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Assignment of bachelor's thesis

Title:	A Guide to Building a Technological Startup: A Case Study
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Instructions

The main goal of this thesis is to provide a detailed and practical guide on developing a technological startup, with a particular focus on a business-to-business model from a student perspective. The aim is to provide a comprehensive coverage of the entire startup process, from identifying the initial problem to launching a prototype product, using a real-world case study as an example. The first part thesis should offer an overview of the startup journey, highlighting key stages and considerations up to the point of prototype launch. The second part will delve into a specific case study, examining the strategies employed, challenges encountered, and lessons learned in the context of a technological startup. In the concluding part, the thesis will summarize the primary insights from the case study and provide actionable advice for aspiring entrepreneurs, with special attention to students at FIT CTU.

Key Objectives:
Develop a Structured Framework: Formulate a comprehensive framework to guide entrepreneurs through the process of initiating and nurturing a technological startup.
Analyze Challenges and Opportunities: Conduct a thorough analysis of the universal challenges and opportunities associated with technological startups, providing practical solutions.
Create an Interactive Guide: Develop a user-friendly, interactive guide in Notion to assist entrepreneurs in the startup establishment process.
Validate the Framework: Apply and evaluate the developed framework on a startup venture to validate its effectiveness and pinpoint areas for improvement.

Electronically approved by Ing. David Buchtela, Ph.D. on 28 November 2023 in Prague.

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Provide Tailored Recommendations: Offer recommendations for aspiring student entrepreneurs, particularly those from FIT CTU.

Electronically approved by Ing. David Buchtela, Ph.D. on 28 November 2023 in Prague.

Bachelor's thesis

A GUIDE TO BUILDING A TECHNOLOGICAL STARTUP: A CASE STUDY

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January 4, 2025

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I would like to express my heartfelt gratitude to my thesis supervisor, doc. Ing. Pavel Kordík, PhD., for his openness to guiding a business-oriented topic, his invaluable mentorship, and his efforts in connecting me with experts in the field of startups. I am deeply appreciative of the insights shared by the interviewees – Tomáš Krátký, Matěj Schmalz, Bára Dolenská, and Jakub Růžička – whose perspectives greatly enriched my work. I would also like to thank my startup team for their ongoing support and collaboration throughout this journey.

Declaration

I hereby declare that the presented thesis is my own work and that I have cited all sources of information in accordance with the Guideline for adhering to ethical principles when elaborating an academic final thesis. I acknowledge that my thesis is subject to the rights and obligations stipulated by the Act No. 121/2000 Coll., the Copyright Act, as amended, in particular the fact that the Czech Technical University in Prague has the right to conclude a licence agreement on the utilization of this thesis as a school work pursuant of Section 60 (1) of the Act.

In Prague on January 4, 2025

Abstract

Startup formation poses difficulties for technology-oriented student founders who are primarily trained in software development but often lack practical skills in refining a product. They are typically taught to select a topic and complete it, rather than engaging in the iterative process of product development that involves pivoting and launching small. Additionally, these founders must transition from being engineers to assuming roles such as HR managers, team leads, and product owners. This thesis investigated how to systemize early-stage startup development for student entrepreneurs. Existing frameworks, such as Lean Startup, Design Sprint, Agile, and Lean Canvas, were analyzed using criteria including their relevance for B2B contexts, their applicability to technological innovations, and the aspects of startup formation they do not address. Interviews with experienced startup founders and industry experts were also conducted to identify additional gaps and areas for improvement. Based on this analysis, the Lean and Execute startup formation framework was developed, specifically tailored to the needs of tech-oriented student founders operating in the European context. The framework emphasized a focused approach centered on understanding user and client needs, combined with iterative improvements, guiding founders to start with a minimal viable product (MVP) aligned with validated user requirements, rather than pursuing unvalidated solutions. The framework also provided structured recommendations on team formation, funding strategies, and product development. Validation was performed through its application to the author's own startup using a qualitative case study approach. The study evaluated effective aspects of the framework, identifying which elements were implemented successfully and why they were beneficial. It also examined limitations of the framework, noting what it failed to address and the resulting consequences, as well as the implications of deviations from the framework. This case study demonstrated the framework's effectiveness in reducing uncertainty, streamlining decision-making processes, and aligning development efforts with market demands. The findings underscored the value of combining established methodologies, such as the Lean Startup approach and Lean Canvas, with insights from experienced professionals to address the specific challenges faced by student entrepreneurs. This thesis advanced the study of startup formation by offering a practical and tailored solution in the form of a Notion guide. The guide incorporates insights from the Background chapter, synthesizing the analyzed frameworks and interview findings. It provides a visual walkthrough of startup formation up to the launch phase, focusing in each stage on what the founder needs to learn. Based on this knowledge, it outlines specific tasks for execution within their startup.

Keywords technological startup, business plan, business-to-business, market research, product design, project management, legal research, case law search, czech law

Abstrakt

Zakládání startupů je pro studenty technických oborů často náročné. Ačkoli jsou vzděláváni v oblasti vývoje softwaru, chybí jim praktické zkušenosti s navrhováním a uváděním produktu na trh. Typicky jsou vedeni k tomu, aby dokončili zadané téma, ale chybí jim praxe v iterativním přístupu, který zahrnuje pivotování a uvedení minimálně životaschopného produktu (MVP). Kromě toho se od nich očekává, že převezmou role jako vedoucí týmů, HR manažeři nebo produktoví manažeři, což vyžaduje zásadní změnu dovedností. Tato práce zkoumá, jak systematizovat rozvoj startupů v jejich raných fázích, zejména pro studenty zaměřené na technologie. Analyzovala stávající metodiky, jako jsou Lean Startup, Design Sprint, Agile a Lean Canvas, na základě kritérií, jako je jejich využitelnost v B2B sektoru, relevance pro technologické inovace a nedostatky v oblastech zakládání startupů. Dále byly provedeny rozhovory se zkušenými zakladateli startupů a odborníky z praxe, aby byly identifikovány mezery a doporučení ke zlepšení existujících metodologií. Na základě zjištěných poznatků byla navržena metodologie Lean and Execute, která je přizpůsobena potřebám studentů v evropském kontextu. Rámec klade důraz na pochopení potřeb uživatelů a klientů produktu a na postupné zlepšování, přičemž vede zakladatele k tomu, aby vyvíjeli MVP na základě ověřených potřeb, namísto investování do neověřených řešení. Poskytuje také strukturovaná doporučení týkající se tvorby týmu, strategií financování a vývoje produktu. Validace rámce byla provedena na autorově vlastním startupu formou případové studie. Analýza identifikovala přínosné prvky metodologie, omezení, která rámec nepokrývá, a také důsledky odchylek od metodologie. Tato případová studie ukázala, že rámec pomáhá snižovat nejistotu, zlepšovat rozhodovací procesy a slaďovat vývojové aktivity s požadavky trhu. Zjištění podtrhují význam propojení osvědčených metodologií, jako je Lean Startup a Lean Canvas, s poznatky zkušených odborníků při řešení specifických výzev, kterým studenti-zakladatelé čelí. Tato práce přispívá k oblasti zakládání startupů vytvořením praktického a přizpůsobeného průvodce ve formě aplikace Notion. Tento průvodce čerpá z poznatků z analyzovaných metodologií a rozhovorů a poskytuje vizuální plán zakládání startupu od počátku až po spuštění. V každé fázi zdůrazňuje klíčové znalosti, které si zakladatelé musí osvojit, a na základě toho stanovuje konkrétní úkoly pro realizaci v jejich startupu.

Klíčová slova technologický startup, business plán, business-to-business, market research, produktový design, projektové řízení, právní rešerše, vyhledávání judikátů, české právo

Terminology and Abbreviations

B2B	Business-to-Business
B2C	Business-to-Consumer
B2G	Business-to-Government
CAGR	Compound Annual Growth Rate
CEO	Chief Executive Officer
CTO	Chief Technology Officer
KPI	Key Performance Indicator
Market size	The total potential revenue opportunity in a specific market
MVP	Minimum Viable Product
Onboarding	The process of integrating a new user, employee, or customer
Product-Market fit	The degree to which a product satisfies strong market demand

Introduction

Thesis Structure and Goals

Eleven out of twelve startups fail.[1] Launching an innovative enterprise is a complex process that requires the combination of many perspectives on the problematic. Who is the target customer? What are the implementation costs? Is the proposed solution scaleable? What are the product's competitors and how may those be outperformed? And how to optimize all these and many more variables into one product?

There are many steps to launching a startup and after familiarizing the ecosystem of startups and related terms, this thesis delves into the key steps to be taken on starting an innovative enterprise. It follows the startup journey from ideation, or the process of choosing the scope and topic of the future business, to a product launch. Through this thesis, the author clarifies the startup launch process for the target reader: **tech-based university students with entrepreneurial ambitions**, who are overwhelmed by the number of steps it takes to innovate. The author decided to further frame the thesis topic as such:

- guide the reader through an "early stage" of the startup. This is in accordance with the topic of the thesis to educate the reader and ease their start of the venture,
- specialize on technological innovations, to provide as personalized value to the target reader, as possible,
- not delve into the implementation of a software, but focus on the business know-how, that the IT student likely lacks,
- omit a thorough business modeling by concentrating on SaaS startups,
- omit thorough financial planning, as that would inflate the volume of the thesis even more,
- avoid legal and administrative requirements and processes, since these are changing year to year,
- omit marketing and focus on sales, since the thesis specializes on B2B.

The **Background part** of this work aims to **familiarize the reader with the terminology used**, which is not only important for the reader's general understanding of the text, but also crucial for a startup founder to make a good impression of someone who is informed in the goings on in the business world. Another goal of the Background chapter is to **identify pivotal milestones and activities** of a startup journey from inception to product launch, combining multiple *commonly accepted frameworks in business*, and *author-conducted interviews from successful business founders and leaders, personalized to the needs of an IT student* with

entrepreneurial ambitions. Each of these is to be *investigated and described to show the value and identify key learning points for the target reader.*

The **Design part** aims to **identify key problems points of existing frameworks** and their limited usability for the target reader. The author then intends to combine the identified steps from the Background to create an overview of the early stage of a startup formation – until product launch, as a **new framework personalized for the target reader**. The steps of this framework are to be further specified in an **interactive Notion guide**.

The **Case study** of the thesis is dedicated to **evaluating the framework proposed in the Design part** of the thesis. The author aims to do this by **documenting his personal experience in building a startup** and basing his evaluation on the benefits and limitations for his startup. Specifically, his journey through problem identification, solution ideation, validation, and ultimately, securing investment. The narrative should also provide a candid look at the challenges and triumphs encountered, offering valuable lessons and inspiration to readers embarking on their own entrepreneurial ventures.

As stated above, this thesis revolves around a type of company called *a startup*. However, different sources may well differ on the definition of a start-up. This suggests a highly subjective meaning of the term, which therefore should be defined for the scope of this Thesis. The startup the author describes stands out as being the hub of innovation, the process of translating an idea or invention into a good or service that creates value or for which customers will pay. Furthermore, a startup must be scaleable — to be able of the business to grow exponentially. For example, software is often easily reproduced geographically, but even a successful coffee shop would probably not meet this criteria. Of course, only a relatively new company should be called a startup; however, even there the consensus does not seem to exist.

Interviews

The Background section is highly theoretical. Aside from existing startup frameworks, it draws from insights from the author's interviews with various experts in the field. These combined are then structured by the author by topic and startup phase. The author finds it important to introduce these interviewees as to enlighten the reader with the added values that these people's knowledge brings.

Tomáš Krátký Tomáš Krátký, the founder of Manta, has extensive experience in both technical and business aspects of building and scaling a company. This resulted in the biggest Czech startup exit – he sold the company for about 8 billion CZK, though the exact number was not made public. From his beginnings as a developer, followed by roles in software architecture, project management, and eventually executive management, he has cultivated a unique perspective on launching and scaling a startup from a point of view of a tech-based graduate. Tomáš then bought out a team from his work Profinit to found Manta. It's business is based on a problem that Profinit, a contract software company, solved for a single customer. Tomáš identified the global need for a solution of said problem – Data Lineage. This section captures his approach to the launch of products, the expansion of global markets, and the challenges technical CEOs face.[2]

Matěj Schmalz In the author's interview with Matj Schmalz, the founder of the Elredo startup, he shared insights into the startup journey and provided practical advice mainly on funding a startup in the current economic climate. Matěj started working on his idea while employed full-time, handling idea generation, validation, and initial HR tasks in his spare time. He participated in several startup programs, including the ČSOB Validation Camp, the ČSOB Start-It Accelerator, and a Vodafone competition, before ultimately leaving his job to focus on

his startup full-time. After winning a competitive grant from CzechInvest, securing 1.1 million CZK, and receiving seed investment from a VC fund, Elredo launched its product. Within two months of launch, the startup reached 200 user registrations. Matěj's experience highlights several critical funding strategies and the challenges faced by early-stage startups.[3]

Jakub Růžička For the topics of managing a team, setting and the team's goals and exectuing development, the author interviewed Jakub Růžička, an accomplished engineering leader with a strong background in product management and team leadership. Jakub currently serves as the Product Manager at Košík.cz, focusing on improving user personalization to improve the customer experience. Prior to this, he led engineering teams in various capacities, including as Engineering Manager and Mobile Development Lead, where he oversaw teams of up to 15 developers, implemented CI / CD pipelines, and nurtured personal and professional growth among team members.

Jakub also briefly held the role of Acting Head of Engineering at Košík.cz, managing seven teams and 70 engineers, during which he refined engineering strategies and resolved intrateam challenges. Additionally, he serves as the CTO of Elredo, a small startup, where he leads the development of backend, web, and mobile applications.

Beyond his corporate roles, Jakub is an active contributor to the Engineering Leaders Community, supporting Central Europe's engineering talent by sharing insights and experiences with fellow leaders.

Bára Dolenská Bára Dolenská is a multifaceted professional with diverse expertise in marketing, copywriting, and startup ecosystems. She has garnered substantial experience in these domains through her various roles, most notably her internship at Nation 1 VC, a venture capital firm and accelerator. During this internship, she contributed to startup analyses, marketing, copywriting, and co-organizing pitching events. Her hands-on involvement in the startup ecosystem has provided her with a deep understanding of business plans, from concept validation to pitching and scaling strategies.

Chapter 1

Background: Startup Phases and Principles

1.1 Ideation

1.1.1 Problems and solutions

Let's delve into what the vast majority of successful innovative businesses have in common, that they all solve a burning problem through a new solution. To find a problem to focus on, an aspiring innovator might start by finding answers to the following questions:

- What often irritates me?
- What often irritates members of my family?
- What are my surroundings often irritated by?[4]

And then follow-up by:

- Is this a problem that many entities feel?
- Why would I enjoy solving this problem?[4]

In the author's opinion, to find innovative and elaborate problems, the innovator should search inside institutions, such as firms. Moreover, focusing on the B2B sector ensures lower marketing costs than B2C, and there is small trust of Venture Capital investors in the potential exponential growth of B2C startups. In simplicity, the cost of marketing to a regular consumer segment is today so high that focusing on building a product for a smaller but wealthier set of customers is much more convenient.[5]

Having a large entity as the primary customer segment brings it's own challenges, however. Enterprises, such as banks, could be ideal for their financial turnover. Solving problems for these entities might result in having to find a small set of highly profitable customers. The problem here, and in my opinion, it applies to any B2G as well, is small permeability and a lack of trust to a small starting company. Such was the feedback from Zuzana Paulovics from ČSOB Bank when validating my project, Onboarding assistant for firms. Zuzana claims that corporations value the safety of their and their customers' data, which is the reason why they would much rather prioritize cooperation with other big players, that guarantee the safety of their product with the other company's good name. A product supplied by a startup is a risk for such a corporation,

since from the corporation's point of view, the failure is technically free for the startup, but devastating for the corporation.[6]

To better understand problems as the core of innovations, one could look at their last payment to an international company, for example, paying a meal at McDonald's. It is quite obvious that the problem they are solving is the human need to supplement nutrients fast, when the body gives a signal. And their solution being a fast prepared, satisfying meal. Moving on from obvious examples of problems and solutions, let us dig deeper into examples of innvoative solutions, as described in the Introduction section, let us introduce well-established technological startups and the problems they solve.

1. Import.io

   "**Problem**: Web pages are full of data, but harvesting that data is often manual and time-consuming.

   Solution: Enter Import.io, a tool that allows you to scrape data from websites and transform it into an organized table or structured API in less than a minute with no coding or training required. According to the site, the tool can be and is used for everything from personal data projects to app creation, data journalism, database population, competitive analysis and much more."[7]

2. IFTTT

   "**Problem**: Many devices are connected to the Internet, but nothing seems to connect all these devices to each other.

   Solution: If This Then That (IFTTT) allows you to schedule specific follow-up actions that occur automatically once you trigger the first step. IFTTT is quickly becoming a powerhouse, adding additional functionality with more and more devices every day. It now supports 23 different alternatives, including Phillips Hue bulbs, Nest Products and the Revolv smart home hub. IFTTT recipes include everything from social media sharing to automatically turning on lights when you return home."[7]

3. Gigya

   "**Problem**: "Big data" provides a wealth of information about the customers of major companies, but breaking through the noise to find the truly meaningful statistics has proven difficult.

   Solution: Gigya, an Israel-based data management company, produces software to help major corporations identify who their customers are and how to engage them online. Clients include Walmart, Adidas, Pepsi, Tommy Hilfiger and more, making it no surprise that the company could soon be valued at over $1 billion."[7]

4. When I Work

   "**Problem**: Most business owners managing hourly employees are still building work schedules using programs such as Excel, or worse, a paper and pencil. It's an incredibly inefficient way to schedule and communicate with employees.

   Solution: When I Work is an employee scheduling and attendance app that can save business owners a lot of time. It uses an innovative blend of collaborative communication technologies, including the web, mobile apps, text messaging, social media and email, to make teams more efficient, more accountable and better prepared. With the app, managers can build the schedule from anywhere, and employees can request time off or trade shifts in seconds right from their smartphones."[7]

1.1.2 Create a Lean Canvas

Ash Maurya's Lean Canvas is a widely accepted strategic management tool designed to help entrepreneurs systematically develop and document their business models. Based on the principles of the Lean startup methodology, the Lean Canvas simplifies the traditional business plan by focusing on key elements such as problem, solution, key metrics, and competitive advantage. This one-page template enables startups to quickly iterate on their ideas and validate their assumptions with real-world feedback. Its visual format fosters clarity and alignment among team members, making it an effective tool for both internal discussions and investor presentations. Ultimately, the Lean Canvas helps identify the riskiest parts of a business model early on, facilitating a more efficient path to product-market fit.

The Lean Canvas should be first filled in at the very beginning of a project, even before starting the validation of assumptions or developing a solution. This initial version serves as a strategic overview of the business idea, helping to clarify assumptions and identify key areas to explore and validate. The Lean Canvas is intended to be a living document, evolving as insights are gathered and assumptions are validated (or invalidated). Examples of when to iterate (ideally to rewrite from scratch) are:

1. **After Initial Research and Customer Discovery:** Once the first round of interviews, surveys, or other research methods focused on understanding the problem and customer segments has been conducted, the Lean Canvas should be updated. This iteration reflects new insights about the customer's true pain points, which may differ from initial assumptions.

2. **Following Problem Validation:** If validation reveals that the problem is more or less critical than anticipated, or that it affects a different customer segment, it is crucial to revisit the Lean Canvas. Sections like "Problem," "Customer Segments," and "Unique Value Proposition" may need adjustment.

3. **After Testing Solution Concepts:** Once prototypes or minimum viable products (MVPs) have been tested, the "Solution" and "Key Metrics" sections may need revision based on user feedback and engagement data.

4. **When Market or Competitive Insights Change:** As more is learned about competitors or the broader market landscape, it is important to iterate the "Unfair Advantage" and "Channels" sections to better position the solution.

5. **After Significant Customer Feedback or Pivot Decisions:** If validation leads to a pivot—whether it's a change in the target audience, business model, or problem focus—the entire Lean Canvas should be revisited and updated accordingly.

6. **At Key Milestones or Funding Stages:** Before presenting the project to stakeholders or seeking funding, it is essential to have an up-to-date Lean Canvas that accurately reflects the current understanding and strategic direction.

Iterating the Lean Canvas should be a continuous process, revisiting it as new information is gathered. It is especially important to update it after every major validation step or when new insights fundamentally change initial assumptions. This approach keeps the business model aligned with real-world learnings and ensures adaptability as the project progresses.

The Lean Canvas is composed of two divisions. The Product division focuses on defining the unique value proposition, solution, and key metrics for the product being developed. The Market division, on the other hand, identifies the target customer segments, channels for reaching them, and the existing problems the product aims to solve.

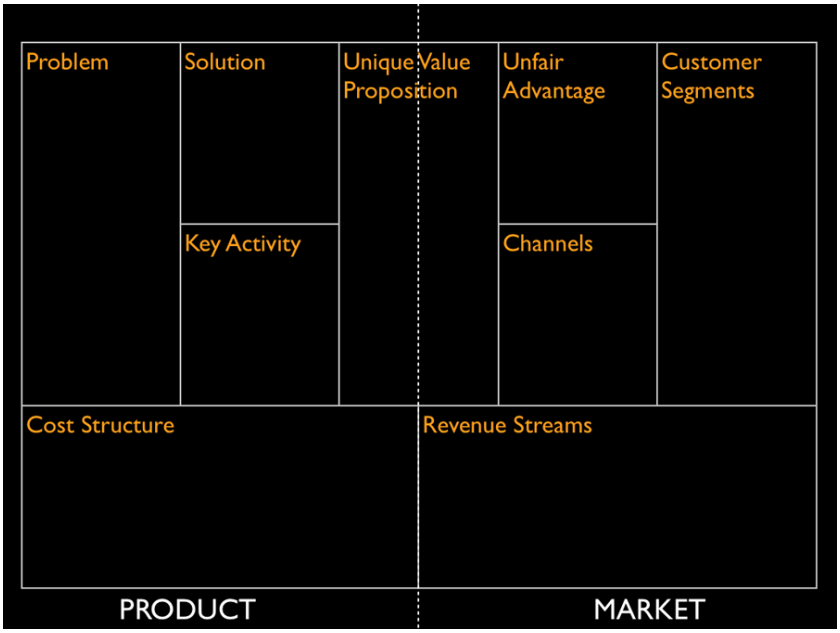

Figure 1.1 Ash Maurya's Lean Canvas [8]

Ash Maurya proposes the Canvas to be filled and validated in the following order:

1. Problem: A brief description of the top 3 problems you're addressing
2. Customer Segments: Who are the customers/users of this system? Can they be further segmented? For example, amateur photographers vs. pro photographers. If I have multiple target customers in mind, for example, graphic designers vs. lawyers, I will create a separate canvas for each. More than likely a lot of the other pieces like problem, solution, channels, etc. will be different too.
3. Unique Value Proposition: What is the product's tagline or primary reason you are different and worth buying?
4. Solution: What is the minimum feature set (MVP) that demonstrates the UVP up above?
5. Key Activity: Describe the key action users take that maps to revenue or retention? For example, if you are a blogging platform, posting a blog entry would be a key activity.
6. Channels: List the FREE and PAID channels you can use to reach your customer.
7. Cost Structure: List out all your fixed and variable costs.
8. Revenue Streams: Identify your revenue model – subscription, ads, freemium, etc. and outline your back-of-the-envelope assumptions for life time value, gross margin, break-even point, etc.
9. Unfair Advantage: What the competition cannot copy from you, or buy it with money?[8]

1.1.2.1 Unfair Advantage

A startup's Unfair Advantage defines its competitive edge. To find and leverage the UA:

- Analyze competitors, their size, and market opportunities.
- Focus on automation, R&D, and integration to create differentiation.
- Analyze strategic partnerships.[2]

Tomáš Krátký's Manta's UVP, for example, included advanced automation and grammar research for Big Data processing. This grammar research is something that emerged through collaboration with CTU in Prague, was funded by TAČR and copying it would require the same amount of time no matter the resources.[2]

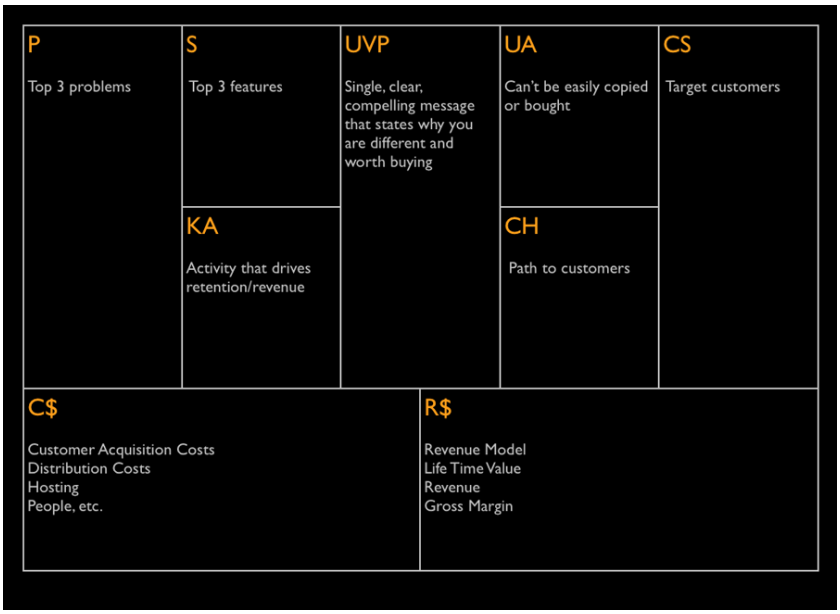

Figure 1.2 Ash Maurya's Lean Canvas — described [8]

1.1.3 Problem and Solution Validation

In this section, we delve into the critical process of problem and solution desirability validation, taken over from Start-it ČSOB's Validation Methodology. Understanding the customer's needs and problems is fundamental to ensuring that your solution aligns with their actual challenges, rather than simply confirming assumptions you might hold. This approach focuses on the principle that successful products are born from genuine customer insights, not just creative ideas or technological possibilities. While feasibility and viability (in terms of figuring out the development complexity and financial sustainability) are crucial, they rely on the premise that the core problem being addressed is one that truly matters to your target audience and on the desirability of the problem.

This desirability validation centers on understanding your target customers' problems and needs. Instead of steering conversations toward what you hope to hear, the goal here is to ask unbiased, open-ended questions that reveal authentic insights about the challenges customers face. By prioritizing these genuine, customer-driven responses, you can build a solution that truly resonates with your audience.[9] The main focus of this validation is on answering these questions:

- Do consumers recognize that they have this problem?
- If there was a solution, would the consumers buy it?
- Would they buy it from the team?
- Where to direct the concepting of a minimal viable product?[10]

When validating problem and desirability, it's essential to avoid leading the conversation toward the answers you want to hear. Instead, you should focus on uncovering unfiltered customer pain points and aspirations. This involves asking the right questions, particularly in the early, qualitative stages of validation, where personal or group interviews and observation are key. Once these initial insights are gathered, they can be scaled quantitatively.

Who you ask is just as important as how you ask. Clearly defining your target audience and engaging directly with those who represent this group is the foundation of meaningful validation. Consider: who are we doing this for, and who do we want to reach? It's vital to engage with people who will actually benefit from your solution, as they will provide the most relevant insights.

The rules are straightforward: don't influence the responses, avoid suggesting answers, and most importantly, listen. By maintaining this objectivity, you create an environment where customers feel comfortable expressing their true thoughts, leading to richer insights.

A four-category interview framework should suffice:

- Start with an ice-breaker to ease into the conversation.
- Pose a neutral, open-ended question related to the topic. Forexample,

  1. What are you currently doing in this are and why? — *to understand the interviewee's expertise and specific part of the problem domain.*
  2. What are the biggest pain-points in what you do? — *to find out whether the interviewee can identify the problem you identified, and to point you to a new, more promising problem, if they don't.*
  3. What would make your life easier? — *to get an abstract idea of a thing that the interviewee craves the most.*
  4. What are the current solutions you use to address this problem? — *to find out more about the competition.*
  5. What are the drawbacks of (each of) this solution? — *to gain an idea, as to where to direct a possible minimum product, in which areas can a new solution be better, than long-standing competition?*
  6. How much are you willing to pay for the solution of this problem? — *to gain insight on the interviewee's willingness to pay to solve this problem.*

- Introduce a "magic wand" question: if they had unlimited resources, what would their ideal solution look like?
- Only after gathering these insights should you briefly mention your idea to gauge the interviewee's reaction. At this point, you can refine your understanding of how closely your concept aligns with their needs.

By adhering to these guidelines, you ensure that your problem and desirability validation are rooted in genuine customer feedback, ultimately leading to a more robust and user-centered solution.

The proposed number and length of validation interviews is highly specific to the nature of the problem; B2C issues can often be explored quickly and in larger quantities, such as through brief street interviews, while B2B problems typically require fewer, but more in-depth, conversations with key stakeholders to gain meaningful insights.[9]

A common misconception is that startup ideas need to be unique. In reality:

- Most ideas are not unique.
- Success often depends on execution, such as superior automation or a better user experience compared to alternatives.[2]

Focus on refining and differentiating your approach rather than seeking a novel idea.

1.1.4 Market Research

For this section I've decided to consult an AI tool, ChatGPT-4o. My reasoning is, that Market Researches are very popular on the internet, and the tool had a wide learning set for this topic, betting on it's cumulative knowledge, rather than manually browsing Market researches that are broad in quality and conception. This, plus the need of a personalized answer for a University student with technological background targeting B2B Startups, is my reasoning behind this.

1.1.4.1 Objective of Market Research

The primary objective of market research in an early B2B startup is to validate the business model and identify key segments that present the best opportunities for initial traction. For technology-driven startups, market research serves to answer several crucial questions:

- Who are the key target customers (by industry, company size, geography)?
- What are the most pressing problems or needs these businesses have that the solution addresses?
- What existing alternatives do customers currently rely on, and what are their pain points?
- How significant is the demand, and what growth trends exist in the market?
- What is the competitive landscape, and how does the startup's product differentiate itself?[11]

Addressing these questions requires a systematic approach that combines qualitative and quantitative data collection methods.

1.1.4.2 Market Research Structure

The market research process for an early B2B startup can be structured into the following key components:

Industry Analysis The first step is to gain a macro-level understanding of the industry in which the startup operates. This involves:

- **Market Size and Growth Trends:** Estimating the total addressable market (TAM), serviceable available market (SAM), and serviceable obtainable market (SOM), researching the total market size and compound annual growth rate (CAGR). Analyzing growth forecasts helps in identifying potential market opportunities and risks.[12]

- **Key Drivers and Challenges:** Identifying technological trends, regulatory factors, and economic shifts impacting the industry. For example, in a SaaS B2B context, cloud adoption rates and digital transformation trends are critical to understanding market readiness.[11]

Customer Segmentation and Profiling Once the industry landscape is clear, the next step is to break down the broad market into specific customer segments:

- **Segmentation Criteria:** Segmenting the market based on relevant factors such as company size (SMEs vs. enterprises), industry verticals, geographic regions, and technology adoption levels.
- **Buyer Personas:** Developing detailed profiles of potential buyers, including decision makers (e.g., CTOs, CIOs) and influencers within target companies. Understanding their goals, challenges, and purchasing behaviors is crucial to crafting targeted value propositions.[11]

Defining the Ideal Customer Profile (ICP) and Ideal User Profile (IUP) is crucial. The process includes:

1. Brainstorming possibilities with domain experts.
2. Comparing pros and cons assumptions, to identify the most valuable target.
3. Validating the selected targets through iteration – the assumptions why they'd be most valuable, their specific needs.[2]

The outcome should include clear, actionable definitions with validation results and strategies for scaling, such as:

- Specific ICP and IUP profiles. For each business segment, the key identifiers of the ideal profiles will be different. Generally they're: company size, annual revenue, number of employees, for ICP and age, specialization, tools used for IUP.
- Specific needs of the ICP and IUP.
- Pricing, distribution, and market targeting.
- Partnership opportunities.[2]

Problem-Solution Fit Validation After identifying the target segments, the research focuses on validating the problem-solution fit:

- **Problem Identification:** Conducting qualitative research (interviews, surveys) with representatives from the identified segments to uncover their most pressing pain points. This is vital to align the features of the product with the real needs of the customer.
- **Competitor Analysis:** Mapping out competitors that address similar problems. This analysis should cover direct competitors (offering similar solutions) and indirect competitors (alternative approaches that customers may use). Evaluating competitors' strengths and weaknesses helps in identifying differentiation strategies.[11]

Market Demand and Adoption Analysis Understanding the market demand is essential for prioritizing go-to-market efforts:

- **Customer Willingness to Pay:** Estimating demand elasticity by assessing potential customers' willingness to pay for the solution. This can involve pricing experiments or interviews to understand perceived value.
- **Adoption Barriers:** Identifying possible barriers to adoption, such as technological constraints, organization process constraints, or organizational resistance within target companies.[2]

Go-to-Market and Business Strategy The final component of market research is outlining the go-to-market strategy:

- **Targeting ICP:** Based on size, revenue, and value for them.
- **Defensibility:** How easy is it for a big player to copy the startup, considering it's unique advantages? Defensibility may be created through superior UX and workflow integration.
- **Rapid expansion:** If defensibility is not feasible.
- **Sales Channels and Distribution Models:** Assessing the most effective sales channels (direct sales, partner networks, digital marketing) based on customer preferences and segment characteristics.[2]
- **Customer Acquisition Costs (CAC) and Lifetime Value (LTV):** Estimating financial metrics that determine the profitability and scalability of the business model. This helps in evaluating the efficiency of customer acquisition efforts relative to long-term revenue generation.[11]

1.1.4.3 Data Collection Methods

The structured market research approach should be supported by a mix of qualitative and quantitative data:

- **Primary Research:** Interviews, surveys, and focus groups with potential customers, industry experts, and other stakeholders provide deep insights into customer needs and market dynamics. Primary research is particularly critical in understanding niche B2B markets where existing data is sparse.
- **Secondary Research:** Analyzing industry reports, academic publications, and competitor data to validate market size estimates, identify trends, and benchmark against competitors.
- **Data Analysis Techniques:** Using data analysis methods such as SWOT analysis, Porter's Five Forces, and competitor benchmarking to synthesize findings into actionable insights.[11]

The author acknowledges the overlap of Validation and Market research steps, and encourages to use the knowledge acquired from Validation in the Market Research step aswell. The overlap will vary on the interviewees of an innovator's validation and preferences in thoroughness. As ChatGPT said, every market research has a different goal, and will have a different scope.[11] It is, in author's opinion, unrealistic to expect an innovator to cover all the steps above in the early phases comprehensively. The author however urges the innovator to iterate and expand a market research as they do a lean canvas, meanwhile giving each step at least some basic consideration.

1.1.4.4 SWOT Analysis

SWOT analysis is a strategic planning tool used to identify and evaluate the Strengths, Weaknesses, Opportunities, and Threats related to a business or project. This framework assists organizations in understanding both internal and external factors that can impact their success. The benefits of SWOT analysis include the ability to create a balanced strategy by leveraging strengths and opportunities while addressing weaknesses and threats. This comprehensive approach helps in making informed decisions and prioritizing resources effectively.[13] SWOT analysis differentiates between 4 groups of impact, as shown in 1.3, that are divided into 2 types, based on it's source of the impact:

Environmental impacts: Opportunities and threats arise from deviations in historical trends within the external environment. Positive environmental trends can be opportunities, while negative trends represent threats.[13]

Internal impacts: Strengths and weaknesses are determined by extrapolating historical internal performance trends. Internal factors such as structure, management competence, and technological capabilities contribute to strengths and weaknesses.[13]

Figure 1.3 SWOT matrix by Xhienne [14]

1.2 Foundation

1.2.1 Team and Leadership

1.2.1.1 Team Formation

Before diving into team management, let's delve into the crucial human resources for a successful development of an innovative technological product. The required competencies include: **Technical** (often called CTO, or a Chief Technical Officer in a startup), **Product** (able to design the product in a way that it's user-friendly), **Business** (sales, marketing person), **Executive** (known as CEO, or Chief Executive Officer, responsible for setting a vision, delegating responsibilities and securing funding).[15]

There are many ways that a student startup founder may search for the right people. The author from his own experience suggests:

- **Interest groups** An efficient way to build network is joining an interest group, such as SpoluPRACUJEME, that organizes meetups of students interested in business.[16]
- **The faculty** Seeking talented people through the thematic events that are organized on FIT, or though bachelor thesis is effective when seeking an expert in a specific field.
- **Business workshops and accelerators** The ČSOB Validation camp is a great example of a workshop that puts the founder in contact with experts from business, while also helping them team up with others and offering 20.000,- for a devising a business plan.[17] **item[Own network** The author had most success in addressing their own network and friends when looking for technical capacities, through posting Instagram Stories teasing the project, and asking friends for suggestions.

  In managing equity and team compensation, Tomáš Krátký recommends either[2]

- allocating an **Employee Stock Ownership Plan (ESOP)** equivalent to 10% of the company and reserving 1-2% for key employees. With each investment round, it is wise to replenish the ESOP to maintain this percentage, ensuring it remains a valuable incentive. Krátký advises using these four-year vesting schedules, **while also paying the employees**,
- or compensating the teammates with **equity for their work**, making the teammates cofounders. All founders should own a similar percentage of equity.

1.2.1.2 Effective Leadership

The first step to effective leadership is **understanding the knowledge and capabilities** of your team. This includes:

- **Background**: Overview of the teammate's experiences, education, interests.
- **Hard skills**: Technical expertise relevant to the startup's product or service (e.g., programming, design, etc.).
- **Soft skills**: Communication, teamwork, and problem-solving abilities that ensure smooth collaboration.
- **Work capacity**: The teammate's time for the project at the moment and personal vision, for what will occupy them in the future phases of the startup.[15]

The author suggests to work these information into a document, as they may come in useful when expanding the team with developers, or when preparing a business pitch for the investors, team background is very often neccesary.

Leaders must also distribute work based on each team member's capabilities. This ensures tasks are suited to the individual's strengths and developmental needs. To do this:

1. **Assess work quality**: Understand how each person handles different types of tasks.
2. **Tailor task assignment**: Assign tasks will help each team member grow.
3. **Provide constructive feedback**: Ensure that team members receive feedback on their work to help them continuously improve.[15]

The goal is to create a feedback loop where tasks are assigned, progress is monitored, and individuals can reflect on their work to drive improvement.

Jakub Růžička went on to answering a question about what are the important points in leadership, and As leader's actions set the standard for their team. This is especially critical in early-stage startups where formal processes may be lacking. Key practices include:

- **Problem-solving with the team**: Engage with the team to solve problems together, rather than throwing uncomfortable problems at teammates.
- **Demonstrating work processes**: Show the team how tasks should be performed, since especially in startups formal training is unavailable. In an early-stage startup, personal mentoring is often the most effective way to upskill the team.
- **Avoiding waste**: Do not discard problems or ignore obstacles. Instead, work to identify who can help you solve them or how to acquire the necessary information.[15]

Another challenge in leadership the author identified in the interview was, *how to demonstrate the work process, and solve problems with the team without micromanaging?* Jakub's answer was, that the difference depends on the leader's intent. *Does the leader have a need to have a control over every minor decision?* then they might fall into **micromanagement**, involving over-questioning, giving detailed step-by-step instructions, and constantly checking up on progress. *Does the leader want do help their teammates navigate a stressful task?* **Supportive leadership** involves asking coaching questions like "What challenges are you facing?" or "What could you do to solve this?". This approach encourages team members to think for themselves and gain confidence in their abilities.[15]

According to Jakub, a common technical based students' issue in building a product is poor prioritization. In early-stage startups, time is a scarce resource, and the team may face a multitude of competing priorities. Leaders must:

- **Focus on releasing an MVP quickly**, as the two most valuable assets of a startup are *user feedback*, and *failing fast* – finding out as fast as possible, that the current proposal is not viable, and pivoting.
- **Tackle the most critical issues first** and encourage iterative problem-solving. *Don't try to build a perfect product from scratch.*[15]

This is how Jakub proposes using the KISS principle in building an MVP – Keep It Stupid Simple – starting with a small goal that cover's crucial user needs. Then, breaking those goals down and solving smaller problems that build toward the larger goal.

1.2.1.3 Iterative Development

Jakub says that the Scrum development framework might be too complex for a team of students, that try to launch a prototype or an MVP product in their spare time. He instead suggests a different kind of iterative framework, that is more suited to them. After mapping everything that needs to be done for launch:

1. **Build a Roadmap**: This can be done in task tracking systems like Notion. All of the abstract solutions, problems or activities (e.g. enable user to log in, research data sources, find people to a closed beta testing, start interviews with investors) – these will be called Epics. Each epic will be assigned to one column in a project's roadmap, these colums are:

Now those are the Epics that were chosen from the priority matrix to be explored.

Done gradually, upon completion, Epics from the column Now will be transferred to this column.

Explore each interesting idea a teammate produces should be noted as an item in Explore. Same goes for features that were put off in the process of prioritization.

2. **Estimate Delivery**: Delivery is a view of Epics from Now column, similar to a GANTT, to show the Epics' time complexity, time priority and continuity (what has to be done before what). This should be atleast for 3 months. Also, no Epic is supposed to be longer than 1 month.

3. **Track tasks with Kanban**: Kanban is for teammates' task tracking. It goes further in breaking down the Epic to a SMART task. Kanban is again a column structure, Jakub has these columns defined to be filled with tasks, each assigned to a team member:

   - **Backlog**: Tasks that haven't been prepared (another task must finish, not specified enough, not priority now, etc.)
   - **Ready**: Tasks ready to be started on by their assignees.
   - **In progress**: Tasks that are being actively worked on.
   - **Done**: Completed tasks.

   A SMART task is defined as S - specific, M - meaningful, A - achievable, R - relevant for the goal, and T - timed, having a deadline.

4. **Review periodically**: Keep the time management systems up-to-date in periodic meetings.

1.2.1.4 Retrospectives

At the end of each iteration, teams should conduct retrospectives to reflect on their processes and outcomes. The goals of retrospectives are to:

- **Evaluate what went well**: Identify practices or behaviors that improved productivity or quality, that the team wants to continue on doing.
- **Evaluate what went wrong**: Pinpoint mistakes, inefficiencies that the team wants to stop doing.
- **Decide what to improve**: Ensure that the insights from retrospectives lead to tangible changes in how the team approaches future work. For example, improving task distribution, communication, or feature prioritization based on lessons learned.[15]

Retrospectives create a culture of continuous improvement, where each iteration builds upon the last. To achieve this, a team should do retrospectives periodically, before planning phase, as such:

1. **Create 3 columns**, each representing one of the goals from above. A whiteboard may be used for this.
2. **Identify topcis**: every member must contribute with at least one suggestion to every column, e. g. using sticky notes.
3. **Vote**: every member gets 3 votes, this can be realized with sticky points.
4. **Discuss** the topic that gets the most votes. The output should be action points for improvement, responsible person for these points and a deadline.
5. **Review last time's action points** and decide whether they were completed. If not, give a second chance, but not a third one, Jakub says.[15]

Risk Management

Risk management plays a critical role in startups, as it helps to identify, evaluate, and mitigate potential risks that could threaten the success of the business. According to Jakub, the following key principles can be applied when managing risks in an early-stage startup:

1.2.1.5 Balancing Risk and Cost

Minimizing risk comes at a cost. The smaller the team wants the chance of a risk occurring, the higher the associated costs will be. Jakub illustrates this concept in a retail environment – the security measure of staff checking everyone as they exit the shop is the most effective way to mitigate theft, but that would be at the expense of losing most customers. A balance must be struck where the cost of mitigation does not outweigh the benefits, such as using scanning devices or chips for high-value items to reduce theft.[15]

1.2.1.6 Risk Awareness and Documentation

One key aspect of risk management is acknowledging that risks exist. Even if a system contains flaws, it is important to document the risks and remain aware of them, so that mitigation strategies can be employed as necessary.[15]

1.2.1.7 OWASP Methodology

In terms of technical risks, vulnerabilities exist in systems, libraries, operating systems (e.g., Linux, Windows), and open-source tools. Jakub stresses that risk management should be sector-specific, and the OWASP methodology can be applied to assess vulnerabilities and their probabilities.[15]

1.2.1.8 Risk in Security Technology

Jakub advises against venturing into security technology without senior guidance. For students or inexperienced entrepreneurs, this field can be particularly risky due to the potential for significant fines from regulatory authorities in the event of failure. Therefore, it's crucial to have experienced oversight or risk facing substantial financial penalties.[15]

1.2.1.9 ISO and Product Quality

While adhering to ISO standards is ideal, Jakub notes that in some cases, it may be more cost-effective to produce defective products if the process of fixing them is cheaper than delivering higher-quality goods. This decision should be based on a careful cost-benefit analysis.[15]

1.2.1.10 Risk Management Framework

Jakub recommends a practical framework for managing risks:

1. **Identify Risks:** Use input from teammates, networks, and their experience to identify potential risks.
2. **Estimate Probability:** Calculate or estimate the likelihood of each risk occurring.
3. **Calculate Impact:** Determine the cost if the risk materializes.
4. **Evaluate Repair Costs:** Assess the cost of mitigating or repairing the risk.
5. **Decision Making:** Based on the analysis, decide whether and to what extent the risk should be mitigated.[15]

1.2.2 Business Plan

A comprehensive business plan is a critical tool for outlining the vision, strategy, and financial needs of an early-stage technological startup. Drawing insights and best practices from the FIT CTU subject BI-PRR, and from Bára Dolenská, who has extensive experience working in venture capital, this section proposes a clear and actionable business plan structure tailored to the requirements of a student-led startup.

1.2.2.1 Executive Summary

Start with an executive summary that briefly introduces the key elements of the business plan. This section should include:

- A concise mission statement and vision.
- The problem being solved and the startup's unique solution.
- An overview of the market opportunity and target audience.
- A summary of financial highlights and the proposed funding strategy.[18]

1.2.2.2 Current Overview

Provide a brief description of what the startup is doing and why it represents an exciting opportunity. Highlight:

- The unique value proposition and how it addresses specific customer pain points.
- The current stage of development, such as product concept, MVP, or early sales.[12]

Throughout the business plan, it is important to avoid buzzwords and jargon. The focus should be on clearly communicating vision, strategy and financial needs without relying on overly complex or ambiguous language.[12]

1.2.2.3 Detailed Market Analysis

This section should contain a thorough analysis of the target market, covering:

- **Market Size and Growth Potential:** Estimate the total addressable market (TAM), serviceable available market (SAM), and serviceable obtainable market (SOM). Include growth projections using metrics such as the compound annual growth rate (CAGR).
- **Competitor Landscape:** Provide an overview of direct and indirect competitors, their strengths and weaknesses.
- **Visual Representation:** Include a chart or graph that illustrates market trends or key segments for clarity.[12]

1.2.2.4 Customer Segmentation and Marketing Strategy

Outline how the startup plans to reach and convert its target audience:

- **Ideal Customer Persona:** Describe key attributes of the target customers, including industry, company size, and decision-makers' roles.
- **Targeting Methods and Channels:** Specify the channels (e.g. word of mouth, direct sales) and the methods to engage potential clients. Give special attention to organic marketing (marketing not driven by advertisement, such as word of mouth, viral marketing, referral programs).
- **Customer Acquisition Strategies:** Discuss tactics such as lead generation, sales funnels, and conversion strategies.[12]

1.2.2.5 Product Description, Pricing, and Business Model

Describe the core product and how it is monetized:

- **Product Features and Benefits:** Provide a brief overview of the product, emphasizing its key features and how it meets customer needs.
- **Pricing Strategy:** Explain the pricing model and how it aligns with customer value perception (e.g. subscription, licensing, one-time fee).
- **Revenue Streams and Cost Structure:** Outline the primary sources of revenue and the key costs associated with the delivery of the product. Include a profitability timeline, if possible.[12]

1.2.2.6 Strategy and Financial Projections

Outline the business's strategic roadmap and financial expectations:

- **Strategic Milestones:** Identify key objectives for the next few years, such as product launches, customer acquisition goals, and geographic expansion.
- **Financial Projections:** Include realistic forecasts for revenue, profit and loss statements, and cash flow. These should span at least three years.
- **Break-even Analysis:** Calculate when the startup is expected to become profitable, considering fixed and variable costs.[12]

1.2.2.7 Funding Requirements and Exit Strategy

Present a realistic view of the startup's funding needs and potential investor returns:

- **Budget and Investment Rounds:** Clearly state the amount of funding needed and how it will be used. Outline potential funding rounds, advising that it is better to request slightly more capital than less to cover unforeseen expenses.
- **Exit Scenarios:** Discuss potential exit strategies, such as acquisition, mergers, or industry partnerships, which may be attractive to investors.[12]

1.2.2.8 SWOT Analysis

A brief SWOT analysis can be useful for identifying the startup's strengths, weaknesses, opportunities, and threats:

- Highlight internal strengths that give the company a competitive edge and identify key weaknesses that need addressing.
- Discuss external opportunities for growth and potential threats, such as emerging competitors or market shifts.[19]

1.2.2.9 Conclusion

A well-designed business plan should provide a clear roadmap for growth while effectively communicating the startup's value proposition, strategic goals, and financial needs. A founder will likely also need more versions of the business plan, for example, one for internal purposes and others for different types of funding. Some topics, such as Exit scenarios will be more thoroughly described in their own sections. The internal Business plan is to be an iterative document.

1.3 Development

This section provides guidance on taking initial ideas and transforming them into tangible products through The Lean Startup, The Design Sprint methodologies and Jakub Růžička's personal experiences. In this phase, the aspiring entrepreneur will learn how to develop, test, and iterate on their product idea, focusing on efficient, systematic, and fast approaches to product development. Following the steps in this section, an aspiring tech entrepreneur will:

1. Understand the concept of a Minimum Viable Product (MVP) and why it's a critical step in validating a business idea.
2. Learn how to apply the Build-Measure-Learn loop to continually refine the product based on customer feedback and market insights.
3. Explore the principles of a Design Sprint as a method for rapidly testing and validating new ideas within a short time frame.
4. Choose the methodology that suits them and apply it in building their Prototype or MVP.

1.3.1 Defining the Scope of Work

In early-stage startups, the scope of work can often be ambiguous. To ensure clarity, leaders must:

- **Establish clear objectives**: Break down the overall project into smaller, manageable tasks that align with the startup's short-term and long-term goals.
- **Focus on deliverables**: Ensure each task has a specific, measurable deliverable that the team can work toward.
- **Use a Kanban board or task management tool**: To visually track tasks, progress, and blockers. This helps in keeping the team aligned and motivated.[15]

This structured approach reduces ambiguity and ensures that all team members are aware of what they need to contribute.

At the heart of early-stage startup project management is the development of a Minimum Viable Product (MVP). A useful framework is the **Lean Startup MVP Pyramid**, which visualizes how to prioritize development. At some point the product owner knows a set of features that solve potential users' problem, either from the outcomes from **validation**, or – when the core features aren't clear yet – the latter chapters, such as the Design Sprint. The product owner then must decide which of those are worthy of including in an MVP, implementing all ideas certainly isn't the way. The MVP pyramid1.4 tries to explain, that the key to building a minimum product, that users will still want to use, is **not building all ideas** and solving all user's problems in the chosen domain. It is picking ideally **one pain point of the users**, and solve it by developing only the **necessary set of features**, each of them **functional**, **reliable**, **usable**, **convenient**, **pleasurable**, and **meaningful**.

A great tool to help a team prioritize features, is the Feature Prioritization Matrix1.5. A reader may fill the matrix by following these steps:

1. **Write down all potential features**
2. **Evaluate each feature onto the matrix**:
   - **High impact, low effort**: These are quick wins and should be prioritized first, as they deliver the most value with minimal resources.

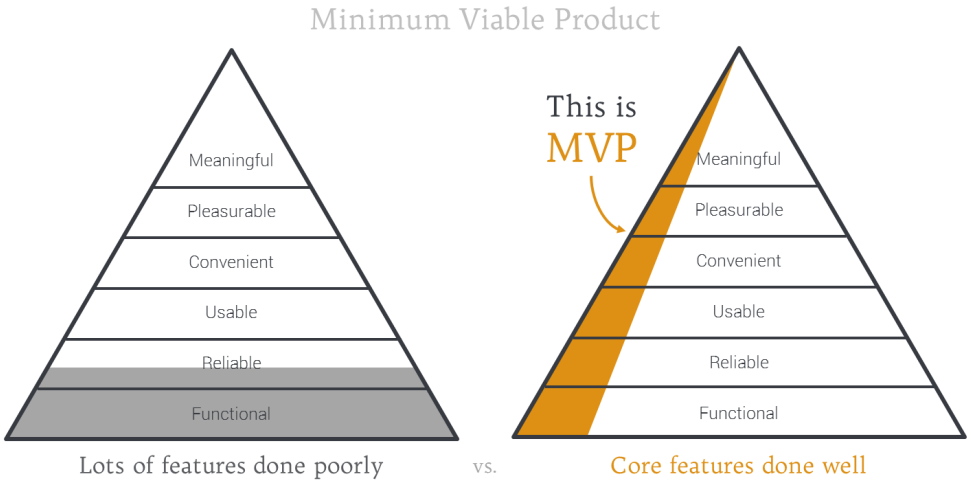

Figure 1.4 MVP pyramid by Anderson [20]

- **High impact, high effort**: These are strategic initiatives that provide significant value but may require more resources. Plan for these features as part of long-term goals.
- **Low impact, low effort**: These are nice-to-have features but should only be pursued if resources allow.
- **Low impact, high effort**: Avoid these features, as they offer low value and are resource-intensive.

3. **Make a list of features that encapsulates the MVP** Using the discretion that the matrix provides

1.3.2 Minimum Viable Product

Minimum Viable Product (or MVP for short) denotes the first product that can be distributed to a limited set of customers - early adopters - "the customers who feel the need for the product most acutely. Those customers tend to be more forgiving of mistakes and are especially eager to give feedback."[10]

Designing an MVP should include finding one specific Use case that brings an Early adopter the most value. This can be achieved by following the domain mapping described in The Design Sprint methodology below. Both The Design Sprint and The Build-Measure-Learn loop methodologies are popular in building an MVP and it is upon one's consideration which methodology will they use. The author personally finds the following combination of methodologies immensely helpful:

- Map the domain with early adopters,
- Identify a problem that brings them the most value,
- Analyze existing solutions, the market etc.,
- Use The Design Sprint for particularly critical problems (if validation with users didn't yield conclusive features) or to validate feasibility — the expectations from domain experts and the development complexity from development experts, while

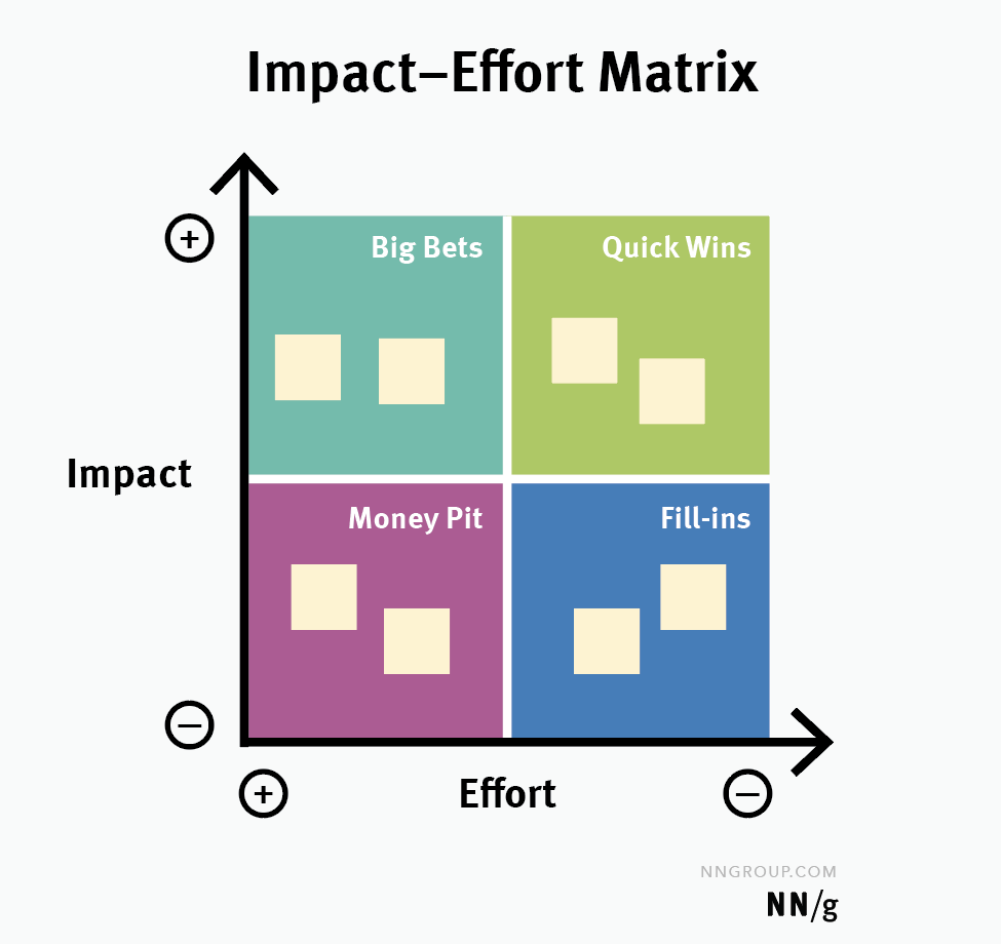

Figure 1.5 Impact–effort matrix by Sarah Gibbons, NNGroup [21]

- Using the Build-Measure-Learn loop from The Lean startup methodology to iteratively build and improve an MVP

"The MVP is that version of the product that enabled a full turn of the Build-Measure-Learn loop with a minimum amount of effort and the least amount of development time."[10]

1.3.3 Build-Measure-Learn loop

The Lean startup methodology suggests that every product goes through a lifetime of iterative improvements and empathizes minimizing the total time of those iterations, by focusing on learning and adaptation as such:

1.3.3.1 1. Learn

- **Purpose**: The cycle starts with learning. This phase involves understanding the customer's problems, needs, and behaviors. It is about forming hypotheses based on insights gained from customer research, feedback, and data analysis.
- **Activities**: Conducting user interviews, market research, analyzing existing data, forming hypotheses about what might solve customer problems or improve their experience. The most

important assumptions are *value hypothesis*, that tests whether a product really delivers value to users, and *growth hypothesis*, which tests how new customer will discover the product. Both these hypotheses need to be given indicators and put to experiment.[10]

1.3.3.2 2. Build

- **Purpose**: The goal of the build phase is to create a Minimum Viable Product (MVP) based on the hypotheses formed during the learning phase. An MVP is a simplified version of the product that includes only the core features necessary to test the hypotheses.
- **Activities in the first iteration**: Developing the MVP, creating prototypes, designing experiments to test hypotheses, and ensuring the product is usable enough to gather reliable data from real users.
- **Activities in the next iterations**: Reflecting the results of metrics gathered in the Learning phase – pivoting or perfecting the product. Then again, designing experiments.[10]

1.3.3.3 3. Measure

- **Purpose**: This phase involves collecting data on how the MVP performs with real users. The aim is to validate or invalidate the hypotheses by analyzing user interactions and feedback.
- **Activities**: Deploying the MVP to a target audience, collecting quantitative data (e.g., usage metrics, conversion rates) and qualitative data (e.g., user feedback, interviews), and analyzing this data to understand user behavior and outcomes.[10]

1.3.3.4 Validating the Value and Growth Hypotheses

In the *Lean Startup* methodology, the Value and Growth Hypotheses serve as the foundational assumptions for a startup's product development process. These hypotheses help define what must be validated to ensure the product provides meaningful value and can sustainably expand its user base. To measure the outcomes of these hypotheses and guide decision-making, selecting the right metrics is essential. Metrics serve as indicators of progress within the *Build-Measure-Learn* loop, providing quantifiable insights that drive the startup's development.

The **Value Hypothesis** tests whether the product genuinely fulfills a user need and offers enduring value. Metrics that validate this hypothesis focus on customer engagement, retention, and satisfaction. For example, tracking *retention rates* can indicate whether users find enough ongoing value to return to the product, while monitoring *engagement metrics* for specific features reveals whether users are interacting with elements intended to deliver core value. By quantifying user responses, these metrics provide clear data on the product's perceived value.

The **Growth Hypothesis** explores how a product will attract and scale its user base. Key metrics here include those that track user acquisition and organic growth patterns. For instance, *conversion rates* from free trials or initial sign-ups reflect the effectiveness of onboarding processes, while *viral coefficients* reveal whether the product benefits from organic user-driven growth. These metrics allow the startup to test its assumptions about scalability and identify which channels or features are driving sustainable expansion.

By focusing on actionable, hypothesis-driven metrics, startups can iteratively refine their product offerings and growth strategies. In each cycle of the *Build-Measure-Learn* loop, metrics enable a clearer understanding of user needs and market dynamics, helping guide both incremental improvements and broader pivots.[10]

1.3.4 Design Sprint

The Design Sprint, developed by GV, is a five-day process that helps teams quickly solve big problems and test new ideas through prototyping and user feedback. It involves structured stages over five days: understanding and defining the problem, sketching solutions, deciding on the best approach, building a prototype, and testing it with real users. This method enables rapid progress from problem to validated solution in just one week:

1.3.4.1 Monday: Map the Problem

Objective: Understand the problem and set a long-term goal.

1. **Start at the End**: Define the long-term goal and key questions.
2. **Make a Map**: Outline the user journey from start to finish.
3. **Ask the Experts**: Gather insights from team members and stakeholders.
4. **Pick a Target**: Choose a specific part of the problem to focus on.[22]

Activities:

- Brainstorming sessions
- Expert interviews
- User journey mapping[22]

1.3.4.2 Tuesday: Sketch Solutions

Objective: Generate a range of solutions.

1. **Lightning Demos**: Review existing solutions for inspiration.
2. **Sketch**: Each team member sketches ideas individually.
3. **Concept Sketch**: Create detailed sketches of the best ideas.[22]

Activities:

- Reviewing analogous products or solutions
- Individual sketching sessions
- Group discussion to share and critique sketches[22]

1.3.4.3 Wednesday: Decide on the Best Solution

Objective: Choose the best solution and plan the prototype.

1. **Critique**: Evaluate each solution's pros and cons.
2. **Dot Voting**: Team members vote on the best ideas.
3. **Storyboard**: Create a step-by-step plan for the prototype.[22]

Activities:

- Structured critique sessions
- Dot voting on sketches
- Building a detailed storyboard[22]

1.3.4.4 Thursday: Build a Prototype

Objective: Develop a realistic prototype.

1. **Assign Tasks**: Divide the prototype tasks among team members.
2. **Prototype**: Build a high-fidelity prototype focusing on the user interface.
3. **Review**: Ensure the prototype is ready for testing.[22]

Activities:

- Task assignment
- Prototyping using tools like InVision, Figma, or paper prototypes
- Final review and adjustments[22]

1.3.4.5 Friday: Test the Prototype

Objective: Validate the prototype with real users.

1. **Conduct Interviews**: Test the prototype with 5-6 users.
2. **Gather Feedback**: Observe user interactions and collect feedback.
3. **Analyze Results**: Summarize the findings to determine the next steps.[22]

Activities:

- Conducting user interviews
- Collecting and analyzing qualitative and quantitative data
- Debriefing to decide on actionable insights[22]

1.4 Funding

Bootstrapping and Self-Funding

In the current funding environment, Matěj Schmalz recommends, in an inteview with the author, that founders consider bootstrapping as a primary strategy for launching a startup. He points out that raising capital from external investors has become more challenging due to economic downturns and reduced market enthusiasm. By bootstrapping, founders can leverage their savings or seek initial support from friends and family. Additionally, Matěj suggests assembling a founding team willing to work part-time for equity, allowing the startup to progress while keeping costs manageable. This approach enables founders to maintain control and flexibility while navigating the startup's early stages.[3]

Grants and Government Programs

Matěj notes that several grant programs can provide non-dilutive funding for startups, such as CzechInvest and the European Innovation Council (EIC) Accelerator. These grants, funded by the EU, do not require founders to give up equity. While the application process is lengthy and administratively demanding, the potential funding can significantly support early development stages. For example, CzechInvest offers grants of 1.1 million CZK for initial incubation programs and up to 3 million CZK for advanced stages, in addition to legal support and coaching. However, Matěj cautions that applying for these grants requires a detailed business plan and a specific spending plan tailored to the program's requirements. From application to disbursement, the process may take up to six months.[3] The is a number of different agencies that provide government or European funding for innovative technologies, usually specialized for a special type of innovation and it's up to every startup to do their own research for a grant or program that targets them. Manta, a startup founded by Tomáš Krátký leveraged grants from TAČR, receiving approximately $1 million, which was almost matched by internal investments. Krátký explains the way TAČR works is providing 50% of the startup's and 100% of university's costs for the innovative technology of the chosen innovative project.[2]

Venture Capital and Angel Investment

Matěj describes traditional investment sources like venture capital (VC) funds and angel investors as viable options for startups looking to scale. In the Czech Republic, raising capital involves a thorough legal process, often including termsheets, shareholder agreements (SHA), and sales and purchase agreements (SPA), which can take time to finalize and are costly due to legal fees. Matěj emphasizes that startups should anticipate a waiting period of one to three months for funds to be disbursed following an agreement with investors. He advises founders to have at least six months of runway when negotiating with VCs to cover the time required for this process.[3]

Current Challenges in Raising Capital

According to Matěj, the current market for startup funding is particularly challenging, with significantly less funding available than in previous years. During the COVID-19 pandemic, tech startups saw a boom as companies transitioned online, leading to increased valuations. However, recent economic downturns, corporate layoffs, and rising energy costs have created an environment of reduced investor enthusiasm. In the Czech Republic, Matěj estimates that only 20% of the funding previously available remains in circulation, representing a 70% decline over the past few years. He believes that while the market will eventually recover, the current cycle suggests that recovery may not happen soon.[3]

Funding Differences Between the U.S. and the Czech Republic

Matěj also contrasts the funding landscape in the U.S. and the Czech Republic. In the U.S., startup investments often involve flexible, streamlined agreements like SAFE (Simple Agreement for Future Equity) notes and convertible loans. These instruments are appealing because they offer a quick route to funding—agreements can often be finalized in a week. A SAFE note, a specific type of convertible loan, automatically converts to equity when certain milestones are met. This differs from the Czech Republic, where startups must complete extensive legal agreements before funding, and investors typically acquire equity and influence from the start. Matěj advises Czech founders to be prepared for a longer and more structured funding process compared to the U.S., and to budget six months or more to secure investment.[3]

Additional Support Programs and Resources

Several programs offer non-financial support that can help startups get off the ground. Matěj highlights programs such as the ČSOB Validation Camp and the Start-It Accelerator, which provide mentoring, coaching, and small financial awards. For example, the Start-It Accelerator is a five-month program covering key startup topics such as product development, financial planning, market strategy, and branding. Although these programs do not provide direct funding, they deliver essential knowledge and resources. Additionally, companies like Google, Microsoft, and GitHub offer startup credits for cloud services and development tools, which can significantly reduce operational costs.[3]

Preparing for Investors

Matěj emphasizes the importance of thorough preparation when approaching investors. Founders must have a deep understanding of their product, target customer, and market. This knowledge is crucial for building investor confidence by demonstrating a thorough understanding of one's business domain. Matěj suggests having a well-practiced pitch for different scenarios: a **concise 30-second pitch** to spark initial interest and a more **detailed 3-minute pitch** to convey the core concept effectively.[3]

In addition, Matěj advises founders to organize the following key elements:

- **Your Team:** Investors want to know who is involved in the startup and what skills each team member brings to the table. A strong, complementary team can greatly enhance investor interest.
- **Your Market:** Understanding the size, needs, and dynamics of the market you are targeting is essential. Investors will want to see that you have a clear grasp of the market's potential and any trends that might affect your business.
- **Your Typical User:** Define who your typical user is and what they are looking for. This understanding helps you craft a product that meets user needs and demonstrates your startup's potential for customer acquisition and retention.
- **Competitors:** Research your competitors thoroughly and be prepared to explain how your startup differentiates itself. Showing an awareness of your competitive landscape will make your business case stronger.
- **Scalability for International Expansion:** Investors often look for potential beyond the local market. Matěj stresses the importance of having a strategy for scaling your startup internationally, which can increase its appeal and long-term growth potential.[3]

Exit Strategy

Setting clear exit goals from the outset, according to Tomáš Krátký, is a key requirement of most investors – they invest in startups in the vision of selling their equity at an exponentially higher price. In the case of his startup Manta, this strategy was "We will work on establishing key partnerships with as high number of tech corporations that have a gap in data lineage, with the goal to be acquired by one of them."[2]

Common exit strategies include:

- **Investment Takeover:** Acquisition for a sum exceeding the valuation, leading to majority ownership.
- **Acquisition by a Tech Firm:** Full buyout including team integration, often with commitments for founders to remain for a defined period. The motivation for their fulfillment is that founders will get a part of the payout only after the commitment is completed.
- **Initial Public Offering (IPO):** Listing the company on the stock exchange.[2]

When negotiating acquisitions, terms such as duration of commitment and performance indicators (KPIs) are critical. According to Krátký, the best terms the founder can hope for are *commitment in the company for 2 years, no KPIs, no business restrictions, and the last part of payout being 20 percent.*[2]

Advice for Student Founders

For aspiring student founders, Matěj offers several practical tips. He advises building a capable team that can produce a Minimum Viable Product (MVP) or a mock-up early on. A Fake Door Landing Page, which collects emails of potential users, is a valuable validation tool that also demonstrates traction to future investors. Matěj emphasizes the importance of validating ideas directly with users and encourages founders not to worry about idea theft, as success is more about execution than the idea itself. He believes that the real challenge lies in building a team, engaging investors, and setting the right pricing strategy. Additionally, he stresses the need for commitment, recommending that founders avoid part-time efforts. Matěj suggests that founders prepare for an intense workload and limited work-life balance, as 80% of a founder's time is often spent resolving issues, with only 20% dedicated to celebrating successes.[3]

1.5 Launch & Scaling

1.5.1 Challenges for Technical CEOs

For CEOs with a technical background, stepping into a leadership role that requires constant salesmanship and strategic visibility can be a challenging transition. Krátký describes the shock of moving from technical problem-solving to an almost exclusive focus on *selling*—not just to customers, but also to employees, investors, and strategic partners. As he transitioned to CEO, he found himself needing to develop the confidence to enter high-stakes meetings with major players like J.P. Morgan, American Express, and Deutsche Bank.[2]

In Krátký's experience, the first two to three years as a CEO are intensely focused on the responsibility of *fundraising* and defining the company's added value. It is essential to focus narrowly on the key responsibility at the time. Tomáš then gives a CEO a choice of secondary responsibility on either sales or product development, depending on the company's strategic needs. He emphasizes that for a CEO, especially in a sales-focused role, it is crucial to maintain a high level of energy and determination. During Manta's early days in the U.S., Krátký would deliver up to eight presentations daily over several months to secure funding and partnerships.[2]

Krátký's advice for students from a technical background aspiring to become CEOs is straightforward: *"To achieve your vision, one must identify their responsibility, start fulfilling it, and work on it intensively."* He also *recommends resources like Y Combinator's website*, which offers excellent literature on startup business strategies. Third advice from Tomáš stems from a mistake on his own part – *formalize responsibilities, such as product ownership, early.*[2]

1.5.2 Product Launch and Market Entry

The launch of Manta began as an internal project at Profinit in 2012, aimed at solving a specific client's needs. However, the team quickly recognized that the solution addressed a broader, global problem. Leveraging a $1 million grant from the Czech Technology Agency (TAČR) between 2013 and 2016, and a bootstrapping of about $1.5 million, led to successful deployments in prominent European companies such as Komerční banka and Česká spořitelna.[2]

Armed with a well-tested product, Manta entered the U.S. market in 2015. Krátký emphasizes that, when launching a product, it should be *saleable, deployable, and valuable* within the target market. Moreover, he insists that *whenever the product meets these conditions, it is risky NOT to launch* it within that market. While their existing European clients bolstered Manta's credibility, he found that American clients cared less about existing users and more about the functionality and value the product could deliver. For Krátký, the only true validation was customer purchases, making it essential to have rigorous, success-oriented metrics.[2]

1.5.3 Scaling and Global Expansion

In Krátký's view, many startups fail because they spend too much time on their domestic market. He argues that Czech founders, in particular, should immediately aim for international markets and suggests that the U.S. offers an ideal launch point due to its large, homogeneous market and single language. Manta avoided getting bogged down in the Czech market, opting instead for immediate global expansion.[2]

He challenges the common concept of a Minimum Viable Product (MVP), arguing that either a product works and can sell or it doesn't. And if it does, then that and rational considerations should guide decisions on delaying market entry.[2]

1.5.3.1 Collaborating with Key Clients

Partnering with a major client can be advantageous:

- Solve their specific problems by tailoring your product to their needs.
- Use this partnership as a foundation for expansion and scaling.[2]

This way, the startup may even be fully funded from these partnerships, while broadening it's set of clients.

1.5.4 Sales Strategy and Customer Insights

Krátký underscores the importance of an intensive, data-driven sales approach. He recommends identifying precise parameters for target customers, such as firm size, revenue, and technical capabilities, and generating a list of several hundred qualified prospects. Effective sales require contacting customers daily, employing multiple channels like LinkedIn, email, conferences, and direct outreach.[2]

An essential part of this strategy is constant data analysis—monitoring success rates, conversion metrics, and customer feedback. Krátký emphasizes the need for a substantial sample size, particularly in B2B contexts, to ensure statistically significant insights. According to him, a sweet spot emerges when the product offers a significant benefit without requiring substantial process changes from the client, which can serve as a foundation for price-setting experiments.[2]

Tailoring sales strategy and pitches to different audiences is critical to effectively communicate the value of your startup. Key considerations include:

- **Audience-Specific Content:** Structure the pitch differently for clients and investors.
- **Personalization:** Understand the audience's needs, their problems, and how your solution addresses these.[2]

Chapter 2

Design: Startup Formation Framework

2.1 Evaluation of Existing Startup Frameworks

Various frameworks have been developed to guide entrepreneurs through the startup process, providing structure and principles to ensure effective product development and market fit. However, many of these frameworks are either too general, designed for specific types of businesses, or only applicable at certain stages. This section provides an overview and analysis of several widely used startup frameworks and discusses their relevance to student-founded tech startups, particularly in the context of technology-driven teams. This is applied to both, the frameworks mentioned in the Background chapter, and some others recognized by the startup community, but not applicable.

2.1.1 Lean Startup

The Lean Startup methodology's important insights for startup formation is described in the previous section on Development. Therefore, this subsection draws from that discussion for specifics and doesn't describe the framework thoroughly here.

The *Lean Startup* framework, developed by Eric Ries, emphasizes rapid iteration and learning through the *Build-Measure-Learn* cycle. It encourages the creation of a Minimum Viable Product (MVP) and continuous feedback from users. This approach is valuable for early-stage startups, particularly in reducing wasted resources, its focus is largely on *validation* and experimentation.[10]

Limitations: The Lean Startup model is highly applicable at the validation stage, but it lacks specificity for tech startups, particularly those led by student founders who may need more guidance on business execution, team management, product scaling, and product design. It is also not comprehensive in covering key areas such as raising capital or long-term financial planning.

2.1.2 Design Thinking

Design Thinking is a human-centered approach to innovation that focuses on understanding user needs, redefining problems, and creating innovative solutions. Originating from design disciplines, this iterative process is widely used in startups and organizations to drive innovation through empathy, experimentation, and collaboration. Unlike traditional problem-solving methodologies, Design Thinking emphasizes creative ideation and prototyping as a means to rapidly test and iterate solutions.

2.1.2.1 Key Components of Design Thinking

Design Thinking is typically divided into five key stages, though it is not always a linear process. These stages can overlap, and teams may cycle through them multiple times in response to new insights or challenges:

1. **Empathize:** The process begins by deeply understanding the needs, motivations, and challenges of the end user. This can be done through user interviews, ethnographic research, and other methods to gather qualitative insights.
2. **Define:** Based on the research from the Empathize stage, the problem is defined in a user-centered way. Instead of framing problems from a business perspective, the team defines the problem by focusing on the user's needs, such as, "How might we improve the experience of legal case research for busy lawyers?"
3. **Ideate:** In this phase, the team generates a wide variety of potential solutions to the problem. Brainstorming sessions and other ideation techniques are used to foster creative and often unconventional ideas.
4. **Prototype:** The most promising ideas are then translated into simple prototypes. These prototypes are used to quickly test ideas in low-fidelity formats, such as wireframes or mock-ups, enabling rapid feedback without heavy investment.
5. **Test:** The prototypes are tested with real users to gather feedback and identify potential improvements. This stage often leads to further iterations, as new insights emerge and previous assumptions are challenged.[23]

2.1.2.2 How Design Thinking Works

Design Thinking revolves around iterative cycles of problem definition, ideation, prototyping, and testing, making it inherently flexible and adaptive. Teams may find themselves moving back and forth between stages as new information is gathered. This nonlinear process is particularly effective in addressing ill-defined or complex problems, where the solution may not be immediately apparent.[23]

- **User-Centered Focus:** Design Thinking places the user at the center of the innovation process, ensuring that solutions are developed with a deep understanding of the user's needs and pain points. This makes the methodology particularly well-suited for developing products that prioritize user experience.
- **Iterative Learning:** The cycle of ideation, prototyping, and testing ensures continuous feedback and improvement. This iterative approach minimizes risk by allowing teams to experiment with different solutions before fully committing resources.
- **Collaborative Process:** Design Thinking encourages collaboration among team members from various disciplines, promoting diverse perspectives that can lead to more creative solutions. The open environment fosters brainstorming and out-of-the-box thinking.

2.1.2.3 Key Benefits of Design Thinking

- **Human-Centered Innovation:** The empathy-driven nature of Design Thinking ensures that the final product closely aligns with the end users' actual needs and experiences, which is crucial for developing solutions that gain traction in the market.
- **Rapid Prototyping and Feedback Loops:** Through quick, low-cost prototyping, Design Thinking allows startups to test ideas early and often, leading to faster iterations and more refined solutions before heavy investments are made.
- **Adaptability:** The flexible and non-linear process means that teams can adapt quickly to new insights, customer feedback, or market changes without disrupting the overall progress of product development.
- **Collaboration and Cross-Disciplinary Input:** Design Thinking brings together team members from different backgrounds and skill sets, fostering collaboration that can lead to more holistic and creative solutions.

Limitations: While Design Thinking is effective for consumer-focused products, its emphasis on creative ideation over technical execution makes it less relevant for tech-driven startups. This framework leads to test the desirability of a perfectly functioning product, but doesn't care about the limits of technology, for example, AI capabilities. It is also the author's opinion, that the already mentioned Design Sprint is an improved version for validating features, as it describes the prototyping cycle thoroughly in one week. Moreover, this framework provides insufficient guidance on handling technical challenges, resource management, or product scaling.

2.1.3 Objectives and Key Results (OKRs)

Objectives and Key Results (OKRs) are a popular goal-setting framework used by organizations to align teams toward achieving measurable outcomes. Originally popularized by companies like Intel and Google, OKRs provide a structured approach to defining and measuring progress toward specific objectives. OKRs are designed to keep teams focused on ambitious goals, while tracking progress through quantifiable results.[24]

2.1.3.1 Components of OKRs

OKRs consist of two primary components:

- **Objectives:** The objective is a qualitative goal that defines *what* the organization, team, or individual wants to achieve. Objectives should be ambitious, clear, and time-bound. They represent aspirational targets rather than day-to-day tasks. For example, an objective might be, "Increase market penetration in the legal tech sector."
- **Key Results:** Key results are quantifiable metrics that indicate *how* progress toward the objective will be measured. Each objective typically has 3-5 associated key results that are specific, measurable, and time-bound. For example, key results for the objective mentioned above might include, "Acquire 20 new clients in the legal sector," or "Increase product adoption by 15 percent within 3 months."[24]

2.1.3.2 Key Benefits of OKRs

- **Alignment and Focus:** OKRs help align team efforts with the company's broader strategic goals. By setting and communicating clear objectives, teams stay focused on what matters most, avoiding distractions.

- **Transparency and Accountability:** OKRs are usually visible across the organization, ensuring transparency. This fosters accountability, as team members know what is expected and can track their progress.
- **Measurable Outcomes:** With key results being specific and quantifiable, OKRs allow teams to track progress and measure success over time. This data-driven approach enables informed decision-making.
- **Agility and Flexibility:** OKRs operate in shorter cycles (usually quarterly), allowing teams to adapt quickly to new challenges or opportunities. If objectives are not met, the team can pivot and adjust goals for the next cycle.

Limitations: Despite their benefits, OKRs may not always be the best fit for early-stage startups. This is due to several factors:

- **Overhead in Setup and Maintenance:** Implementing OKRs requires time and effort to define ambitious yet achievable objectives, set measurable key results, and review progress regularly. In the author's opinion, when already using metrics as described in Lean Startup, OKRs implementation creates an unnecessary overhead in the early stages of a startup.
- **Team Size and Scope:** OKRs are typically designed for larger, more mature teams with well-defined roles and responsibilities. In small, early-stage startups where team members often wear multiple hats, the distinction between strategic goals and day-to-day tasks may blur, making OKRs harder to implement effectively.
- **Focus on Immediate Deliverables:** Student-led startups often prioritize building and iterating on their product to quickly reach product-market fit. OKRs, which emphasize long-term strategic outcomes, may not align with the immediate needs of such teams, which are often more focused on rapid development and execution. In the author's opinion, **Epics** are better for product development and day-to-day execution within a team. They provide the structure needed to develop and implement prioritized modules effectively, while being time-efficient to be set.

2.1.4 Disciplined Entrepreneurship

Disciplined Entrepreneurship is a comprehensive, step-by-step approach to building a successful startup. Popularized by Bill Aulet from MIT, the framework is based on 24 sequential steps that guide entrepreneurs through the process of transforming an idea into a scalable and sustainable business. Unlike other methodologies, Disciplined Entrepreneurship focuses on practical execution and emphasizes customer discovery, product-market fit, and building a repeatable business model. The framework is particularly well-suited to tech startups as it offers a structured way to navigate the complexities of the startup environment.

2.1.4.1 Key Components of Disciplined Entrepreneurship

Disciplined Entrepreneurship breaks the startup process down into six overarching themes, each containing specific steps to help founders make data-driven decisions:

1. **Market Segmentation:** Identifying the right target market is critical for startups. The process starts by segmenting the potential customer base to focus on a specific group where the startup can deliver the most value.
2. **Beachhead Market:** Once market segments are identified, the next step is choosing a beachhead market — a single, well-defined market segment to focus initial efforts on. This helps the startup build traction in a niche market before expanding.

3. **Product Development and Design:** Founders must create a product that meets the specific needs of their beachhead market. The product development process is guided by continuous feedback from potential customers.
4. **Customer Discovery and Validation:** Validating product assumptions with real customers is an essential part of the process. This ensures that the product solves a real problem and that customers are willing to pay for it.
5. **Business Model Development:** After product validation, founders design a scalable business model that includes pricing strategies, cost structures, and distribution channels.
6. **Scaling and Growth:** Once the business model is validated, the final steps involve growing the startup by expanding into adjacent markets and optimizing operations for scalability.[25]

2.1.4.2 How Disciplined Entrepreneurship Works

Disciplined Entrepreneurship provides a roadmap that founders can follow, ensuring that each step builds on the previous one. This structured approach contrasts with more flexible methodologies such as Lean Startup, where pivots and adjustments are more frequent. The 24-step process is iterative, meaning that founders may revisit earlier steps based on new insights or feedback from customers. This cyclical nature helps refine the product and business model continuously, reducing the risk of failure due to unforeseen challenges.[25]

- **Customer-Centric Approach:** The process starts with a deep focus on understanding the customer and the problem the startup is solving. This customer-centric mindset is key to finding product-market fit early.
- **Data-Driven Decisions:** Each step involves gathering data, whether through market research, customer interviews, or financial modeling. This ensures that decisions are based on real evidence rather than assumptions.
- **Risk Mitigation:** By breaking the startup process into manageable steps, Disciplined Entrepreneurship helps identify and mitigate risks early on. For instance, by validating the market and product early, startups reduce the likelihood of building something no one wants.

2.1.4.3 Key Benefits of Disciplined Entrepreneurship

- **Structured Framework:** Disciplined Entrepreneurship offers a clear, step-by-step guide for startups, providing founders with a systematic approach to building their business. This is particularly useful for founders who prefer structure over ambiguity.
- **Focus on Product-Market Fit:** The emphasis on customer discovery and market validation ensures that startups do not waste resources developing products that lack market demand.
- **Scalability and Growth:** By helping founders design a scalable business model, Disciplined Entrepreneurship prepares startups to grow sustainably after achieving product-market fit.
- **Customer-Driven Development:** Continuous engagement with potential customers throughout the process ensures that product development is tightly aligned with customer needs.

Limitations: While Disciplined Entrepreneurship provides a comprehensive framework for tech startups, it has certain limitations, particularly for European founders. The methodology is heavily focused on the U.S. market, and thus does not fully address the distinct challenges and opportunities within the European ecosystem. For instance, as discussed in the previous chapter, the landscape for raising funds is different in Europe, where startup accelerators, such

as the EIC Accelerator, offer significant support but can require navigating additional layers of bureaucracy. In contrast, the U.S. startup environment is characterized by less bureaucratic red tape, allowing for faster company formation and quicker access to funding. Additionally, Disciplined Entrepreneurship assumes the startup has a viable business idea and team in place; however, it offers limited guidance on the process of ideation and team-building.

Despite these limitations, the Disciplined Entrepreneurship framework remains a valuable source of inspiration for aspiring founders. By breaking down the entrepreneurial journey into actionable steps, it serves as a powerful roadmap for navigating the complexities of building a startup. In the author's opinion, its structured approach provides crucial insights that can be adapted to different markets and contexts, making it a worthwhile tool even for those outside the U.S.

2.1.5 Design Sprint

The Design Sprint methodology's important insights for startup formation is described in the previous section on Development. Therefore, this subsection draws from that discussion for specifics and doesn't describe the framework thoroughly here.

The *Design Sprint* framework, created by Google Ventures, is a five-day process that focuses on solving specific product challenges. It involves ideation, sketching, prototyping, and testing with users. This framework can accelerate decision-making and product design, particularly in early-stage product validation.[22]

Limitations: Design Sprint is highly focused on short-term product development and problem-solving but does not provide guidance for longer-term business model development, scaling, or team management. It is also more suited for teams that already have a product idea and are working on refining it, making it less applicable for student startups still figuring out their core business model or technical requirements.

2.1.6 Lean Canvas with Validation Principles

The Lean Canvas methodology's important insights for startup formation is described in the previous section on Development. Therefore, this subsection draws from that discussion for specifics and doesn't describe the framework thoroughly here. The *Lean Canvas*, proposed to the author by the ČSOB Bank, is a variation of the Business Model Canvas tailored for startups, focuses on identifying and solving problems, defining customer segments, and clarifying key metrics. It emphasizes hypothesis-driven experimentation, making it more flexible for tech startups compared to the traditional Business Model Canvas.[8]

Limitations: Although Lean Canvas addresses some of the challenges in the startup validation phase, it's limited scope does not provide detailed guidance on technical product development, scaling challenges, or team collaboration. It is still a great tool for early problem and solution validation – by encouraging the author to thoroughly describe the problem, unique value proposition etc., it helped him greatly with realizing and communicating the need and profitability of building a solution to potential teammates, customers and investors.

2.1.7 Conclusion and Key Gaps in Existing Frameworks

While each of these frameworks offers valuable tools and methodologies for certain aspects of a startup, **none of them comprehensively address the challenging stage from idea to a launch**. Many of these frameworks are either **too focused on specific startup stages**, such as product validation or user experience design, or **not specialized to give tech-based students an overview of this stage**. For example, frameworks like Lean Startup and OKRs are useful for testing assumptions and tracking goals but do not provide actionable steps for building a

technical product from the ground up. Similarly, Business Model Canvas and Design Thinking emphasize business model creation and ideation but fall short in addressing the complexities of team execution, or resource constraints.

This gap highlights the need for a more holistic framework tailored specifically to student-led tech startups. The author was especially confused by the volume of different aspects of a startup launch – he encountered a variety of materials focusing on specific subjects, each directing him to a topic, without discussing or guiding about the right timing, or relevance for tech startups.

2.2 Learn and Execute Framework – For an Early Startup

The framework depicted in 2.1 serves as a step-by-step guide the author designed specifically for university students with a technology background, guiding them through the key phases of startup development from idea to product launch. It also gives an overview of the stages after launch, drawing from the unique interviews gathered from successful CEOs. This framework follows the insights and activities the author identified as crucial in the Background chapter for launching a technological startup as a university student. The author also draws from the limitations of other existing frameworks and merges the most suitable into one – The Learn and Execute Framework. It's structured chronologically – with the exception of parallel activities and iterative principles – as follows:

- **Basics**: A reader wishing to use this framework should get familiar with Business Terminology.
- **Ideation**: The practical part of the journey begins with identifying problems and proposing potential solutions and validating their desirability. With the help of the corresponding section, an aspiring innovator should **Learn**:

  1. What's the core of innovation and why?
  2. What is the Lean Canvas and what's it for?
  3. How to validate, whether a solution to a problem is desirable and marketable?

  And **Execute**:

  1. Explore problems with an innovative potential.
  2. Select a single problem to solve and reflect it onto a Lean Canvas
  3. Validate, and accordingly iterate their Lean Canvas, if they assess that the problem isn't worth solving
  4. Design an abstract solution and a success metric in the Canvas; validate it; iterate – until they find a problem and a solution that succeeds the metric.
  5. Identify the Ideal Customer Profile and Ideal User Profile through a Market research.

  If the innovator encounters challenges, as is often the case, they are encouraged to revisit their initial ideas, completely wipe the idea, until satisfied.

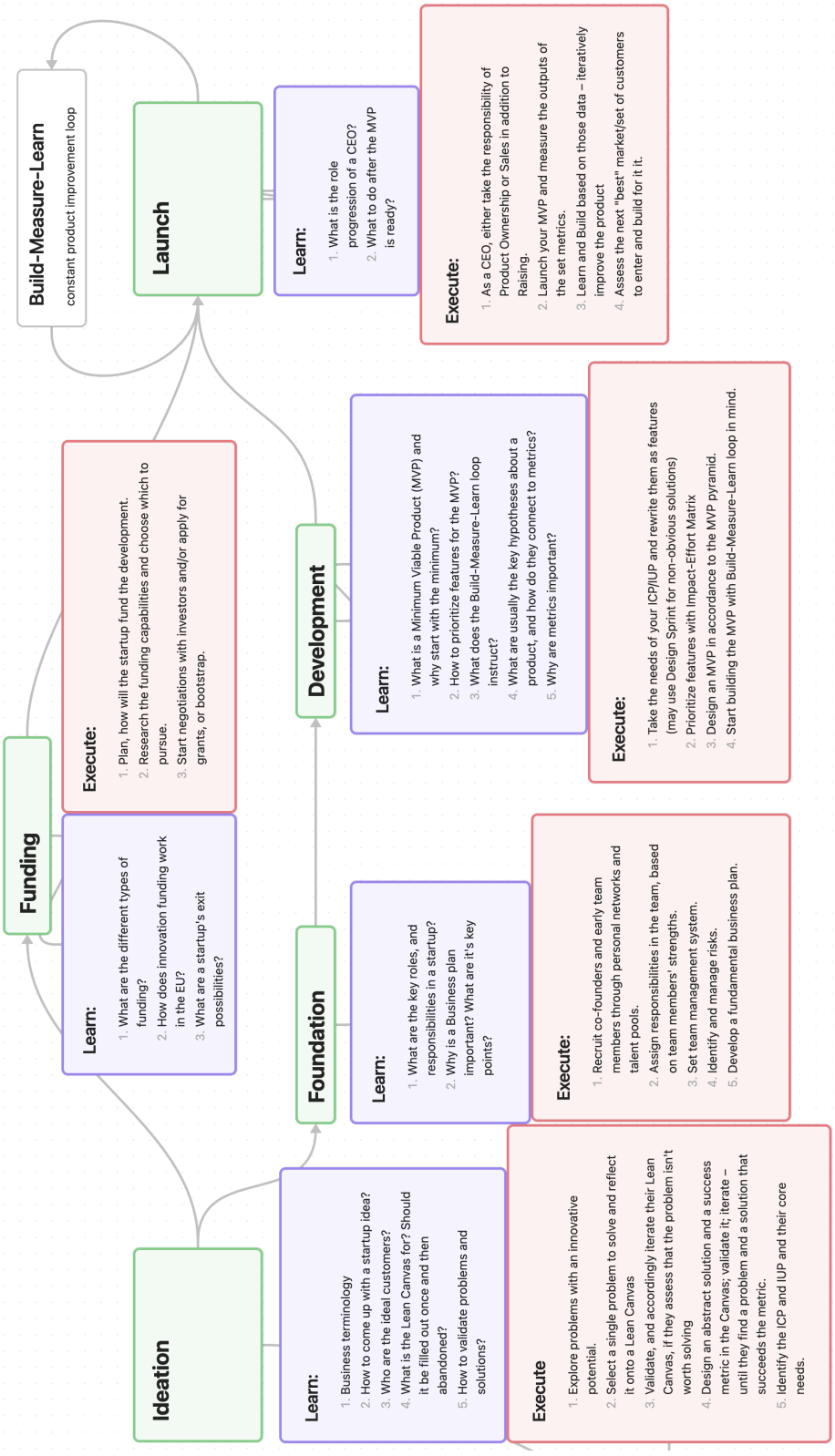

Figure 2.1 Author's proposed Learn and Execute Framework

- **Foundation**: This section guides the reader through the foundational steps necessary to build and manage a successful tech startup team. In this phase, the aspiring founder will learn how to assemble the right people, develop effective management practices, and establish a clear business plan. By following this section, an innovator should **Learn**:

  1. Understand key roles, and responsibilities in a startup.
  2. Learn about different compensation models for co-founders and employees.

  And **Execute**:

  1. Recruit co-founders and early team members through personal networks and talent pools.
  2. Agree on the compensation with each of the team members.
  3. Develop a fundamental business plan.

- **Development**: This section provides guidance on taking initial ideas and transforming them into tangible products through The Lean Startup and The Design Sprint methodologies. In this phase, the aspiring entrepreneur will learn how to develop, test, and iterate on their product idea, focusing on efficient, systematic, and fast approaches to product development. Following the steps in this section, an aspiring tech entrepreneur will **Learn**:

  1. Understand the concept of a Minimum Viable Product (MVP) and why it's a critical step in validating a business idea.
  2. Learn how to apply the Build-Measure-Learn loop to continually refine the product based on customer feedback and market insights.
  3. Explore the principles of a Design Sprint as a method for rapidly testing and validating new ideas within a short time frame.

  And **Execute**:

  1. Find your early adopters segment and find their core needs.
  2. Prioritize features with Impact-Effort Matrix and design an MVP in accordance to the MVP pyramid.
  3. Start building the MVP with Build-Measure-Learn loop in mind.

- **Funding**: In parallel with development, the innovator should **Learn**:

  1. What are the different types of funding.
  2. How does innovation funding work in the EU?

  and **Execute**:

  1. Plan, how will the startup fund the development.
  2. Research their funding capabilities and choose which to pursue.
  3. Start negotiations with investors and/or apply for grants.

- **Launch & Scaling**: As the startup finishes developing it's product, the innovator should **Learn**:

  1. What is the role progression of a CEO?
  2. What to do after the launch of a product?

  And **Execute**:

  1. As a CEO, either take the responsibility of Product Ownership (the Learn responsibility in Build-Measure-Learn) or Sales in addition to Raising.
  2. Assign the other roles to the teammates.
  3. Launch your MVP and the processes of sales and product iteration (the Learn in BML loop).
  4. Assess the "best" market to enter and enter it. (This means starting this framework over, starting with Validation, Market Research and Development)

- **Exit**: The final stage involves planning an exit strategy, whether through acquisition, merger, or taking the company public (IPO).

Each of these steps is detailed in its own corresponding section of the Background chapter. Steps of the framework are enriched with **Learn** and **Execute** activities. The first being an exercise for the reader to comprehend key concepts from the Background chapter. The second is a list of key activities with practical templates and tips outlining what the innovator (the reader using this framework as a guide) should focus on undertaking. By following this framework chronologically, tech-based students can systematically navigate the complexities of startup development, from initial idea generation to potential exit strategies. Examples of the framework can be found in Figures A.1, A.2 and A.3 in Appendix A.

The reader may follow the framework by:

1. accessing the Notion page of the framework at **http://bit.ly/4gWRzjZ**,
2. cliking on the "Duplicate" button on the top right, and
3. signing up to Notion, if the reader isn't already a user.

Chapter 3

Case Study: Evaluating the Framework

3.1 Introduction

This case study evaluates the completeness of the proposed framework for a tech-based university student – founder of a B2B SaaS startup. The framework provides a structured pathway from ideation through exit, and this evaluation is based on the experience of **the author's own startup venture**. This startup has gone through two iterations, and the framework was designed after the first, and in parallel with the second iteration. Therefore, not all steps were followed fully, which is an opportunity to discuss the effects of not following this framework – in **Lessons learned from deviations** discussions. This evaluation will also reflect on what was missing in the framework, under the discussions titled **Identified gaps in the framework**, and the aspects of the framework helpful to the author's startup formation, titled **Effective aspects of the framework**. These discussions will follow the description of how each step was handled by the author as the CEO in **Startup walkthrough** of each proposed step of the framework, where he provides **examples**, such as cutouts of some rows of tables, from the startup's own internal documents.

3.2 Case Study Background

3.2.1 Startup Overview

CaseIndex, the author's startup, was founded during his university years. It is a B2B SaaS company aimed at optimizing the process of legal research. The goal of the product is to help lawyers efficiently search past legal cases. Our core team consists of five people: an AI engineer, a backend developer, a UX designer, a lawyer, and the author as CEO.

CaseIndex has successfully validated the core problem, gaining two law firms and a handful of individual lawyers as paying customers for testing, even before it's launch. It has also gained the trust of a law firm to invest and cofound the startup. *sample: it's worked on various UX prototypes, and continues to improve the product, although we have not yet reached the exit phase.*

3.2.2 Startup Timeline

The startup went through three main iterations:

- **Iteration 0:** The author highlights this point as "zero", since the idea was tossed out completely. It is, however, a great example of how NOT to build the foundations of a startup. This iteration was called Minerva, and the idea behind it was a platform for onboarding (the procces of hiring and teaching new employees). There was very little validation or data-based decisions. This iteration of the startup went through the Ideation phase only.
- **Iteration 1:** The first iteration focused on ideation, initial team formation, and early-stage validation with a few lawyers. This stage ended when the expectations of lawyers didn't meet the technical feasibility. This iteration of the startup went through ideation and validation only.
- **Iteration 2:** In the second iteration, the startup refined it's business model and product to be user-centric, by expanding validation to multiple users and customers. Then, the startup moved towards developing a market-ready product, secured the first external funding and began establishing strategic partnerships. This is the phase the startup is in at the time of the thesis deadline for turning in.

3.3 Step-by-Step Evaluation of the Framework

3.3.1 Ideation & Validation

3.3.1.1 Startup Walkthrough

Iteration 0 – Minerva Exploring innovative problems The issue of office employee burnout and inefficiency, primarily due to ineffective relay of information within corporate structures. The problem was initially identified during an interaction with a newly onboarded office employee who expressed frustration over receiving tasks without adequate information. The task involved communicating specific details to a customer, but the absence of a designated information channel, such as a wiki or a dedicated point of contact within the organization, led to a sense of entrapment and subsequent procrastination.

Further investigation revealed that this issue was not isolated but a recurring problem contributing significantly to employee exhaustion and hindering progress in other tasks. A notable underlying factor was employees' reluctance to seek assistance, stemming from a fear of appearing incompetent. Conversations with peers confirmed that inefficiency in information dissemination is a widespread concern.

In response to the identified problem, the author proposed a corporate platform for anonymous questions, primarily targeted at new employees. This platform aims to create a safe space where employees can seek information without fear of judgment or repercussions. The anonymity feature is designed to encourage open communication and alleviate the apprehension associated with requesting assistance. Questions would be answered by senior employees or managers.

Market research on the proposed solution included an analysis of competition. A notable example is the Czech startup **NNTB**, which functions as an online trust box and internal reporting system. Employees and students can use it to send suggestions and discuss sensitive topics with relevant personnel. This tool supports building an ethical corporate culture, addressing whistleblowing, and uncovering bullying, starting at 990 CZK per month per company. The capability of anonymous Q&A sessions posed a direct competition with the idea.[26]

Based on the gathered information, the author concluded that the solution needed to pivot to find a competitive edge in addressing onboarding efficiency. While NNTB tools facilitate anonymous Q&A sessions, they are not specialized for corporate onboarding or tailored to the needs of new employees. To compete against such enterprises, the strategy included the following adjustments:

- **Specialization in onboarding with AI assistance**
  By focusing on the onboarding process, the product can address the unique challenges faced by new employees. This specialization enables the development of tailored features that enhance the onboarding experience, such as customized training modules, progress tracking, and integration with existing HR systems. This targeted approach differentiates the product from more general tools and demonstrates a deep understanding of the onboarding process.

- **Specialization in IT departments**
  Targeting IT departments aligns with the expertise of the development team, enabling the creation of a product that meets specific needs within this domain. Additionally, potential users for validation are readily available through the team's existing network and connections within the IT industry. Career fairs, such as iKariera or CoFIT, provide opportunities to engage with department leads who are potential customers. This focus facilitates valuable feedback, rapid iteration, and the building of strong relationships with early adopters in a familiar domain.

The first iteration after evaluating competition was a specialized corporate platform for onboarding in IT, integrating an AI-powered search function connected to corporate documents,

communication channels, and other information sources relevant for newly onboarded employees. The IT segment was chosen due to the team's familiarity with users' needs. For validating this solution see the chosen metrics below. For the reason of the companies' confidentiality, the results in Table 3.1 are anonymized. Examples of the addressed companies are ČSOB Bank, Škoda Auto, Tipsport and IDC software.

1. **Do at least 4 out of 10 potential customers have this problem and want to address it?**
2. **Are at least 2 potential customers willing to be early adopters?**

Company	Has this problem?	Is decision-maker willing to early adopt?
[redacted]	no	no
[redacted]	yes	no
[redacted]	yes	no
[redacted]	yes	yes
[redacted]	yes	no
[redacted]	no	no
[redacted]	no	no
[redacted]	yes	no
[redacted]	no	no
[redacted]	yes	no

Table 3.1 Validation Metrics Results on iKariera, CoFIT

The reasons cited by customers for declining to test the product included:

1. Lack of trust in the startup's accountability.
2. Perception that internal development of similar software is sufficient.
3. Reluctance to accept a prototype which uses ChatGPT.
4. Concerns about inaccurate or outdated information due to insufficiently updated documentation.
5. Fear of violating strict knowledge-sharing permissions through tool misuse.
6. Preference for a general assistance tool over onboarding-specific software.

These insights indicate that creating a broad assistance tool is not a viable approach for the startup. Instead, focusing on a single, well-defined use case is essential to meet the target market's needs effectively and build trust. Specialization allows for the development of a robust, reliable, and secure solution tailored to specific challenges faced by customers.

Furthermore, competitors such as Claude, JetBrains, and Git are already advancing specialized solutions within this segment. Their focus on targeted functionalities enhances their ability to deliver high-quality products. To compete effectively, adopting a similar strategy of specialization is crucial.

By narrowing the focus to a specific use case, the startup can leverage its agility to create a solution that excels in quality and relevance. This strategic shift will better address customer needs, differentiate the product in a competitive market, and provide a compelling value proposition to a more suitable customer base.

Iteration 1 Innovative problem
The process began with direct contact with a CEO and lawyer from a small legal office who faced the identified problem. Through validation discussions, their major challenges were confirmed: *searching judicial decisions of similar cases is difficult with current technology*, *larger legal agencies have an advantage in accessing and analyzing judicates*, and *searching judicates from the European Court is particularly cumbersome*. Based on this insight, the team decided to focus on solving this problem.

A Lean Canvas
A Lean Canvas was constructed to outline the problem domain and potential solutions. This process was preceded by collaboration with the legal office to map the problem domain on a whiteboard, drawing from the Design Sprint principles. The resulting map is shown in 3.1.

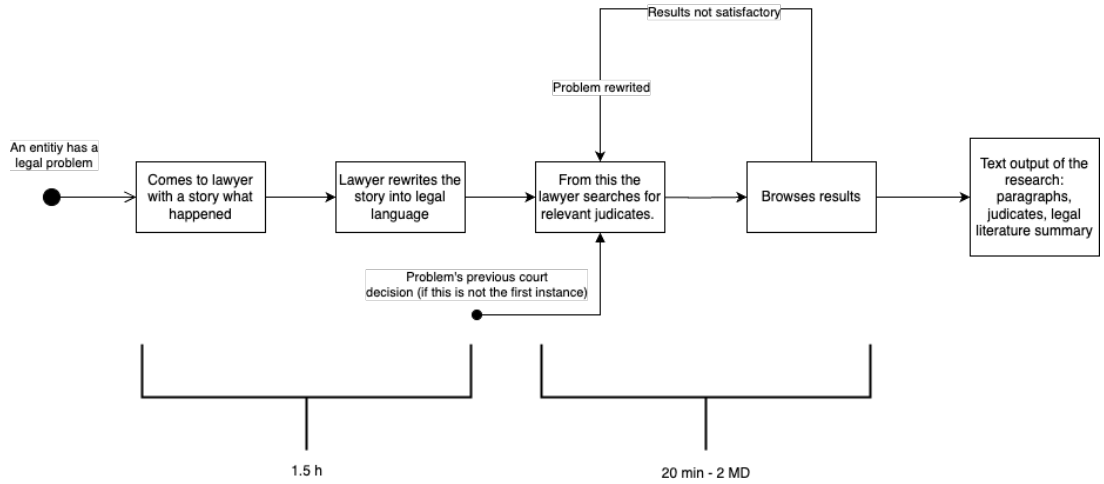

Figure 3.1 Map of the problem domain, translated, digitalized

From this figure, the following Lean Canvas was built 3.2. The important assumptions from the mapping, although not formulated or validated, were as follows:

1. The lawyers are looking for a semantic likeness between two documents,
2. there are no tools on the market that search EU judicates,
3. the lawyers write down the case in similar scope and wording as the judicates.

Validating Late
Further mapping of the problem domain months later with an AI expert and a lawyer revealed critical shortcomings. Feedback from the lawyer indicated that the proposed solution (input: a case description, output: similar cases) was not desirable. Concurrently, the AI expert highlighted the technical infeasibility of the obvious pivot (input: question for the set of cases, output: credible legal opinion from the set of cases). These findings underscored the need for broader validation efforts. The author recognized the necessity of engaging with a diverse range of lawyers to validate the problem thoroughly and reassess customer needs. This realization defined the focus for *Iteration 2*.

Iteration 2 Validation Process
To address the challenge of not finding an intersection between desirability and technical viability, the author adopted a user-centric validation approach. Leveraging their personal and professional network, they sought to engage a diverse set of users through an Instagram story, friends of friends studying law, and networking events. Validation was conducted with five potential users:

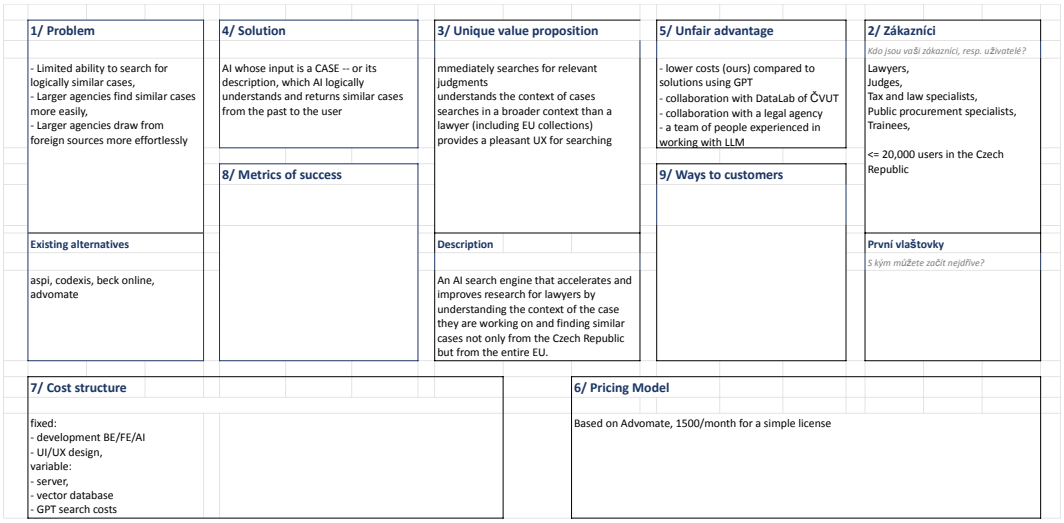

Figure 3.2 Legal research SW canvas 1, translated

- A business intelligence expert with a law degree,
- A junior lawyer specializing in insolvency law,
- A junior lawyer specializing in family and civil law, and
- Two senior lawyers focusing on public procurement.

The interviews followed a structured scenario:

1. **Icebreaker:** Casual discussion about the participant's interests, workplace, or university.
2. **Understanding their work:** Mapping their workflow, including:
   - How they acquire cases,
   - The duration and methods of their research,
   - The format of their output (e.g., reports, legal advice),
   - Examples from real-life scenarios, and
   - Tools they currently use or are aware of.
3. **Identifying pain points:** Questions such as:
   - "What takes the longest in your work?"
   - "What is your biggest pain point?"
   - "What annoys you the most?"
4. **Exploring ideal solutions:** "If you had a magic wand, what solution to your problem would you build?"

Validation Outputs

The author documented these interviews, extracting key findings and summarizing them into a new iteration of the Lean Canvas, which included an abstract solution to the identified problems. For intellectual property reasons, the thesis does not disclose all problem statements and lean canvas elements. A translated figure of the updated Lean Canvas is provided (see Figure 3.3).

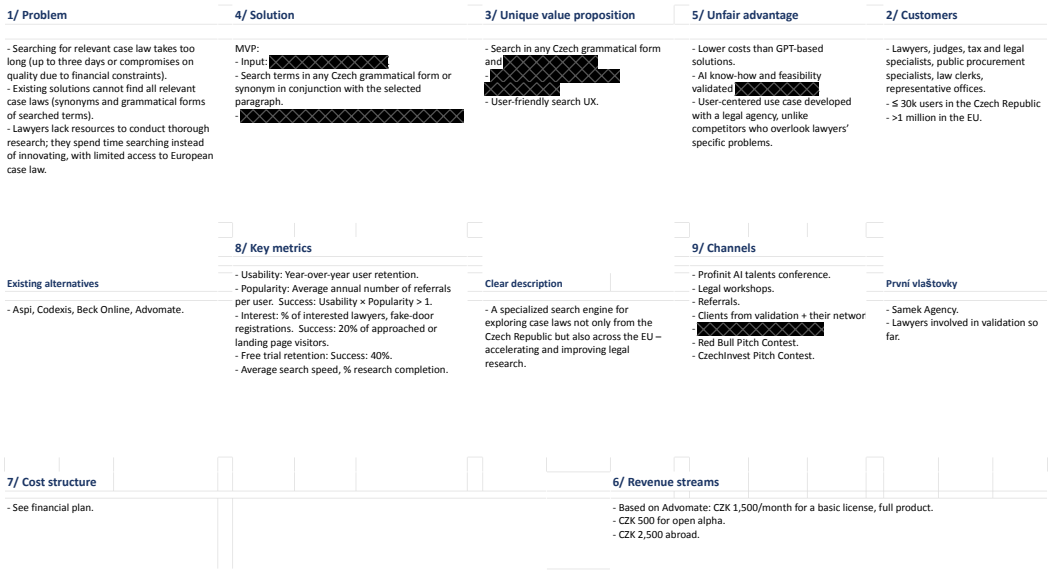

Figure 3.3 Legal research software Lean Canvas ver. 2, translated.

Ideal Customer Profile (ICP)

The ideal customer profile was determined based on maximizing the tool's value to the customer and the potential number of licenses sold at a reasonable price point. The startup cofounders brainstormed potential customer segments, forming and validating assumptions with customers rather than end-users. Validation was conducted with:

- Berenberg, a German private bank,
- eLegal, a law office,
- Four Czech law faculties, and
- Presentations at the AI Hotspot conference by Profinit.

Initially, the team hypothesized that universities would be the most profitable clients due to their large student bases (e.g., over 4,000 law students at major law faculties). However, validation revealed that universities typically allocate low budgets for student tools.

The resulting ICP is defined as follows:

- A Czech law office with branches throughout the country (enabling word-of-mouth expansion),
- A firm with 35+ potential users and a yearly revenue of 35+ million CZK (maximizing efficiency of sales operations), and
- Specialization in tax law, civil law, insolvency, and related fields (areas where the tool provides the highest value).

This refined profile aligns with the assumption that such customers purchase licenses for their entire team and welcome tools enabling efficiency improvements. Further validations supported this assumption.

3.3.1.2 Identified Gaps in the Framework

One process the framework doesn't emphasize enough would be the need to parallelize the further steps, namely **validating the technical feasibility with experts**. This could be a potential neglect of a startup, such as in the author's *Iteration 1*, which resulted in a longer *Ideation phase*. It is to be noted, however, that **the framework does include this step** in the *Development phase*, if the startup follows the mentioned *Design Sprint*, which is also the activity which revealed this drawback in the author's startup. It would, nonetheless, be more optimal to introduce this earlier.

3.3.1.3 Lessons Learned from Deviations

The startup didn't use structured user and customer validation as outlined in the framework, leading to an overly optimistic validation phase. This caused the author to waste resources early on, by focusing on a product that isn't desirable, in case of *Iteration 0*. In the *Iteration 1* the startup didn't define an ICP, leading to low validation, and incomplete needs for the product.

3.3.1.4 Effective Aspects of the Framework

The framework provided helpful guidance on interviewing potential customers and validating the problem-solution fit and product-market fit. This step was crucial in helping the startup team identify pain-points that customers are willing to pay for, and realize the value of the product. This step of the framework provides a great guidance on the ideation phase. It correctly emphasizes the need to build assumptions and validate them with both user and customer. *Iteration 2* of the startup was following the framework precisely, and it hadn't set the author's startup back in any way, exactly the opposite.

3.3.2 Foundation (Team Formation, Management, Business Planning)

3.3.2.1 Startup Walkthrough

Team Formation
The author utilized their student network, Instagram stories, and outreach to students working on master's and bachelor's theses relevant to the startup topic to form the initial team. A comprehensive overview of the team was documented, including each member's strengths, weaknesses, professional ambitions, weekly availability, and hard skills. This process resulted in a six-member team, as summarized in Table 3.2.

Team Member	Responsibilities
The Author	Project leader, product ownership, and fundraising
Medior Lawyer	Cofounder, administrative responsibilities
Senior Lawyer	Angel investor, consultant, and source of knowledge/network
AI Engineer	MVP AI developer, future AI team lead
Backend Developer	Backend development for MVP, team organization
Frontend Developer and UX Designer	Frontend development and UX design

Table 3.2 Team roles and responsibilities

Team Management

The author employed TickTick for personal time management and organized startup tasks using Roadmap delivery for epics (month-long projects, Figure 3.5) and Kanban for task management (Figure 3.4).

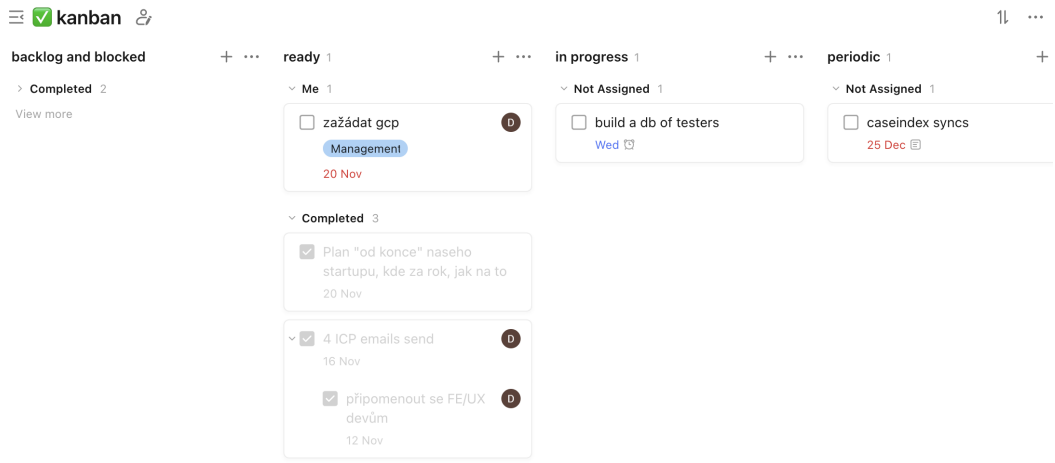

Figure 3.4 The startup's task management - Kanban

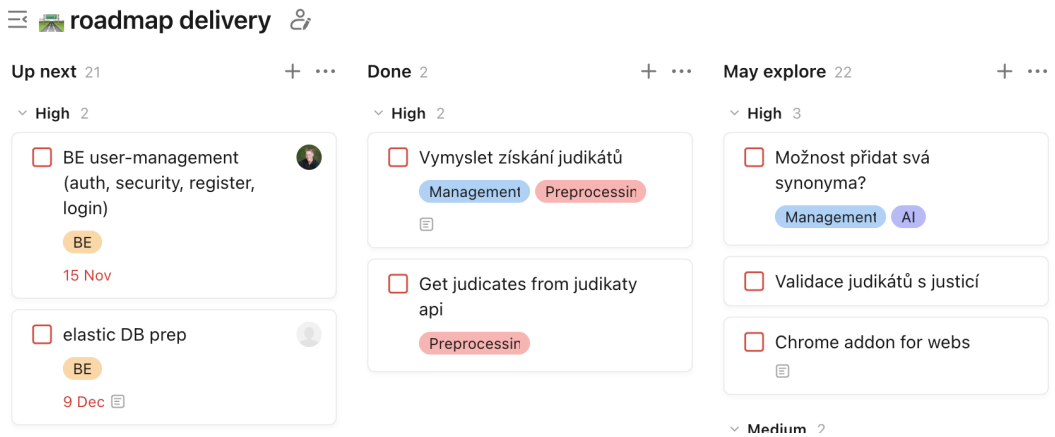

Figure 3.5 The startup's task management - Epics

Business Plan

The startup developed a foundational business plan, which included projections for user growth and revenue streams. Key components of the business plan are illustrated in Figures 3.6 and 3.7.

Risk Management

Risk analysis was an integral part of the foundation phase. Table 3.3 summarizes some of the risks identified during incubation, their impact, likelihood, severity, mitigation measures, and associated costs.

Executive Summary

General: Founded: 2024, Founder: Dorian Charbulák, EU Legal tech market: **$ 7.18B** (2023), CAGR: 9.1%

Mission: Shorten lawyers' case research time. Disrupt monopoly on resesarch quality of big advocacy agencies through extending precedent research with EU courts, shortening time to finding relevant judicature. Thus, effectively increase the output of a legal research

Vision: Give all law offices the competetive advantage in terms of Precedent research capacity, shorten the research time from up to 5hrs to as low as 15 minutes.

Company synopsis: Company was created by a collaboration of an Advocacy company and students from Faculty of Informatics at ČVUT in Prague. It benefits from domain knowledge directly from potential end users, lawyers, and AI systems and expert guidance provided by ČVUT.

Figure 3.6 Executive summary

			2024	2025	2026	2027	2028	2029	2030
revenue			- Kč	1,695,000 Kč	8,286,300 Kč	56,463,750 Kč	206,669,404 Kč	514,596,987 Kč	824,371,278 Kč
expense	Wages	HPP	- Kč	1,170,000 Kč	5,760,000 Kč	7,560,000 Kč	9,960,000 Kč	15,600,000 Kč	21,240,000 Kč
		Part time	85,000 Kč	510,000 Kč	1,500,000 Kč	1,620,000 Kč	2,340,000 Kč	2,700,000 Kč	3,000,000 Kč
	Marketing		- Kč	- Kč	- Kč	- Kč	- Kč	- Kč	- Kč
		advertising	- Kč	50,000 Kč	75,000 Kč	500,000 Kč	1,000,000 Kč	2,000,000 Kč	5,000,000 Kč
	Payment gateway		- Kč	- Kč	124,295 Kč	846,956 Kč	3,100,041 Kč	7,718,955 Kč	12,365,569 Kč
	Servers	App cloud	10,000 Kč	84,750 Kč	480,000 Kč	1,882,125 Kč	6,078,512 Kč	12,864,925 Kč	20,609,282 Kč
		AI training	-		200,000 Kč				
	Token expenses	Paying customers	- Kč	271,200 Kč	1,536,000 Kč	6,022,800 Kč	19,451,238 Kč	41,167,759 Kč	65,949,702 Kč
		Free version	- Kč	41,600 Kč	144,000 Kč	600,000 Kč	1,832,000 Kč	3,680,000 Kč	6,007,520 Kč
		Development	10,000 Kč	20,000 Kč	- Kč	- Kč	- Kč	- Kč	- Kč
	License		10,000 Kč	30,700 Kč	25,029 Kč	52,196 Kč	55,000 Kč	65,000 Kč	99,466 Kč
	Accounting		5,000 Kč	50,000 Kč	120,000 Kč	125,000 Kč	130,000 Kč	140,000 Kč	145,000 Kč
	Services		- Kč	- Kč	40,000 Kč	40,000 Kč	70,000 Kč	70,000 Kč	70,000 Kč
	Rent		- Kč	- Kč	25,000 Kč	35,000 Kč	40,000 Kč	50,000 Kč	60,000 Kč
	Unexpected expenses		20,000 Kč	200,000 Kč	400,000 Kč	500,000 Kč	600,000 Kč	700,000 Kč	800,000 Kč
	Total		140,000 Kč	2,428,250 Kč	10,429,324 Kč	19,784,078 Kč	44,656,791 Kč	86,756,638 Kč	135,346,539 Kč

Figure 3.7 The startup's financial plan

3.3.2.2 Identified Gaps in the Framework

The frameworks guidance hadn't provided any setbacks, though doesn't include guidance on the selection of right fit of teammates, leaving this on the reader's intuition or trial and error. This is, however, in the author's opinion acceptable, as there is no guaranteed methodology on human resources, and trial and error, may be the efficient way to test potential team members for an early-stage startup.

3.3.2.3 Lessons Learned from Deviations

In iteration 2, the startup didn't deviate from this step of the framework.

3.3.2.4 Effective Aspects of the Framework

The framework's guidance on team formation and management was crucial for the startup, as it is led by a tech-based student, and this topic remains a gap in his education. Though on FIT CTU Agile development is taught marginally, these specific steps guide the reader on implementing this agile system within their team, and provide an effective first step – setting Epics and Kanban task system. Including guidance on a business plan also helped the startup prepare for presentations and applications for grants and futures investments, as these require a business plan, or acquire higher quality when it's used as a source of the presentation.

3.3.3 Funding

3.3.3.1 Startup Walkthrough

Initial Funding

The startup received an initial investment of 150,000 CZK from the senior attorney cofounder, who also serves as an angel investor and consultant. This seed funding was essential for initiating the development of the MVP and covering initial operational costs.

Funding Strategy

To secure sustainable growth, the startup followed a structured approach:

1. **Planning:** The startup utilized the previously created financial roadmap3.7 to outline the funding required for each development phase and identify potential sources of funding.
2. **Research:** Various funding options were explored, including government grants (e.g., CzechInvest), angel investors, venture capital, and potential revenue from bootstrapping. Each option was evaluated based on feasibility and accessibility.
3. **Execution:**
   - An application was submitted to CzechInvest for a startup grant aimed at supporting innovation and early-stage development.
   - The team began networking with potential investors, leveraging the senior attorney's network and attending startup events to pitch the concept.
   - Concurrently, the startup maintained cost efficiency to extend the runway provided by the initial funding.

Future Funding Goals

The startup aims to secure sufficient funding for:

- Expanding the MVP into a scalable product.
- Hiring additional team members, particularly in sales and development.
- Building a buffer for unexpected expenses to ensure project stability.

The author has presented his startup on numeral occasions, most notably Profinit AI Hotspot as a part of the AI Talents segment. The CaseIndex pitch deck in Figure 3.8 was presented to achieve specific strategic goals. In table 3.4 is an overview of the goals and their corresponding outcomes.

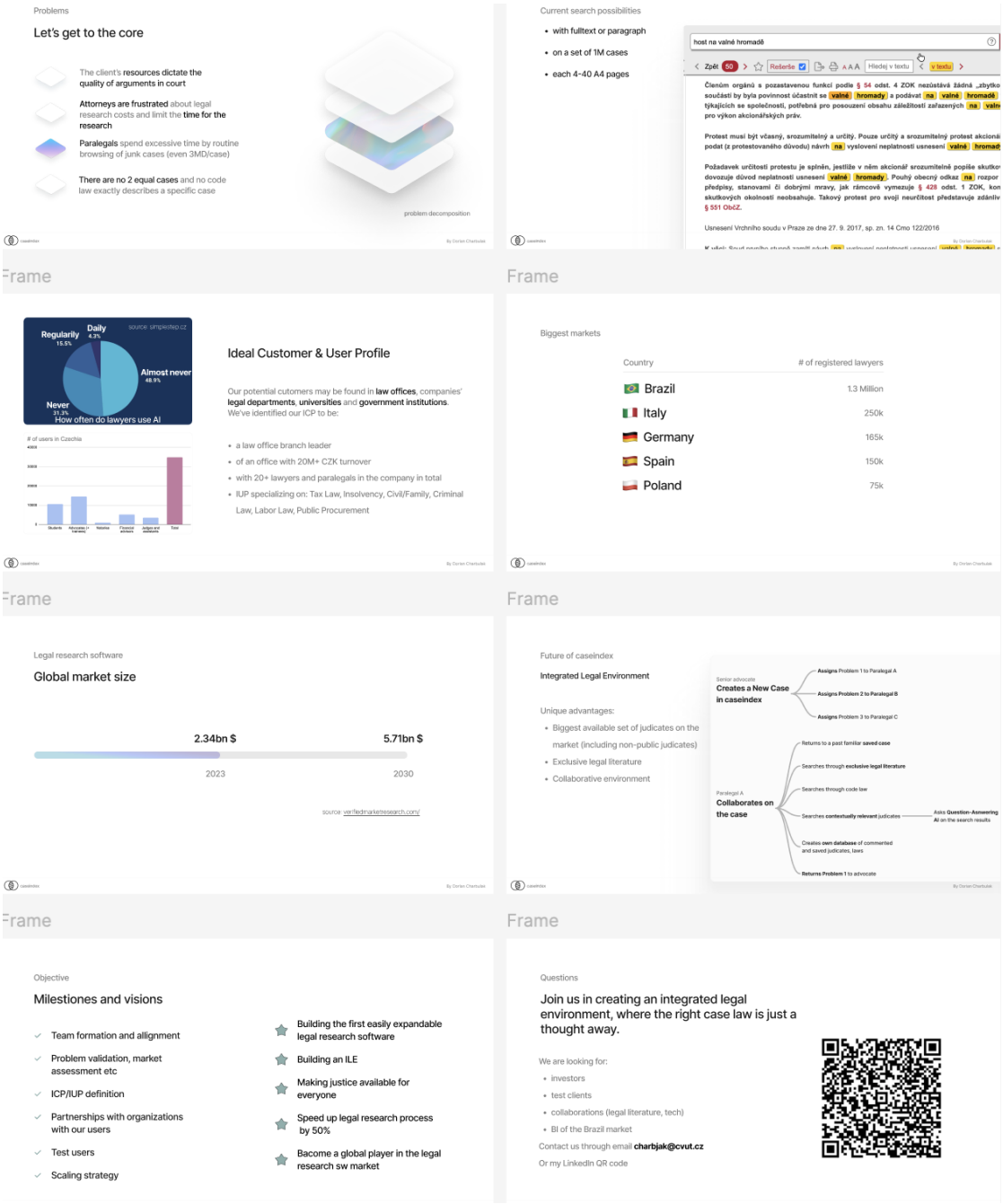

Figure 3.8 CaseIndex pitchdeck for Profinit AI Hub

3.3.3.2 Identified Gaps in the Framework

The framework lacks sufficient detail on the legal mechanisms of equity when an investor is involved, such as what legally happens with ownership and shares. While negotiation basics would have been beneficial, covering this topic would have exceeded the thesis scope.

3.3.3.3 Lessons Learned from Deviations

No deviations were encountered during the application of the framework.

3.3.3.4 Effective Aspects of the Framework

The framework effectively highlights critical aspects of startup funding:

- Emphasizing the importance of planning for an exit strategy, which is vital for securing investor interest.
- Providing a warning to secure funding early enough, especially in the Czech Republic, where the process can take up to six months.
- Offering practical advice for pitching and understanding investor priorities, which proved valuable during funding negotiations.

3.3.4 Development

3.3.4.1 Startup Walkthrough

Transforming Problems into Features
The author identified problems that law offices face, such as the need for paralegals to keep up with judicature, difficulties in finding similar cases, and challenges in navigating and comparing multiple cases. To address these, we proposed features like personalized newsletters, a search option based on case descriptions, clickable references, a user-friendly UI for multiple judicates, and interval-based paragraph search functionality. Refer to Table 3.5 for the complete list.

Feature Prioritization
The team evaluated each feature's impact and development effort, categorizing them accordingly. This helped them identify which features to prioritize for the MVP. See Table 3.6 for details.

Defining MVP through Prioritization
The prioritization exercise enabled the startup to allocate features into phases. Quick wins like interval-based paragraph search and user-friendly UI were included in Phase 1a, the initial closed testing stage. Detailed assignments are presented in Table 3.7.

Phases Description and Roadmap Delivery
Phase 1a defines the startup's MVP and focuses on features ready for immediate testing. Phase 1b prepares for a public launch, while Phase 2+ includes long-term goals dependent on profitability. Refer to Table 3.8 for a phase-wise breakdown.

3.3.4.2 Identified Gaps in the Framework

None were identified in this phase.

3.3.4.3 Lessons Learned from Deviations

No significant deviations from the framework were observed during this phase.

3.3.4.4 Effective Aspects of the Framework

The systematic design of an MVP proved highly effective, especially for a tech-oriented student startup. By providing a structured process to translate user problems into actionable features, prioritize these features based on impact and effort, and clearly define the MVP, the framework supports clarity and focus. This approach ensures resources are allocated efficiently and development efforts align with validated user needs.

The step-by-step methodology of mapping problems to features, prioritizing them, and defining the MVP creates a logical and streamlined workflow. It is particularly helpful in technology-driven environments where complexity can often derail progress, as it keeps the team grounded in delivering practical and high-impact solutions.

3.3.5 Launch

The startup in this case study has not yet reached the launch phase, and as such, cannot directly evaluate this part of the framework through practical application. Luckily, the *Launch phase* is mostly theoretical, and is situated at the boundary of the thesis scope, where the author intentionally narrowed the focus.

Despite its theoretical nature within this thesis, the knowledge provided by the framework remains highly valuable. Understanding the role progression of a CEO, the actionable steps following the MVP's completion, and the iterative process of improvement and expansion equips the startup with a clear roadmap for future execution. This guidance ensures the team is prepared to effectively launch and iteratively refine their product while identifying new market opportunities.

3.4 Conclusion of the framework

Introduction to the Framework's Application The startup formation framework was designed to provide structured guidance for early-stage startups, with the goal of reducing uncertainty and enabling efficient resource allocation. This evaluation discusses the strengths and gaps of the framework, and reflects on lessons learned from the practical implementation.

Framework Strengths and Impact The framework proved highly effective in several key areas. It provided systematic guidance for validating the problem-solution fit and product-market fit through structured customer interviews and iterative testing. This step was crucial in identifying customer pain points and understanding the value proposition of the product.

Additionally, the emphasis on a step-by-step methodology for defining the MVP ensured a logical and focused development process. The approach of mapping problems to features, prioritizing them based on impact and effort, and defining the MVP created a streamlined workflow that minimized resource wastage. For a tech-oriented student-led startup, this clarity and focus were invaluable, supplying the student's knowledge in software implementation. This combination brings the potential to deliver high-impact solutions aligned with client and user needs.

The framework's guidance on team formation and management also played a significant role. It extended the concept of Agile systems for the student, such as Epics and Kanban, to organize tasks effectively. Furthermore, the inclusion of business planning guidance helped the startup prepare for presentations and secure initial funding opportunities.

Gaps and Limitations Despite its strengths, the framework revealed some gaps during its application. One notable omission was the lack of early emphasis on validating technical feasibility with experts. This oversight led to delays in the *Ideation phase* during *Iteration 1*, as technical challenges surfaced later than anticipated. Although the framework addresses this in the *Development phase* through the Design Sprint, introducing this step earlier could prevent such delays.

Another limitation was the absence of guidance on the legal mechanisms of equity when involving investors. While the framework provides useful advice on securing funding and understanding investor priorities, it does not delve into the legal intricacies of equity distribution, which are critical during funding negotiations.

The framework also leaves team selection to the user's intuition or trial-and-error process. While this approach may be pragmatic for early-stage startups, some basic guidelines could improve team-building efficiency.

Lessons from Deviations and Case Study Iterations The case study highlighted the consequences of deviating from the framework. During *Iteration 0*, the lack of structured user validation led to the development of a product that did not meet market needs, resulting in wasted resources. Similarly, in *Iteration 1*, the failure to define an Ideal Customer Profile (ICP) led to incomplete validation and unclear product requirements.

However, strict adherence to the framework in *Iteration 2* demonstrated its effectiveness. By following the prescribed steps, the startup avoided setbacks and progressed efficiently, validating the importance of a structured approach.

Comparison with Scholarly Results The framework's functionality aligns closely with established methodologies, such as MIT's Disciplined Entrepreneurship, which presents a similar networked approach to startup development. This parallel serves as a strong validation of the framework's effectiveness and structure. Additionally, the framework combines elements of Lean Startup methodology and Lean Canvas, extending these with exclusive insights from interviews

with skilled CEOs and CTOs. It is further tailored to IT students operating in a European context, addressing specific regional challenges and leveraging localized expertise.

Holistic Assessment of the Framework Overall, the framework provides a robust and systematic methodology for early-stage startups. Its focus on iterative validation, clear MVP definition, and Agile task management equips founders with practical tools to navigate the complexities of startup formation. The structured approach reduces uncertainty and aligns development efforts with validated user needs.

For tech-based student startups, the framework is particularly valuable, bridging gaps in formal education by offering actionable guidance on team management, product development, and funding strategies. Its adaptability ensures relevance across diverse startup contexts.

Recommendations for Improvement To enhance its utility, the framework could:

- Emphasize early-stage technical feasibility validation to identify potential challenges sooner.
- Include basic legal insights on equity mechanisms to better prepare founders for funding negotiations.
- Provide optional guidelines for team selection to complement the trial-and-error approach.

Evaluation and Outlook The startup formation framework demonstrated significant value in guiding the author's case study. While some gaps were identified, the overall structure proved effective in enabling systematic and efficient startup development. By addressing the suggested improvements, the framework can further support diverse early-stage startups, ensuring they are better equipped to navigate challenges and capitalize on opportunities in the competitive startup ecosystem.

Risk Description	Impact	Likelihood	Severity	Plan to Mitigate	Mitigation Cost
Competition in the labor market (Large corporations can pay experts “gold” immediately, while we offer more “gold” but with later risk)	Project viability, as our biggest asset is our team	60%	High	Proper setup of ESOP program (= Employees Stock Option/Ownership Plan) and sufficient seed investment for competitive team remuneration	High
Market changes risk	Project viability	20%	Low	Working with customers and monitoring new competitiors, then adjusting the USP accordingly	High
Lack of trust and funding from investors to launch the product and survive the first months on the market	Project viability	70%	High	Searching for a large number of potential investors; Offering credible results	High
Team disagreements and project collapse	Project viability	30%	Low	Proper distribution of competencies within the team; Properly defined co-founder agreements (exit strategies, changes in agreements, preemptive rights, etc.)	High
Young team and limited experience	Project timeline, viability, and unexpected future costs	20%	Low	Continuous skill development	High

Table 3.3 The startup’s Risk Analysis – cutout

Goal	Outcome
Establish strategic partnerships with experts in the legal field	A valuable contact was established with a legal software expert specializing in business intelligence. This connection has provided insights into addressing feature gaps and shaping the startup's expansion strategy.
Generate interest among law offices	While the targeted law office was not present at the event, the startup gained their contact through the BI expert, enabling future collaboration.
Attract interest from Berenberg, a private bank, as a potential investor	The pitch successfully garnered apparent interest from Berenberg. Although the startup has not yet sought investment (preferring to wait until after product launch), this connection opens possibilities for future funding discussions.

Table 3.4 Goals and Outcomes of the CaseIndex Pitch Deck

Problem / Need	Proposed Feature
Law offices need to pay paralegals to keep up with new judicature (cases from the past)	Personalized "newsletter" tailored to the user's law specialization
Difficulty in finding cases with similar factual bases	Search functionality with an option to describe the case
Judicates frequently reference other cases	Clickable references for seamless navigation
Judicates often require reviewing multiple cases at once	User-friendly UI for opening multiple judicates simultaneously
Paragraph mislabeling (e.g., ±5 paragraphs deviation) complicates browsing	Interval-based paragraph search functionality
... additional problems confidential to the startup	—

Table 3.5 Transforming Problems into Features

Feature	Impact	Effort
Personalized "newsletter"	Low/Mid	High
Search by case description	Mid/High	Low/Mid
Clickable references	Low	Low
User-friendly UI for multiple judicates	Mid	Low
Interval-based paragraph search	High	Low

Table 3.6 Feature Prioritization

Feature	Impact-Effort Matrix Category	Phase
Personalized "newsletter"	Money Pit	2+
Search by case description	Big Bet	Phase 1b
Clickable references	Fill-Ins	Phase 1b
User-friendly UI for multiple judicates	Fill-Ins	Phase 1a
Interval-based paragraph search	Quick Wins	Phase 1a

Table 3.7 Defining MVP through Prioritization

Phase	Description	Roadmap Delivery Column
2+	When the startup becomes profitable	None
1b	Public launch of the startup	May explore
1a	Initial launch for closed testing	Next actions

Table 3.8 Phases Description and Roadmap Delivery

Chapter 4
Conclusion

This thesis set out to analyze the challenges and opportunities of early-stage tech startups, propose practical solutions, develop a structured framework, and validate its utility through a case study. Each of these objectives has been met with varying degrees of success, contributing meaningfully to the state of knowledge while opening pathways for future exploration.

The challenges faced by startups, particularly in the European context, such as prolonged wait times for investment, were addressed by interviewing seasoned experts in the field. These insights informed the identification of opportunities, such as the lack of comprehensive frameworks guiding student startup founders through the early stages. The solution proposed by the author was the Lean and Execute Startup Formation Framework, offering a holistic and structured approach to overcoming these challenges.

The framework was developed by synthesizing existing methodologies, including Lean Startup and Lean Canvas, with insights from expert interviews. This was tailored specifically for tech-based student founders operating in a European environment, addressing unique regional and educational gaps. It was then translated into an interactive guide in Notion, ensuring its practical usability for aspiring founders.

Validation of the framework was achieved through its application to the author's own startup. This case study highlighted the framework's effectiveness and deficiencies in guiding team formation, Agile implementation, MVP development, and business planning. The structured methodology enabled the startup to identify and prioritize high-impact solutions while avoiding costly missteps from previous iterations. Recommendations tailored to tech-based students, such as leveraging university networks for team formation and supplementing technical education with MVP design strategies, further enhanced the framework's practical relevance.

This thesis enriches the state of knowledge by narrowing its focus to the European environment and addressing the unique challenges faced by student founders. By incorporating insights from interviews with CEOs and CTOs possessing state-of-the-art knowledge, the framework bridges theoretical concepts with practical expertise. Its validation through the case study affirms its applicability and utility for early-stage tech startups.

Future extensions of this work could include the development of more comprehensive financial planning tools and mechanisms for navigating equity distribution during investment negotiations. Furthermore, as the author's startup progresses beyond the early stages, the framework could be expanded to address scaling challenges, providing a complete lifecycle approach for startups.

Apart from the mentioned framework limitations, it needs to be noted, that further quantitative evaluation of the framework would function as a validation refinement. The obstacle of this approach is the scarcity of sources for a quantitative feedback. It would require a statistically significant number of people who are student startup founders, financial assets, and a substantial amount of time. Ideally, the author would find tens of student founders and have

them thoroughly go through the framework, let them assess their challenges of their early stages and compare these with what the framework provides. The case study was completed as a thesis assignment objective and provides practical adjustments for the future of the framework using realistic resources.

In conclusion, this thesis demonstrates the value of structured methodologies for early-stage startups and offers a robust, validated framework tailored to tech-based student founders. By addressing existing gaps and incorporating expert knowledge, it lays a strong foundation for future research and practical application in the field of startup formation.

Appendix A

Appendix - Lean and Execute Framework Overview and Examples

Framework Dashboard Overview

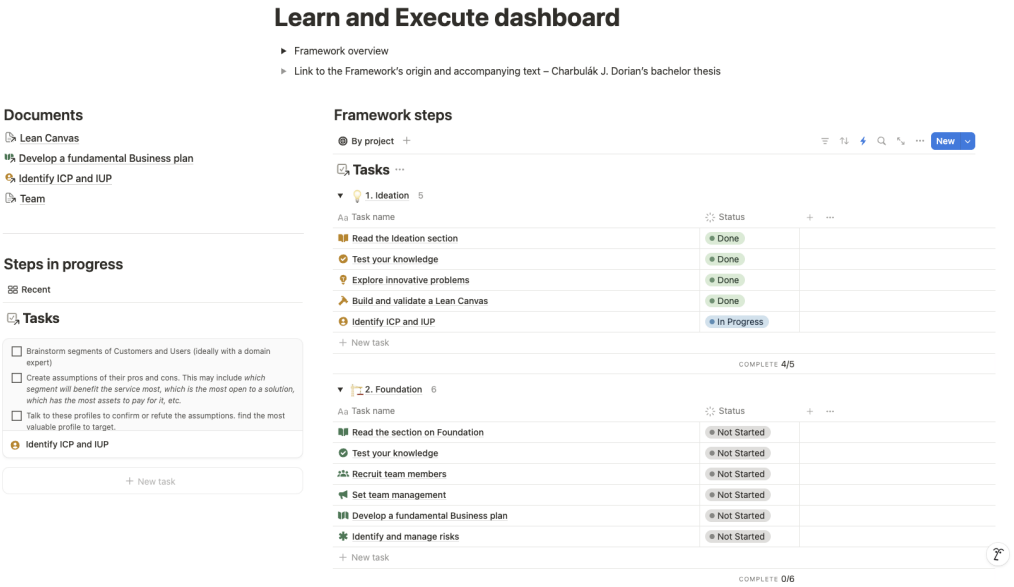

Figure A.1 Framework Dashboard

The Framework Dashboard (Figure A.1) provides a comprehensive overview of the Lean and Execute framework. Key elements include:

- **Top Section: Toggles** – Toggles allow users to display the full framework overview picture, which corresponds to Figure 2.1.
- **Center Section: Framework Steps** – This section organizes tasks into phases, such as *Ideation* and *Foundation*, with tasks categorized as *In Progress* or *Done* for easy tracking.

- **Left Panel: Handy Documents** – Contains quick-access links to documents the user needs to fill in while completing framework tasks, ensuring they are readily available.
- **Left Panel: Steps in Progress** – Displays steps marked as *In Progress* with previews. For example, the step *Identify ICP and IUP* is marked as *In Progress*, allowing the user to view its preview directly.

Examples of Framework Tasks

Learn Task Example

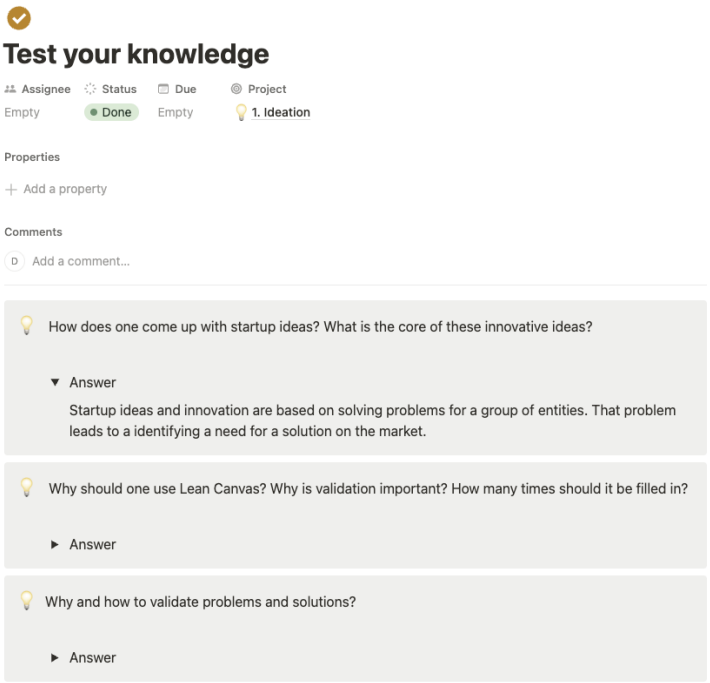

Figure A.2 Example of a Learn Task in Phase 1 – Ideation

Figure A.2 illustrates a *Learn* task in the *Ideation* phase. These tasks are designed to provide foundational knowledge:

- **Identical Initial Tasks** – Each phase begins with two standard tasks: reading the corresponding background section and ”testing” the most crucial knowledge.
- **Purpose** – These tasks address gaps in students' education by equipping them with essential knowledge before proceeding.

Execute Task Example

Figure A.3 shows an *Execute* task in the *Ideation* phase, which guides users through practical application:

- **Task Description** – Includes templates, such as one for defining *Ideal Profiles*, to help users complete tasks effectively.

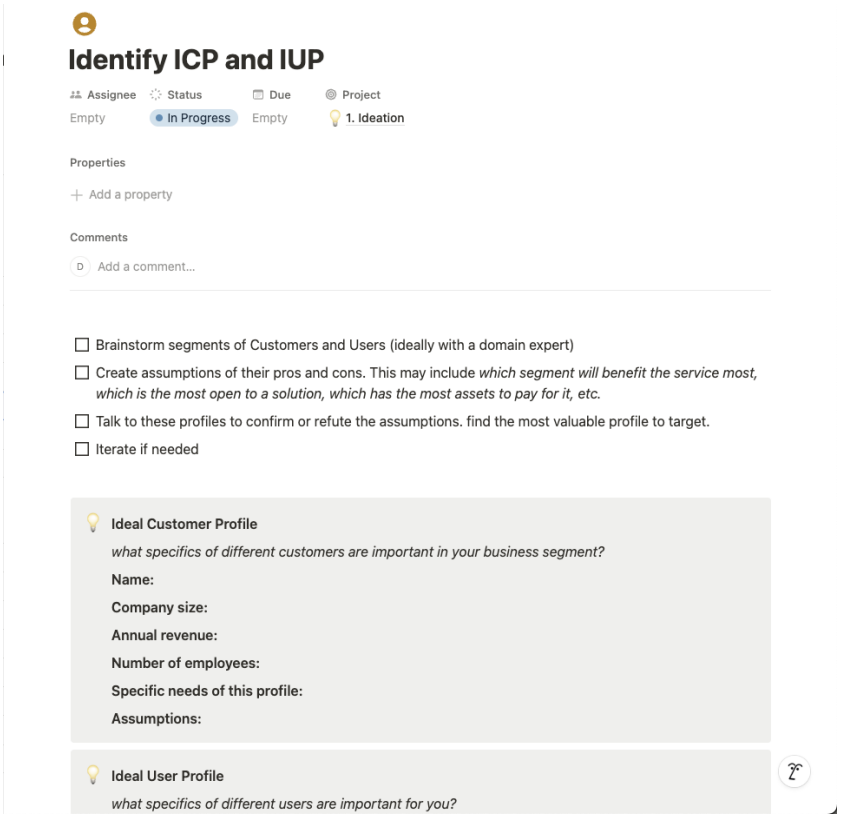

Figure A.3 Example of an Execute Task in Phase 1 – Ideation

- **References and Instructions** – Tasks link to activities identified in the background chapter, providing examples and further instructions for execution when needed.

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Concents of the attachment

- `links.txt` ..... link to the Notion guide and CaseIndex pitch deck
- `text` ..... thesis text
  - `thesis.pdf` ..... thesis text in PDF