and seek to answer different questions. Between each MVP, leverage your learnings from the previous one.

Common mistakes: Wasting time on far too complex MVPs. Building MVPs without planning and without setting goals. Failing to iterate the process.

Sources: *[1] Lanrduzzi, V., and Taibi, D. (2016). MVP Explained: A Systematic Mapping Study on the Definitions of Minimal Viable Product. In Proceedings of the 2016 42th Euromicro Conference on Software Engineering and Advanced Applications (SEAA).*
[2] Blank, S. (2013). Four Steps to Epiphany. K&S Ranch.
[3] Ries, E. (2011). The Lean Startup - How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Crown Publishing.

Finance Pattern

(14) Calculate the Financial Metrics

Motivation: Even if you have a compelling idea for a business, potential investors will want to know what exactly you need money for, and how you will make it back.

What to do: After deciding on your business model, start calculating financial metrics for your startup. In the early stages, these are largely hypothetical future forecasts. However, forecasts help you better understand the costs of your business and what is thus needed to profit. You cannot price your services reliably if you do not understand your startup's cost structure.

Break your costs and revenue streams down into parts: what will cost you money and what will bring you money? Understand which costs are fixed and which are variable; variable costs scale with your startup. Compare your costs with your current or hypothetical future revenue streams. When you know your costs, you know what exactly your startup needs funding for, and how much.

As you progress, keep updating these forecasted metrics with real data. Financial metrics are very interesting to potential investors and thus relevant in any pitch past the very early stages of merely pitching your general idea.

Common mistakes: Not putting in the effort to make detailed calculations; making lazy and unrealistic forecasts. Thinking a general description of your business model alone is enough to convince investors.

Sources: *[1]Moss, J. (2018). How to Make A Winning Pitch Deck for Your Startup. Retrieved from <https://www.forbes.com/sites/forbesnycouncil/2018/08/28/how-to-make-a-winning-pitch-deck-for-your-startup/>. 29 Oct 2018.*
[2] Zott, C., Amit, R., and Massa, L. (2011). The Business Model: Recent Developments and Future Research. Journal of Management, 37(4), pp. 1019-1042.

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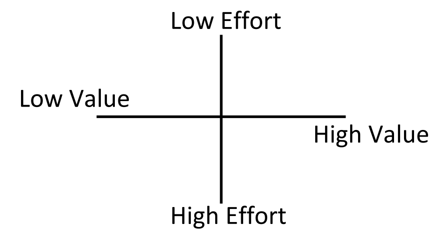
Solution Pattern

(15) Manage Scope

Motivation: Adding new features takes resources, and there is *always* more you could add. Done is better than perfect, as the anecdotal wisdom goes.



What to do: Determine the core value of your service and focus on it. Why will people use your service? What does it *need* to do for your users to use it? Separate the necessities from the niceties ("nice to have").

Requirements and features need to be prioritized. Weigh them based on how much resources they take to implement and how much value they deliver. Focus on the ones that result in the biggest impact with the least resources spent. Leave the 'niceties' for when you already have a functional product. The matrix on the upper right is one way of prioritizing them.

Common mistakes: Constantly pivoting past the earlier stages of initial idea validation. Adding every new idea to the product backlog. Continuing to delay service launch to add more and more features past the essential ones.

Sources: *[1] Klotins, E., Unterkalmsteiner, M., & Gorschek, T. (2019). Software Engineering Antipatterns in Start-Ups. IEEE Software, 36(2), pp. 118-126.*

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Customer Pattern

(16) Work With Your (Future) Users

Motivation: Having users, or having people who wish to start using your service once you release it, already validates your idea. However, these users and would-be users provide you with a great way of further validating and improving your solution.

What to do: If you already have a functional service, collect data from it. Decide on metrics and track them. See the *Utilize Metrics* card.

Actively engage with your users or future users. You can get in direct contact with your first user(s), especially if you are a B2B startup. You can directly ask for feedback through interviews or by less formal means and use this data to design new features. Work with them, if they want to do so.

As a B2C startup, staying in contact with many users directly can be daunting. Instead, by using an existing platform (e.g., Discord), you can create a community where your users and future users can talk to you about the service. Vice versa, you can also communicate with your users about future updates and planned features to collect feedback.

Common mistakes: Failing to differentiate between *wants* and *needs*. Listening too much to one user or one group of users. Providing too much customization to single users (e.g., B2B).

Sources: *[1] Klotins, E., Unterkalmsteiner, M., & Gorschek, T. (2019). Software Engineering Antipatterns in Start-Ups. IEEE Software, 36(2), pp. 118-126.*

Solution Pattern

(17) Make it Stable

Motivation: Nothing is more frustrating than tech that does not work. Crashes and slow loading times can drive off users incredibly fast. Your service might still lack features, but it should not lack basic quality.

What to do: Test, test, and test. Test internally, ask your friends and family to test it, or pay external testers to do so. Test on different hardware and platforms, and try all kinds of input combinations.

Even if you are talking about an MVP that is an early, functional version of your service, it should still be stable above all. Losing users to simple quality issues means you are not seeing what *else* might have driven them away. Quality issues are not service-specific while your other issues might be.

Common mistakes: Forgoing all quality control in favor of speed. Failing to detect existing quality issues during deployment.

Sources: *[1] Klotins, E., Unterkalmsteiner, M., & Gorschek, T. (2019). Software Engineering Antipatterns in Start-Ups. IEEE Software, 36(2), pp. 118-126.*