



MASTER THESIS
HARDIK PARMAR





Bridging boundaries through innovations

Facilitating Dutch startups to expand their business in India

Masters Thesis by:

Hardikkumar Parmar
4656741

Master of Science
Strategic Product Design
Faculty of Industrial Design Engineering
Delft University of Technology

Supervisors:
Dr. ir. Diehl, J.C.
Associate Professor
Design for Sustainability
Department of Design Engineering

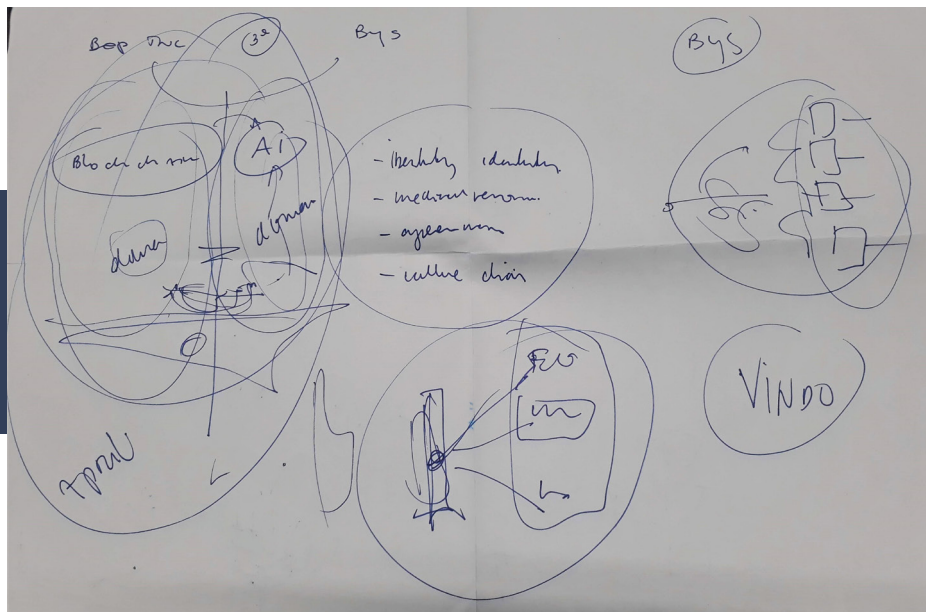
Dr. ir. Kobus, C.B.A
Teacher
Product Innovation Management
Department of Product Innovation Management

28 February 2019

PREFACE

During my time at TU Delft, I got to interact and work with inspiring companies and startups in the Netherlands. Through my interactions with startups at Yes! Delft- a tech incubator of TU Delft, I saw an opportunity to harness the innovative offerings provided by these startups to solve societal challenges in India.

Growing up in India, I have seen the market filled with examples of well-known innovations failing and not making a viable business case. Major reasons behind it are either the lack of understanding of the users or failure in translating the understanding of users into a business strategy. Meanwhile, I came across an approach 'context variation by design' designed at TU Delft that could help to address the challenge. I got in touch with J.C. Diehl with this broadly defined idea of facilitating innovations from one country to another country to address challenges on a larger scale and build greater value for innovators. Together we started exploring the idea. Following is the image summarizing our first brainstorming session. I didn't know that unclear lines on this paper will give me clear directions into the fuzzy front end of my entrepreneurial journey.



To begin with, I worked on the concept in the course 'Build your startup' to create a service facilitating the innovation transfer. I realized that I need to create a better understanding of the Dutch startup ecosystem and their possible markets in India. I decided to work on the topic as my graduation project. This project led to the exploration of possibilities of international startup expansion, and this report is a journey of exploring international startup expansion and defining possibilities of my venture to facilitate this expansion through VENTUREDAM.

ACKNOWLEDGMENTS

The execution of this project would not have been possible without the contribution of my TU Delft supervisors, family, Solar Monkey, Dutch embassy- India, Delft Global Initiative, friends and all others who volunteered to support me.

Graduation committee

My sincere thanks go out to my graduation committee; chair prof. Dr. ir. Diehl, J.C., and mentor Dr. ir. Kobus, C.B.A. Diehl, J.C, your experience with socially and internationally oriented projects served as a great source of inspiration. Your energy has always encouraged me during this project. Charlotte, your ability to critically guide through all the complexities of the project motivated me to find the right questions. I appreciate the way you used to summarize the discussion of meetings in one-liners that I could take forward. I have enjoyed our meetings and pleasantly worked with the both you. Thank you for always being available for the support online or offline.

Family

I must express my very profound gratitude to my family for providing me with unfailing support and continuous encouragement throughout my years of study and through the field research in India. Thank you for trusting me in all my decisions and for inspiring me to follow my dreams. I am especially grateful to my parents, who supported me emotionally and financially.

Solar Monkey

I would like to thank Jan Pieter Versluijs- the CEO of Solar Monkey for being a part of this project and to give access to internal data and resources. Without the precious support and inputs from the Solar Monkey team, it would not be possible to conduct this project.

Dutch Embassy- India

My sincere thanks go to Ms. Ravleen Pal and Mr. Vikas Kohli from the Dutch embassy, India for providing me insights about the Indo-Dutch startup exchange initiative and supporting me to execute the graduation project.

Delft Global initiative

I would like to thank Delft Global Initiative for partially funding the field research to India.

Friends

My dear friends were an integral part of this project, and this journey would not have been possible without the support from them. I especially thank Vinay and Dhiraj for significant contribution to the development of the concept and support in the field research. James, Karthik, Nikhil, Abhigyan, and Rhythima thank you for listening, offering me advice, and supporting me through this entire process. Shailaja, Shravan, and Celeste, you were the best support for the writing of the thesis. Dhruv, Parth, Harsh, Hemik, Punit, Bhumik, Yash, Balkrushna, Priyanka, Ishita, I would like to thank you all for offering me valuable connections and support during the field research in India.

I would like to thank all participants of the field research. Thank you for sharing your stories with me. I am really grateful for all the people who joined and supported this project voluntarily and whomever else I forget to mention.

*Hardik Parmar,
Delft, February 2019*

कर्मण्येवाधिकारस्ते मा फलेषु कदाचन ।

मा कर्मफलहेतुर्भूर्मा ते सङ्गोऽस्त्वकर्मणि ॥

-श्रीमद्भगवद्गीता २-४७

“ Do what you are prescribed to do, but remember you are not entitled to the fruits of your action. You are not the cause of the results of your action. Focus on the act rather than on the output of the act. ”

-Shrimad Bhagvad Gita, 2-47

Executive summary

The report is divided into four parts: Define, Design, Apply, and Redesign.

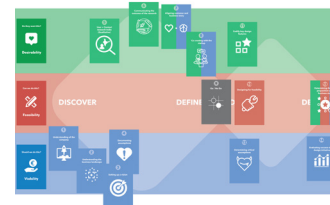
Define

The concept of Venturedam was developed to solve societal challenges in India by nurturing the strength of the innovations made in the Netherlands. Initially, the idea was worked upon in the course 'Build your startup' at TU Delft. During the course, the concept of a networking service for startups to expand their business in India was developed. The concept was to create a network of salespersons, distributors and manufacturers in India to develop sales channels for Dutch startups. During the validation of the concept with startups, the primary requirement of startups was understood. For Dutch startups to expand to a new market like India that has a considerable difference in the context, it is first required to redefine the value proposition and the business model specific to the new context. The concept of Venturedam had a pivot from a networking service to a strategic design consultation service. Also, startups in the energy domain are defined as a beachhead market for Venturedam considering their faster growth. Venturedam as a strategic design consulting firm would help Dutch energy startups to understand and identify markets in India that fits with the value proposition. Once the market is identified, Venturedam would also support startups to redesign the product and the business model. For the graduation project, the concept of Venturedam as a strategic design firm was taken forward. To execute market expansion projects for startups, Venturedam is required to have a process or a framework to guide different activities. These activities would be required to perform successful market expansion for the startup. Venturedam itself would also require a business model to make a viable business case. The design goal was set up to define a framework and a business model for Venturedam.

Design

Market expansion is a strategic design activity, and it is required to find an opportunity with a considerable balance between desirability, viability, and feasibility. Strategic design literature is referred to create the framework for Venturedam. The framework is named as 'Projectile framework.' The framework consists of stages such as analysis of the startup & possible market in India, connecting insights of the startup & the Indian market,

identification of changes required in the business model & value proposition, and determining the feasibility of the business in the Indian market. The framework consists of tools and methods for all these stages. The first version of Projectile framework looks as follows (Fig: 5.19 in the report):

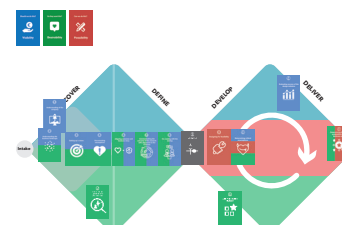


Apply

The framework derived from the literature is tested with a Dutch energy startup Solar Monkey from Yes! Delft incubator. Steps from the first diamond of the framework are applied to the case of Solar Monkey. Learnings are captured throughout the application of the framework. These learnings are utilized to redesign Projectile framework for future projects.

Redesign

Addition to the learnings gathered from the application of the framework, feedback from experts and Solar Monkey is collected. Analyzing learnings and feedbacks, new design directions were defined. These design directions helped to further develop Projectile framework. Design directions also helped to modify steps, tools, and methods of the framework. Learnings captured during the application of the process facilitated to build the business model of Venturedam. The redesigned framework looks as follows (Fig: 7.5 in the report),



The concept of Venturedam started with a broad idea of facilitating innovation transfer between two countries. This graduation project lays the first stones for setting up my firm to create greater value for innovators and to address challenges of emerging economies.

Structure of the report

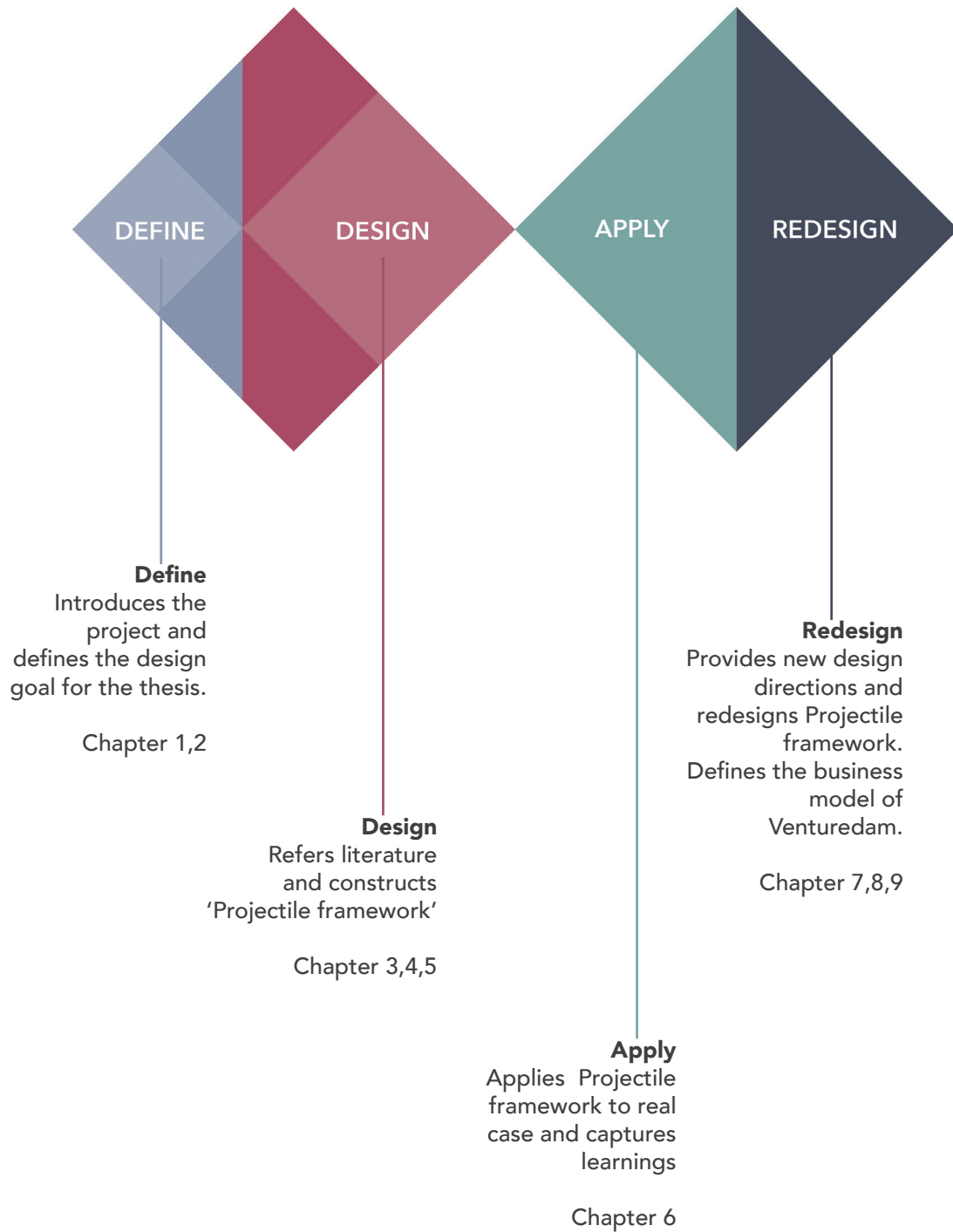


Table of Content

DEFINE

Chapter 1: Introduction	14
1.1 Background of the project	14
1.1.1 Startup expansion	14
1.1.2 Dutch startup ecosystem	14
1.2 Project Venturedam	16
1.2.1 Defining target market for Venturedam	16
1.2.2 Creating an initial concept for Venturedam	16
1.3 Impact of Indo-Dutch startup exchange initiative	18
1.4 Defining renewable Energy as the beachhead domain	20
Chapter 2: Design Goal	24
2.1 Design goal for a framework	24
2.2 Design goal for the business model of Venturedam	27
2.3 Methodology of the graduation project	28

DESIGN

Chapter 3: Literature review	32
3.1 Strategic Design	32
3.1.1 Eight practices of strategic design	32
3.1.2 Strategic viability model	35
3.2 Business model generation	38
Chapter 4: Setting up the requirements to build the framework	42
4.1 Startups' requirements	42
4.2 Venturedam's requirements	44
Chapter 5: Construction of the framework	46
5.1 Adaptation of models and tools from the literature review	46
5.1.1 Adapting practices of the strategic design	46
5.1.2 Adapting the strategic viability model	52
5.1.3 Adapting the business model generation tool	54
5.2 Simplifying the framework	58
5.2.1 Discover phase	59
5.2.2 Define phase	61
5.2.3 Develop phase	63
5.2.3 Deliver phase	64
5.3 Adapting the framework into a tool	65

APPLY

Chapter 6: Application of the framework	74
6.1 The case startup: Solar Monkey	74
6.2 Intake	76
6.3 Step-wise execution (Step 1-9)	78
6.4 Assumptions for remaining steps	99
6.5 Summary of reflections from the application of the framework	100

REDESIGN

Chapter 7: Redesigning the framework	104
7.1 Feedback from Solar Monkey and experts	104
7.1.1 Feedback from Solar Monkey	104
7.1.2 Feedback on the framework from experts	105
7.2 Design directions to redesign the framework	106
7.3 Redesigning the framework	108
7.3.1 Redesigning the base of the framework	108
7.3.2 Redefining steps and their position in the framework	109
Chapter 8: Business model of Venturedam	118
8.1 Defining the business model	118
Chapter 9: Reflections and next steps	122
9.1 Reflections on the design goal	122
9.1.1 Projectile framework	122
9.1.2 The business model of Venturedam	124
9.2 Recommendations	125
9.3 Value generated from the project	126
9.4 Reflections over the concept of Venturedam	127
9.5 Roadmap to future	128
9.6 Personal reflections	129
References	132
Appendix A	134
Appendix B	150
Appendix C	161

DEFINE

During the course 'Build your startup' at the faculty of Industrial Design Engineering at TU Delft, the idea of facilitating Dutch startup to expand their business in the vast Indian market was conceptualized. The proposed concept of a consulting firm to provide this service was named VENTUREDAM.

The first concept was validated with some startups from the incubator YES! Delft. The focus of the concept was pivoted during the course from a networking service to design consultancy service for startups.

In this 'DEFINE' part of the report, chapter 1 would provide insights into how the concept of Venturedam was conceptualized and how the focus on the target market for startups has evolved. The chapter ends with the definition of scope from Venturedam for the graduation project. Chapter 2 defines the design goal for the graduation project.

Chapter 1 Introduction

Startups are becoming a major part of the world economy and are addressing major challenges with their innovations. On the other hand, growing economies like India are still facing such challenges on a larger scale and attracting a pool of innovations to solve them. The idea of Venturedam was conceptualized to address this gap. In this chapter, section 1.1 introduces to the trait of international expansions of startups with a focus on Dutch startups ecosystem. Section 1.2 explains the story of building the concept of Venturedam with an analysis of opportunities present in India as challenges. Section 1.3 describes the impact of Indo-Dutch startup exchange initiative by governments of both countries. Section 1.4 concludes the chapter by defining the beachhead market for Venturedam.

1.1 Background of the project

Global development is entering a period where entrepreneurship will increasingly play a more significant role (Naude, 2011). Startups are well known for their capacity to create employment and shape marketplace innovations. This capacity leads startups to improve the economic condition and advance the society (Kaushik, 2016). The major theme of this graduation project is the trait of startups to expand internationally. Following sections will focus on the increasing international outreach/ expansion of startups with a focus on the Dutch startup ecosystem.

1.1.1 Startup expansion

In recent years, several developments such as technological progress, increased reach of the internet, international airline competition, and lower cross-border shipping costs have encouraged startups to seek growth in international markets. Most startups today consider international expansion from the beginning (Kuemmerle, 2005). Growth is essential for any firm. Other than product diversification, acquisition and franchising one of the strategies to seek this growth is a geographical expansion (Hills and Narayana, 1989). Firms which are spread across different geographies have benefits of economies of scale and scope (Kogut, 1985) and they also have diverse capabilities across such units. (Porter, 1990). With the international expansion, firms have higher advantages as they could exploit these opportunities and resources from different markets they are present in (Kogut, 1985). Rapidly developing technologies and international trades have helped to make international expansion one of the major strategy to seek growth.

1.1.2 Dutch startup ecosystem

In the last few years, the start-up ecosystem has developed significantly in the Netherlands. The Netherlands ranks 2nd in the Global Innovation Index 2018 (Dutta, et al., 2018) and its startup ecosystem ranks 19th overall in the world (Genome, 2017). The Dutch startup ecosystem is flourishing due to a well educated and multilingual human resources, good physical and digital infrastructure, and supportive business climate. It is home to great

universities, research institutes, and multinational organizations. This positive environment has facilitated the Netherlands to have a significant number of startups in areas like high tech, life sciences & healthcare, cleantech, and agricultural technologies. (Stangler, Vijverberg, Santing, 2018). It also has well-known accelerators like Rockstart and StartupBootcamp. Addition to that, incubators like Yes! Delft and UtrechtInc are among the top university business incubators in the world.

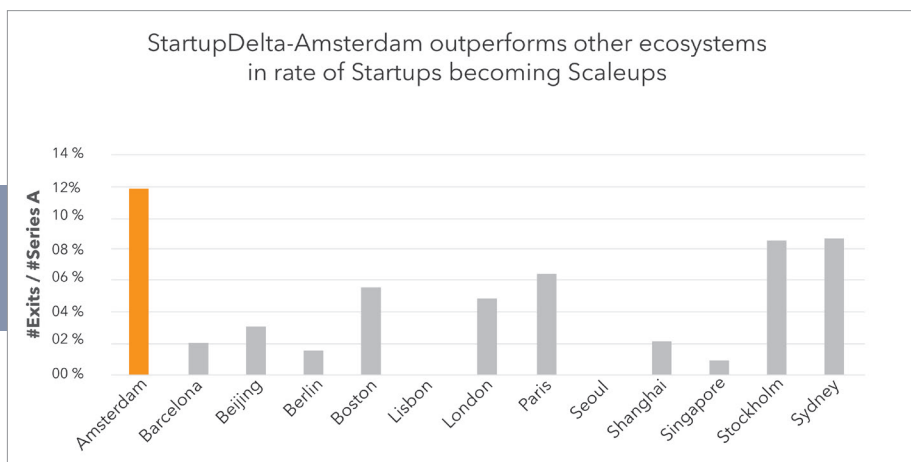


Fig 1.1: Startup becoming scaleups in different startup ecosystems

As shown in the figure above, the Dutch startup ecosystem outperforms other startup ecosystems in the rate at which startups get converted to scaleups. With a large population of startups and a strong conversion rate of startups growing scaleups, the Dutch startup ecosystem is in a position to enjoy continued growth. (Genome, 2017).

Startup Genome (2017) has forecasted in their annual report of the world's startup ecosystems that the Dutch startup ecosystem has the potential to become the world's top five startup ecosystem. They have suggested a few focus areas to achieve this growth. One of the focus areas is to boost the global ambitions of Dutch startups and connect them to global customers.

1.2 Project Venturedam

During the course- 'Build your startup' at Industrial Design Engineering- TU Delft, the idea of facilitating Dutch startups in their global expansion was conceptualized. The concept of creating a consulting firm- 'Venturedam' was created. In the following section, the explanation of the initial concept and changes made during further validation is explained.

1.2.1 Defining target markets for Venturedam

As mentioned in the section 1.1.2, the Dutch startup ecosystem has flourished in some of the sectors such as high technology, life sciences & healthcare, clean technology, and agricultural technologies.

On the other hand, India is one of the fastest growing economies (Singh, Jan 9, 2019), but with the rising economy, India still has a massive unmet need for basic services, such as water and sanitation, energy, and health care (Kaka, Madgavkar, 2016). These areas need attention. They are attracting innovators and organizations across the world for a solution, making India one of the biggest market in these domains. The concept of venturedam was developed to solve issues in India by nurturing the strength of the innovations made in the Netherlands.

In the initial phases, the goal was to create a more significant impact by taking Dutch startups to solve problems faced in above-mentioned domains in the 'Base of the Pyramid (BoP)' markets of India. During an interview with two Dutch startups who already tried to expand to the Indian market, founders mentioned about lack of financial support in expanding to BoP Markets directly as there are less financial returns. Investors are not interested in such markets as it lacks lucrative business opportunities. Considering this point, the focus shifted to the upper layer of the pyramid market. In the upper layers of the Pyramid markets, consumers have a considerable financial resources to afford better lifestyle. The new assumption made to help startups to expand in such markets. The idea is to first make their business stable. The second step is to take the businesses to the Base of the Pyramid markets for a higher impact. Another significant assumption was made that the upper layers of the pyramid markets are also struggling in these domains. A common domain was needed to be identified where the base and upper layer of the pyramid markets both are struggling.

1.2.2 Creating an initial concept of Venturedam

The initial concept was based on the assumption that any startup who wants to expand their market in India would need a network of people to distribute and sell their products. This concept was named as 'Venturedam-Networking service'. It was validated by interviewing four startups from Yes! Delft incubator in the Netherlands. Startups indeed agreed that they would need such network of people in the Indian market to execute their business. Their major concerns were, building trust in the network and measuring the credibility of the people in the network. These insights led to an idea to create an online platform to connect stakeholders and facilitate trust in the network using technologies like Blockchain and Artificial Intelligence. The concept was to connect stakeholders such as manufacturers, suppliers, distributors, and managing these people centrally

by Venturedam. The idea is to assign tasks based on the requirement of the client startup.

Another significant insight the startups provided was to redesign the value proposition and business models for the Indian consumers and the market. The value proposition of Dutch startups might not work directly in Indian context. They might need redesigning and modifications. The assumption was made that the startups would not have strong financial support to perform redesigning exercise. The focus changed to support the startups who have a value proposition and a direct market fit for the Indian context. During further validation, it was realized that to make a viable business case for Venturedam, there won't be enough startups to serve who have direct market fit with the Indian context.

During further exploration, a category of startups- mature startups (also referred to as scale-ups) was identified. It was observed that Mature startups are the ones seeking new markets for growth, and they have a proven value proposition for the local market and have a financial backup for market expansion. The Indian and Dutch context have a considerable difference between them regarding value proposition. In addition it is necessary to define a new operating and revenue model for the Indian market. The combination of operating and revenue model would define the new business model of the startup in the Indian context. As mentioned in section 1.1.2, startups in the Dutch ecosystem have a higher rate of converting into mature startups- scaleups. It was realized that the higher rate of conversion into mature startups could make a good business case for Venturedam, especially in the sector of providing redesigning services and expansion of the startup.

The final concept was made to provide two types of services for mature Dutch startups in domains of energy, agriculture, healthcare. These services are,

1. Strategic design consultation service to redesign the product/ service & business model to fit in the Indian context.
2. Networking service to execute the business of the startup in the market.

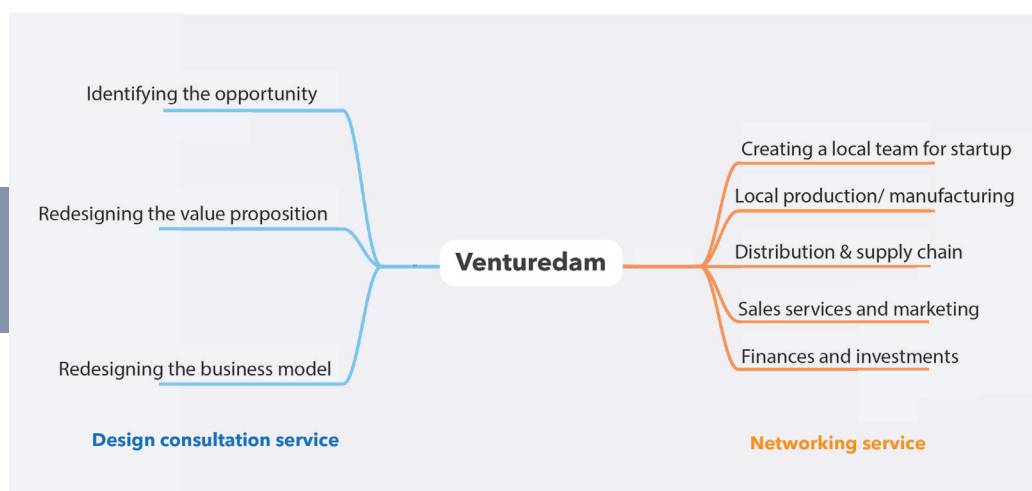


Fig 1.2: Proposed design consultation and networking concepts

1.3 Impact of Indo Dutch startup exchange initiative

During the process of designing the Venturedam concept, few external elements created a significant impact on the concept. India- Netherlands relation on the government level was one of the elements that added a critical stakeholder in the concept to consider.

The Netherlands and India have 400 years of history with the trade relations. This relation has always emerged since then, and at present, the Netherlands is the fifth largest investor of FDI-foreign direct investment into India. ("India-Netherlands bilateral trade amp investment", n.d.)



Fig 1.3: Indian Prime Minister Narendra Modi shakes hands with Netherlands Prime Minister Mark Rutte during a joint press statement at New Delhi. (The week, May 24, 2018)

In May 2018, Dutch Prime Minister Mark Rutte visited India with his delegation where they signed several Memoranda of Understanding (MoU's) to promote cooperation and collaboration between small and medium enterprises and especially for startups in India and the Netherlands. Both countries initiated programs to encourage innovative solutions to challenges in healthcare, water, energy, and agriculture. (Singh, May 25, 2018). This initiative was called 'Startup link' to facilitate the startup exchange program between two countries.

This initiative provided a significant validation to the concept of Venturedam as the governments of both countries were also working on the startup exchange program for the domains chosen by Venturedam as a focus area. To get a better idea of the initiative, government representatives were approached from the Dutch embassy in India. The representatives mentioned the NBSO- Netherlands Business Support Offices in India, developed to help Dutch entrepreneurs connect to local resources in India. While discussing the startup exchange initiative, representatives mentioned their limitations as a government that they could only help startups to find out specific resources by matchmaking in the local market through their network across India.

They could not provide startups a 'Hand-holding' support and could not help in the 'content' for the startup. With the hand holding support in creating the content, they meant not to have the ability to support the startup in actual product/service and business development. They believe that to make the startup exchange initiative sustainable; startups need the hand holding services. Helping startups in identifying the market, developing products/services and designing business models do not come under the purview of the government.

This insight from the Dutch government representatives had a crucial role to define the positioning of Venturedam. Out of two final concepts outlined at the end of section 1.2.2, the idea of providing a design consultation service to the startups for their expansion to Indian market turned out to be a more exciting business case for Venturedam. As both concepts of design consultation and networking service would need a different business model for Venturedam, the unbundling was done to choose one. Singner (1999) defined unbundling by stating that there are three types of underlying businesses for any business model, customer relationship businesses, product innovation businesses, and infrastructure businesses (Singer, 1999). Ideally, these types are "unbundled" into separate entities to avoid conflicts or undesirable trade-offs. In the case of Venturedam, the networking service could be unbundled out of both concepts, and the support from the Dutch government could be taken to build the networking service in the future.



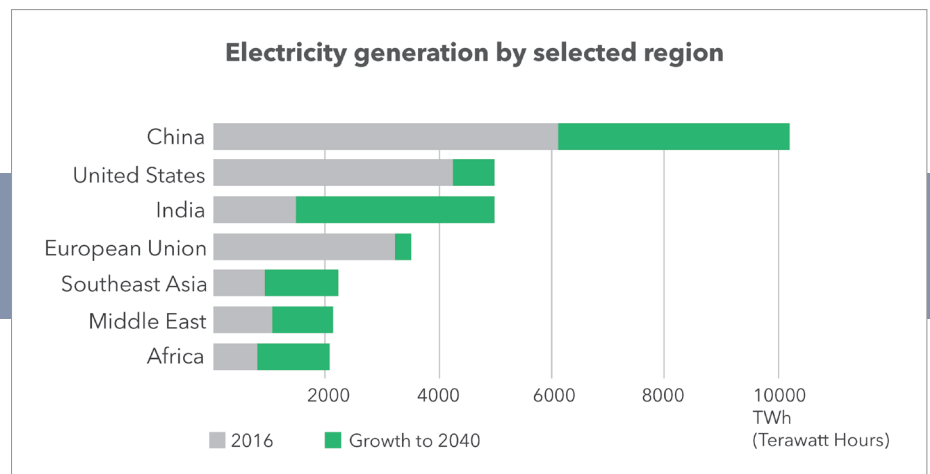
The Netherlands has
around 285 startups in the
clean energy domain.

Source: StartupDelta

1.4 Defining renewable Energy as the beachhead domain

As mentioned in the section 1.2.1, the initial focus for Venturedam was in domains of energy, agriculture, and healthcare. There was a need to identify a domain where both, the Base and Upper layer of Pyramid market are struggling in India. New assumptions were made to identify this 'beachhead' market for the focus. The agricultural market for India would have lesser revenue from the market similar to the 'Base of the pyramid' market where Venturedam does not have initial focus. Healthcare was not considered the best domain to start with since the products/service would be susceptible and context-specific. The assumption for the Energy domain was made that, the renewable energy innovations like solar panels based solar products have standard parts and designs which might not need significant design changes according to the context. Also, it is estimated that India would add equivalent to today's European Union to its electricity generation by 2040 (World energy outlook, Nov 14, 2017). The government of India is encouraging renewable sources to fulfill this gap in electricity generation. India has targeted to add 175,000 MW of renewable energy generation capacity by 2022. (MNRE, 2019). This makes India one of the biggest market for clean energy innovations.

Fig 1.4: Electricity generation by regions (World energy outlook, Nov 14, 2017)



On the other hand, the Netherlands has around 285 startups in the clean energy domain. On average, in four years these startups can mature in the growth ("Startup solutions for energy transition", 2018). Addition to these large numbers, entry barriers to entering the energy sector is lowering, and interest for startups in the energy sector is growing. This lead to a rise in the competition in this market. (Meit & Ruud, n.d. P. 1)

Dutch energy startups can be categorized based on their innovation domain and their energy sub-sectors (Meit & Ruud, n.d.). Categories based on sub-sectors are following.

- I. Energy generation: Activities related to processing energy into useful energy.
- II. Energy facilitation: Activities which transfer and/or facilitate energy products to users.

III. Energy consumption: Activities related to energy use, including energy efficiency.

IV. Energy storage: Activities related to storing energy carriers.

They also categorized energy startups based on the innovation domain they are in,

- a. Incremental market based: Improved customer perceptions in an existing market.
- b. Really new market-based: New market is created with new customer values.
- c. Incremental tech-based: Improved technology is developed for an existing market.
- d. Really new tech-based: Completely new technology is developed in an existing market.
- e. Radical: New technology is developed for a new market.

Each of the categories of startups has their challenges in the domain they are in (Meit & Ruud, n.d. P. 1). Out of all categories and sub-sectors mentioned above, a startup in an energy generation or energy facilitation sub-sector and Incremental market based or really new market based innovation domain could be the beachhead client segments for Venture-dam. The startup in above mentioned cross-section have following common problems (Meit & Ruud, n.d. P. 1),

- Highly competitive market environment in the local market.
- Low-profit margins due to competition.
- Risks of imitation by other market parties.
- Lack of a network in the market and a need to create a new market.

Considering the analysis of Dutch energy startup ecosystem, startups in the energy generation or energy facilitation sub-sector and Incremental market based or really new market-based innovation domain could be the beachhead market to start with.

For the scope of the graduation project, startups in beachhead markets as mentioned earlier and startups in other non-beachhead markets are considered with the same name- mature Dutch energy startups.



The final concept of Venturedam is summarized as follows,

'To facilitate mature Dutch energy startup to expand their business in the Indian market by supporting them redesign their value proposition and business model for the Indian context.'

As being a Strategic design consulting firm, Venturedam is needed to define the process of executing the project with startups. In the field of industrial design consultation, things have changed due to globalization, changes in education and society, different industrial sectors, that changed the way Industrial design consultancies organize themselves (Holm, Olsson, 2009). This changed their role not only in product development oriented practices but also the strategy work. That allows them to move from an influential role towards work of greater strategic impact. This evolution in the design industry from designing just products to integrated product service systems led designers to ground their way of working with structured design methods and processes. Methods are considered very crucial in supporting design processes and design activities, and they are useful to reduce errors, shorten developing time and improving the overall quality of products. (Geis, Bierhals, Schuster, Schaub, Birkhofer, 2008).

For Venturedam, it is required to have a process, methodology or framework to guide activities and providing better results to startups. Having a process or a framework would help Venturedam to ground the way of working. It would be the value proposition being offered by Venturedam to its client startups. Addition to that, Venturedam would need a business model to create value by providing this service.

In the next chapter, the design goal for the graduation project is defined. This design goal includes the design of the process- framework for Venturedam and a business model for Venturedam.



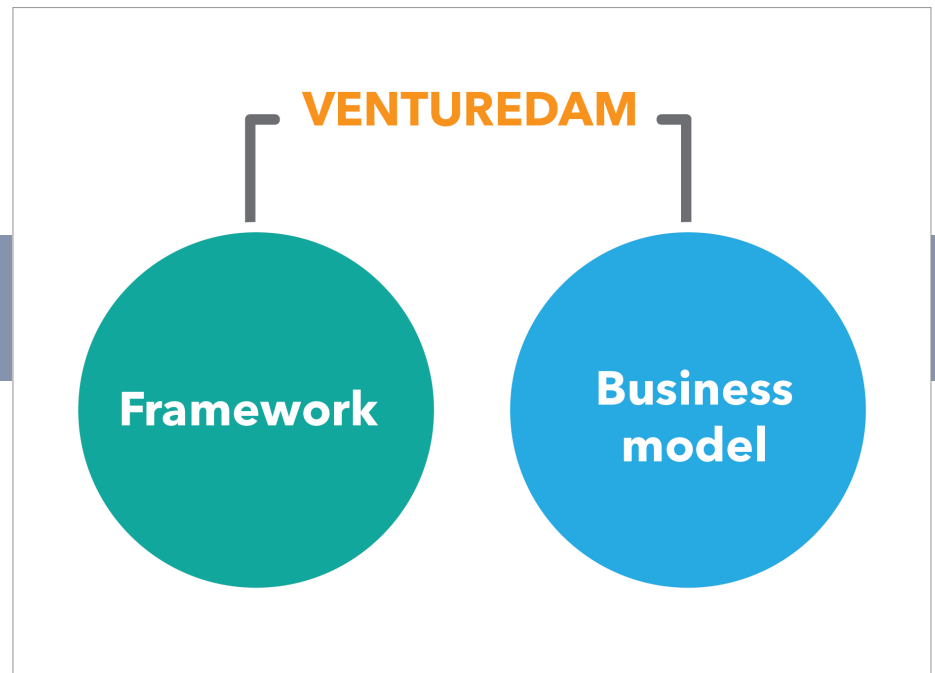
Under National Solar Mission, the Government of India has targeted to install 100 GW capacity of solar installations.

Source: Ministry of New and Renewable Energy, Government of India

Chapter 2 Design Goal

As described in the previous chapter, the concept of Venturedam is to facilitate mature Dutch energy startups to expand their business in the Indian market. Venturedam would need a process to execute projects with startups and need a business model to define an operating and revenue model. In this chapter, the design goal is defined.

Fig 2.1: Design goal for the graduation project



2.1 Design goal for a framework

As described in the summary of section 1.4, Venturedam will provide strategic design consultation services to Dutch energy startups to expand their business in the Indian market. Throughout the assignment, Venturedam seeks to support startups identify new viable markets that fit their product/service portfolio.

As there are no existing frameworks available to use for the market expansion of startups directly, several pieces of literature are referred to design the framework. For startups, successful market expansion is the desired outcome. According to Calabretta et al. (2016), entering the new market is a strategic design project, and it is under the purview of the strategic design partner to find an opportunity for the company based on a balanced consideration of three criteria of desirability, viability, and feasibility. (Calabretta, Gemser, Karpen, 2016). Authors define Strategic design as the professional field in which designers use their principles, tools, and methods to influence strategic decision making within the organization. Strategic decision making includes decisions that have a long term impact on the organizations, involves several stakeholders and require a substantial commitment of monetary and non-monetary resources (Calabretta, Gemser, Karpen, 2016).

The three criteria of desirability, feasibility, and viability are further explained by Tim Brown (2009) as a requirement for a successful value proposition in the market. He defined desirability as what makes sense to people and for people. Viability as what is likely to become part of a sustainable business model and feasibility as what is functionally possible within the foreseeable future. He also suggested establishing a framework to evaluate these three criteria to make the value propositions successful in the market.

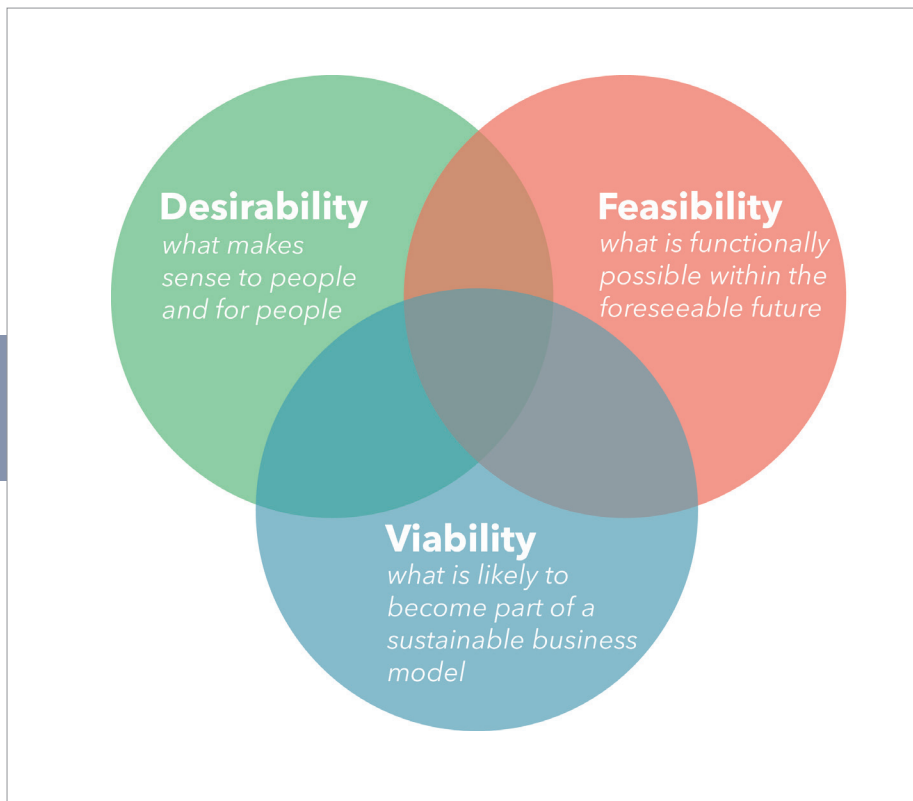


Fig 2.2: Three criterias for successful value proposition in the market (Brown, 2009)

Mature startups already have a value proposition and working business model in the local market. When the startup expands to the new market, the context of the market could differ from the existing one. For the solution being designed for different contexts, Kersten et al. (2015) have developed an approach: context variation in design. This approach suggests gathering a set of core insights on the problem, products/ services, segments, marketing and business model, partners, etc. from all targeted contexts. The result of this process can then be translated into actual solution concepts for one or more contexts and the eventual contextual variations need to be reflected in different parts of the overall solution. To identify new viable markets that fit startups' product/ service portfolio Venturedam would need to identify these contextual variations and define new solutions for the Indian context.

From the points discussed, Venturedam could be positioned as a strategic design partner for startups in their expansion process in the new market. And the purpose of Venturedam is to find an opportunity for startups based on a balanced consideration of three criteria of desirability, viability, and feasibility. To define this balance, Venturedam also needs to take into account the contextual variation between the Dutch and Indian markets.

The design goal for the framework is defined as,



'To design a framework with principles, tools, and methods to influence strategic decision making within the startup. It should have a balanced consideration of three criteria of desirability, viability, and feasibility with regard to the contextual variation between present and Indian market.'

2.2 Design goal for the business model of Venturedam

In addition to the way of working- the framework of Venturedam, the business model is necessary to create to determine how Venturedam would generate the value.

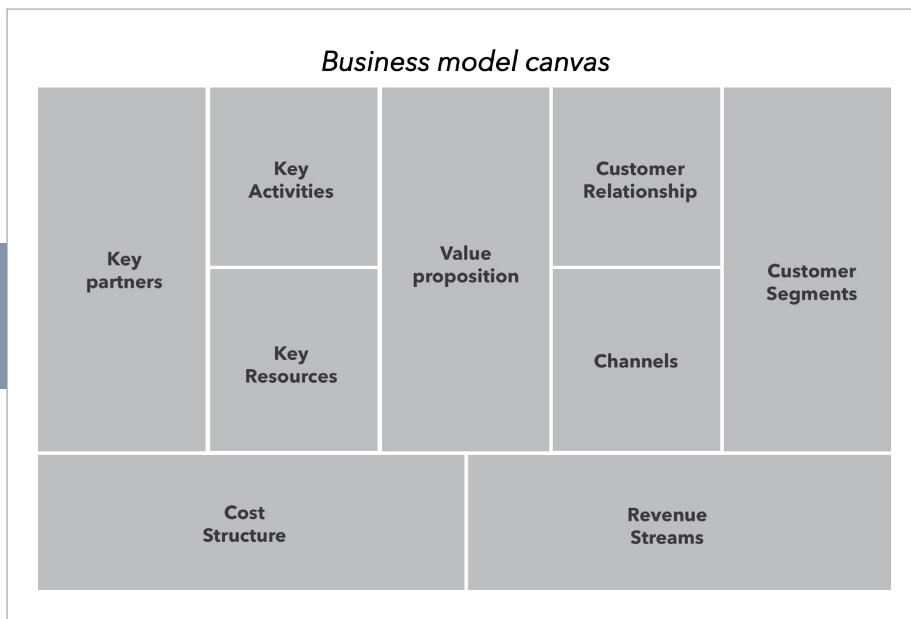
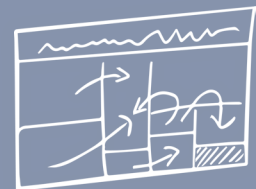


Fig 2.3 : Business model canvas (Osterwalder, Pigneur, 2010)

The well-known business model canvas would be used to determine the elements of the business model of Venturedam. The goal during the graduation project would be to define elements based on the real application with the real startup. There might be some elements which would not be able to determine during the first case study.

Hence, the design goal for the business model is defined as,

'To define business model elements based on learnings from the application of the framework and to create informed assumptions for the elements which are unknown.'

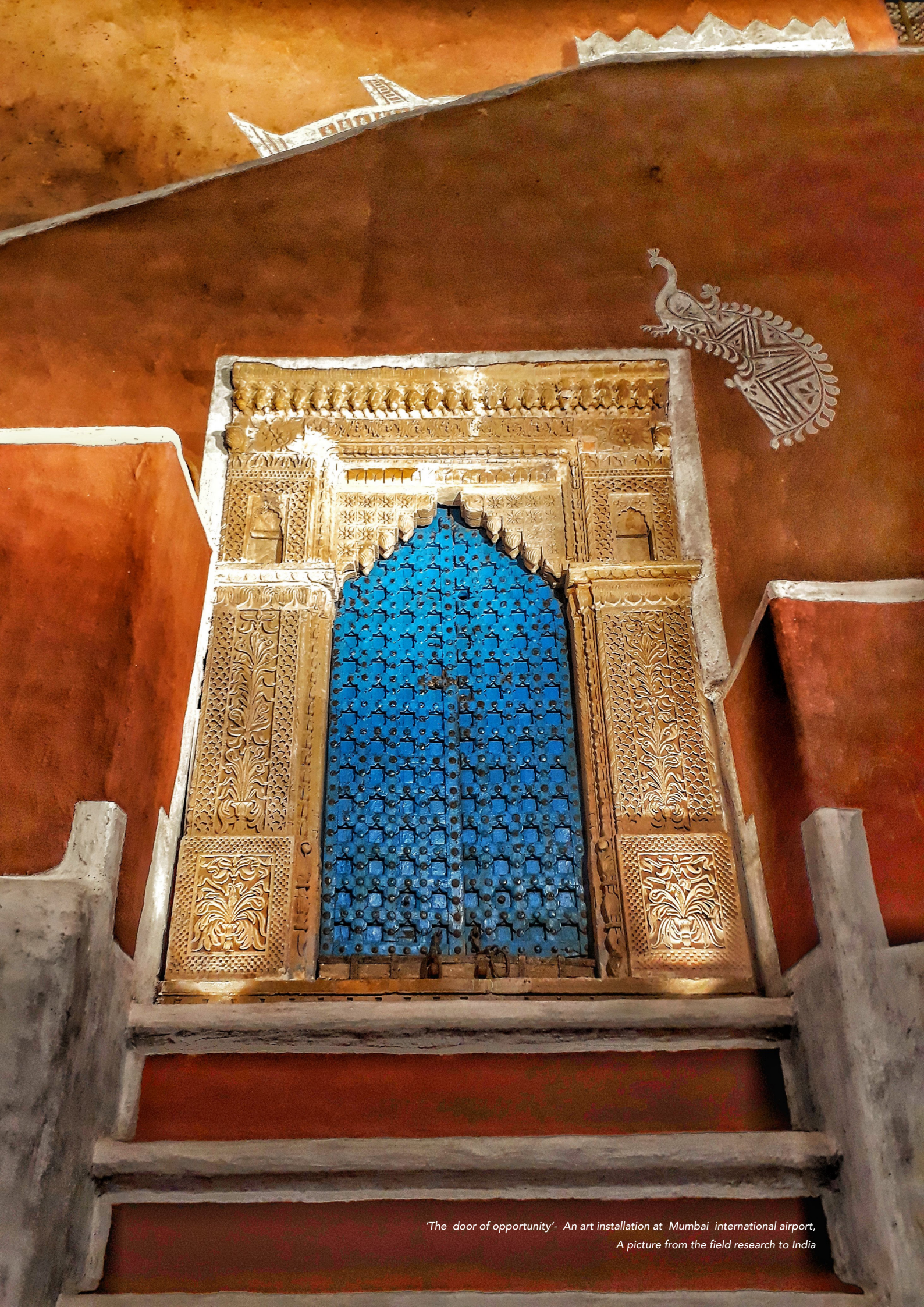


2.3 Methodology of the graduation project

In this graduation project, the goal is to construct a process- framework and a business model for Venturedam. To construct the framework, in DESIGN part, several works of literature are referred to in chapter 3. The literature provides a general guideline to the design. Later the context of startup and Venturedam is introduced in chapter 4. The knowledge extracted from the literature is modified according to the requirements of startups and Venturedam in chapter 5. In chapter 5, the design of the framework and tool is explained.

In APPLY part, the designed framework tool is tested with the real case of the startup for the validation in chapter 6.

The testing provided learnings that are used to redesign the framework in chapter 7 of REDESIGN part. In chapter 8, the business model for Venturedam is defined from the learnings captured in the application of the framework. Chapter 9 consist of reflections for the whole process and proposed redefinition for the concept of Venturedam.



'The door of opportunity'- An art installation at Mumbai international airport,
A picture from the field research to India

DESIGN

The concept of Venturedam was developed to facilitate Dutch startups in their expansion process to the Indian market. Later, the focus was defined to facilitate mature Dutch startups in the Energy domain to redesign their value proposition & business model and make a viable business case.

Venturedam would need to provide a business case to startups with consideration of three criteria of desirability, viability, and feasibility. To achieve this, Venturedam would need a process or a framework as a value proposition to offer to client startups. This framework should provide the desired outcome to the requirements of startups and should also make a viable business case for Venturedam.

In this DESIGN part of the report, several sources of literature are referred to create theoretical knowledge for market expansion projects in chapter 3. Requirements of Venturedam and startups are listed in chapter 4. These requirements are used to funnel theoretical knowledge into a framework in chapter 5. A tool for the framework is created at the end of chapter 5. The framework is named a 'Projectile framework.' In the report, it is referred just as 'framework.'

Chapter 3 Literature review

There are no existing frameworks available to use directly for the context of Venturedam. To build a framework for the context of Venturedam, several types of design literature such as Strategic value of design book by Giulia Calabretta & et al.,(2016) and Business model generation book by Alexander Osterwalder & Yves Pigneur,(2010) are referred in this chapter. These literature had models/ practices/ tools useful to achieve certain outcomes. These theories are studied in this chapter to contextualize them and build a theoretical version of Projectile framework in chapter 5.

3.1 Strategic Design

As described in section 2.1, Venturedam is a Strategic design partner for startups in their business expansion process. Venturedam needs to facilitate the decision-making process of business expansion by explicitly considering the Desirability, Viability, and Feasibility of the outcome. From the book- Strategic Design (Calabretta, Gemser, Karpen, 2016), practices followed by strategic designers are referred to in this section to determine further steps in framework 1.0. In section 3.1.1 eight essential practices for strategic design are described in general. Out of those eight practices, the seventh practice of 'embracing' has a different model-strategic viability model referring to the viability in the strategic design project. For startups, the viability of their business in the market is a vital criterion. Thus, the strategic viability model is explained separately in section 3.1.2.

3.1.1 Eight practices of strategic design

As mentioned in section 2.1, expanding to a new market is a strategic design project, and the strategic designer needs to find the market opportunity with a balanced consideration of desirability, viability, and feasibility. Calabretta et al. (2016) advised to follow eight strategic design practices to influence an organization's decision-making process for strategic projects. These eight practices are the following: Envisioning, Inspiring, Simplifying, Structuring, Aligning, Translating, Embracing, Educating. These practices are categorized for different stages of the strategic design project. Stages are categorized as follows.

- I. Setting up an objective of the project
 - a. Envisioning
 - b. Inspiring
- II. Configuring a strategic design project
 - c. Simplifying
 - d. Structuring
- III. Orchestrating a strategic design project
 - e. Aligning
 - f. Translating
- IV. Embedding a strategic design project
 - g. Embracing
 - h. Educating

These eight practices with the corresponding stages are described in details as following (Calabretta, Gemser, Karpen, 2016).

I. Setting up an objective of the project

The first two practices are followed during the initiation of the strategic project. These practices are performed with the organization to create a vision and co-creating together to initiate the project.

a. Envisioning:

Envisioning is a practice of facilitating the organization to create a future-oriented, long-term vision for the innovation strategy and strategic projects. This vision directs all the activities in the strategic design project to imagine the world of tomorrow for the organization.

b. Inspiring:

Inspiring is a practice of taking the client onboard with the designer to make them think differently through methods like visualization, co-creation, and materialization. This practice is about gaining the confidence of stakeholders, so they understand the process and embrace innovative strategic directions.

II. Configuring a strategic design project

Two practices discussed below are practices which need to follow throughout the project to collect and analyze all the information in a meaningful way and to create a process understanding for the client.

c. Simplifying:

This practice is about selecting, connecting and synthesizing of information of the organizational context to make sense out of all the information. Purpose of this practice is to determine the leadership style and to manage the complexity of the project according to the circumstances of the project. It is suggested to map the client on the axis of shared vision and ownership for the project.

d. Structuring:

Structuring is a practice of providing enough flexibility & sensitivity to the project according to circumstances and defining & executing every step to achieve desired outcomes. It allows the designer to create a greater understanding of the process for the clients and which ultimately helps the designer to successfully exploiting the opportunities within the organization.

III. Orchestrating the strategic design project

Following two practices are followed to better organize the project by coordinating different interests, objectives, and expertise of multiple stakeholders in the project.

e. Aligning:

This practice refers to driving the solution towards the direction that matches with the organization's strategy, values, and assets. Aligning requires a profound understanding of customers and how the business works. There are three key principles for better alignment of customers and business contexts. They are, construct a well-formulated customer story, translate the story across different business units and design for multi-speed impact.

f. Translating:

Translating practice is about performing an audit of the organization's resources & capabilities to assess the feasibility. It is suggested to convert information into a different languages. it could be from verbal to visual, visual to verbal, tacit to explicit, or explicit to tacit. The purpose is to determine the feasibility of the solution.

IV. Embedding the strategic design project

The last two practices mentioned below are about a better execution of the strategic project considering the viability of business and making sure that the strategic design is adopted permanently within the organization.

g. Embracing:

The practice of embracing is about creating a widespread organizational commitment towards the project outcome. The viability of the project plays a key role here. This viability needs to be co-determined by designers with relevant experts in the team. The aspect of analyzing the viability of the strategic project is defined by the strategic viability model. The strategic viability model is explained in detail in the next section.

h. Educating:

Educating practice refers to developing design capabilities within the organization by educating them about design. Stakeholders are taught to adopt and internalize the design process in this practice.

Above mentioned essential practices provides directions to execute strategic design projects. Out of all eight practices, the practice of embracing consist of a strategic viability model. This model is vital for the context of Venturedam to ensure the viability of startups in the Indian market. This model is studied in detail in the following section.

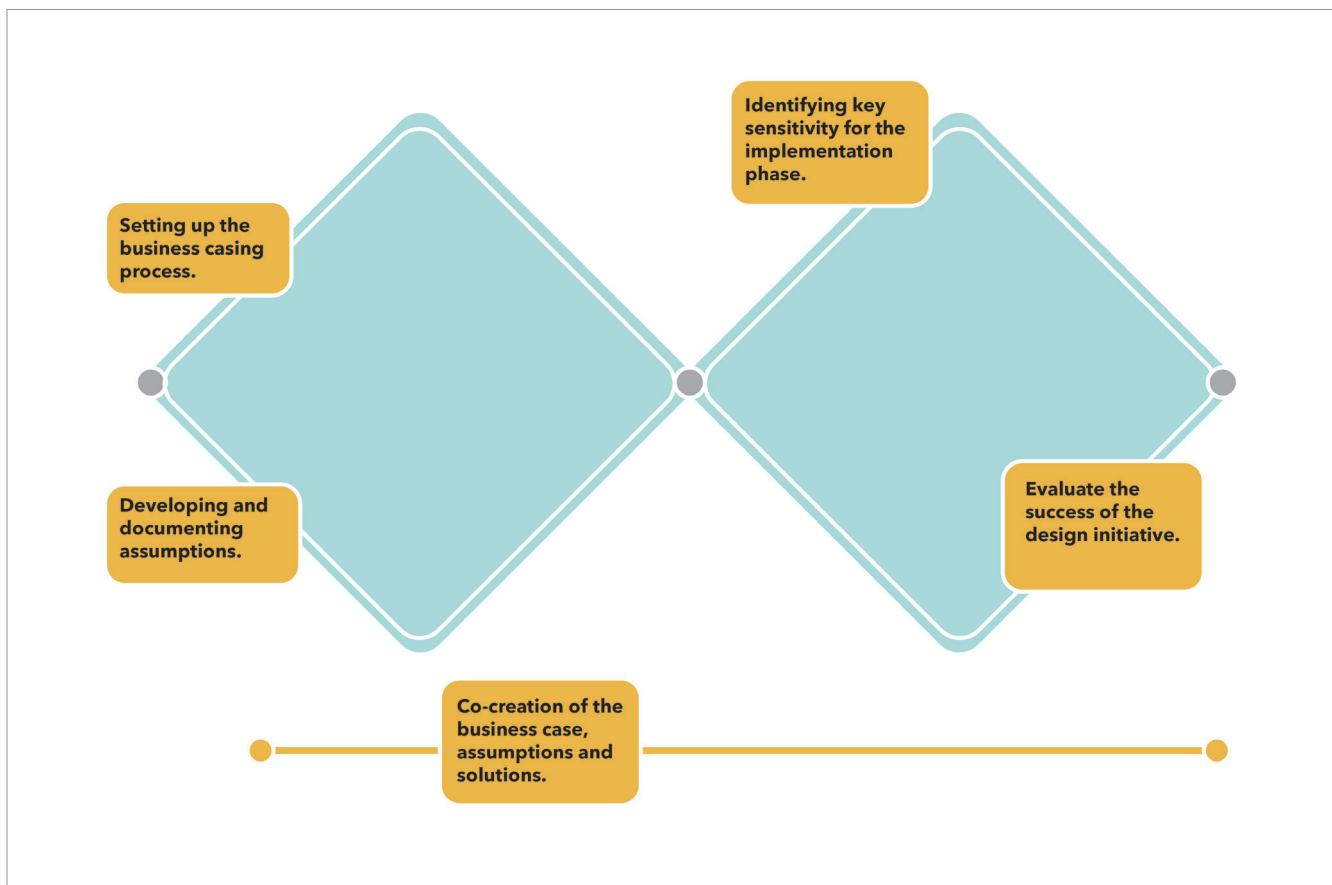
3.1.2 Strategic viability model

As described in the practice of embracing, to creating a widespread organizational commitment towards the project outcome, the viability needs to be co-determined by designers with relevant experts in the team. Strategic viability model helps to analyze the viability of the strategic project by building a business case.

According to Calabretta et. al. (2016), to design a business model and experiences in a new context, existing parameters can't be used, and new assumptions need to be made. Designing a business case facilitates this process which starts at the very beginning of the project and continues until the implementation phase.

Calabretta, et. al. (2016) combined practices of opportunity engineering and aligned them with the double diamond design process and defined business casing process in five-step process. The key concept of Opportunity Engineering is making uncertainty work in favor of the company. This approach of opportunity engineering was designed to help designers who want to do business modeling and financial modeling of the innovation initiative (Van Putten, MacMillan, 2008). Five steps process is shown in the following figure.

Fig 3.1: Combined practices of opportunity engineering with double diamond (Calabretta, Gemser, Karpen,2016)



Five step process is explained in detail as follows,

1. Setting up the business casing process.

- Understanding the business landscape.
- Starting with the financial objectives of the business.
- Identify and consider any relevant organizational hurdle must be met.
- Reverse profit and loss statement.

2. Developing and documenting assumptions.

All relevant assumptions across the entire ecosystem of the initiative:

- Context
- Collaborators
- Customers
- Company
- Competitors

3. Co-creation of the business case, assumptions and solutions.

Designer- Business designer intersects in each stage of the double diamond method to find out optimal nexus of what is desirable and viable.

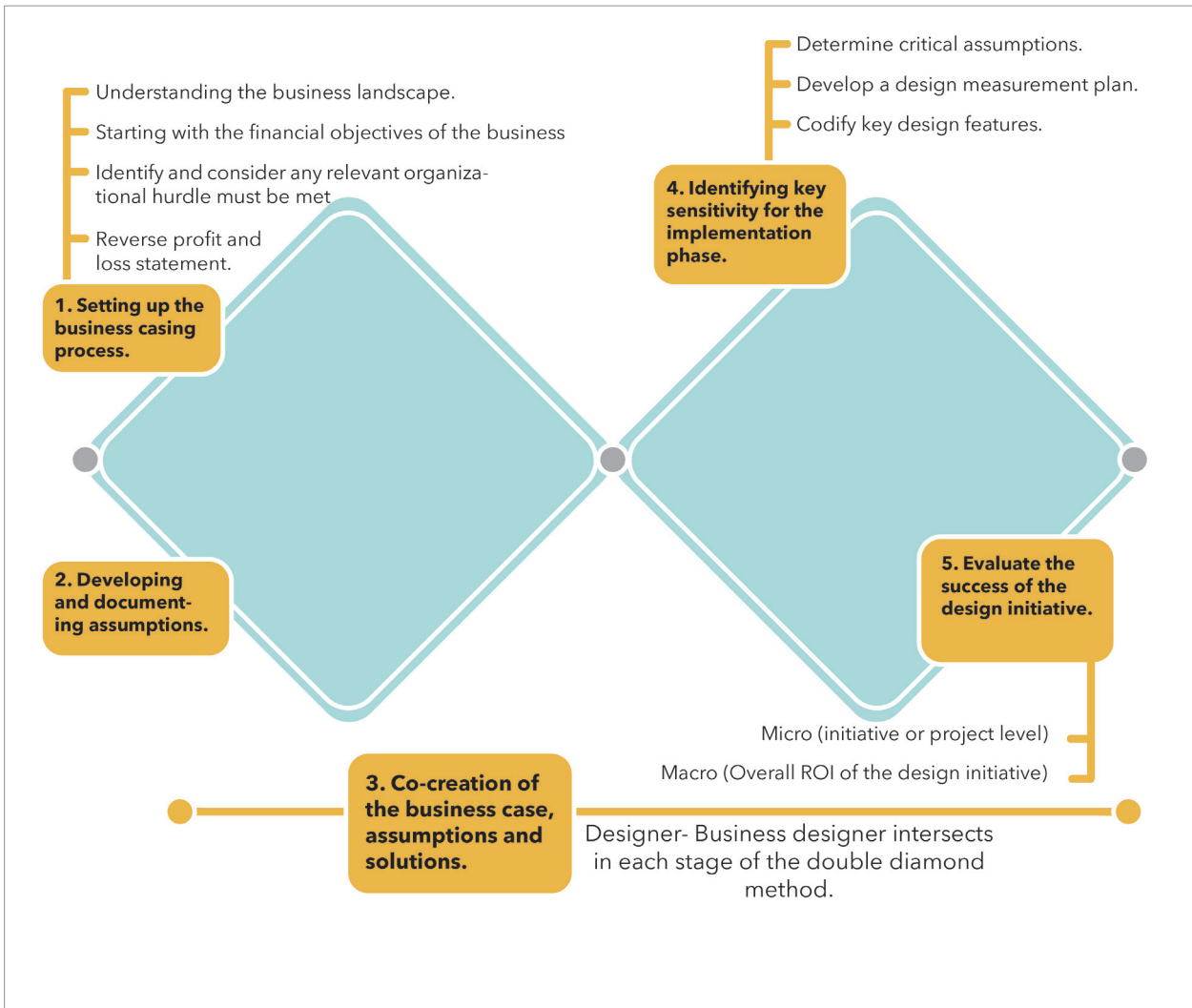
4. Identifying key sensitivity for the implementation phase.

- Determine critical assumptions.
- Develop a design measurement plan.
- Codify key design features.

5. Evaluate the success of the design initiative.

- Micro (initiative or project level)
- Macro (Overall ROI of the design initiative)

These five-step processes with several sub-steps are used to design a business case. The business case would provide a justification for the organization to decide on the expansion.



For strategic design projects, eight practices discussed in section 3.1.1 deliver a solution with the balanced consideration of desirability, viability, and feasibility. The strategic viability model described in section 3.1.2, provides a business casing process to ensure the viability of the strategic design projects.

Fig 3.2: Detailed five step process for business case design (Calabretta, Gemser, Karpen, 2016)

3.2 Business model generation

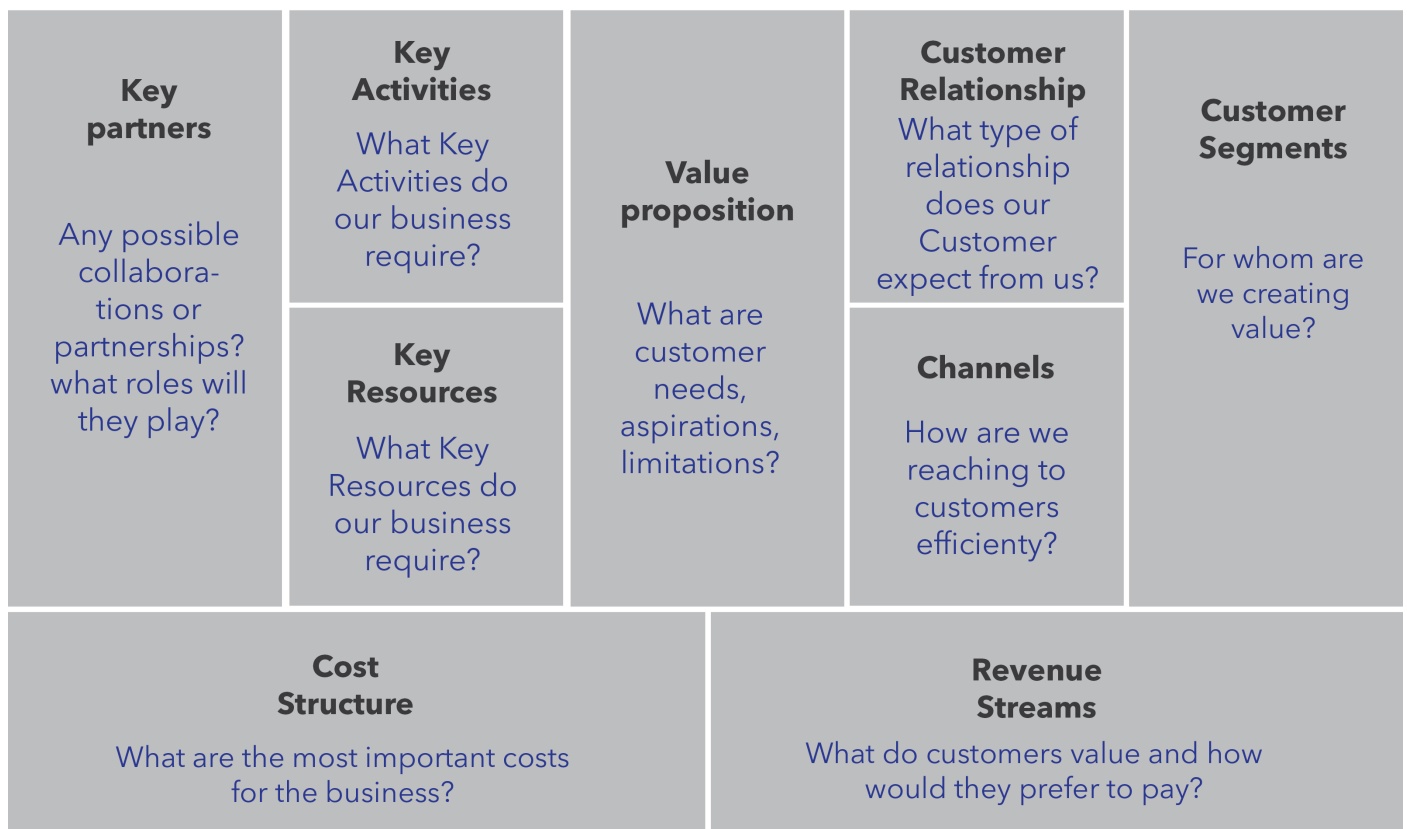
As discussed in section 2.1, The context variation in design approach suggests gathering a set of core insights on the problem, products/ services, segments, marketing and business model, partners, etc. from all targeted contexts. All these insights could be clubbed into the business model concept defined by Osterwalder and Pigneur (2010). In this section, the book Business model generation (Osterwalder, Pigneur, 2010) is referred to get more knowledge on the topic.

The business model is defined as the rationale of how an organization creates, delivers, and captures value and it could be described as nine basic building blocks. This building blocks cover the four main areas of a business: customers, offer, infrastructure, and financial viability. The business model is a blueprint for a strategy to be implemented through organizational structures, processes, and systems. (Osterwalder, Pigneur, 2010). Nine basic building blocks of business model is represented with the business model canvas.

To explore entirely new opportunities, Osterwalder and Pigneur (2010) suggest designing the business model from the customers perspective. For innovations to succeed, a deep understanding of customers, their environment, daily routines, concerns, and aspirations need to be mapped.

Fig 3.3 Business model canvas (Osterwalder, Pigneur, 2010)

Business model canvas



Customer perspectives help to ground choices regarding Value Propositions, Distribution Channels, Customer Relationships, and Revenue Streams. To design a customer-centric business model, following focus areas which are needed to be explored, (Osterwalder, Pigneur, 2010, p. 128)

- What are the tasks/ jobs customers need to get done and where and how the organization could help?
- What customers aspired for and how the organization could help them to achieve those aspirations.
- How customers prefer to be addressed? How could the organization fit in their routine?
- What kind of relationship do customers expect to establish with the organization?
- What customers value and how much they would be willing to pay?

Business models are designed and executed in a specific environment. This environment is referred to as 'Design space.' Having a better understanding of this environment helps to create a stronger business model. When the organization already have a working business model and are looking for designing a new business model for future context, the scanning of the environment is essential. Understanding of changes in the environment helps the organization to redesign the business model according to changing contexts. (Osterwalder, Pigneur, 2010, p. 200). To map out the 'design space' for designing the business model, following four areas of the environment are roughly mapped out with the existing business model of the organization.

- a. Market forces
- b. Industry forces
- c. Key trends
- d. Macroeconomics trends

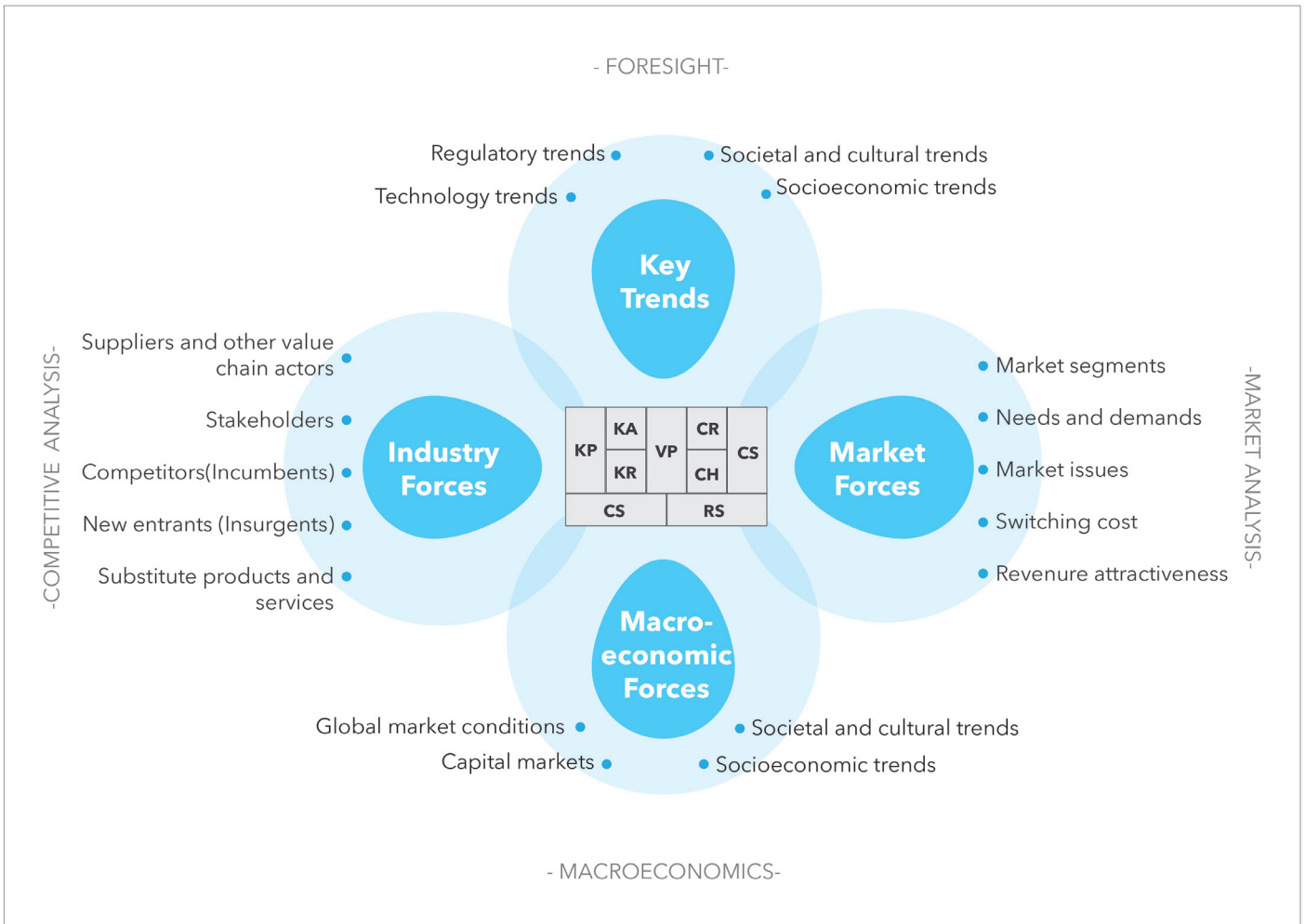


Fig. 3.4 Design space- the environment to design a business model (Osterwalder, Pigneur, 2010)

To summarize, to design a business model for the new opportunity, Osterwalder and Pigneur (2010) suggest creating a better understanding of customer perspective and also analyzing the change in the business model environment.

Literature referred in chapter 3 provides a theoretical and general guideline to build the framework for Venturedam. It is essential to contextualize these guidelines based on requirements from Venturedam and startups. In the next chapter, requirements to scrutinize the theories of literature are listed.



National Institute of Design, Ahmedabad, India
A picture from the field research to India

Chapter 4 Setting up the requirements to build the framework

In the previous chapter, existing knowledge about market expansion was collected from several sources of literature. As there were no available frameworks which could be directly used for the context of Venturedam, the accumulated knowledge would be evaluated against the requirements of startups and Venturedam and a framework would be constructed.

McCullagh (2003) suggests that any adopted 'project framework' may require a degree of flexibility according to client's requirements. The literature reviewed in chapter 3 have specific methods, techniques and practices to achieve a certain outcome. For the successful use of methods, tools, and techniques, Ernzer and Birkhofer (2002) suggest to select and customize them carefully according to the needs of the company. So it becomes quite crucial to choose methods, techniques or tools and to link them in the overall methodology framework according to the requirements.

In this chapter, requirements from clients- startups and Venturedam as the provider of the service are listed in section 4.1 and 4.2. These requirements are further used to evaluate the knowledge from literature and construct the framework in chapter 5.

4.1 Startups' Requirements

Several Dutch startups were interviewed during the course 'Build your startup' to understand their requirements when they enter new markets. Requirements from the startups are as follows,

- Mature startups already have a product/ services and an existing customer base in the local market. The first goal to enter the new market would be to find an opportunity in the market where the product/ service is desirable.

It is required to understand the needs and problems in the new market that can be solved by the value proposition they offer.

- Considering the new market opportunity might not need the same value proposition & business model but could need a modified version of them. Startups are required to know the changes they need to make in their value proposition and business model. The changes required in the business model should be viable for the startup, and especially, the changes required in the value proposition should be minimum as startups would prefer to expand with their existing value proposition.
- Once the opportunity and changes required to attain that opportunity in the market is identified, it should make a viable business case for startups about the expansion. So, another significant requirement from startups is to check the viability of their business in the new market with all the changes they need to make in the value proposition and business model.

- Based on the assessment of opportunity and changes they need to make in their offerings, startups can decide to go further in the process or not. If they do not see any viable opportunity for them, they could choose not to go ahead. It is necessary to have a check in between the process to make Go or No Go decision.
- In case, the startup finds a viable business opportunity in the new market and decides to go ahead with the process; it is required to understand what kind of resources and processes it would need to execute the expansion into the new market.

To summarize, startups are required to first identify the viable opportunity with changes required in the value proposition and business model. Once the viable opportunity is found, the execution part to make the business work in the market needs to be figured out.

4.2 Venturedam's requirements

The framework would be a value proposition offered by Venturedam to the startup clients. The requirements for building the framework from the Venturedam perspective is summarized in the following points,

- To efficiently facilitate startups in their expansion process to India, Venturedam needs a process-a framework, which has exact steps to follow with a client. Having precise steps in the process would make it easy for Venturedam to execute projects and make a clear distinction between activities.
- To make a viable case for Venturedam, multiple startups of different types or from different domains need to be served. Thus the framework needs to be adaptable to various startups.
- The framework also needs to be flexible enough to have the freedom to accommodate variations in projects. But at the same time, the framework needs to give clear directions to all the activities of Venturedam.
- Each project with any startup needs to be executed in optimum time frame, this optimization would help Venturedam to serve several startups to make the business viable.
- During the process, Venturedam would need to work together with the client, and the framework needs to facilitate the interactions between the client and Venturedam.
- The framework would need to excite clients for future opportunities from the beginning of the process to increase ownership and involvement from the client.

The increased ownership and involvement from clients would help Venturedam to analyze and understand the business in a better way. A better analysis of the business would lead to better solutions for the startup.

The requirements from the Venturedam perspective are to better facilitate the process of expansion and to make the business viable for Venturedam.

To evaluate the knowledge collected from literature, requirements of startups and Venturedam would be taken into account. Adding up to these requirements would help to funnel up the construction of the framework. In following chapter, the construction of the framework based on requirements is explained.

Chapter 5 Construction of the framework

The knowledge collected from different sources of literature is needed to funnel down considering the requirements of startups and Venturedam. This evaluation will help to contextualize this knowledge to build the desired framework. In section 5.1 of this chapter, the models and tools collected from the literature review are transformed into a framework considering requirements from startups and Venturedam. The created framework is further simplified and converted into a tool in sections 5.2 and 5.3 respectively.

5.1 Adaptation of models and tools from the literature review

Literature sources referred in chapter 3 are adapted in this section as per the context of Venturedam and startups. Section 5.1.1 explains the adaptation of eight strategic design practices. Here, some of the practices are modified or skipped according to the requirements. Section 5.1.2 modifies the strategic viability model while section 5.1.3 redefines the business model generation tool.

5.1.1 Adapting practices of the strategic design

Entering into a new market is a strategic design project. Section 3.1.1 of the literature review describes eight practices of strategic design projects. These practices are visualized regarding their progression as following,

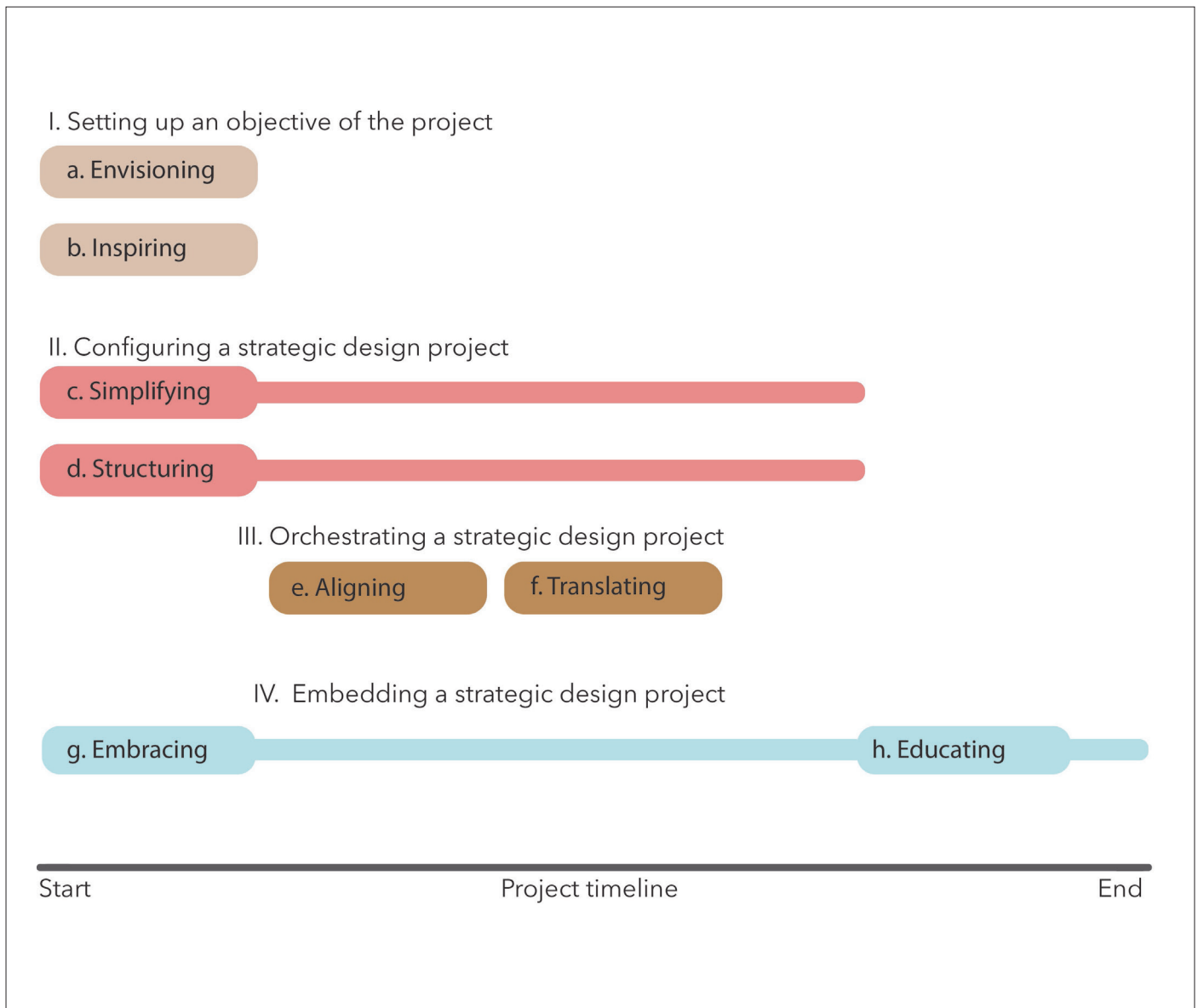


Fig. 5.1: Eight practices of strategic design visualized.

The practices show in figure 5.1 are required to put in the structure that can help to provide directions in the framework. To provide these directions to these practices, the most widely used design process is identified. For Venturedam, to determine the most suitable solution for startups, the creative process needs to be iterative. This means that solutions need to be developed, tested and refined number of times, with weak solutions dropped in the process. According to design council UK (2005), this cycle is an essential part of good design. The double diamond design process is explained in the following image.

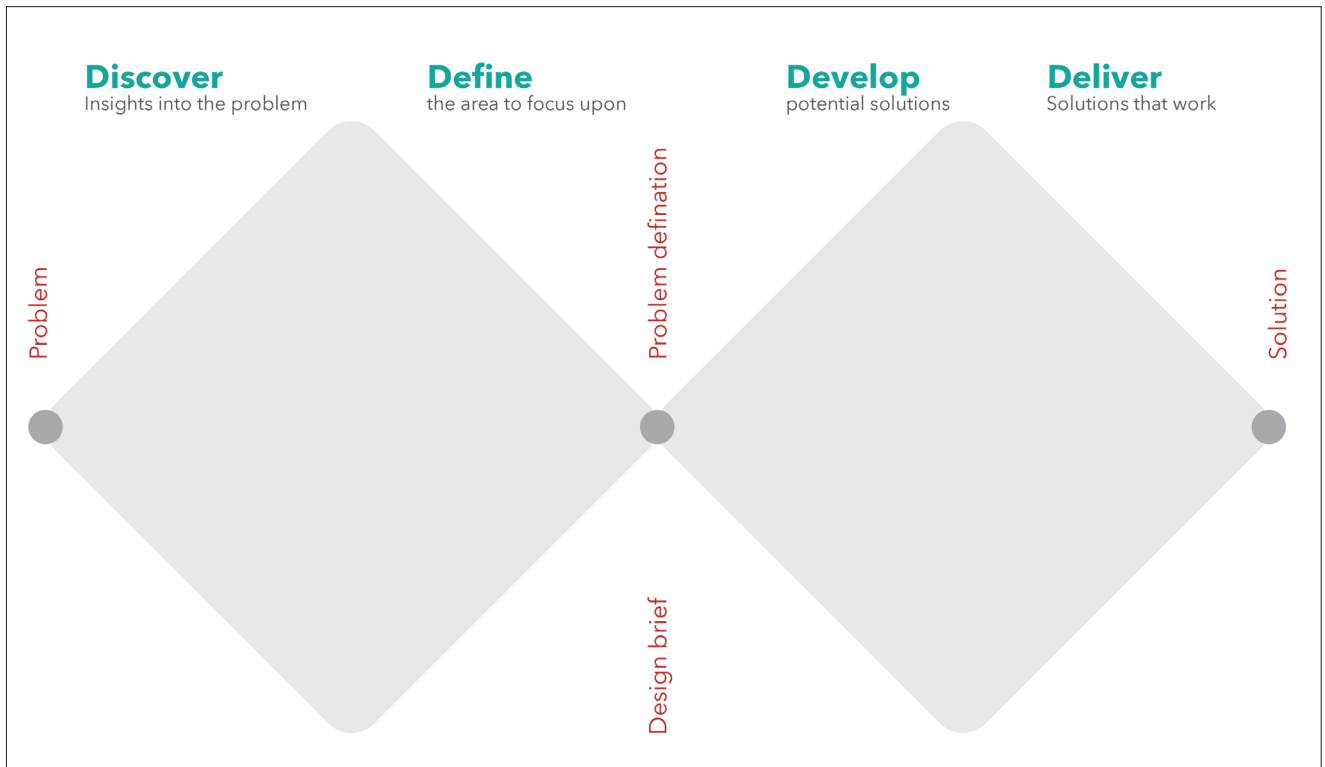


Figure 5.2: Double diamond design process (Design council UK, 2005)

This map consists of four phases of the design process: *Discover*, *Define*, *Develop*, *Deliver*. These four phases are guided by diverging and converging way of thinking.

Also, as mentioned in the design goal (section 2.1), the opportunity needs to be found based on a balanced consideration of three criteria of desirability, viability, and feasibility. To distinguish between activities to be performed in the framework, the practices will be categorized under the respective criteria they fulfill. With the double diamond model, it will provide an axis to place different activities in the framework. It is assumed that this axis will help to communicate the framework to startups better.

Three criteria of desirability, viability, and feasibility are combined with the double diamond design process to create a base where strategic design practices could be placed to provide a direction to each practice. The base with the overlap of three criteria and the double diamond process looks as follows,

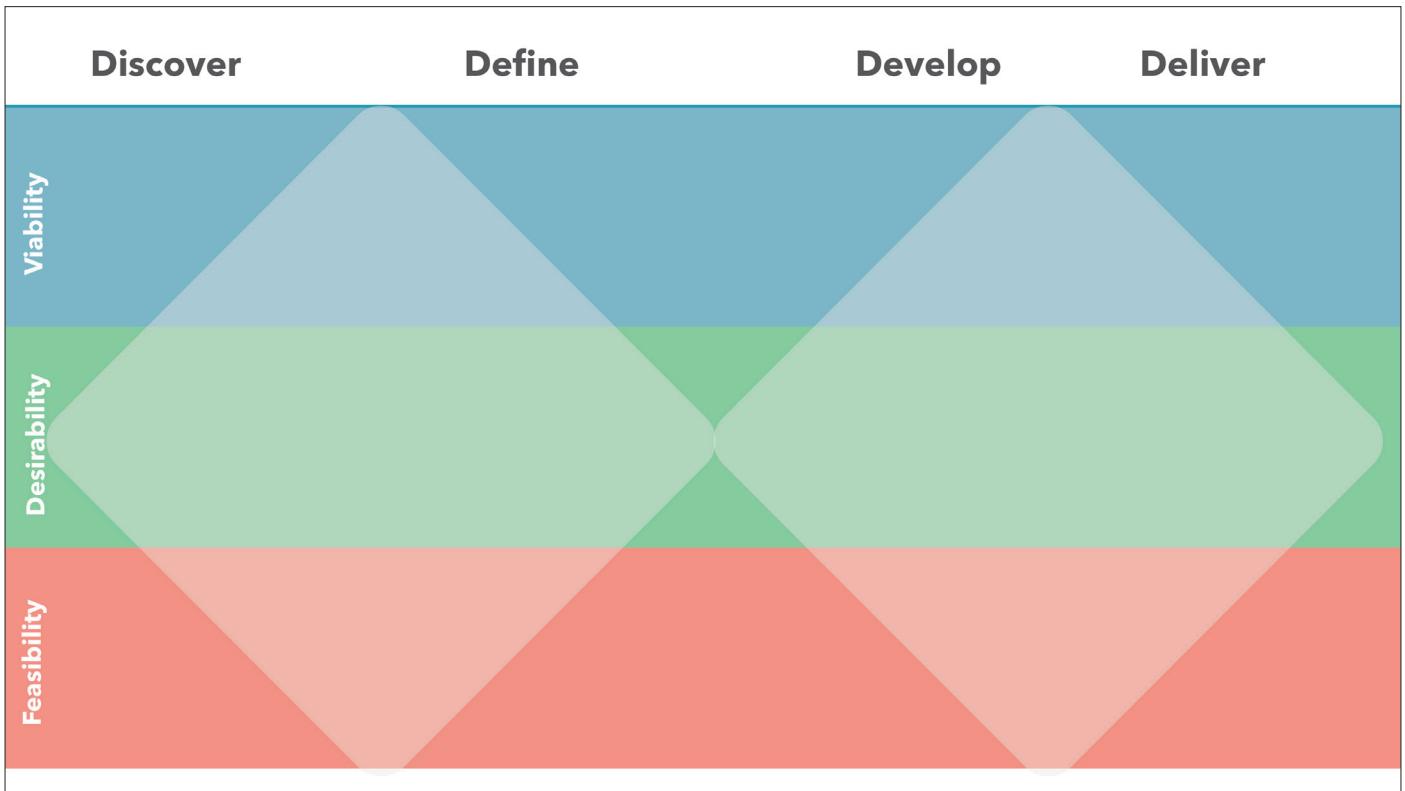


Fig 5.3: The base for the framework

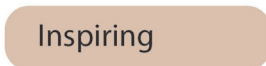
To place strategic design practices shown in figure 5.1 on the base shown in fig. 5.3, the practices are categorized in the respective criteria and phase of the double diamond process. On the basis of following points, the categorization is done.

- Some of the practices are directly related to the outcome of the project, while some of the practices are there to facilitate the process of the project execution efficiently. The practices directly influencing the outcome would be placed in the double diamond.
- Practices performed with the startup client to analyze their business would be a part of the viability criteria.
- Practices performed with the customer/ user context are categorized into desirability criteria.
- Practices to develop solutions to execute the business are categorized under feasibility criteria.
- Practices which are performed to combine user and business context are categorized with the respective combination of criteria.
- Practices which are performed to make the strategic project operationally efficient; they are not categorized into three criteria.

According to the requirements from startups and Veturedam some of the practices are skipped or modified. These practices are later placed on the base created in the fig 5.3. The modification and categorization of practices are as follows,

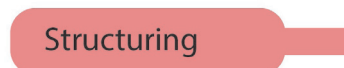


- a. **Envisioning:**
The practice of envisioning is to be performed with the client to define the vision for the future of the organization; the practice is classified into viability criteria. Also, it is at the beginning of the process during company exploration. Thus the practice is categorized in *Discover* phase, viability criteria.



- b. **Inspiring:**
The practice of inspiring is implemented to make the process clear to the client and to involve them in the process. It increases the operational efficiency of the process and does not have a direct influence on the outcome of the project.

Thus, the practice of inspiring would not be categorized under any criteria of desirability, viability, and feasibility. Also, It would be kept separate from the double diamond process.



- c. **Simplifying:**
The practice of simplifying is about mapping the client based on the shared vision and ownership. For the scope of the graduation project, this practice is not considered by making a assumption that a startup has good ownership of the project and has a shared vision within their smaller teams.

- d. **Structuring:**
The practice of structuring is about making the process operationally efficient by providing flexibility to the process according to project circumstances. This practice is not categorized into any of three criteria and kept in parallel to the double diamond process.



- e. **Aligning:**
The aligning practice combines knowledge of company context with customer context. Considering company context under viability criteria and user/ customer context under desirability criteria, the practice of aligning would be a combination of desirability and viability criteria. With combining knowledge from both contexts, this practice represents convergent thinking. Thus it is placed in *Define* part of the double diamond.

- f. **Translating:**
Translating practice refers to analyzing the feasibility and creating solutions. Thus it is categorized in the feasibility criteria. As this practice explore the possibility of the solution space, it is positioned on *Develop* part of the double diamond.
- g. **Embracing:**
In the practice of embracing, the viability is co-determined by designers with relevant experts in the team. The aspect of analyzing the viability of the strategic project is defined by the strategic viability model. This model requires special attention and is explained separately. The practice of embracing is positioned in parallel with the double diamond process.
- h. **Educating:**
The practice of educating refers to developing design capabilities within the organization, which is not in the scope of the graduation project. Thus the practice of educating was skipped.



Above mentioned categorization of each practice are placed on the base created (fig 5.3). The positioning looks as follows,

Fig. 5.4 Positioning of strategic design practices over the base (first intermediate version of the framework)

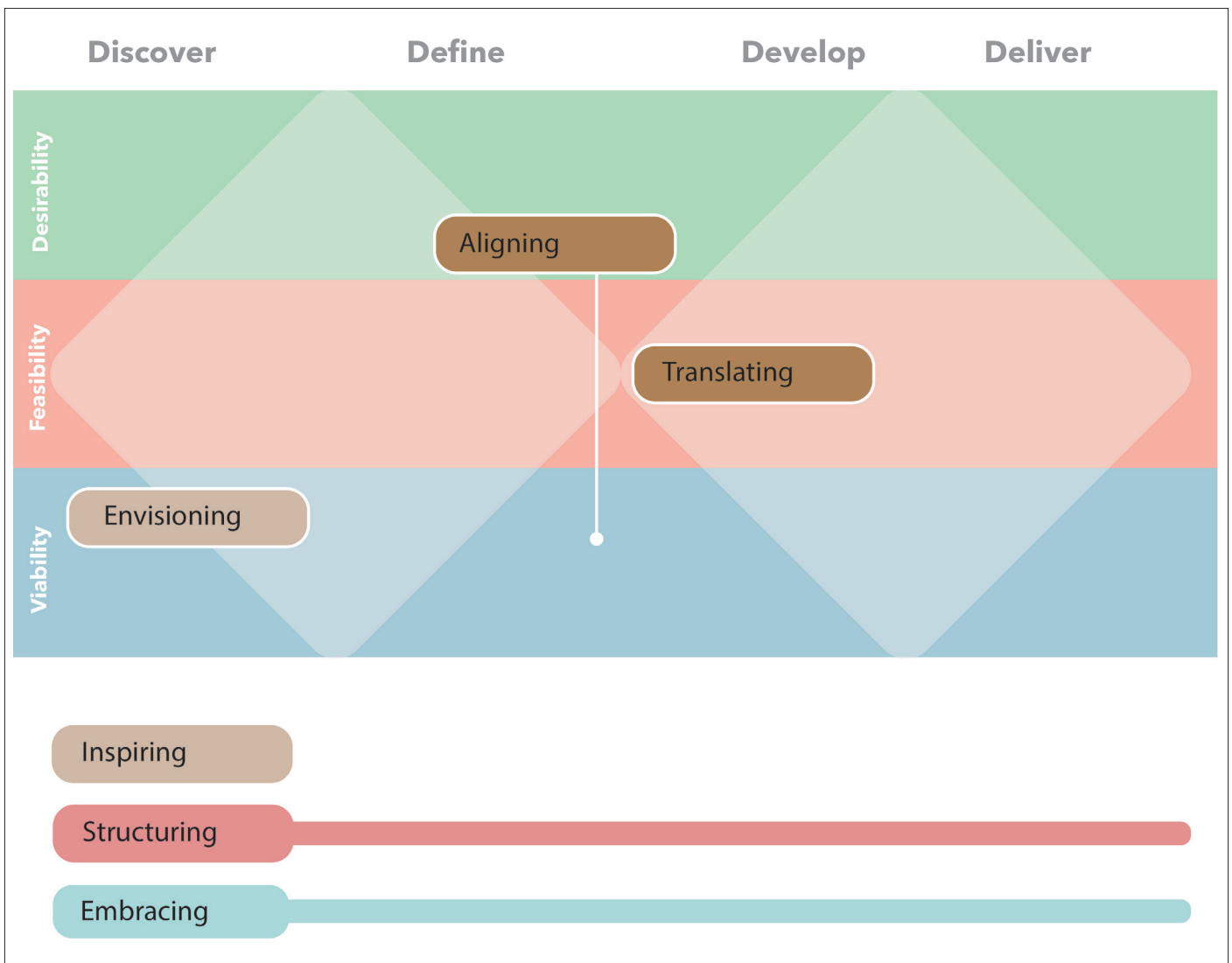


Figure 5.4 represents the first intermediate version of the framework. In the following sections, additional elements from the strategic viability model and business model generation are added to build the final framework.

5.1.2 Adapting the strategic viability model

The practice of embracing includes a strategic viability model to ensure the viability in the strategic design project. In this section, the strategic viability model is modified according to the context of startups and Venturedam.

Strategic viability model suggests that the design of a business case is a key tool to manage the viability of the Strategic design project. The Business Case can be defined as a framework for planning and managing changes in the business. The business case helps to obtain management commitment and approval for the investment in any changes in the business ("Business case", n.d.).

For Venturedam, it is required to identify levels of business casing process to offer to startups. The Business Case should be developed in three levels. ("Business case", n.d.)

- Preliminary Business Case (or Strategic Outline Case) which is designed to confirm strategic fit and business needs.
- Outline Business Case - In this stage, indicative assumptions are made to create a roadmap.
- Full Business Case - In this final stage, all the assumptions are validated to support the investment decision.

The full business case would be a justification for the expansion project with all the quantitative and qualitative data. It is essential to create a preliminary and an outline business case to achieve the full business case.

Meyer and Crane (2016) argue that the business model creates a foundation for any financial projects and the investment it needs to raise to implement the operating model, i.e., the business case.

From the arguments above, it is concluded that finding a strategic fit in the market and creating a business model is a primary step to create a business case for the startups. And, so the strategic viability model is modified to define the business model for the startups.

Considering the insights above, necessary elements from the strategic viability model (Fig. 5.3) are identified to create the preliminary and outline business case. These elements acquired from the strategic viability model are also positioned in over the first intermediate version of the framework (fig. 5.4). They are positioned into relevant criteria and phase of the double diamond model. The elements include steps and their sub-steps in the strategic viability model (Fig. 3.2). All five steps and their substeps are reviewed as given in following points,

1. Setting up the business casing process:

Here, sub-step of identification & consideration of relevant organizational hurdle, and determination of reverse profit & loss statement are omitted. These sub-steps are related to the design of the full business case for the organization.

The sub-step of determining financial objectives are kept to support the vision creation process for the startup discussed in practice of envisioning in section 3.2. Both sub-steps are about determining the viability of the project, thus are categorized under the viability criteria in the base of framework 1.0. Both steps are in the initial phase of double diamond so they are kept in *Discover* phase of double diamond.

2. Developing and documenting assumptions:

This step is kept as it is in the process as there is a need of creating assumptions for outline business case. This step is also about determining assumptions to make the business viable, so it would also be a part of the viability criteria in the base of framework 1.0. This step is also positioned in *Discover* phase as it needs to be executed in the beginning.

3. Co-creation of the business case, assumptions, and solutions:

This step is an ongoing step throughout the double diamond process. Designer and business designer have an intersects in each stage of double diamond to ensure the design solution and business objectives are aligned. The step talks about co-creation between designer and business designer to ensure the viability and desirability of the solution.

This step is most significant in the *Define* and *Deliver* part of the process where the process has a converging phase. Thus, at the end of the first diamond, the possible solution would be defined with the viability and desirability balance. And at the end of the second diamond, the possible solution would have the optimum balance between desirability, viability and feasibility.

A co-creation would be done with the startup client in this phase. Also in the second diamond, in *Deliver* phase, this step would be added to define the solution with the balance of all three criteria. Here, for the graduation project, the startup client would play a role of the business designer.

4. Identifying key sensitivity of the implementation phase:

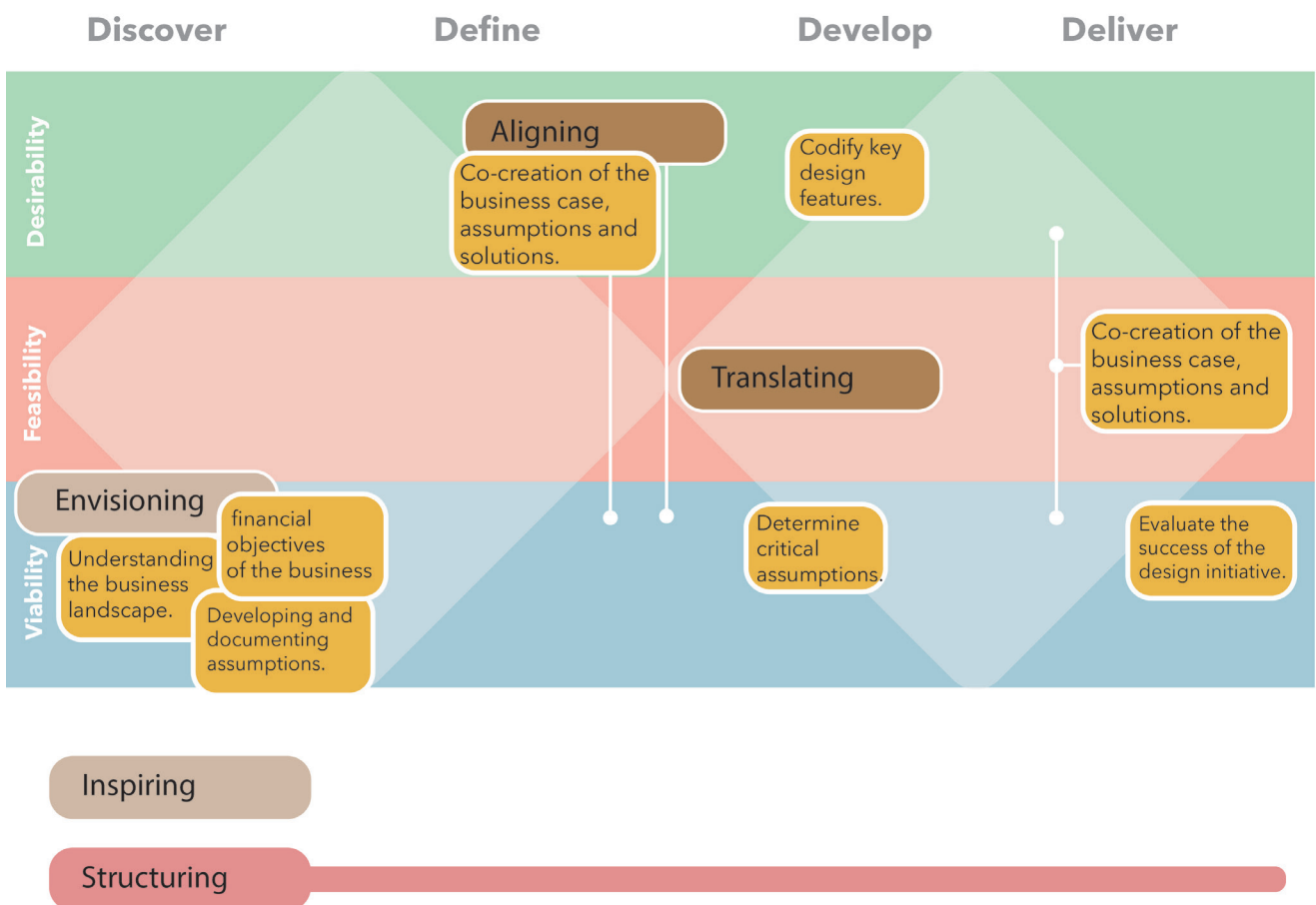
In this step, the sub-step of developing a design measurement plan is omitted as it is used to develop a full business case. The other two steps of determining critical assumptions and codifying key design features are considered in the design of framework. Determination of critical assumptions is to do with the startup. Thus this step is positioned under the viability criteria and in *Develop* phase of the base of framework.

5. Evaluating the success of the design initiative:

This step is about understanding the worth of the design initiative to identify the new market. This stage would be essential for Venturedam to determine the value of the service provided and to make necessary changes in the process. This step is kept under the viability criteria as it is an expense the business is making. It would be done at the end of the double diamond process, so it is positioned at *Deliver* phase of the base of the framework.

Positioning all the essential steps and substeps on the first intermediate framework created in fig. 5.4, the second version of the intermediate framework looks as follows,

Fig 5.5 The second intermediate version of the framework



5.1.3 Adapting the business model generation tool

Design of the business model for startups is the goal for building the preliminary and outline business case. Following aspects from the business model generation from section 3.2 are considered to add to the framework created in fig. 5.5.

- The design of a business model for new opportunities should design from the customer perspective. A deep understanding of customers, their environment, daily routines, concerns, and aspirations need to be mapped. Customer perspectives help to ground choices regarding Value Propositions, Distribution Channels, Customer Relationships, and Revenue Streams. From this insight, the step to create a better understanding of customers is added in the framework created in fig. 5.5. This step is positioned in Discover phase- desirability criteria as it is about the exploration into the customer context.
- Section 3.2 explains the necessity to scan the environment of the business model. Creating an understanding of the environment helps to build a business model for the new contexts. As mentioned in section 3.2, four areas are needed to be analyzed to create a better understanding of the environment of the business model. These areas are Market forces, Industry forces, Key trends, Macroeconomics trends. Analysis of these areas is added to the step 'understanding the business landscape' in the framework created in fig. 5.5.
- In the case of Venturedam, to analyze differences between two environments, first the understanding of the company (startup) context needs to be determined. In the version of the framework created in fig. 5.5, building an understanding of the company element is not included. The element of understanding the company is added in Discover phase, under viability criteria for the next version of the framework.
- As described in the startups' requirements in section 4.1, startups are required to know the changes required to make in the value proposition and a business model. Insights collected from the company about the current value proposition and business model elements are needed to be matched with relevant insights from the context of the Indian market. As described in Fig 3.3, relevant elements from the Indian context could be determined by answering questions given in the following image.

Current business model elements	Questions to determine changes required in the business model (Δ)
Value proposition	What are customer needs, aspirations, limitations?
Customer segments	For whom are we creating value?
Revenue streams	What do customers value and how would they prefer to pay?
Key partners	Any possible collaborations or partnerships? what roles will they play?
Key resources	What Key Resources do our business require?
Key activities	What Key Activities do our business require?
Customer relationship	What type of relationship does each of our Customer expect from us?
Channels	How are we reaching to customers efficiently?
Cost structure	What are the most important costs for the business?

Fig 5.6 Elements to be matched from the current and Indian market context

This matching would help to identify changes required in the value proposition and the business model. Adding the changes required in the business model to the current business model would create a new business model. This matching is represented by the following equation,

$$\text{Current business model} + \Delta = \text{New business model}$$

The practice of aligning in fig. 5.5 represents an activity to connect stories of customer context with the business context. The equation created in this point is used in the practice of aligning to connect customer and business stories.

Adding above discussed points to fig. 5.5, the third intermediate version of the framework is created. This version looks as follows,

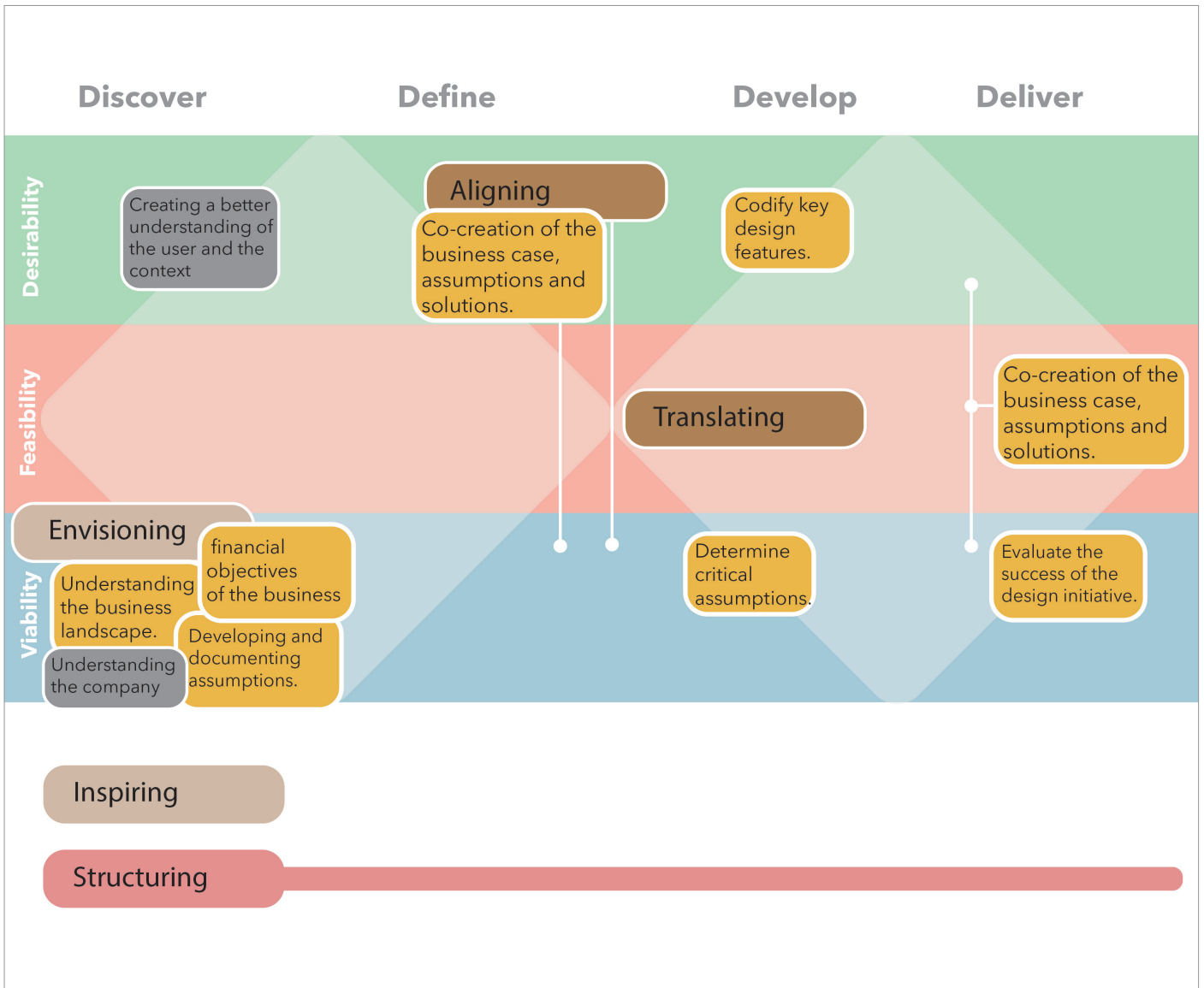


Fig. 5.7 Addition of the business model design requirements (The third intermediate version of the framework)

5.2 Simplifying the framework

As described in section 4.2, for Venturedam, the framework is a value proposition to offer to the client. This framework needs to serve the purpose of providing clarity and understanding of the process to the client. It should also involve the client in the process with increased confidence and ownership. A sketch representing the framework was shown to the CEO of the startup that was chosen as a case (More detail in APPLY part of the report). The image given below was used as a prototype to explain the process.

During the explanation, the process did not seem clear to the CEO. To make the process more clear, steps are needed to be refine. The steps derived from different literature were not on the same level of abstraction. To achieve these objectives, certain modifications were done in the version of the framework created in fig 5.7. In the following part of the section, modifications made in the framework is explained.

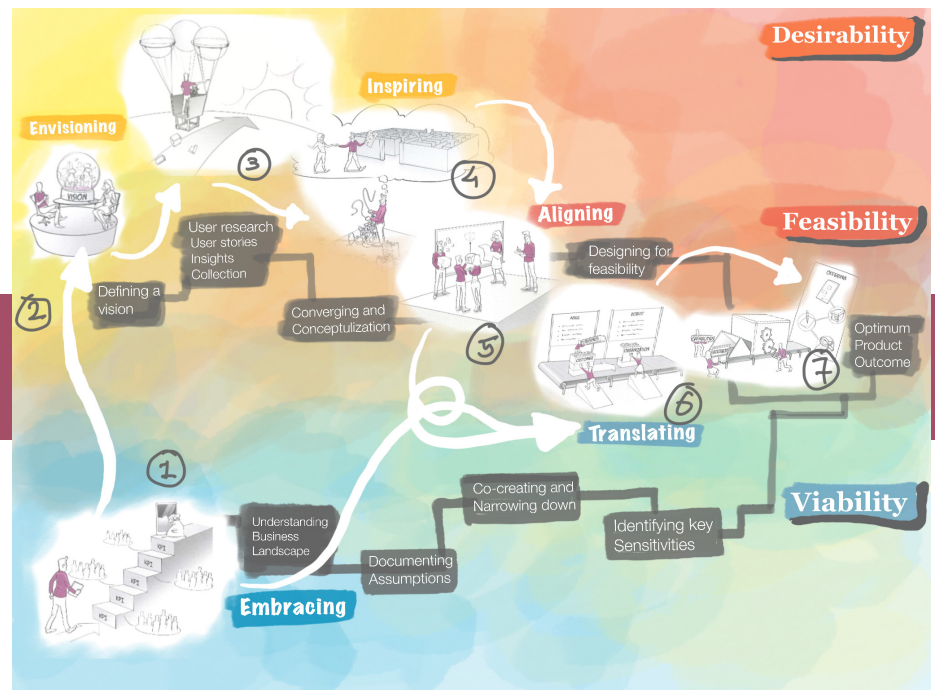


Fig 5.8 The first prototype- a sketch used as a tool to explain the created framework

The framework shown in Fig 5.7 consists of steps and practices derived from the different model. To have a better structure and clarity of the activities, all the practices, and theoretical steps were converted into clear steps by renaming and adding a description to them. Another purpose of the framework was to provide an ability to distinguish between activities. Certain activities were split into two or added to one another to achieve the objective. Also, steps were given numbers to identify their position in the process.

The refining process of steps is categorized in four steps of the double diamond in this section.

5.2.1 Discover phase

In *Discover* phase, as shown in fig 5.7, steps are present in the viability and desirability criterias. In this section first the steps in the viability criteria are redefined. From the viability criteria, four steps are redefined while from the desirability criteria, one step is redefined.

- **Viability criteria**

In order to provide the service to startups, Venturedam first would need to understand the expansion project from the perspective of the startup and to analyze the business context first. In the image below, the steps and activities in the Discover phase, in the viability criteria band are shown. This part represents the exploration of the business context.

As shown in the figure 5.9, there are five steps and practices present in this part of the framework. Clear steps are defined as follows,

1. Understanding the company/ startup

At the start of the project, Venturedam needs to understand the company to perform further analysis. To understand the startup better, the 7ps principle will be used as a starting point. Rafiq & Ahmed (1995) defined 7Ps as a marketing mix as a set of controllable marketing variables that the firm blends to produce the response it wants in the target market. They state that the 7Ps model (Product, price, promotion, placement, people, process, physical evidence) is the most influential where the traditional 4Ps (Product, price, placement, promotion) are modified for services and included participants, physical evidence and process. This 7Ps model would be used to create a better understanding of the company by analyzing the marketing mix of the company.

Also, understanding the Business & financial objectives of the organization will help to define constraints of the company. Thus, the step of understanding the financial objective as shown in fig. 5.9 would be added to the 'understanding the company' step.

2. Understanding the business landscape

Once the understanding of the company/ startup is developed, the business landscape could be analyzed. The business landscape in the case of Venturedam would be done for startups' current market possible Indian market. The analysis part of the business landscape of the Indian context would be done by desk research. Following activities need to be performed to analyze the business landscape.

- Competitive analysis
- Market analysis
- Trend analysis
- Macroeconomic trend analysis



Fig. 5.9 Discover phase- viability criteria representing the exploration of the business context

3. Setting up the vision

Once the company and business landscape are analyzed, it would be a good stage to define the objective or vision for the project/ business. The practice of envisioning in the fig. 5.9 represents this activity and is renamed as 'creating the vision.' The step is described as below,

Broadening the strategic thinking and workflow of the organizations, and together generating various outputs - products, policies, visions - for long - term success.

4. Documenting assumptions

With the defined vision for the expansion, as described in the strategic viability model , assumptions will be made around the ecosystem. The description of this step is as follows,

What assumptions can we identify as critical to the success of our business case?

How can we reduce the uncertainty surrounding those assumptions?

All relevant assumptions across the entire ecosystem of the initiative:

- Context
- Collaborators
- Customers
- Company
- Competitors

Above four steps represents the analysis of the business part which is located at under Discover phase and viability criteria. After the analysis of the company context, the user context needs to be analyzed. The user and context research in the target market needs to be performed to develop the understanding of the market.

- **Desirability criteria**

In the Discover phase, under the desirability criteria the step of 'Creating a better understanding of user/ customer and context' is present. The step is shown in the figure 5.10,

The process of defining further steps is continued as follows,

5. User and context research (India)

To create a better understanding of the user/ customer context, the field research at the market needs to be performed. As mentioned in section 3.2, the following activities could be described to define this step,

Creating a deeper understanding of customers, their context and environment, daily routines, concerns, and aspirations and limitations.

As previously described in step 4, critical assumptions for the success of the business case would be defined for which the validation of those assumptions would be performed during the field research. This leads to the addition of the following activities:

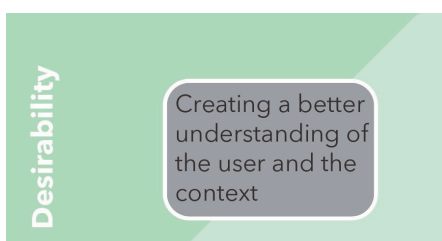


Fig. 5.10 Discover phase, desirability criteria representing the exploration of the user/ customer context

Collecting outcomes of assumptions testing.
Removing old and adding new assumptions as per observation.

To perform this research, participants representing the target segment must be identified. This segment can be similar to the current customer segments of the startup. For designing new business model, Osterwalder and Pigneur (2010) suggests checking for the customer segments at the periphery, as new potential customers could be found. Thus, to define the target segment, the ecosystem and other stakeholders in the system need to be mapped. These stakeholders would be participants for the qualitative study.

Patton (2002) suggests several strategies to identify and sample participants for the qualitative study. It is suggested to select these strategies ahead of the time or can evolve during early data collection. There are too many unique conditions on which the sampling process depends so it is impossible to prescribe which strategy would go best with each research. For each project with different startup, the strategy to identify participants would need to be defined.

For qualitative research, Guest et al. (2006) defined saturation as a situation when further coding is no longer feasible in this situation, and the ability to obtain additional new information is attained. It is necessary to perform the research until this saturation in the information gathering is achieved.

Steps one to five represents *Discover* phase of the first diamond of the framework. With the exploration of information from business and user/customer context, all the collected data would be analysed to determine the opportunity and viability of the opportunity in further steps in the next section.

5.2.2 Define phase

Discover phase provided insights from the exploration of the business context and user/customer context. Analysis of these insights would determine the viability of the available opportunity in the market. Steps in *Define* phase are explained in this section.

The important practices followed in this phase are aligning, and co-creating on the business case, assumptions and probable solutions. Both are under the combination of desirability and viability criteria. As described in section 3.2, the practice of aligning consist of three elements,

- Nailing the customer story
- Translating the story across different business units
- Designing for multi-speed impact

These elements are separated and placed into different steps as it represents different activities to be performed by Venturedam.

Define

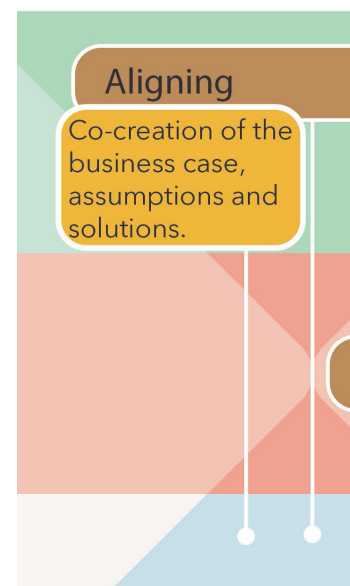


Fig. 5.11 Define phase

6. Communicating the outcome of the research

The first element of nailing the customer story refers to communicating the outcome of the field research. This outcome would be an outcome of the analysis of the insights gathered in the field research. The analysis of the insights would be performed in this step, and the analysis would be translated into customer stories using several tools like customer journey mapping, building personas, showing observations with pictures, videos, storyboards, etc. The purpose of this step would be to provide the startup experience of the context.

7. Aligning customer and business story

The second and third element of aligning refers to translating the customer story to connect with the business, and designing for a multi-speed impact. These elements are converted into a separate step where Venturedam would align the customer story and a business story based on the analysis performed in both contexts. Venturedam would demonstrate differences between both contexts by matching them as shown in fig. 5.6. Addition to that, Venturedam should provide a proposed future roadmap to overcome those differences that complements or matches the organization's strategy, values and assets. This solution would be communicated to the startup.

As shown in figure 5.11, the step of 'co-creation of the business case, assumptions and solution' is converted into the next step as follows.

8. Co-creating with the startup

The step of co-creation with the startup is added to represent the step mentioned above. Here, the co-creation session would be organized to co-create the outcome together. In the previous step, Venturedam has generated the proposed solution roadmap from the analysis of the business and user context. The proposed solution would be checked and refined by co-creating with the startup team. Here, new assumptions would be made for further steps, and financial parameters could be identified to constrain the design process. The opportunity would be mapped against the changes required in the business as shown in the fig. 5.12.



Fig. 5.12 Opportunity vs. Changes plot

The mapping of opportunity against changes would help the startup to decide Go or No Go.

9. Go/ No Go

The step of checking Go/ No Go would be the end of the first diamond. This step would be a gateway to enter into the second diamond of the process. From the mapping performed in the previous step, the startup could make the decision of Go or No Go. Once the startup decides to go further in the process, steps explained in the next section would be executed.

5.2.3 Develop phase

Once the 'Go' decision is made from the startup, the process enters in the phase of the developing the solution. The image below shows practices and steps present in the framework created in the fig 5.7.

The practice of translating and steps of codifying key design features and determining critical assumptions are present. These elements are converted into steps as explained follows,

10. Designing for feasibility

This step is derived from the practice of translating. As mentioned in section 3.1.1, translating refers to establishing the feasibility audit to understand the types of resources/ capabilities that are needed to exploit an opportunity. An action plan would be devised for resources or capabilities do not exist within the organization. It will also be checked if the organization have the financial means to establish resources and capabilities.

11. Codify key design features

All the key features and elements which are 'must' to have would be identified in this step. The purpose of this step is to keep the user values integrated into the solution space.

12. Determining critical assumptions

As described in section 3.1.1, this step refers to identifying assumptions that are the most critical to the business case. The key assumptions and their possible effect on the business case would be determined.

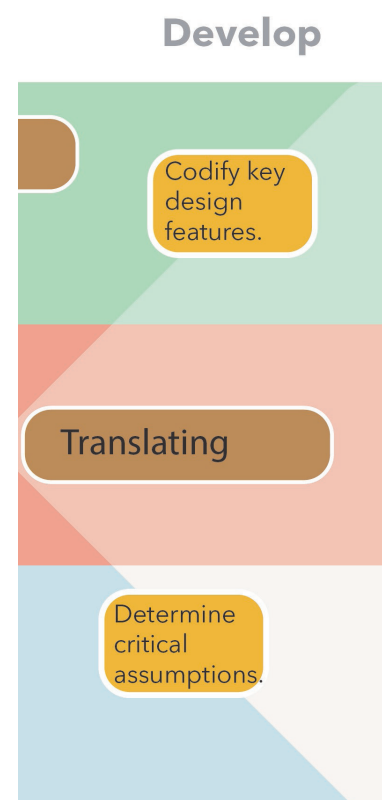


Fig. 5.13 Develop phase

Deliver



Fig. 5.14 Deliver phase

5.2.4 Deliver phase

In the final phase of the double diamond process, following steps are present as per the framework designed from the literature (Fig. 3.10).

13. Determining the value proposition and a business model

This step represents the co-creation of the business case, assumptions, and solutions. In the preliminary business case, the outcome is the business model and a value proposition for the new market. At the Deliver phase, the outcome with the consideration of all three criteria, desirability, viability and feasibility needs to be designed.

14. Evaluate the success of the design initiative

The final step in the double diamond process is about the evaluation of the success of the design exercise performed with the Venturedam. This evaluation would determine the worth of the service provided by Venturedam. It would also provide the feedback to make changes in the framework.

With the Deliver phase, the framework would provide the design of the preliminary and outline business case. At the end of the first iteration of the framework, the business model and value proposition would be determined with the balance of desirability, viability and feasibility.

In section 5.2, The framework was simplified by considering some requirements from the perspective of Venturedam. The steps in the framework are renamed and made clear to understand. With a few more requirements from Venturedam's perspective, the framework is converted into a tool. The process is explained in the next section separately.

5.3 Adapting the framework into a tool

As described in the requirements of Venturedam in section 4.2, the framework is the value proposition offered by Venturedam to startups. The framework needs to facilitate the interactions between Venturedam. The purpose of the framework is also to increase clarity of the process and involvement of the client.

After simplifying the steps described in section 5.2, an excel sheet was made to explain the process. This version of the process was explained to some Masters students at the faculty of Industrial Design Engineering, TU Delft to receive feedback. Following are the feedback from the test,

- The excel sheet could not provide enough understanding of the process and did not excite the participants about the usefulness of it.
- The excel sheet contained all the information at once on a big sheet, which cause information overload for the participants.
- It seemed too long and did not facilitate any interactions.

	Discover		Define		Develop		Deliver	
Time	Week 1-4	Week 5-8	Week 9-14	Week 15-16	Week 17-18	Week 19	Week 20	
Desirability	<p>Define a value proposition</p> <p>Identify and quantify the client's needs, desires, and expectations.</p> <p>Identify and quantify the organization's strengths, weaknesses, and opportunities.</p> <p>Identify and quantify the market's needs, desires, and expectations.</p> <p>Identify and quantify the organization's strengths, weaknesses, and opportunities.</p> <p>Identify and quantify the market's needs, desires, and expectations.</p> <p>Identify and quantify the organization's strengths, weaknesses, and opportunities.</p>	<p>Research and validate the value proposition</p> <p>Conduct research to understand the client's needs, desires, and expectations.</p> <p>Conduct research to understand the organization's strengths, weaknesses, and opportunities.</p> <p>Conduct research to understand the market's needs, desires, and expectations.</p> <p>Conduct research to understand the organization's strengths, weaknesses, and opportunities.</p> <p>Conduct research to understand the market's needs, desires, and expectations.</p> <p>Conduct research to understand the organization's strengths, weaknesses, and opportunities.</p>	<p>Align the value proposition with the client's needs, desires, and expectations</p> <p>Align the value proposition with the client's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p>	<p>Align the value proposition with the client's needs, desires, and expectations</p> <p>Align the value proposition with the client's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p>	<p>Align the value proposition with the client's needs, desires, and expectations</p> <p>Align the value proposition with the client's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p>	<p>Align the value proposition with the client's needs, desires, and expectations</p> <p>Align the value proposition with the client's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p>	<p>Align the value proposition with the client's needs, desires, and expectations</p> <p>Align the value proposition with the client's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p>	<p>Align the value proposition with the client's needs, desires, and expectations</p> <p>Align the value proposition with the client's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p> <p>Align the value proposition with the organization's strengths, weaknesses, and opportunities.</p> <p>Align the value proposition with the market's needs, desires, and expectations.</p>
Feasibility								
Viability								

Fig 5.15 Prototype 2, A simplified framework in an excel sheet (For the full version, check the appendix- A)

To make the framework more interactive and easy to understand, it was converted into a tool. In this tool, a base with three criteria of desirability, viability and feasibility was made on a A2 size of the paper. The image of the base is as follows,

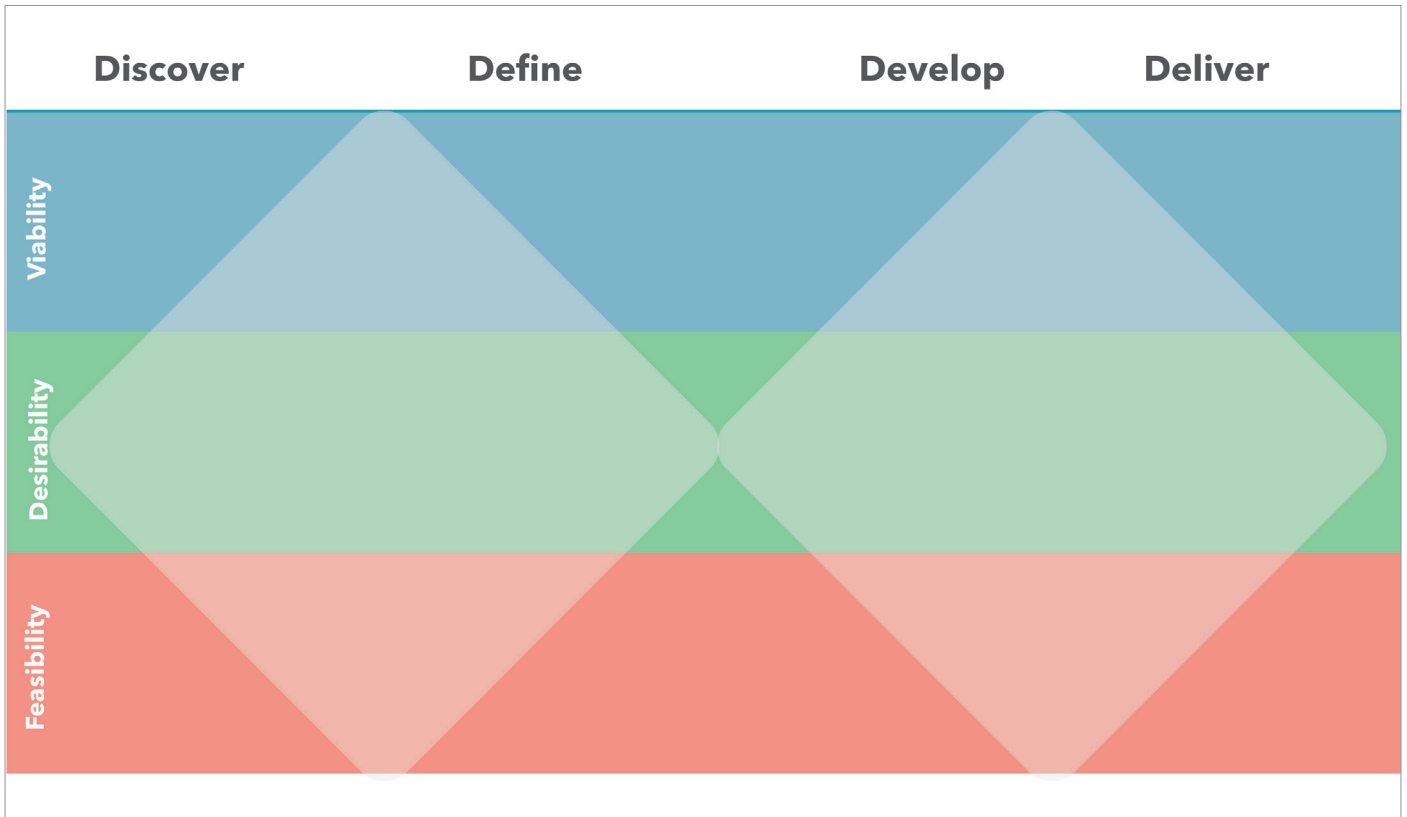


Fig 5.16 The base created with three criteria and double diamond to place step cards

To provide lesser but enough information, all the steps were converted into cards which are referred to as step cards in this report. Creating a card for each step helped to write the description of the step on the back side of it while keeping the title of the step on the front. An example of one of the step card is given in the following image.

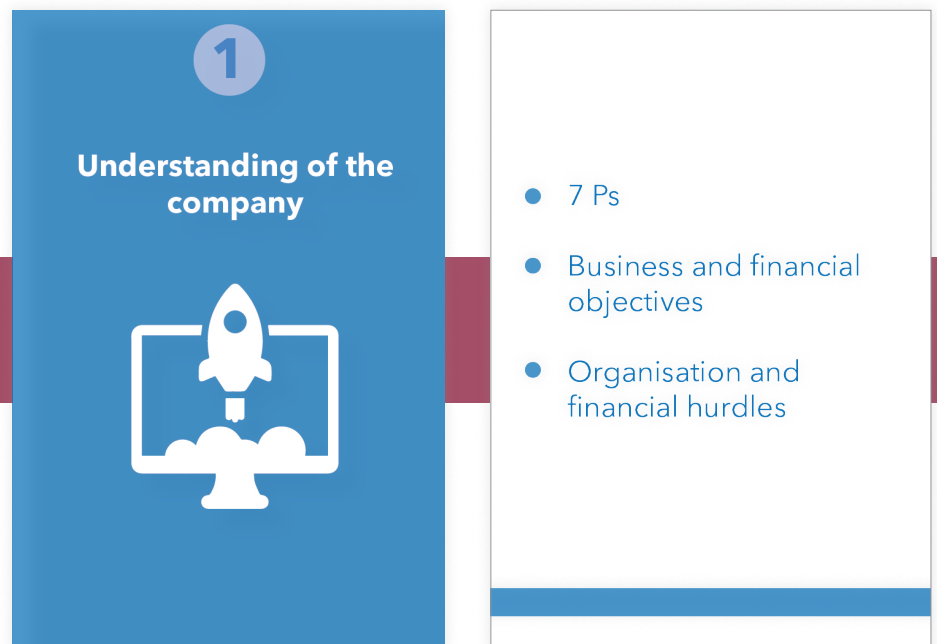


Fig 5.17 One of the step card and its description on the back side

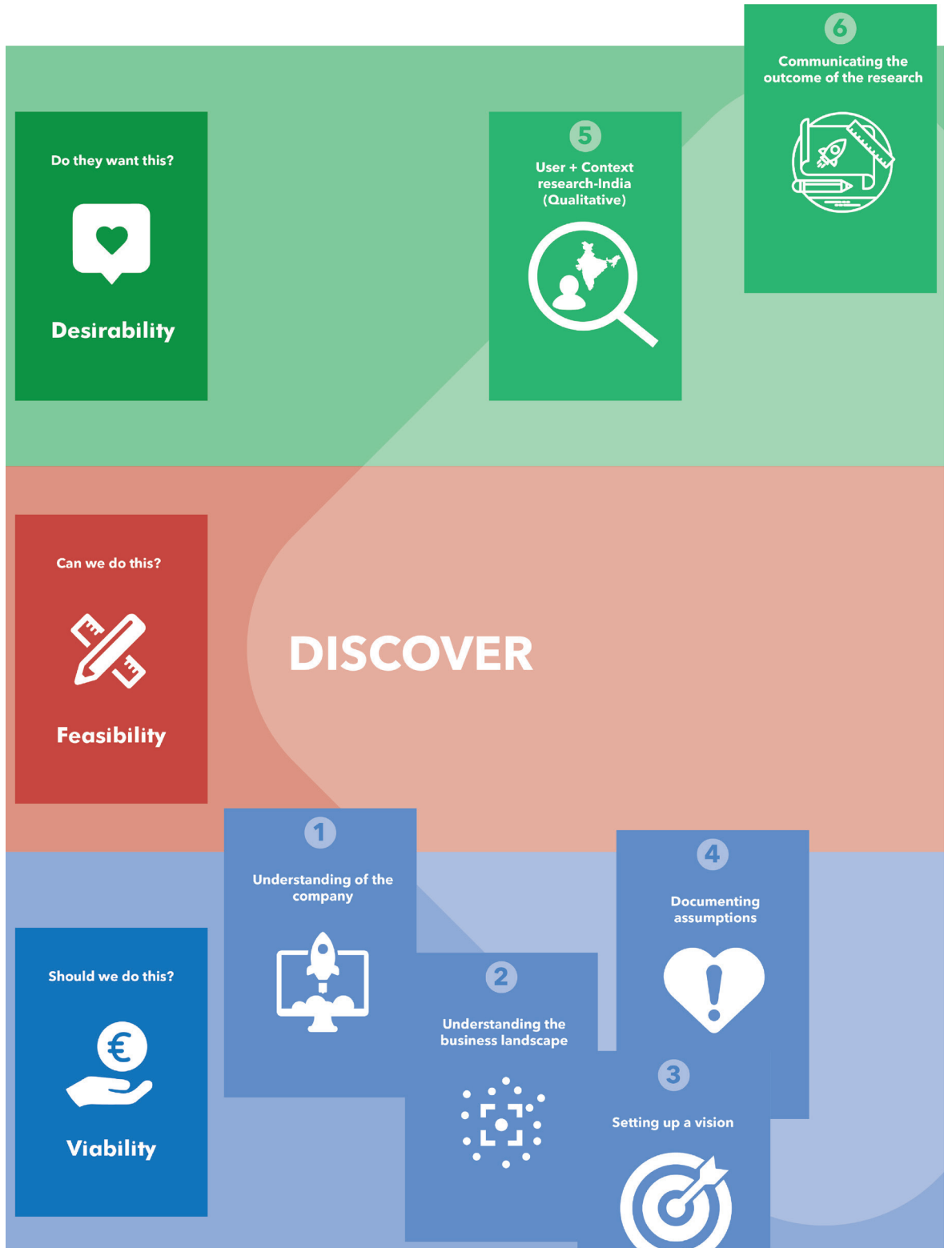
An icon with the title is added to make the step identifiable on the base. And the cards are given color according to the criteria they come under. Certain steps relates to more than one criteria. The card is given colors accordingly. Two of such cards are shown in the following image.



Fig 5.18 Step cards related to more than one criteria

To explain the tool to the client, each step card would be placed on the base one after one. Thus three cards representing three criteria are also made to place in a sequence. The image of the Projectile framework tool after placing all the steps is provided in the following pages.

In chapter 5, models and tools collected in the literature review are adapted according to the context of Venturedam and startups. Later the framework created from the literature is simplified and transformed into a tool to facilitate the interactions between Venturedam and a startup. The created tool framework is tested with a real startup case in chapter 7, Learnings gathered from the practice are used to redesign the framework.



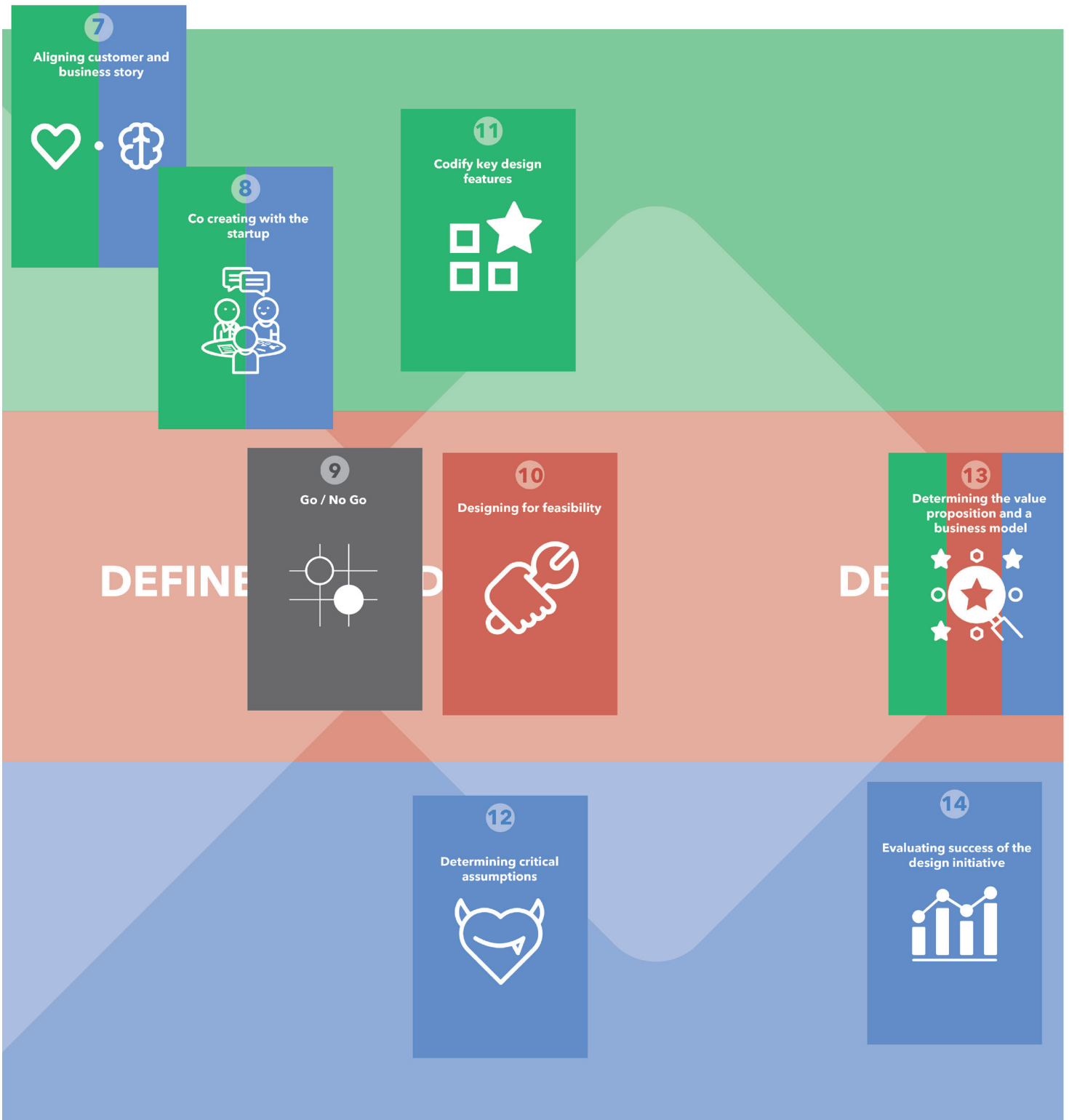


Fig 5.19 A complete Projectile framework tool with all the step cards placed on it.

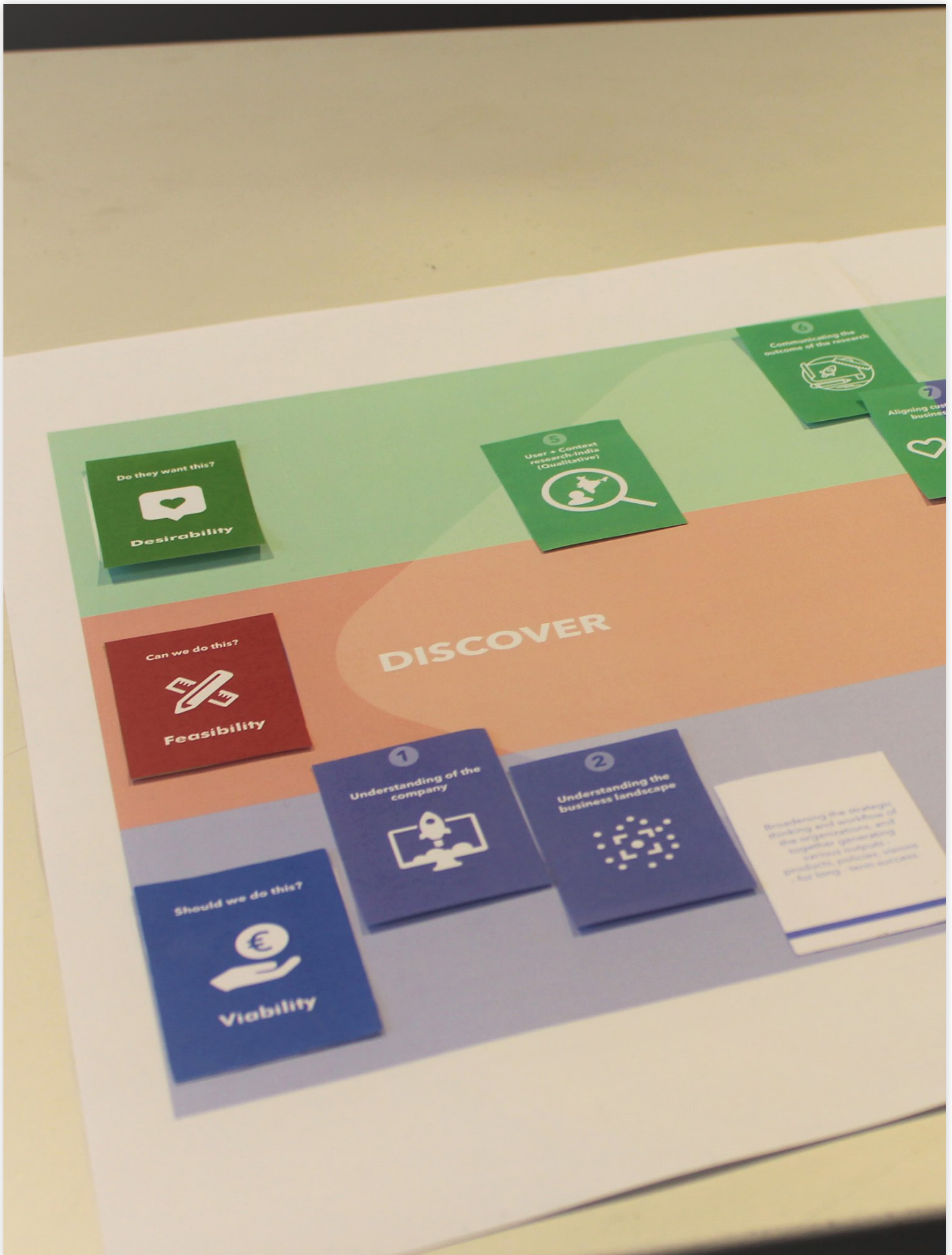




Fig 5.20: Projectile framework tool

APPLY

Projectile framework constructed in chapter 5 is applied to the real case of mature Dutch energy startup- Solar Monkey. The purpose of this exercise is to test the framework with the real case and to gather learnings. The learnings would help bridge the gap between theory and practical application of the framework. It would further help to redesign the framework and define elements of the business model for Venturedam.

During the application of the framework, the first diamond of the framework was tested. The second diamond about developing and delivering solutions for Solar Monkey is not executed due to the short scope of the graduation project. Chapter 6 explains the application of the framework.

Chapter 6 Application of the framework

While the framework was ready, a startup had to be identified in order to execute the case. Solar Monkey, a Dutch startup for the incubator Yes! Delft, was interested in participating in the project. In the following chapter, Section 6.1 provides an introduction about Solar Monkey. Section 6.2 covers the intake exercise with Solar Monkey and learnings gathered from the intake. Section 6.3 describes the application of steps 1-9 with reflections and learnings collected during the application. Steps 10-14 were not applied to the case of Solar Monkey due to the short scope of Graduation. Assumptions made for these steps are explained in section 6.4. Section 6.5 summarizes the reflections and learnings from the application of the framework.

6.1 Solar Monkey

Solar Monkey is a spinoff from the TU Delft. The company was founded January 2015, with the aim to help the solar market develop more quickly. Their product is a software tool for Solar photovoltaic (PV) panel installers to quickly and accurately design and monitors residential solar systems. Solar Monkey has more than 75% market share in the Dutch market. As per section 1.4, the position of Solar Monkey in the sub-sector-innovation domain map is in the Energy facilitation subsector and a Really new market-based innovation domain (Meit & Ruud, n.d. P. 1).

The Startup aspires to expand the business to international markets. Solar Monkey has already started their expansion to other EU countries like Belgium, France, and Germany. Other than European countries, expansion to countries like USA, Australia, India could be a massive opportunity for Solar Monkey as these countries are the largest solar markets in the world. But it would also bring more complexity and challenges for Solar Monkey.

For Solar Monkey, out of all non-European markets, the Indian market was one of the most attractive markets. Australian and American markets are mature and might have a higher competition to survive in the market. The Indian market is a vast market but is not mature enough to use software tools to design solar systems. Thus, India had a good potential to be the most attractive market for Solar Monkey. But for Solar Monkey the Indian market was hard to reach and a complex market. Solar monkey did not have a good understanding of the Indian context because of the vast diversity and cultural difference as compared to Europe and USA.

To conclude, Solar Monkey is a startup with good growth and is looking for new markets. India is one of the most attractive markets for the startup but also have challenges as it is an unknown market in different ways such as culturally, socially and economically. The work with Solar Monkey was started with an intake, and later steps of the framework were applied.



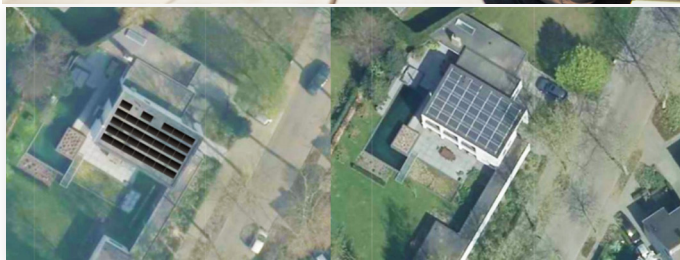
Solar Monkey



Design of solar systems

Fast and simple: Helps to lay plan within one minute.

*Reliable: always fits on the roof
Accurate: calculation with shadow analysis*



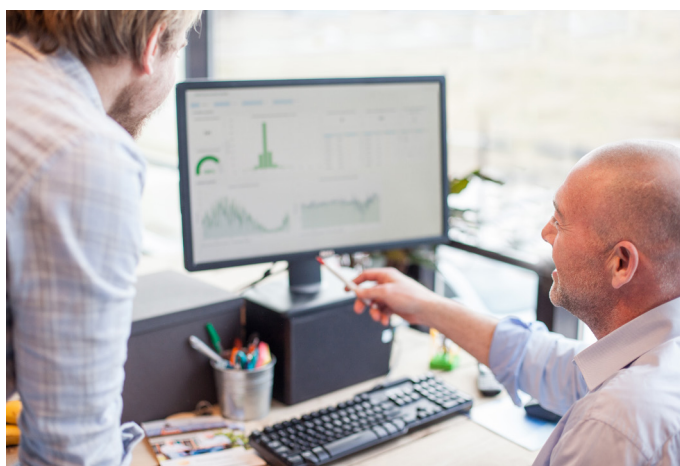
Selling of solar systems

Helps to make customized offers and effectively sell more systems with higher margin.



Monitoring solar systems

Monitors performance of solar systems and ensures guaranteed generation



6.2 Intake

Once Solar Monkey was finalized to consider as a case, an intake meeting was planned to introduce Projectile framework to the Solar Monkey team. The purpose of the introduction was to provide the team with an idea about the process so they know what activities are going to be performed by Venturedam and when and where they could be a part of it. Venturedam is a facilitator who will provide this service to the startup, and it is essential to have active participation from the team in the process.

To onboard the team, it was necessary to explain the process and create a better understanding for the team. The framework was built from different design literature, and it needs to be clear for people in the team with a non-design background such as finance, operations, and technology development.

The startup had a ritual to have a team sharing session every Thursday of the week. The purpose of sharing session was to have a whole team present at the office where some of the employees present interesting insights from their work. This sharing session platform was the right opportunity to have an introduction with the team about the expansion process. To explain the process and especially the criteria desirability, viability, and feasibility, a metaphor was used in a presentation. The metaphor was about a company trying to target a new planet to expand their business. The team was asked the question: 'what do we need to know?' to go to the new market. Team members replied with few questions and later these questions were clustered into three broader questions. The team was explained how those three broader questions presented three criteria. The three questions were as follows,

- Do they want this?- Desirability.
- Can we make this? - Feasibility.
- Should we make this? -Viability.

Fig. 6.1 Metaphor used to explain three criteria to the Solar Monkey team

The picture and metaphor used with the client are shown in figure 6.1. From the metaphor, the team got a clear idea about the goal of the project, i.e., to find an opportunity with balance consideration of three criteria.



The tool framework (Fig. 5.19) was explained to the team to achieve the goal shown in the metaphor. Later, the team was allowed to ask questions and doubts about the process. They were also asked to participate in the expansion process by providing relevant information about the company necessary in the 1st, 2nd, 3rd and 4th step of the process (Fig 5.19).

The first intake presentation with the whole team provided a great opportunity to explain the process, get confidence of the team and have their involvement in the process.

Reflections- Intake

The intake exercise performed with the startup was an essential and first interaction with the team. An active participation from the startup team in the process was necessary for Venturedam to facilitate the project.

As discussed in section 3.1, the practice of inspiring represents the activity of taking the client onboard and make them think differently through methods like visualization, co-creation, and materialization. The tool created with cards was demonstrated to the team to explain the process. This demonstration of how the expansion project to India would be handled with concrete steps helped significantly to excite the Solar Monkey team about the process. The CEO of Solar Monkey explained the excitement with a quote "This is the first time, I am looking at some complex strategy in hand as a tool, which is very easy to understand." Other employees of Solar Monkey had similar feedback on the toolkit.

This practice was not explicitly considered in the main framework during the design of the framework. The practice do not have a direct influence on the outcome of the project but is an important practice to make the process more clear for the client and to build confidence over the process and Venturedam.

The designed framework (fig. 5.19) starts with activities related to the company and business landscape analysis. The framework did not have the important first step of intake included in it. With Solar Monkey, It was vital to involve the team during the intake and to make the understanding of the process clear to them. This additional step of intake in the framework would help Venturedam to prepare the ground for the project.

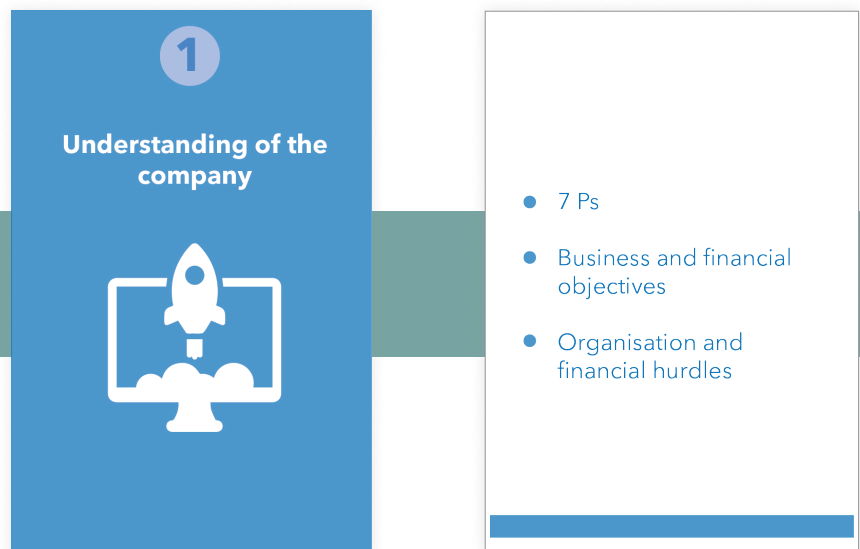
6.3 Step-wise execution (Step 1-9)

In this section, step-wise execution of the expansion framework is explained. With the case of Solar Monkey, steps from 1-9 (the first diamond) was performed. After an explanation of each steps, reflections about the steps are written.

1. Understanding the company

To collect information about Solar Monkey, employees from Solar Monkey were interviewed with a set of questions. Interview guides were prepared to cover all the topics required. Additional information was gathered through desk research from the organizational documents.

Fig. 6.2: Step 1- Understanding of the company



Interviews were organized with different employees Such as the CEO, CTO, business developer, and an International Marketer. The interviews were guided-open interviews which took place in person with each participant. These interviews provided detailed information about different aspects of The business.

Solar Monkey is a software company; they do not require extensive physical infrastructure for the business. For analyzing 7Ps, P refers to the physical evidence was not taken into account. Questions of the open interview guide is available in the appendix A.

The collected information was further analyzed and clustered into categories such as product, price, promotion, customer segments, business model elements. Hand made sketches of some of the categories were made to explain the analysis to the team.

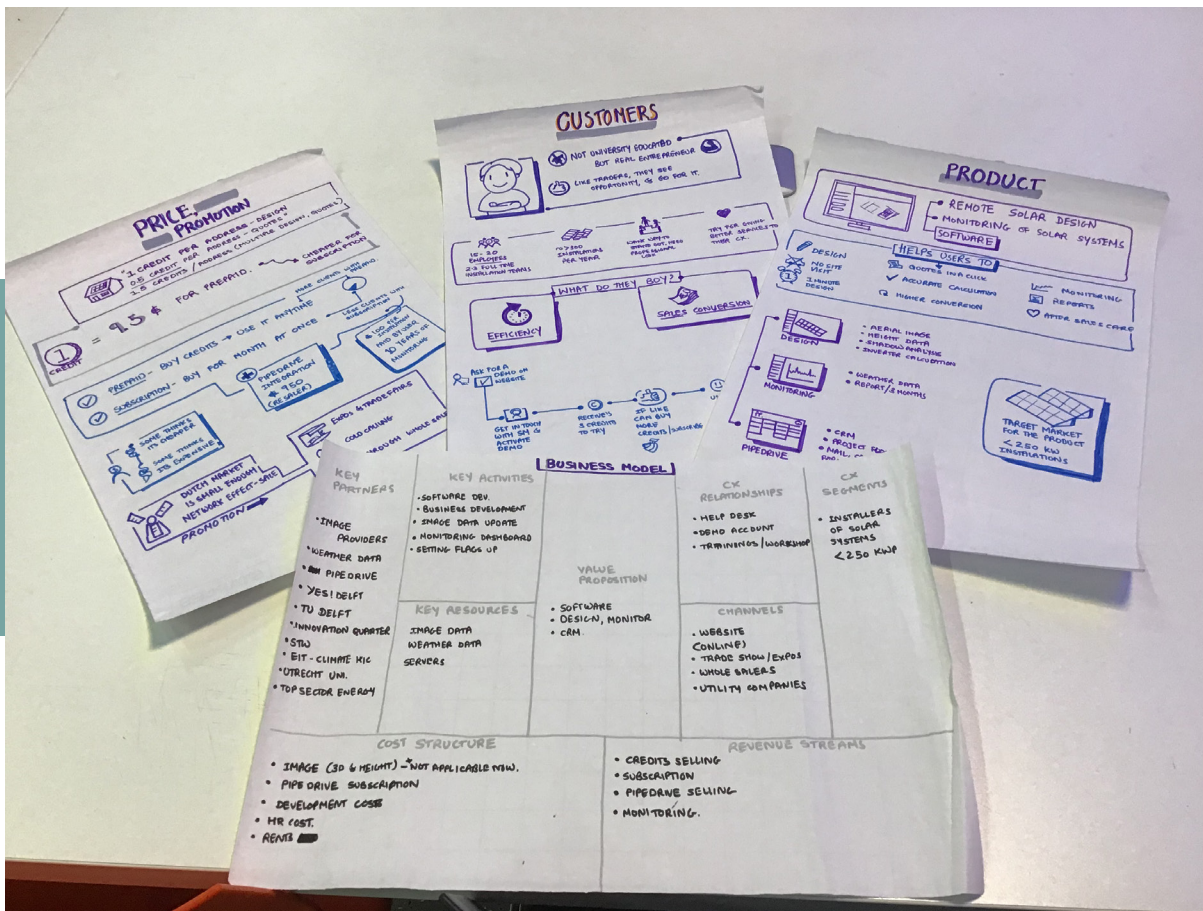


Fig 5.3: Posters created to explain insights from the company analysis (Refer the appendix A for full pictures)

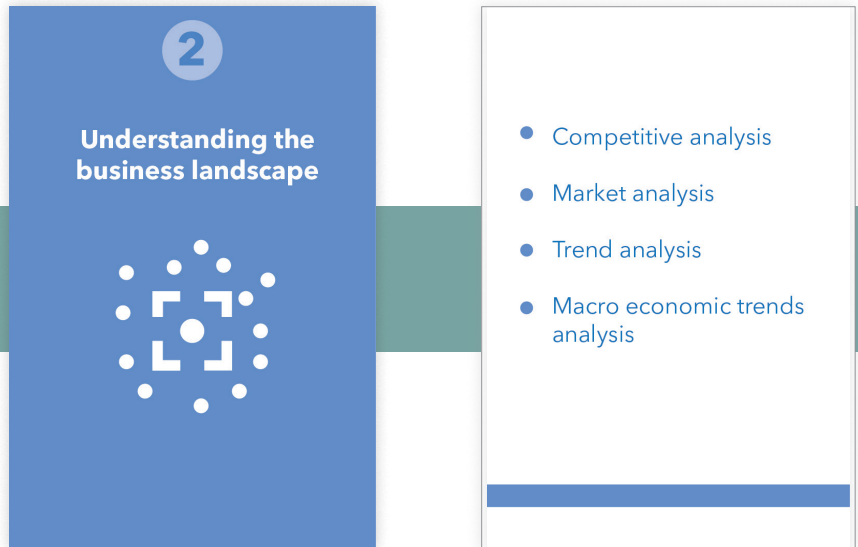
Reflections: Understanding the company

The step 'Understanding the company' allows Venturedam to analyze the company, value proposition and business model of them in detail. The step was performed with each employee as an interview. The open interview method to collect information from employees worked well. Addition to the interviewing method, other methods to collect information could be explored for future projects.

2. Understanding the Business landscape

The competitive analysis was performed with the help of the Solar Monkey team member responsible for international marketing. Competition in the local and international markets was analyzed in this step. Possible competition in the Indian context was also investigated with desk research. Questions for the analysis of the business landscape is available in appendix A.

Fig. 6.4: Step 2- Understanding the business landscape



Indian solar market was analyzed, and quantitative numbers were collected. Purpose of this analysis was to identify the major solar markets in India where the product of Solar Monkey could have a better fit.

The primary goal was to understand and get a higher level idea of the business landscape. The other elements like trend analysis, macro-economics trend analysis were skipped due to the short scope of the graduation project.

The understanding of the business landscape helped to determine the target locations for the field research. In this step, states of India according to their solar market were listed. In India, the state government of different states has different policies around the solar installation. The states of Gujarat and Maharashtra have better policies related to solar and are part of the bigger solar markets in India. (The Ministry of New and Renewable Energy-India, 2017). Thus, it was decided to identify participants in regions of Gujarat and Maharashtra states of India.

Out of all the collected information about the business landscape, competitive analysis summary was made into a poster to demonstrate to the Solar Monkey team.

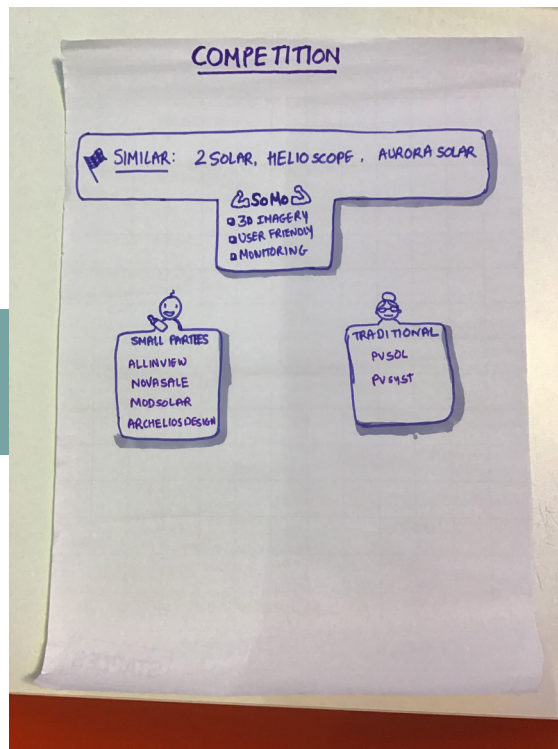


Fig. 6.5 The competitive analysis summary in a handmade poster (Refer appendix A for the full picture)

Reflections: Understanding the business landscape

In the first version of the framework, understanding the business landscape step was categorized under the viability criteria. The assumption behind keeping it in the viability criteria was that the analysis is performed in this step is from the business perspective of startups.

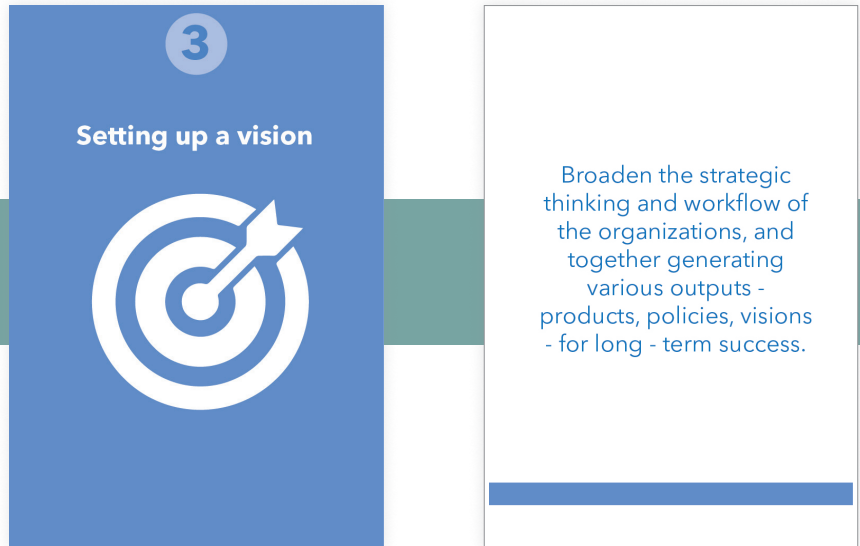
During the process, it was realized that this step consists of an analysis of not only the business context of startups but about also analysis of the user context. The user context is analyzed in this step by performing market, trend and macroeconomic trend analysis. These analyses are also about the user context which is about quantitatively analyzing the desirability in the market.

Along with the first step- Understanding the company, the outcome of this step could be possible markets or segments for the startup in India. The outcome of both steps could be defined as a first deliverable to the start-up from Venturedam. This deliverable would provide a ground to execute further steps in the process. The deliverable as an initial analysis could also provide a startup an opportunity to choose Go/ No Go.

3. Setting up the vision

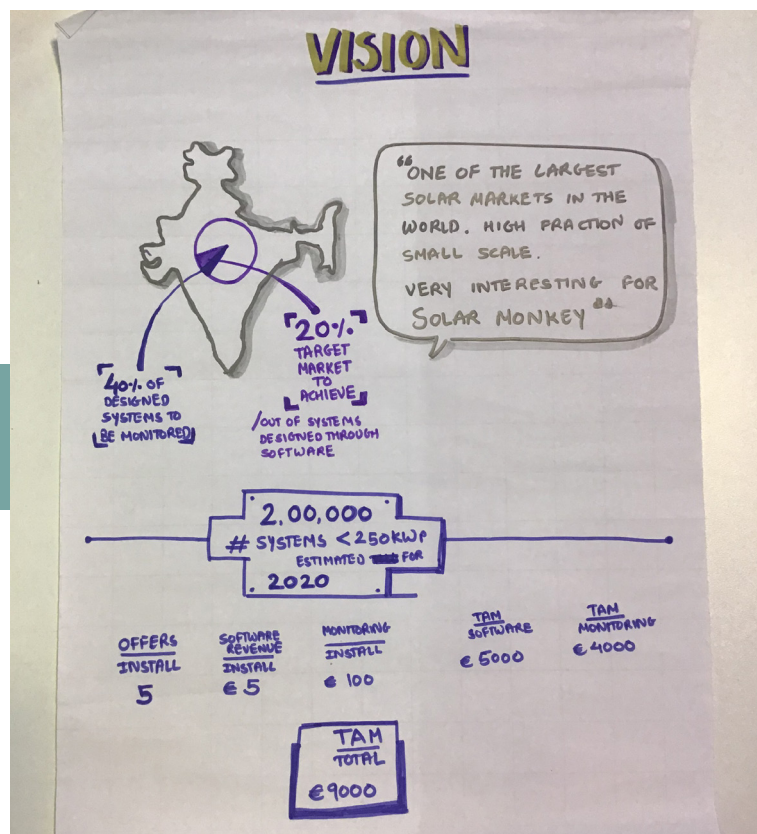
To define the vision for Solar Monkey for the expansion in India, a session was conducted with the CEO in person. Together with the CEO, the Solar Monkey's vision for expansion to India was created.

Fig. 6.6: Step 3- setting up a vision



For Solar Monkey, the vision was defined in terms of the product development and possible market size to be achieved in India. A hand made poster was made describing the vision in a similar way as done in previous steps.

Fig. 6.7: Vision of Solar Monkey for expansion to India (Refer appendix A for the full picture)



Reflections: Creating a vision

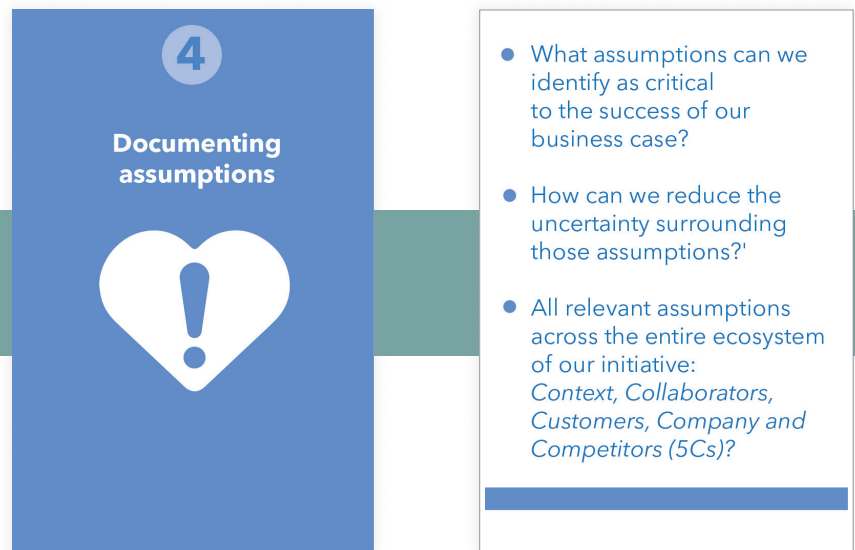
From the company and business landscape analysis, the vision creation could become a co-creative activity where all the employees those were interviewed could add their perspectives in the vision.

It was also realised that the vision creation process is not just about determining viability of the business. The vision could also include the value to be created for customers/ users. In that way, vision could have a business and a user perspective together. Addition to that, creation of a vision is already a converging activity where the company and business landscape analysis is getting converged into a future goal- vision.

4. Documenting assumptions

Assumptions are required to identify the unknowns and their possible effects on the business case. The purpose is to identify those unknowns which are critical for the success of the business case. The assumptions are needed to be made across the context, collaborators, customers, company, and competitors of the business of Solar Monkey. Assumptions across these elements were created with the CEO of Solar Monkey.

Fig. 6.8: Step 4- Documenting assumptions



Reflections: Documenting assumptions

The step of documenting assumptions is also an exercise that could prefer to do with all the people who were part of the interviewing. Similar to the vision creation step, documentation of assumption includes formulating assumptions around the user and business context. Thus it could not only place under the viability criteria alone.

Together with the startup, the assumptions are required to be ranked in order to define the focus for next steps.

In addition to the above insights, the step of assumption making is also a converging step where assumptions are made based on the company and business landscape analysis.

In first four steps, the direct interaction between Venturedam and Solar Monkey was higher. All the outcome created in the form of hand made posters were presented to the team to have feedback of the whole team on the content generated in four steps.



Fig. 6.9: Presentation of the outcome of first four step to the team of Solar Monkey

During the presentation, everyone in the team got a chance to reflect on the outcome of the first four steps. They were allowed to ask questions and add to the content by themselves. The hand made posters facilitated two-way discussion during the presentation. New ideas and feedbacks were added to the content after the presentation.

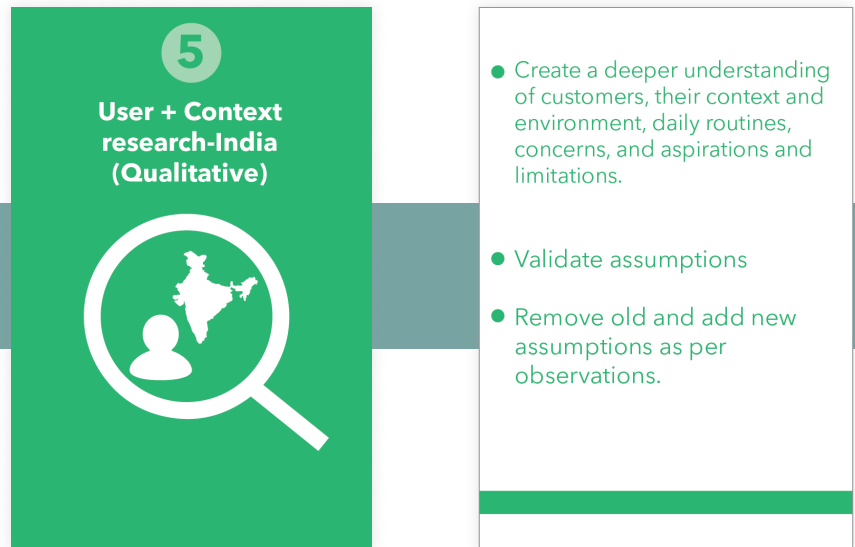
The presentation delivered at the end of the first four steps was a significant interaction between the Solar Monkey team and Venturedam. The presentation with handmade posters had a raw and unfinished feel that provided a two-way interaction with the team, where the team was comfortable to add their suggestions and corrections. Thus, handmade posters as deliverables facilitated the interaction effectively than a Powerpoint presentation.

After performing first four steps and delivering outcome of the analysis to the team, the field research into the Indian context was initiated.

5. User + Context research India (Qualitative)

This step consists the field trip to India where user stories were collected to understand users, their contexts, daily routines, concerns, and aspirations.

Fig. 6.10: Step 5- User+
Context research- India



For Solar Monkey, the research was planned to understand users, stakeholders and their context in the Indian residential solar energy market. Their target customers were solar panel installers in the residential market.

Following major activities were performed to execute this step,

Setting up the objectives of the research

From the Vision of Solar Monkey for their expansion plan in India and the knowledge of the company & business context of solar monkey, the planning for the user & context research in India was made. The purpose of the research was to check the fit between the product and the Indian market.

To check the product market fit, it was required to understand the context of the solar panel installation process in the Indian market. Also to understand stakeholders involved in the process, their needs, aspirations & limitations, their interaction with each other and understanding how do they solve problems they are facing.

The end goal was to collect all information from the Indian context and cluster into the elements as shown in fig: 5.6.

Sampling for the research

As discussed in the description of this step in section 5.2.1, sampling strategy to identify participants is needed to define for each case. For Solar Monkey, initially the sampling strategy of 'Reputational case selection' was used. Goetz and LeCompte (1984) define it as a sampling method where participants are being chosen based on the recommendation of an expert or key participant. This strategy was later evolved into 'within the case sampling'. Miles, Huberman, and Saldana (2014) state that 'within the case sampling' has an iterative and investigative quality. They see researcher as a detective in such cases who scout for answers to their research questions by observing and talking to people, collecting artifacts and documents which lead to another sample of participants and artifacts. This process is about clarifying the main pattern, identification of contrasts and uncover instances where the pattern does not hold.

Initially, few experts in the Indian solar market were identified with personal contacts. An open interview with them provided valuable information about government policies, market, trends, pricing, competition and technical aspects of the solar market in the state of Gujarat. Addition to that, they provided few more contacts of solar panel installers who could be possible participants for the research. These possible participant solar companies were contacted for a basic introduction about the research and to check if they are within the scope of the research or not. The participants were listed based on their availability and locations, which helped to plan the travel for the research.

Execution of Interviews

An open interview guide was prepared for participants. All the interviews took place at the workplace of the participants and majority of the interviews were one to one interviews. In total eight different participants were interviewed by Gujarat and Maharashtra state.

The target participants were not only from the direct target group of Solar Monkey but also from the periphery of the scope. This periphery also helped to understand different stakeholders involved in the Indian solar ecosystem which are not part of the ecosystem in the Dutch market. For example, solar panel installers installing more than 300 KW, which was out of the scope of the target market of Solar Monkey were also interviewed. Interviewing such participants from periphery provided insights matching with the objectives of Solar Monkey.

Fig. 6.11: One of the interview with a solar panel installer in Pune, India



In total, eight interviews were executed with solar experts and solar panel installers in the Gujarat and Maharashtra region. During interviews, when the information from participants started repeating, and there was hardly a piece of new information which was being found, the research was concluded.

All the interviews were recorded and pictures were taken during the interviews with the interviewee. All the interviewees were given a present for being a participant in the research.

Reflections: User + Context research in India

This step of user and context research in India is one of the major time consuming and critical steps in the process. It includes a field trip to India, travels across regions for the research, identification of participants and execution of interviews. Activities performed during the field research provided critical reflections on the research process. Reflections on those activities are as follows,

During the sampling of the participants for the research, it was realized that for the Indian context, exploiting hierarchy and personal connections could benefit the sampling process. Initial participants selection was made by getting personal contact of experts in the field who is also on a higher position in the market or business. Some experts later refer to a few more possible participants. It was really helpful to have connections with such expert or person with a higher position in the market. As mentioned in the 'within the case sampling' definition, the research was iterative and investigative. Leads provided by experts in the field lead to more connections where important connections were targeted for the interviews. Continuous investigative scouting of participants was done during the field research. This scouting provided valuable connections for the field research and all the participants identified in this manner were major players in the solar market of Gujarat and Maharashtra region. Many of these participants were not only ready for the research but also to be a participant in the user test of the product of Solar Monkey. The sampling strategy of within the case sampling and reputational case sampling worked well but is time consuming and uncertain. It is required to have back up strategies for sampling for future projects.

During the field research, it was challenging to collect all the insights according to the match equation. Significant learnings were to improve the field research. They are listed as follows,

- During the field research, insights to determine user needs, key resources, cost structure and multiple such elements of the business model were tried to collect. For short research, they were a lot of questions to be answered.
- For the Solar Monkey, the field research was open due to the short span of field research for the graduation project. This led to less depth more breadth to the insights. For future projects, the most critical questions to be answered from the field should be determined with the Startup.
- With Solar Monkey, few assumptions were made during the process. Those assumptions were not ranked based on their criticality. It is also essential to rank the critical assumptions for the success of the business should also be determined.

Determining the most important questions and most critical assumptions would provide higher focus and depth to the field research.

During the execution of interviews, few challenges came across related to the knowledge of the domain of the energy. While executing the interview, being a designer, lesser knowledge about the technical aspects of the energy domain was a barrier while formulating follow up questions to the participants.

Having an extra person could help with the documentation and also providing a third perspective on the conversation of the interview. He/she can add to the questions while another interviewer could process the conversation in mind and formulate follow up questions.

For planning the interviews with participants, the challenge was to fix the timing with them. India has a different culture about time management. People do not plan things as in the Dutch culture. Often time the prescribed time was not obtained for the interviews, and few interviews were canceled or rescheduled during the research. This uncertainty could affect the efficiency of research in India. To solve this problem, some of the participants were asked to have a meeting the following day. This strategy worked well with them as they could be able to plan it when called a day before.

The approach of questions was changed during the interviews. In initial interviews, the participants were interviewed from the perspective of Solar Monkey's product. For Participants, the conversation felt like a sales pitch from Solar Monkey. This approach affected their response to the questions. In remaining interviews, a new approach was chosen. In this new approach, the questions were formulated to understand the processes, needs, desires of participants and the product of Solar Monkey was not talked about much. With this approach, participants felt like providing insights to a researcher for the project. The new approach helped participants to open up and answer all the questions in more detail.

To perform interviews with different participants, the credibility of a researcher is essential. The participants are spending their valuable time with the researcher to answer questions without any monetary compensation. Some of the participants were interviewed on the credibility of the referrer. For other interviews, providing a reference of the Delft University of technology or any other local reference worked well to create trust. Having a local person speaking the same language as the participant could also help to build credibility. A small gestures like taking notes on an iPad or giving Dutch stroopwafels as a present helped to build the trust between the researcher and participants.

Due to the scope of the graduation project, the interviews were performed back to back in a short time. There was less time for reflections and changes in the questions based on previous interviews. Having some time in between would help to redefine the approach of interviews.

For Solar Monkey, the research was performed only with the interviewing method. Different other tools could be used to collect data from the interviews according to the participants.

Captured learnings would help to change the approach of the research for future projects.

“Major driver for the growth in the solar market in India is the government subsidies that brings the cost of system to almost half price”

- A solar energy expert, Anand, India

Installers have significant interactions with government bodies for any project.

Picture courtesy: Urjastrot enterprise, Anand, India



*“ The market is too competitive;
it is like everyone knows one person directly who
is into the Solar Business”*

- A Solar panel installer from Pune, India

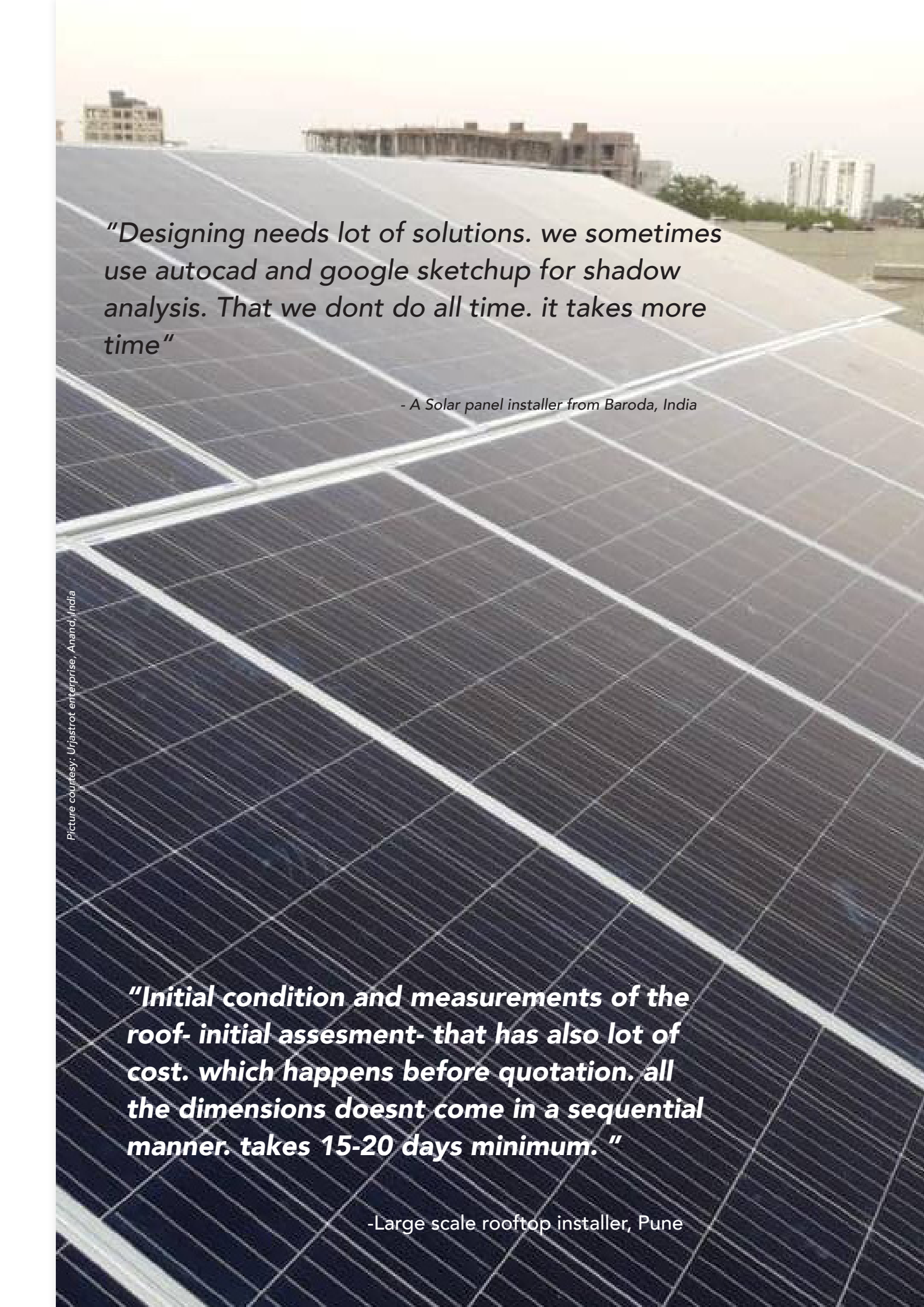
*“Homeowners do not understand the value of right practices
and good engineering standards. Educating customers is the
biggest challenge good installers are facing”*

-A solar panel installer from Ahmdebad, India

Picture courtesy: Ujastrot enterprise, Anand, India

**Well-known installers provide a project proposal of
60-70 pages other than a single page quotation.
Culturally end users prefer a long proposal.**

-One of the insights opposite to the Dutch market



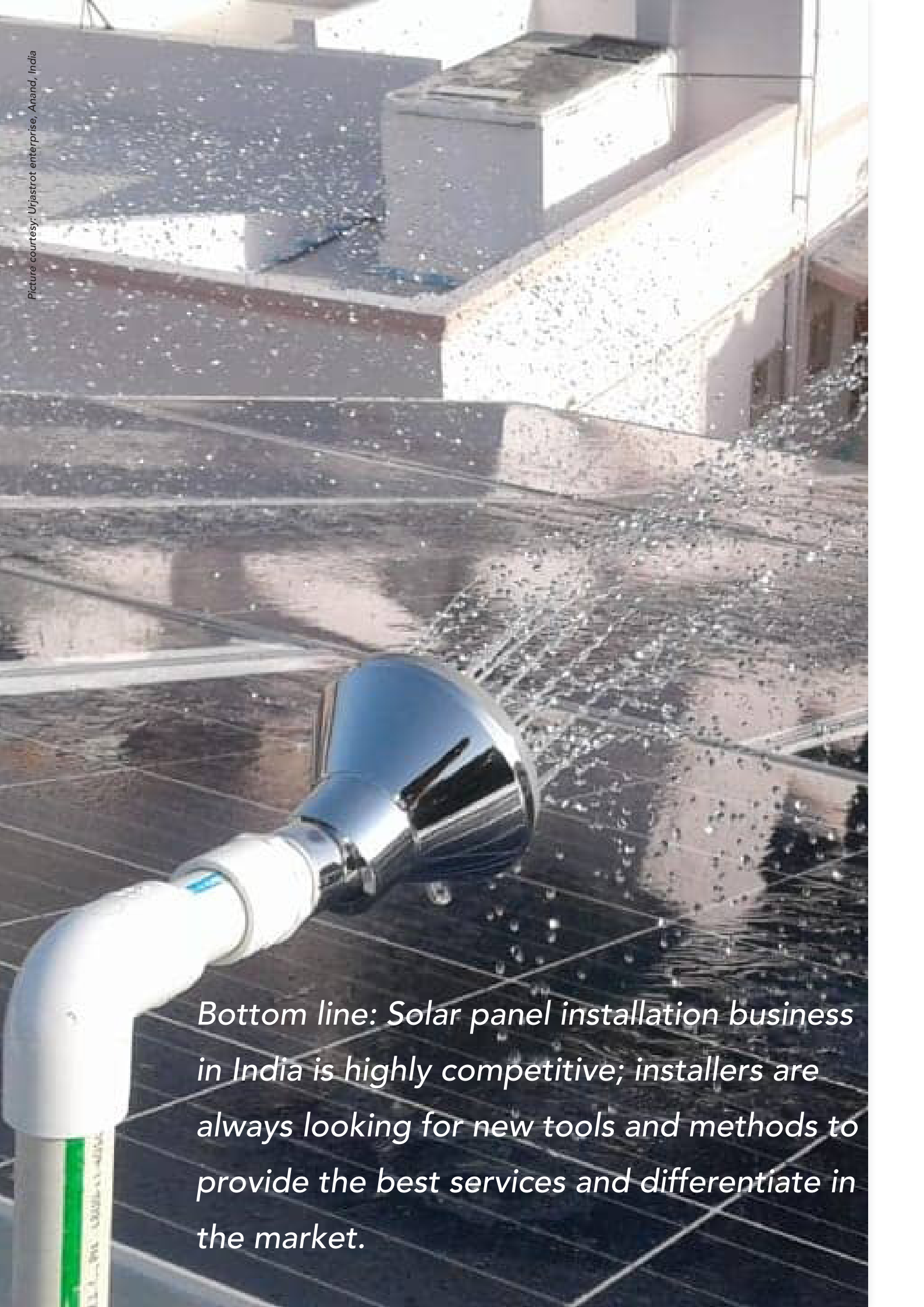
"Designing needs lot of solutions. we sometimes use autocad and google sketchup for shadow analysis. That we dont do all time. it takes more time"

- A Solar panel installer from Baroda, India

Picture courtesy: Ujjasrot enterprise, Anand, India

"Initial condition and measurements of the roof- initial assesment- that has also lot of cost. which happens before quotation. all the dimensions doesnt come in a sequential manner. takes 15-20 days minimum. "

-Large scale rooftop installer, Pune



Bottom line: Solar panel installation business in India is highly competitive; installers are always looking for new tools and methods to provide the best services and differentiate in the market.

6. Communicating the outcome of the research

After the field research, the insights and user stories of the indian context were analysed, and clustered into different outcomes like personas, customer journeys and user stories.

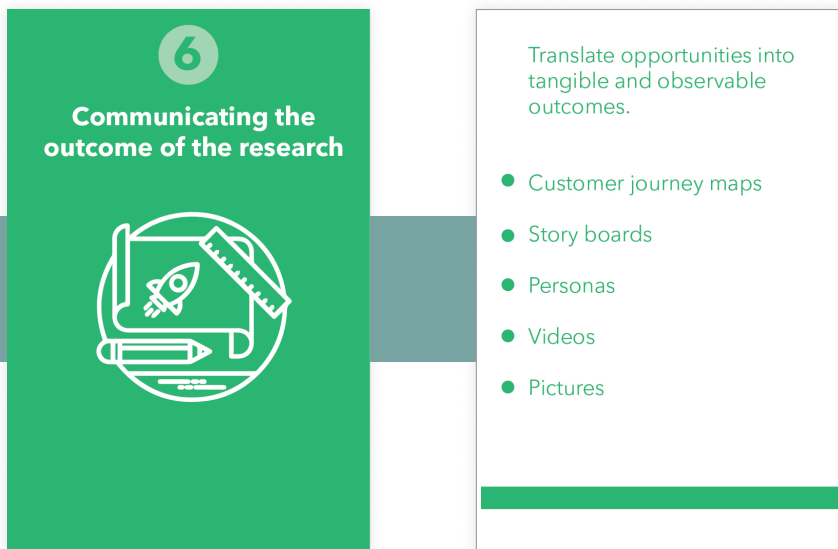


Fig. 6.12: Step 6- Communicating the outcome of the research

From the audio recordings of the interviews, all the insights were clustered into different groups. Further, all such groups were clustered across interviews to draw a pattern among them. To perform this exercise, MS Excel tool was used. Clusters of insights and patterns were translated into different outcomes. For example, the process of solar panel installation and stakeholder interaction was communicated with a customer journey while the types of people in solar panel installation business were communicated by creating personas. Part of the presentation showing the outcome of the field research is available in appendix B.

Reflections: Communicating the outcome of the research

In this step, the large amount of data was analysed from audio recordings to insights. The process is time consuming and requires tools to facilitate it. In the case with Solar Monkey, the data was analysed manually using an MS Excel tool. In the future projects, another different tools like Atlas.ai could be used. Translation of user insights into personas and customer journeys worked well. This translation provided an experience of the Indian context to Solar Monkey team.

This step could be combined with the next step (No. 7) and outcome of both steps could be presented together. The availability of the team is essential and combining the presentation of both steps could help to optimise the timing for the team.

For future projects, the startup could be asked to define the preferred deliverable.

7. Aligning business and customer stories

It was decided to perform this step with the previous step (no. 6) and communicating the outcome together. With Solar Monkey, the step was executed differently. First the differences between the Indian and Dutch context was analysed independently (step 7) and communicated to the team by including them into different personas, customer journeys and user stories (step 6). Later a roadmap was provided for the pilot and to overcome differences (Appendix B).

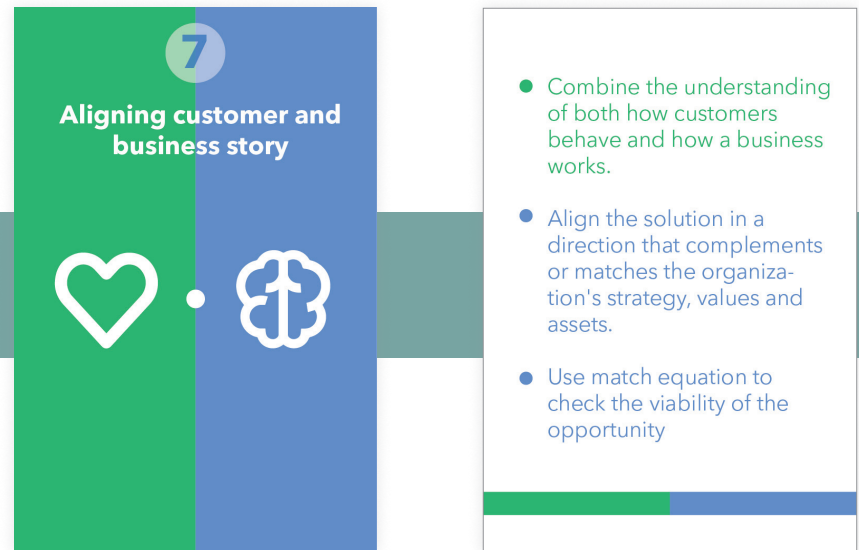


Fig. 6.13: Step 7- Aligning customer and business story

The match equation was decided to be used during the co-creation session (step 8) to build the new value proposition and business model together with the Startup team.

Reflections: Aligning business and customer stories

In this step, the match equation was not used as several limitations were found during the use of it. The equation had a rigorous structure of categorizing the insights into business model elements only. Important Insights like cultural differences and buying preferences got hidden into the elements of the business model. For startups, to see the difference between the two contexts, showing those differences directly could make more sense. The equation does not represent the qualitative data matching in an inspiring way where the differences between the two contexts are visible.

The equation was able to provide the necessary changes in the future value proposition and business model, but there was first a requirement of a tool/model to explicitly show the differences between the Indian context and the Dutch context.

The purpose of this tool/model would be to show differences first to the startup and provide a strategy of overcoming those differences. This strategy could lead to the design of a new business model and value proposition. Once the map of the differences is visible clearly, the ideation process to put them into the match equation could follow. This ideation could be a part of the next step, co-creation with the startup to redefine the value proposition and a business model.

8. Co-creation with the startup

As mentioned in the previous step, the co-creation was planned to use the match equation to define the new value proposition and business model together. Due to the short scope of the graduation project, the co-creation step was not performed in depth to redefine the value proposition and a business model. The co-creation session was performed to just give an idea to the startup Solar Monkey about the benefits of co-creating together.

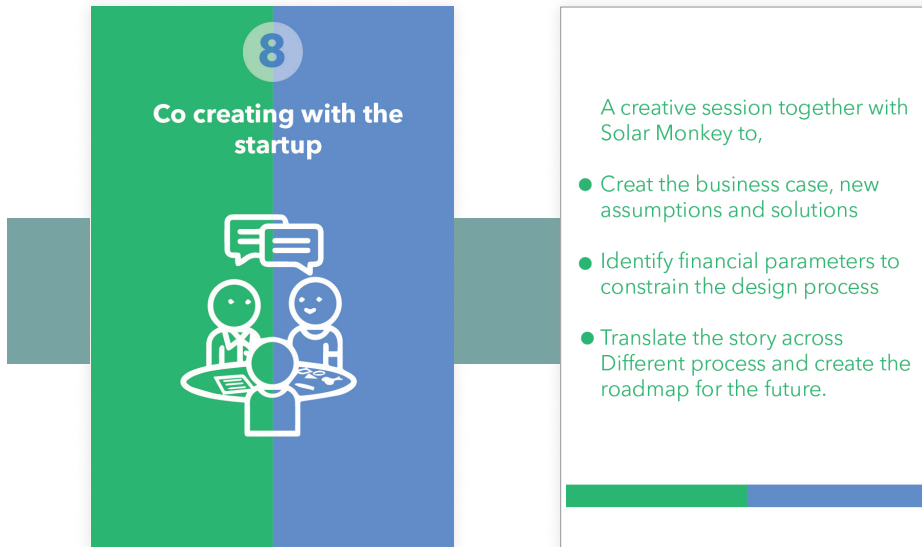


Fig. 6.14: Step 8- Co-creating with the startup

A student creative facilitator was hired to facilitate the short creative session. As the outcome of previous steps- 6 & 7 was communicated at the same team gathering; the co-creation session was a follow-up activity to ideate on the future steps. There were four employees of Solar Monkey who joined the co-creation session including the CEO of Solar Monkey. It was a short demo session, so the outcome was not a redesigned value proposition and a business model. The outcome was possible directions in which the product could be changed, and a pilot could be planned. Also, it provided good insights to Solar Monkey about co-creating together where knowledge from the field and business objectives could be combined.

Reflections: Co-creating with the startup

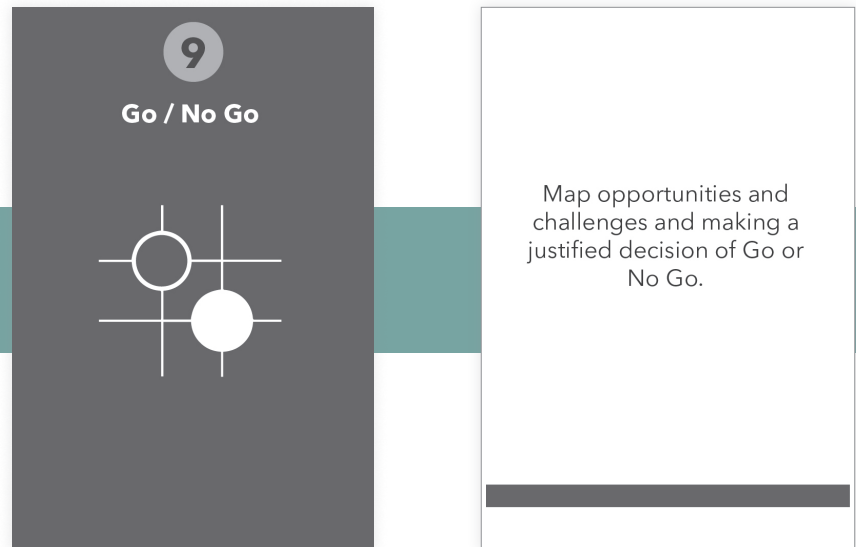
The creative session could be a great opportunity to have a discussion and ideation with the team to generate ideas related to redesigning of the product and business model for the Indian context. The timing of the session could be for a full day to have better and in-depth outcomes. For that a common day could be booked in the agenda of the team where maximum number of members are available. Also the outcome of the previous steps 6 and 7 could be presented before the co-creation session. So the team could work on ideas from the knowledge shared in the presentation.

The goal of the facilitation would be to ideate on creating changes in the product and defining elements of business model. The outcome of the co-creation session would be a concept of a prototype value proposition and a business model. This concepts could be validated further with the users in the Indian market. A revised roadmap could be made to do the pilot.

9. Go/ No GO

This step of making a decision of Go or No go is for the startup to decide to go for a pilot or not. It is a job of Venturedam to provide a analysis and a base to make the decision of Go or No Go.

Fig. 6.15: Step 9-Go/ No Go



In the case of Solar Monkey, the differences between the Indian and Dutch contexts, the outcome of the co-creation session provided a ground to explore feasibility of the solution. From the general exploration of the feasibility, they decided to go for the pilot in coming future. The pilot would provide in-depth insights into the value proposition & a business model and value created by them for Solar Monkey and users.

Reflections Go/ No Go

The startup needs to be allowed to explore general feasibility of the solution in the market. As mentioned in the description of the step, the resources and capabilities required to attain the opportunity is needs to be analysed. This general exploration could help startup to decide if they want to go ahead with the process and when they would like to go ahead. So, the decision making of Go or No Go could be placed after Designing for feasibility step. where general feasibility could be explored to execute the business in the market.

To de-risk the process for the startup, they should allow to make Go/ No Go decision at different parts of the process. The outcome and deliverables of steps should be designed in such a way that it provide startups a choice after each phase. This would help to breakdown the process in different phases where startup have a choice to decide the future direction. This breakdown of process could also help Venturedam to make a modular business model with specific steps in each parts.

6.4 Assumptions for remaining steps

Steps 10-14 were not applied to the case, and so the assumptions were made for the application of it in the future scenario. This step resides in the second diamond. The second diamond is about developing and delivering solutions.

The outcome of the first diamond would be a concept of a business model and a value proposition for the Indian market. In the second diamond, resources and capabilities to make a viable business needs to be defined. Later, it is required to test this concept with users and target market. The process in the second diamond would be iterative. Thus the step with iterative validation of concepts with users needs to be added.

While doing iterations of validations, step 10 to design the feasibility could be applied to measure required resources and capabilities to tackle the opportunity. As mentioned in the reflections of the Go/ No Go step, a general feasibility could be explored to make the decision.

Step 11 could be kept as it is in the framework. Step 12 to define critical assumptions could be categorized under all criteria of desirability, feasibility, and viability and not in the viability only. In this stage, assumptions are required to make not only in the business objectives but also for user requirements and feasibility of the solution.

After multiple iterations of steps in the second diamond, step 13, would determine the value proposition and business model with an optimum balance between all three criteria. This step would require a model or tool to assess the balance between the three criteria.

The final step 14 would be a step to evaluate the success of the design initiative. This step would also require a model or a tool to evaluate the value of the service provided by Venturedam. This evaluation would help Venturedam to redesign the framework.

6.5 Summary of reflections from the application of the framework

From the application of the framework to the case, learnings were captured, and these learnings are used to redesign of the framework, defining the business model of Venturedam. Out of them, reflections to redesign the framework are summarized as follows,

- The intake meeting with the team of the client was a vital step in order to explain the process. The framework did not include the intake meeting step with the client. The intake meeting could be prepared well to have a higher impact and build confidence in the process. The use of metaphor and examples explain the framework could be an essential part of the intake meeting.
- Several steps like creating the vision, making assumptions, communication of the outcome of the research, and co-creation would require more people from the team to contribute to the discussion. During the graduation project, vision and assumption creation steps were performed with the CEO of the startup. The presence of the team could have made the vision and assumptions richer.
- Indications in the framework about the team sessions could allow the team member to plan and make themselves available for the same.
- *Step 2- Understanding the business landscape, step 3- Creating the vision, step 4- Creating assumptions* are steps which comes under desirability and viability both criteria.
- After performing the first two steps of Understanding the company and Understanding the business landscape the possible beachhead target markets/ segments could be identified for the startups. That could be defined as a deliverable of the first two steps to the startup.
- Step 3 and 4 are about defining the vision and making assumptions for the success of the business. These steps are about converging the company and business landscape analysis into vision and assumptions
- Before starting the field research, the most important questions and most critical assumptions should be defined. Co-defining them with the startup would increase focus and depth to the field research. This was the major learning of the project. Defining a focus will help in other steps such as *Aligning consumer and stories*. With defining the focus, preferred deliverables should also be defined with the startup.
- In step 5, for the sampling strategy of the field research, several sampling strategies could be added to make a library of such methods to use them according to the case. A library of tools to collect information could also be added to step 5.
- To execute the research in the field, an expert or an additional person is required to have a domain knowledge or just as a supporting researcher.
- Strategies to build credibility and trust between the researcher and participants needs to be defined.

- The position of steps 6-Communication of the outcome of the field research, 7- Aligning business and consumer stories, and step 8-Co-creation with the startup could be changed. As steps 6 and 8 requires the presence of the team, they both could be brought together after step 7. So after the aligning exercise, the outcome of field research and alignment would be communicated together. So the new sequence would be,
 6. Aligning customer and business stories
 7. Communication of the field research and the alignment
 8. Co-creation with the startup
- The step-*Communication of the field research and the alignment* would be under the desirability and viability criteria as it combines the user and business stories.
- The step 6- *Aligning customer and business stories* would require a tool or model to demonstrate the differences between the Dutch and Indian context, which would be communicated in the next step.
- The goal in step 8- *Co-creating with the startup* could be to use the match equation to redefine the value proposition and the business model.
- For making the decision of Go/ No Go and perform the pilot in the market, the startup should have some idea about the feasibility of the solution in the market. The step to make the decision of Go/ No Go should be positioned after the Design for feasibility step.
- For the second diamond, an assumption is made to have a validation of the concept step with iterations in it.
- The step 12 to determine critical assumptions is positioned under all three criteria.

Reflections and learnings summarized above would be used to redesign the framework and build business model of Venturedam. The redesigning process of the framework and the business model is explained in the following chapters.

REDESIGN

Projectile framework is tested with Solar Monkey and learnings are captured to improve the framework. To improve it further, some experts were contacted to get feedback on the framework. Analyzing all learnings and feedbacks, the design directions were defined. These design directions lead to building the new version of Projectile framework. Feedback from experts and design directions are summarized at the beginning of chapter 7. Later in the same chapter, the framework is rebuilt with a customer journey demonstrating interactions between Venturedam and startup.

Chapter 8 defines the business model of Venturedam from learnings captured during the application of the process. Chapter 9 concludes the report with reflections on the concept of Venturedam.

Chapter 7 Redesigning the framework

Chapter 6 shows the application of the framework in a real case of a Dutch energy startup. With the application, the learnings and reflections are captured to redesign the framework and to define a business model. The feedback from the CEO of Solar Monkey about the framework is listed in this chapter. Feedback from experts in the field of strategic design is also included in this chapter. All the collected learnings helped to redesign the framework and the tool. The redesign also altered some of the steps in the framework.

7.1 Feedback from Solar Monkey and experts

After the application of the framework to the real case, insights were collected from the startup Solar Monkey and with few experts to redesign the framework further. These feedbacks are listed in the following section.

7.1.1 Feedback from Solar Monkey

The CEO of Solar Monkey was interviewed to have feedback on the framework and the exercise of the market exploration in India. The feedback is listed as follows,

- Initially, the qualitative insights of the market have a higher value than quantitative ones. It is a vital requirement first to get a feeling of the market that shows the customers' needs, problems and their buying preferences.
- After getting the feel of the market, the goal could be to acquire a few launching customers and allow them to use the product. The feedback from them after using the product could help to extrapolate quantitative numbers to make an investable business case.
- Putting all the insights from the Indian market into a match equation could help to determine the new business model. The limitation of the match equation is that it did not provide the difference between the Dutch and Indian context in an explicit way. For Example, cultural insights were directly considered in the match equation. It would help more to show all the cultural differences first and to later consider into the equation.
- After the execution of the first diamond, It would be a great value to have a report as a deliverable with the following details,
 - A matrix of questions asked to the users during the field research and answers provided by them.
 - A map showing clear differences between the Dutch and the Indian market.
 - A guide suggesting necessary changes in the value proposition and the business model to overcome the differences.
 - A list of potential customers to test the software and get feedback.

- Addition to the feedback on the process outcome, Solar Monkey also provided some feedback on the framework tool. Following are the feedback for the tool,
 - The metaphor presented in the intake meeting about a company from the earth expanding the business to another planet provided strong support to understand three criteria of desirability, feasibility, and viability. The three criteria were a new thing for Solar Monkey to measure the success of the project.
 - The steps categorized under three criteria helped to understand the process and activities to be performed precisely.
 - In the framework designed in fig: 5.19, visually, the first diamond starts with the feasibility criteria. In practice, the steps start with steps in the viability criteria. This created a little misunderstanding for a few of the employees of Solar Monkey.
 - In the framework (Fig: 5.19), the steps that are performed first are placed in the viability criteria- bottom of the framework. The viability could be the first criteria on the top in the framework visually.
 - The structure provided by the framework allowed the Solar Monkey team to follow the progression of the project.

All the feedback collected from Solar Monkey is used to redesign the framework further in this chapter.

7.1.2 Feedback on the framework from experts

Some experts were also contacted to get feedback on the design of the framework. One of the experts was the author of the book 'Strategic design' that contributed tremendously to the framework design. Following points list the feedback from experts,

- Some of the steps in the framework does not come under one criteria only. For example, steps such as creating a vision, documentation of assumptions are placed in the viability criteria. This might not always be the case. The vision and assumptions creation might involve users with the business objective.
- The interaction of the tool could be enhanced further by making it a discussion tool rather than a communication tool to explain the process. Higher involvement from the client could be created with the discussion tool.
- A higher involvement from the client allow to shape the opportunity together. Co-creation of the opportunity could have higher chances for them to choose 'Go' while deciding Go/No Go.
- The present framework consist of steps and activities performed by Venturedam. It does not involve deliverables. Concrete deliverables of each activity would help the client to set expectations.

7.2 Design directions to redesign the framework

The purpose of the graduation project was to build the framework from literature, to apply it to the real case and to capture learnings to redesign the framework. From all the learnings captured in chapter 6, combined with the feedback from experts and Solar Monkey, new design directions are defined to redesign the framework. These directions are used to redesign the framework in the next section. Following are the design directions outlined from the learnings,

- To include the intake meeting in the framework as an essential part of the process. More techniques, tools, and practices could be added to achieve the following purposes,
 - To increase the confidence of the startup on the process.
 - To communicate value generated by the framework.
 - To increase ownership and define roles for the project.
 - To clear doubts and create a better understanding.
 - To set goals, expectations and define deliverables of each step/activity.
 - To determine the timeline of the project.
- To define the most important questions and most critical assumptions before starting the field research in India.
- To define possible deliverables in the process.
- To redefine the steps, their sequence and the criteria they come under, Following are such changes in the steps,
 - To position the step *Creating the understanding of the business landscape* under the viability and desirability criteria.
 - To position the step of *Setting up the vision* under the desirability and viability criteria.
 - To rename the step of *Documenting assumptions* to *Documenting and ranking the assumptions* and also positioning it under the desirability and viability criteria.
 - To rearrange steps 6,7, and 8 (Fig: 5.19) in the following sequence,
 - 6. *Aligning customer and business stories*
 - 7. *Communication of the field research and the alignment*
 - 8. *Co-creation with the startup*
 - Here step 7 is renamed placed under desirability and viability criteria.
 - To position step 12-*Determining critical assumptions* under all three criteria.
 - Step of *Go/ No Go* is repositioned after the step of *Design for feasibility*.
- To redesign the base with the following changes,
 - To have only two criteria in the first diamond of the process, as there are no steps to determine the feasibility of the business is present in the first diamond.
 - To position the viability criteria on the top of the framework as the execution of steps starts from the viability criteria.
 - To add a diamond in the first diamond covering the first four steps. Understanding the company and Understanding the business landscape steps would be in the diverging part of the

additional diamond. Setting up the vision and Documenting and ranking assumptions steps would be placed on the converging part of the additional diamond.

- To have more sampling strategies as a backup for the field research.
- To have more methods and tools to collect data from participants.
- To create a model/ tool to communicate the differences between the Indian and Dutch market. This model/ tool will be used in step 6 -Aligning the customer and business insights.
- To have an iterative step in the second diamond about continuously validating the outcome with users.
- To redesign the tool to improve interactions between Venturedam and startup.

- To make the investable business case for startups, the framework could be repeated once again with the quantitative iteration.

These design directions are one of the major outcomes of the project. Considering these directions, the framework is redesigned that is explained in the following sections.

7.3 Redesigning the framework

Application of the framework on the real case provided learnings that helped to define design directions to redesign the framework. Taking some of these directions into account, the framework is rebuilt. In the following sections, the redesign of different elements of the framework is explained.

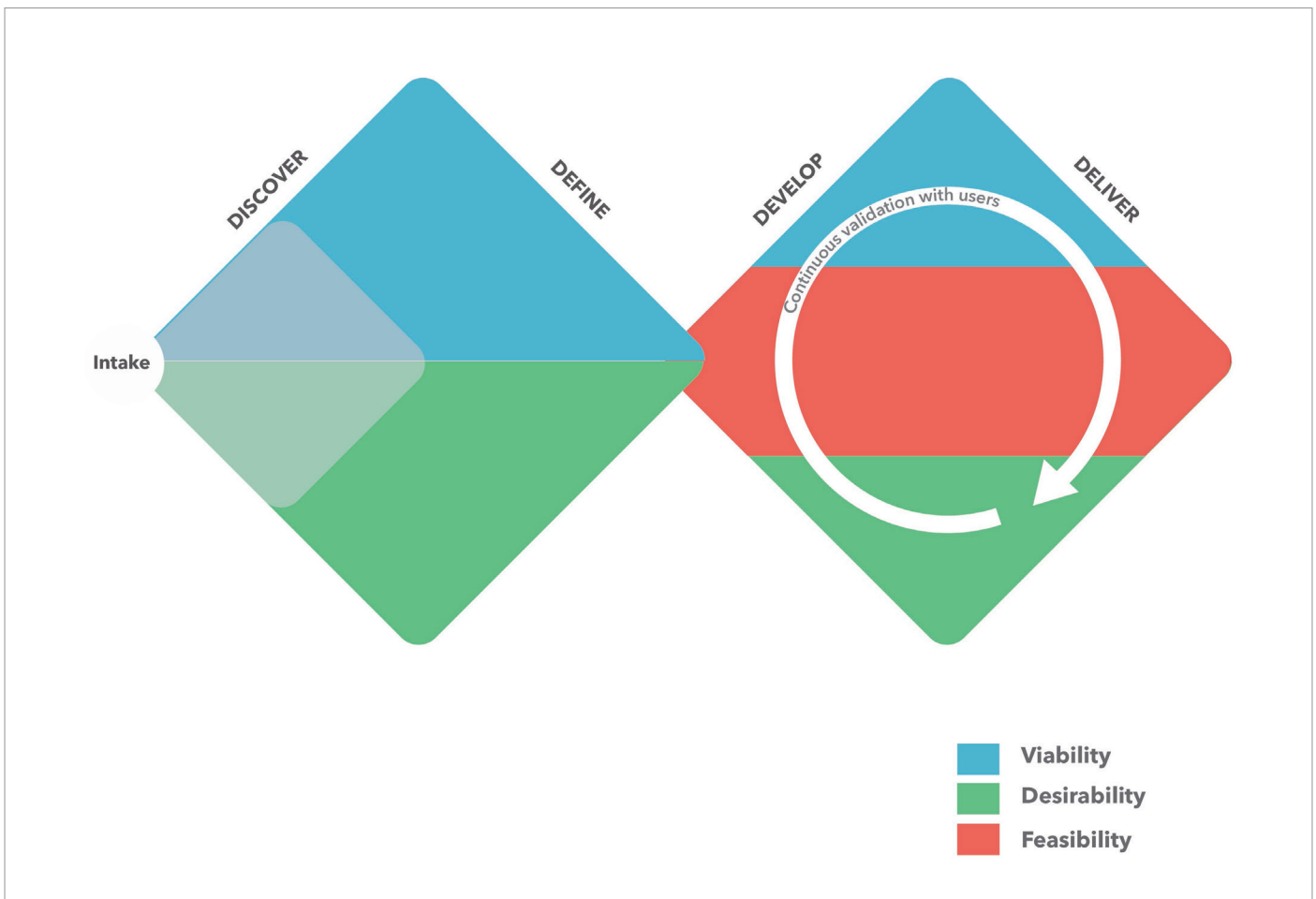
7.3.1 Redesigning the base of the framework

From the design directions, following are the modifications made in the base of the framework,

- As described in the design directions, the step of an intake meeting is added at the beginning of the first diamond.
- The viability criteria is kept on the top of the framework with the blue color.
- The feasibility criteria is removed in the first diamond as there are no steps present to determine the feasibility in the first diamond.
- An extra diamond is added in the first diamond that explores the company context and defines the vision and critical assumptions.
- In the second diamond, an iteration is placed refereeing to continuous validation of the solution with the users.

Fig. 7.1: Base for the redesigned framework

The base with the modifications looks as follows,



7.3.2 Redefining steps and their position in the framework

From the design directions, following are the modifications in steps,

- Step 2- Understanding the business landscape is positioned under the viability and desirability criteria.
- Step 3 and 4, Setting up the vision and Documenting and ranking assumptions are also positioned under the viability and desirability criteria. Both steps are at the converging end of the small diamond inside the first diamond. Descriptions of both steps are also modified as follows.
 - Setting up the vision: Broden the strategic thinking and workflow of the organization for the market expansion, and together generating focus areas for the research that could lead to long term success.
 - Documenting and ranking assumptions: Document all relevant assumptions across the entire ecosystem: context, collaborators, customers, company, and competitors. Rank assumptions based on their criticality for the success of the business. How can we reduce the uncertainty surrounding these assumptions?
- In step 6- Aligning the customer and business stories a model/ tool is required to demonstrate the differences between the Indian and Dutch market.

To design a solution for two different contexts, Kersten, et al. (2015), in their approach 'Context variation in design' defines a shared space between insights from two contexts. Common insights from both contexts contribute to the shared space. These insights in the shared space provide generic parts in the solution. Insights that are not in the shared space provides directions for variable parts of the solutions.

From the above knowledge, the overlap of two circles is defined as a model to use to align the stories from India and the Netherlands. This model is named as 'Context overlap model.' The model is shown in the following image.

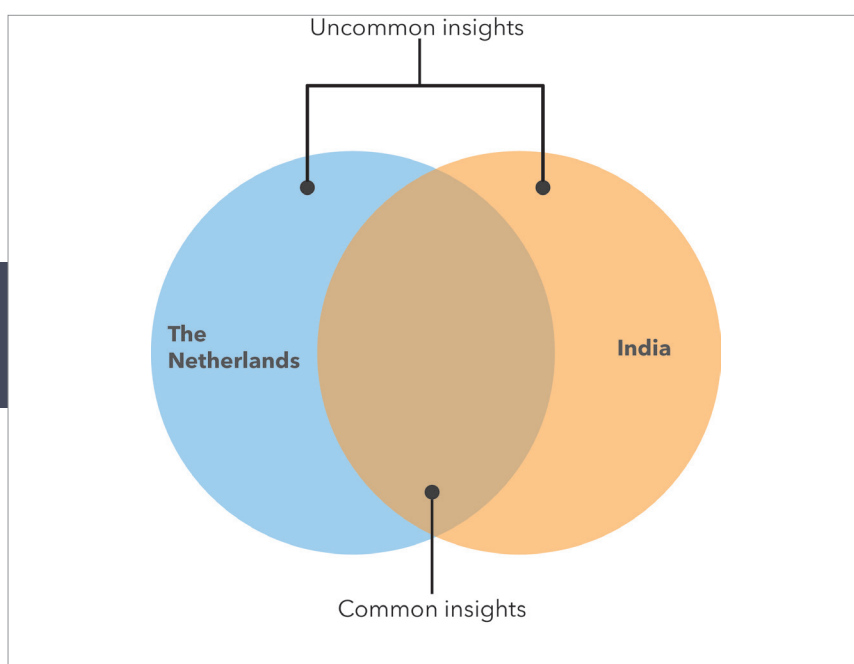


Fig 7.2: Context overlap model

The overlap between insights from both contexts would demonstrate the difference between the Dutch and Indian market. Later the most critical difference for the success of the business case could be identified to tackle first.

- Step 7- Communication of the field research and the alignment is placed under the desirability and viability criteria.
- Step 12-Determining critical assumptions is positioned under all three criteria.

Considering the scope of the graduation project, some of the design directions are utilized to modify the framework. Other design directions would be vital guidelines to perform the expansion project with future clients of Venturedam.

To improve the interaction between the startup and Venturedam, the flags are added with the expected deliverables on the cards. The startup could define the meaning of the flag as a type of deliverables such as a report, transcript of interviews, presentation or a prototype. The startup could choose a location on the framework when they expect a deliverable.

Fig: 7.3 Setting up the deliverables using flags on the framework tool



To define stages where startup and Venturedam interaction is expected, Pyramid-buttons are placed representing the startup team and Venturedam. Stages where the co-creation or a presentation is expected, the Pyramid-buttons could be placed in the intake meeting itself. This would help team members to plan their schedule and join the process.

Fig: 7.4: Representing interactions between the startup and Venturedam with colored pyramid buttons.



Adding all the modifications made in the steps and base, the redesigned Projectile framework looks as given in figures 7.5 and 7.6 on the following pages.

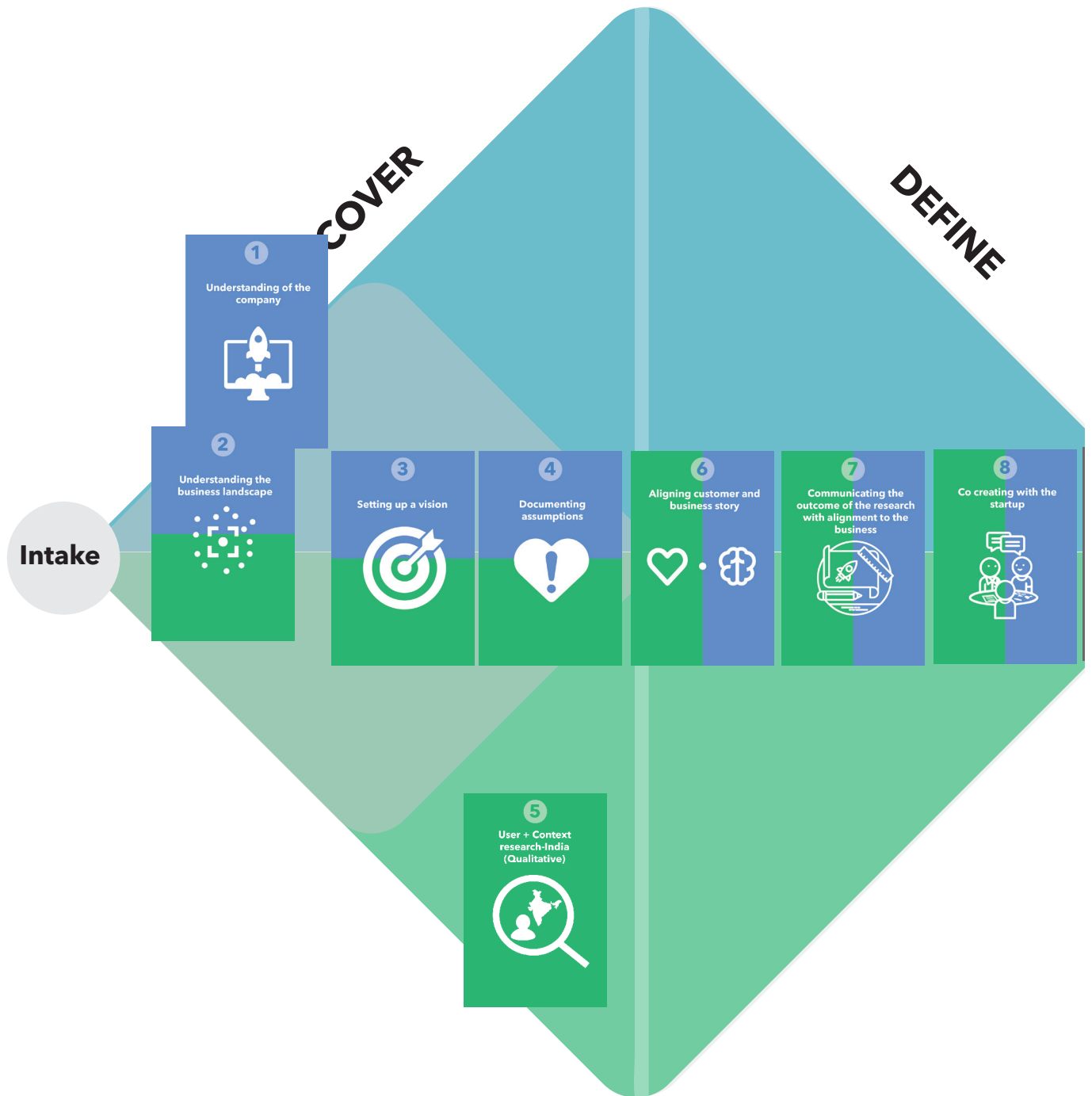
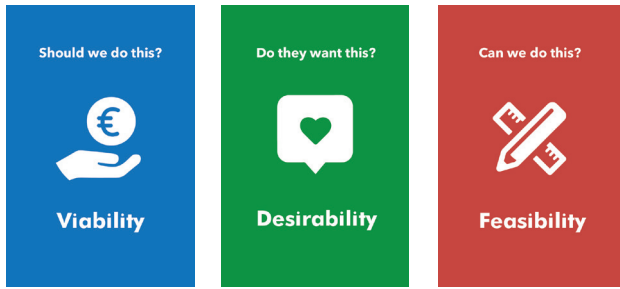
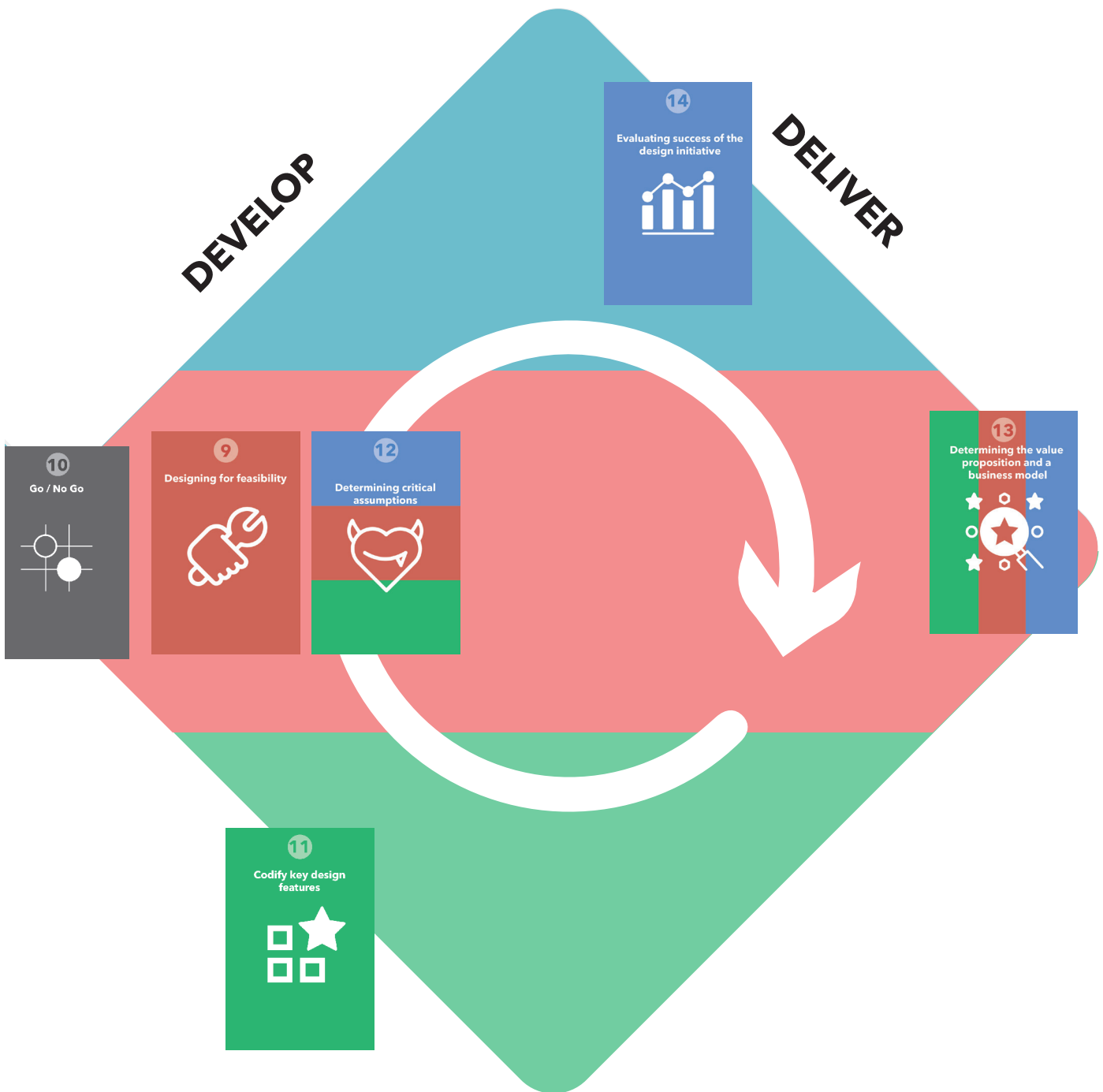


Fig: 7.5: Redesigned Projectile framework



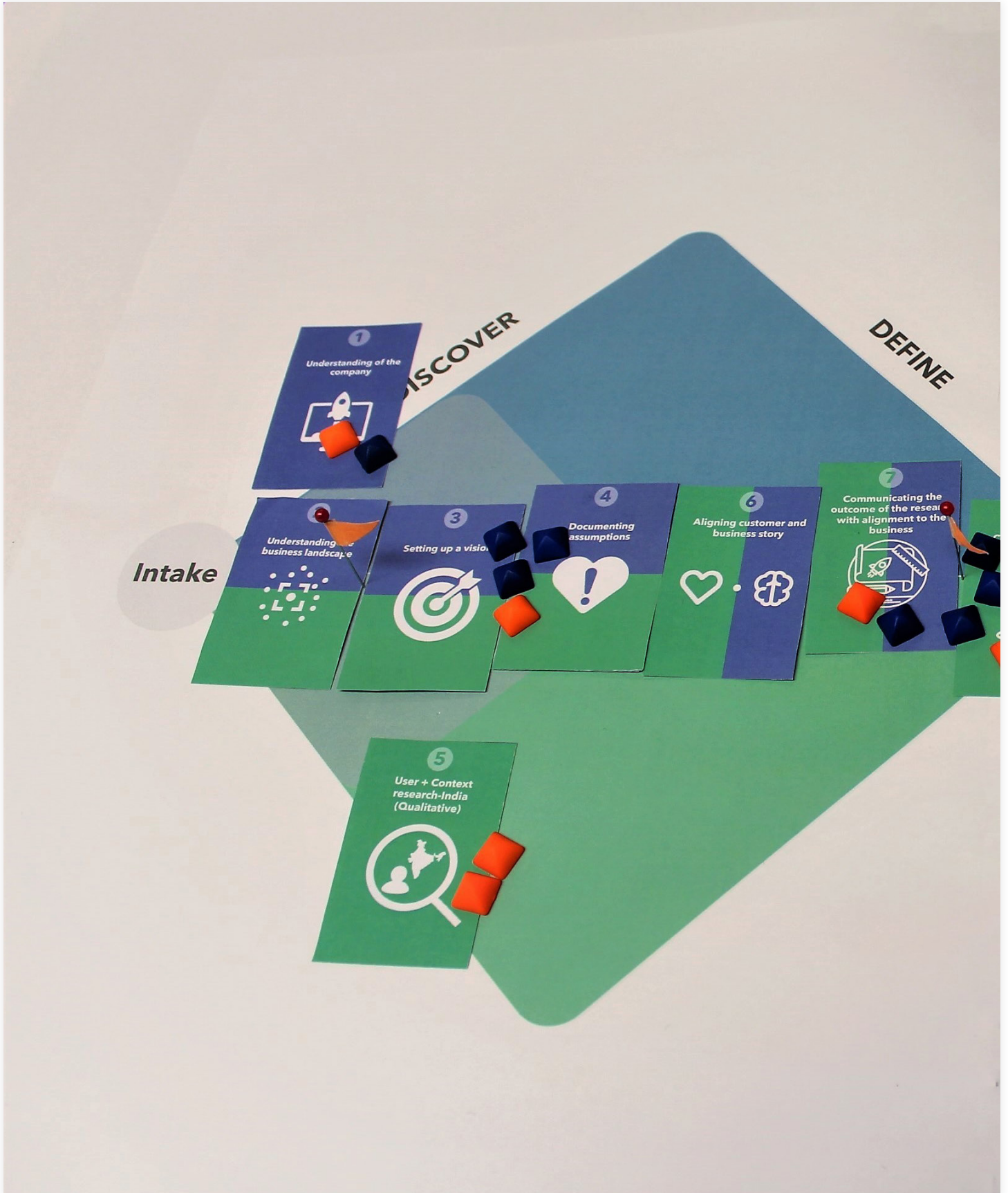


Fig: 7.6: Redesigned Projectile framework tool



The framework was divided into different stages. A customer journey is made demonstrating startup's interactions with Venturedam. It contains steps for the first diamond of the framework. The customer journey is an extension of the same metaphor used to explain the framework (Section 6.2) , i.e, Exploring a new world- Pandora for the market expansion.



Fig. 7.7: Customer journey of a startup with Venturedam with a metaphor



Chapter 8 Business model of Venturedam

The design goal for the business model of Venturedam was to identify elements of the operating model and revenue model. These elements are determined from the learnings gathered during the application of the framework. During the project, possible collaborations were explored to define the business model of Veturedam. Considering all learnings and possibilities, the business model elements are defined in this chapter. The defined business model is required to test with the real case to improve it further.

8.1 Defining the business model

Keeping the redesigned framework as a value proposition offered by Venturedam to its clients, the business model elements are defined in this section. Some of these elements are defined from the learnings from the application of the framework while some of them are based on assumptions. All the elements defined here are needed to test with real context to get validation. Following are the definitions of business model elements for Venturedam,

Customer segments:

Currently, target customers for the Venturedam are mature Dutch startups in the energy domain. The design of the framework is general for different types of domain. The domains could be expanded to serve startups in agriculture and healthcare domains. For the initial stages of the business, it is better to have a focus on a specific domain. Focusing on a single domain would help to create an identity and position of Venturedam in the market. This position would help possible clients to prefer services from Venturedam in their expansion plan to India.

It was also observed that in the energy domain, especially in the solar energy domain, most of the products consist of standard parts. These products have less user-centered design elements in them. Some of the products are highly rational products and have limited user interactions while using. For example, new high-efficiency solar panels using an innovative material comes under the category of the invention rather than innovations. For such products to expand in the Indian market, Venturedam could only help to define the business model of the startup. Being a rational product with limited user interaction, it would not require any changes according to user needs. The business model generation would certainly require the understanding of the users on their buying preferences and spending willingness but defining a business model for such a product would be a limited work for Venturedam. For such startups, Venturedam could limit their services to only business model design services.

For Venturedam, it would be helpful to investigate further and identify the most critical segment inside the energy domain itself.



Channels:

As the initial focus is on Dutch startups, the following are possible channels to reach more clients.

- Through incubators such as Yes! Delft and Rockstart to get more startups onboard.
- RVO- The Netherlands enterprise agency that connects to all businesses in the Netherlands including startups.
- Dutch base camp and Startupdelta are the organizations that help Dutch startups to expand internationally by providing training and network supports.
- Dutch embassy in India to get the access of their network in the Netherlands.
- Accounting firms and other service providers providing support to startups and companies to expand internationally.



Customer relationship:

To connect with more startups and to build better relationships with them, the following activities should be performed,

- Free workshops and intake meetings to demonstrate the value of the framework for startups and to provide them with general market insights from India.
- Publishing reports with information about opportunities in India and sending them to startups.



Key activities

For Venturedam, to facilitate Dutch startup expansion to India, following key activities need to be performed,

- Organizing workshops and intake meetings with possible client startups.
- Demonstrating the framework tool to the team of the client to build trust in the process.
- Performing research in the Indian market to identify multiple opportunities that can be communicated by publishing reports.
- Performing field research in the Indian market.
- Selecting participants for the field research.
- Frequent travel from the Netherlands to India and also across regions in India depending on the requirements of startups.
- Arranging co-creation sessions with different stakeholders.



Key resources

To provide facilitation services for market expansion, the following key resources are required,

- Domain expert for highly technical projects.
- A small team of 2 or 3 people for the field research.
- An external facilitator for the creative sessions.
- Employees for administrative and finance roles.
- Knowledge base generated over multiple projects.
- Network base created over multiple projects





Key partners

As the Dutch and Indian government has started the initiative for the startup exchange between both countries, the Dutch embassy in India is already in contact to ask the support from their network. The Dutch embassy could be a possible partner for Venturedam.

Addition to that, incubators, venture capital firms, and other players in the Dutch startup ecosystem such as Dutch base camp and Startupdelta could be possible partners for Venturedam.

Cost structure

For Venturedam, the following are major costs for making the business functioning,

- Customer acquisition costs to organize workshops and intake meetings.
- Field trips to India for the research that includes all the traveling and accommodation.
- Costs for an external facilitator for co-creative sessions.
- Overhead costs for the employees.

Revenue streams

Defining a revenue stream and strategy is one of the vital parts of generating the business model. Following are the projected revenue streams,

- The major revenue stream is the strategic design consulting service.
- Providing paid workshops and trainings about international expansion practices to startups through incubators.
- Publishing reports about market opportunities in India and charging for the full access of the report.
- Providing paid access to the knowledge base and network created in the market.
- Organizing networking events where other service providers related to the market expansion could market their services.

For the major revenue stream of strategic design consulting service, revenue strategy is defined. The strategy is based on stages of the customer journey of a startup with Venturedam (Fig: 7.7).

The costing could be on hourly bases. It is estimated to have 100-150 Euros of fees per hour for the service.

The intake meeting is the first interaction of Venturedam with a possible client- startup. The revenue model for the intake is freemium. Startups interested in the exploration of the Indian market could have an intake meeting without any cost. During the intake meeting, Projectile framework and general market opportunities in India would be demonstrated to startups.



If the startup is ready to have further service from Venturedam, the Quick scan stage as shown in fig 7.7 would be performed. The quick scan stage would provide a deliverable to the startup. The startup would pay on hourly bases for Quick scan stage.

If the deliverable could convince the startup to go further in the process, the stage Preparing the ground would be performed. The cost for this stage would also be charged on hourly bases.

Once the ground is prepared, for the field trip to India, the startup would have to pay for the travel and accommodation in addition to standard hourly charges.

After the field research, for Matchmaking stage (Fig: 7.7), the startup would have a chance to see the differences between contexts of two markets. The startup would have an opportunity to choose Go/No Go again at this stage. If they choose to go ahead, it would be charged separately to co-create the solution together with the startup.

Thus, the revenue stream is divided into stages based on the startup's customer journey.

The business model defined in this chapter is based on the learnings from the case with one startup. Some of the elements are based on informed assumptions. The design of the business model is an iterative process, and It is required to test hypotheses and redesign the business model further in the process.

Chapter 9 Reflections and Next steps

The goal of the graduation project was to design a framework and a business model for Venturedam. In previous chapters, a theoretical framework is built from literature. It is tested with a startup and learnings are noted in this report. The learnings are further utilized to redesign the framework and define the business model of Venturedam. This chapter talks about the conclusion of the project. It provides reflections regarding the design goal defined in chapter 2. Recommendations are made to improve the framework and the business model. Section 9.3 summarises the value generated by the project for stakeholders. The chapter ends with reflections on the concept of Venturedam and personal motivation mentioned in 9.6.

9.1 Reflections on the design goal

This section reflects on the design of the framework and a business model with regards to design goals of the graduation project.

9.1.1 Projectile framework

As mentioned in chapter 2, one of the design goals for the graduation project was to design a framework with principles, tools, and methods to influence strategic decision making within the startup. It should have a balanced consideration of three criterias - desirability, viability, and feasibility concerning the contextual variation between the Dutch and Indian market. Following points provides reflections for Projectile framework.

The construction and testing of the framework

The first diamond of Projectile framework was tested with the real case startup in the graduation project. It successfully influenced the startup to identify an opportunity in India and to start a pilot with possible users. The application of the first diamond provided critical learnings to improve the framework further., The first iteration to match the viability and desirability was made during the scope of the graduation project. It is required to check the feasibility of the business within the primary desirability- viability match. The process could have iterations within and around the diamonds to find the optimum balance between desirability, feasibility, and viability. Possible iterations are shown in the following image.

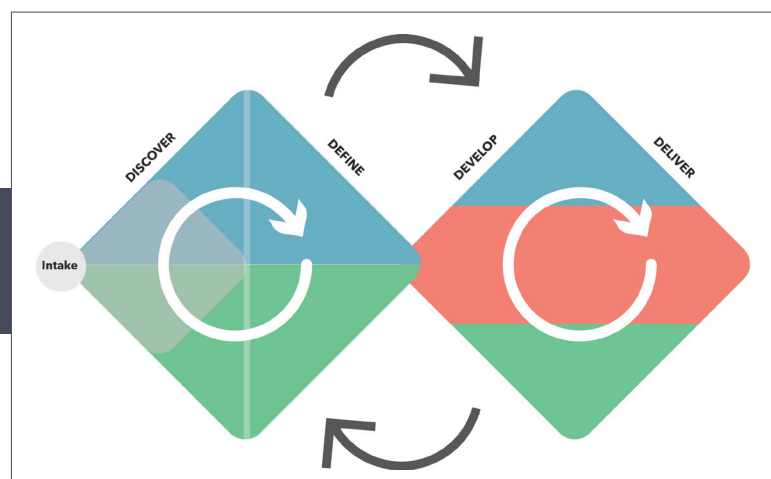


Fig 9.1: Possible iterations for the framework

Once the second diamond of the framework is tested with the startup, the entire framework needs to be refined based on learnings. It is still too early to generalize the framework for all types of startups as it is only tested with one startup.

Defining the focus of the research

During the application of the framework, the significant learning was to create a focus to find the most critical questions and assumptions required to make a successful business case for the startup. Creating the focus would make the framework more efficient and the business more viable.

Tools and methods

Several tools and methods were used to execute the steps of the framework, and reflections were made on they were used. As per the context of the research, different other tools might be needed for future projects. Building a library of some possible tools and methods is required. Requirements to choose these tools and methods are also reflected in the application of the framework.

Context overlap tool and Match equation

One of the major elements of Projectile framework is to show the contextual variation between the current and Indian market. Context overlap tool is developed to address the goal. The purpose of the tool is to define the differences between the two contexts visually. This will help the startup to identify critical gaps and strategies to overcome those differences with the support of Venturedam. Match equation could be used to develop the business model of the startup in the Indian context.

Qualitative and quantitative business case

Double diamond of Projectile framework provides a structure for identifying the opportunity with the balance consideration of desirability, viability, and feasibility. The first iteration of the double diamond is majorly performed by a qualitative analysis of contexts of the startup and the Indian market. After the primary qualitative analysis, numbers are required to make an investable business case for the startup. A full business case could be designed by having another iteration of the framework with a focus on the quantitative analysis. The qualitative and quantitative business case would help to ground and influence the decision-making process for the startup. This is summarised in the following image.

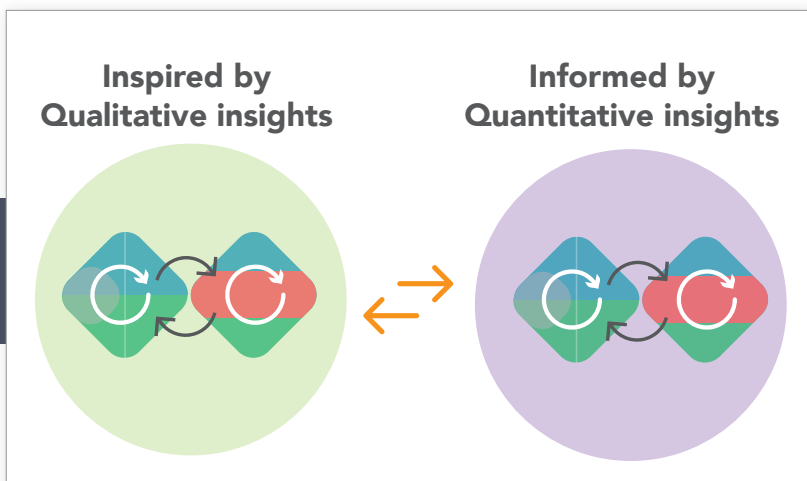


Fig 9.2: Design of the full business case

9.1.2 The business model of Venturedam

The second design goal for the graduation project was to develop a business model for Venturedam through the learnings captured during the project. Several stakeholders are contacted, and possible collaborations were identified to create the business model of Venturedam. Existing facilitators in the startup ecosystem such as StartupDelta, Dutch base camp and Dutch embassy in India could be possible collaborations and channels for Venturedam.

From the operational insights collected during the project, key activities, key resources, and cost structure are defined for Venturedam. Creation of the knowledge and network base for the Indian market would be major activities and resources for Venturedam.

Based on the stages of Projectile framework, the revenue streams and strategies are identified.

As mentioned earlier, the business model generation is an iterative process and all the defined elements are required to be tested and validated further.

9.2 Recommendations

Following are the recommendations for refining the framework and the business model.

Continue testing the framework

The 2nd diamond is required to be tested and refined further. The whole framework would need to be tested again with a different startup to collect more insights and develop it further. The framework is required to be designed to have multiple iterations within and around diamonds.

The framework should also be tested to create a quantitative business case for startups.

Developing tools and methods

Context overlap tool and Match equation were significant tools developed during the project. Currently, these tools are broadly defined. More testing is required to refine these tools to make them more effective and detailed.

In other steps of the process such as analysis of the company and the Indian market, more tools and methods could be added to improve the library of tools and methods for Venturedam.

Communicating the value of the framework

Venturedam cannot promise to have a successful market expansion to startups. The value proposition offered by Venturedam is Projectile framework. The framework is designed to test the most critical assumptions of the startups for the success of the business in the Indian market. It could also direct and facilitate the startup to overcome the differences in the current and the Indian context. The outcome might not be a positive outcome for every startup. The process is the key value proposition for consulting service. It is required to communicate the value of the framework to the startups. A strong identity for Venturedam through brand and positioning is essential to determine.

9.3 Value generated from the project

The graduation project was defined to construct a framework to facilitate Dutch startups in their business expansion process to the Indian market. Although, Projectile framework is defined from the literature and only the part of it is tested with one case, it generated significant value for different stakeholders. Value generated for major stakeholders during the graduation project is summarised as follows,

Solar Monkey

For Solar Monkey, the project was the first-hand exploration into the Indian market. The project created a better understanding of the Indian context and helped to identify differences and opportunities present in the Indian market. Solar Monkey found some possible users that could use the product and provide feedback. The startup is also planning to start a pilot to test and develop the product for the Indian market in the year 2019.

The Dutch embassy in India

It was the purpose of the Dutch embassy in India to promote the startups to expand their business in India. Considering their limitations in being not able to help in building the business model, the concept of Venturedam could complement the role of providing such support. The representatives of the Indo-Dutch startup exchange initiative were approached at the end of the project. The outcome of the project was communicated to them. The representative appreciated the project outcome. They are glad to support the concept of Venturedam by providing connections in India and the Netherlands for execution and providing funding for the concept.

Venturedam

Venturedam - the project was started with a broad idea of solving challenges faced in India by transferring innovations from the Netherlands. The project has significantly helped to focus and develop the value proposition, i.e., Projectile framework and a possible business model for Venturedam. The graduation project also provided an opportunity to Venturedam to test the framework with the real case of the startup and offering them an opportunity to explore their case in India. This opportunity helped to build the journey of the first success story for Venturedam in facilitating the startup expansion. The foundation of the concept of Venturedam was made keeping in mind a lot of choices. The graduation project helped to ground these choices in design literature. The project contributed to creating valuable connections in India and the Netherlands that could be used to the good advantage of the purpose of Venturedam.

9.4 Reflections over the concept of Venturedam

While working on the graduation project and testing the framework, reflections were made on the overall concept of Venturedam. Some of these reflections are also recommendations that are yet to be tested with the real context.

Strategic design consulting with a gradual development of network

It was a better choice to choose the concept of developing a strategic design consulting firm for startups as the first service shop. For initial phases of market expansion, a higher value can be added with the same strategic design firm. However, to make the startup expansion process sustainable and efficient, the concept of the networking service is essential. The network in the both Indian and Dutch market could be created gradually with each new project. The network developed by the Dutch embassy in India could be used to kickstart the service.

Adding a human resource service to the portfolio

Solar Monkey gave feedback as a next step that they would prefer a local team working for them in the Indian market. The team that could execute business activities and is committed to the company for a longer duration. Experts in the startup ecosystem also suggested the human resource service a vital service for startups in the new market. Providing human resources to the startup could be a nice addition to the service portfolio of Venturedam. This could be done by collaboration with human resource development firms or with educational institutes.

Debundling the business

From the application of the framework, it was observed that the identification of the right opportunity in the market for Dutch startup in the Indian market is a primary very essential part of the whole process. During the second diamond of the process, there might be a possibility to design the product according to the Indian context. The business of product design and development could be debundled by getting support from local design consulting firms. The role of Venturedam would be to overlook the development process by ensuring the viability of the products in the market.

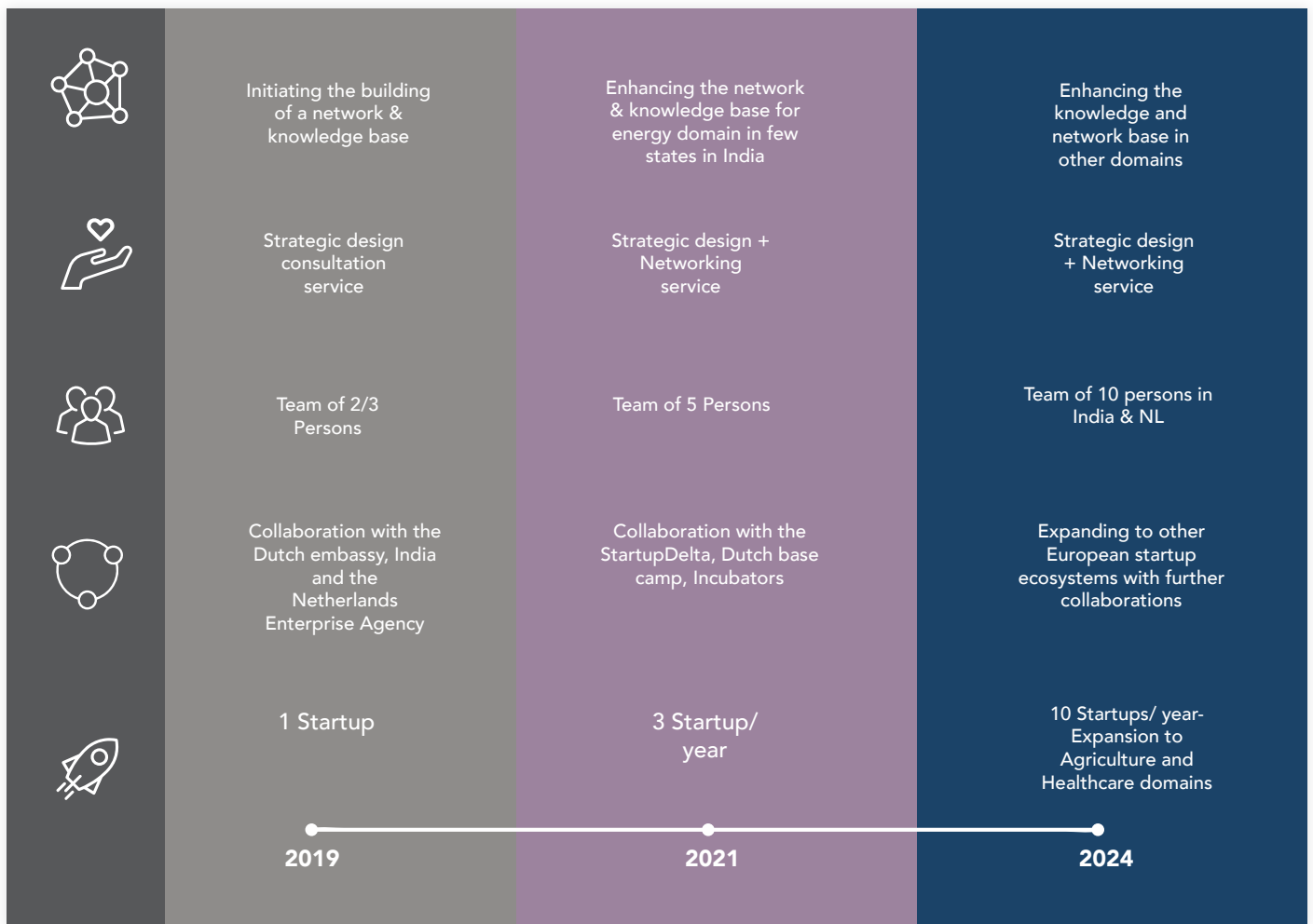
Exploration of other domains

Currently, the focus is on mature startups in the domain of energy. Large market in India and the number of mature startups in the Netherlands makes this a beachhead market to start with. Other domains like agriculture and healthcare could be explored further. Also, other collaborations could be explored to make the knowledge transfer possible. This will lead to solving the ultimate purpose of Venturedam- to facilitate innovation transfer to multiple contexts to solve challenges on a larger impact.

9.5 Roadmap to future

A tentative roadmap is created for the next steps in the development of the concept of Venturedam.

Fig 9.3: A tentative roadmap for Venturedam



9.6 Personal reflections

The idea of taking innovations from one context to multiple contexts for solving challenges on a larger scale has evolved significantly since its inception. Facilitating mature energy startups to expand their businesses in India gave a healthy kickstart to the idea and thus created the concept of Venturedam.

I have put the best of my efforts, skills and resources into building this project. Personally, this project inspired me to see all the complexities and opportunities prevailing within the concept of Venturedam. It motivated me to create a vision for identifying endless possibilities in innovations developed in countries like the Netherlands. I got an opportunity to explore India's challenges from a different perspective and thereby empathizing with them to find solutions.

In the journey of being a Strategic Product Designer, this project taught me the importance of process for a designer to make better choices. It certainly made me a better researcher and a strategic product designer thriving to create a greater impact of design on business and markets for developing socially and economically strong products, services, and businesses.

During the journey of the graduation project, I learned first to define the right questions and later to find the correct answer for that. However, this is merely the beginning of a longer journey for Venturedam and many of the questions that have been left unanswered within the scope of this thesis, will definitely be hunted down and resolved down the path.

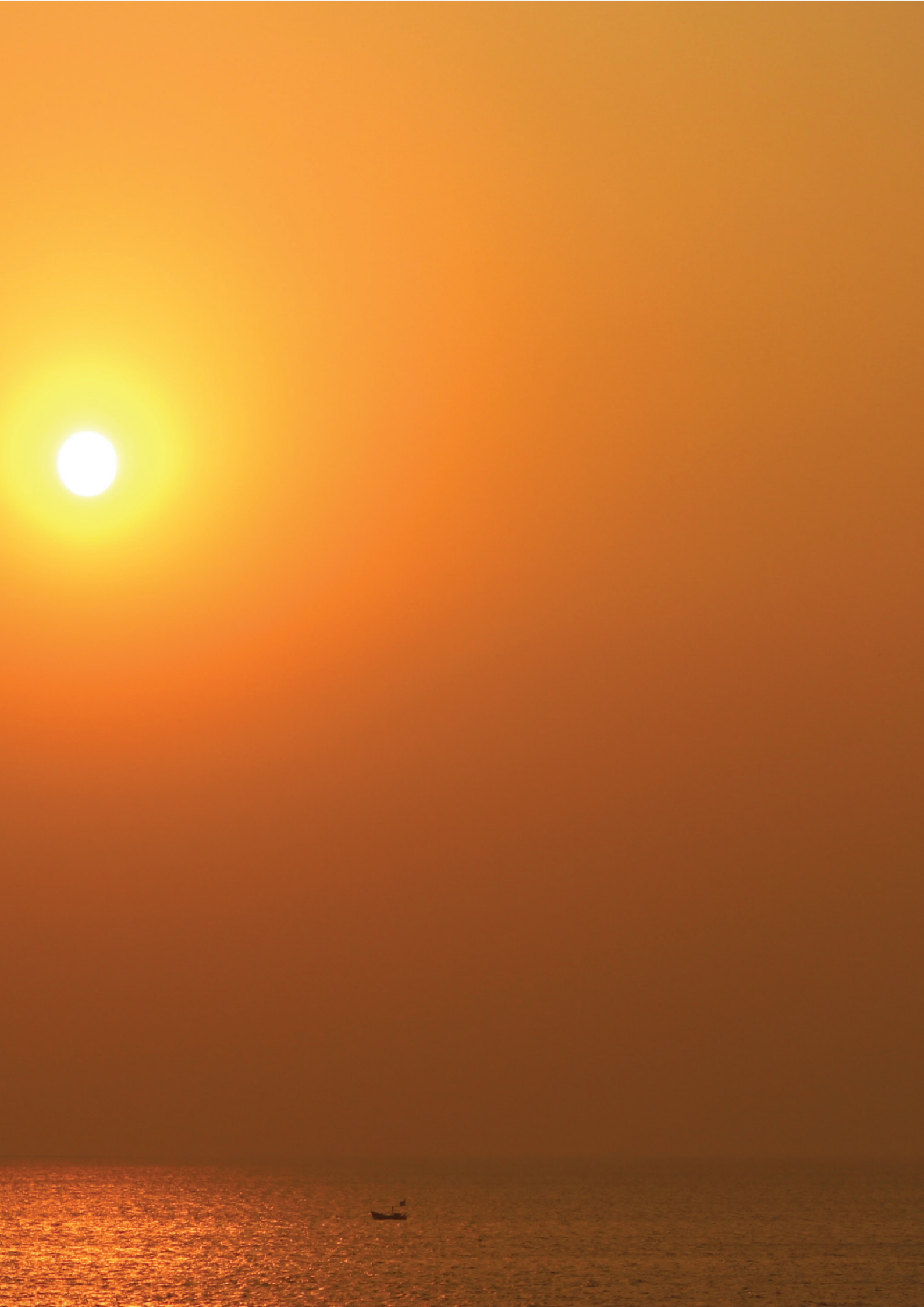
Thank you for patiently being a part of this journey so far. The next adventure awaits.

"Remember that wherever your heart is, there you will find your treasure. You've got to find the treasure, so that everything you have learned along the way can make sense."

- Paulo Coelho, *The Alchemist*



*A view from Marine drive, Mumbai, India
A picture from the field research to India*



References

- Brown, T. (2009). *Change by design*, HarperCollins (New York).
- Business case, (n.d.) Office of government commerce, Retrieved from https://web.archive.org/web/20060901141349/http://www.ogc.gov.uk/documentation_and_templates_business_case.asp.
- Calabretta, G., Gemser, G., & Karpen, I. (2016). *Strategic design: eight essential practices every strategic designer must master*. BIS Publishers.
- Council, D. (2005). *The 'double diamond design process model*. Design Council.
- Dutta, S., Reynoso, R. E., Garanasvili, A., Saxena, K., Lanvin, B., Wunsch-Vincent, S., ... & Guadagno, F. (2018). *The Global Innovation Index 2018: Energizing the World with Innovation*. Global Innovation Index 2018, 1.
- Ernzer M., Birkhofer H., "Selecting methods for life cycle design based on the needs of a company" International design conference - design Dubrovnik, 2002.
- Geis, C., Bierhals, R., Schuster, I., Badke-Schaub, P., & Birkhofer, H. (2008). *Methods in practice—a study on requirements for development and transfer of design methods*. In *DS 48: Proceedings DESIGN 2008, the 10th International Design Conference, Dubrovnik, Croatia* (pp. 369-376).
- Genome, S. (2017). *Global startup ecosystem report 2017*.
- Goetz, J. P., & LeCompte, M. D. (1984). *Ethnography and qualitative designs in ethnographic research*. New York: Academic.
- Guest, G., Bunce, A., & Johnson, L. (2006). *How many interviews are enough? An experiment with data saturation and variability*. *Field Methods*, 18(1), 59-82. doi:10.1177/1525822X05279903
- Hekkert, P., van Dijk, M., & Lloyd, P. (2011). *Vision in product design: Handbook for innovators*.
- Heller, C. (1999) 'Why clients always get the work they deserve,' *Design Management Journal*, Vol. 10, No. 3, pp.35–38.
- Hills G, Narayana C. Profile characteristics, success factors and marketing in highly successful firms. In: Brockhaus R, Churchill N, Katz J, Kirchoff B, Vesper K, Wetzel Jr W, editors. *Frontiers of entrepreneurship research*. Wellesley, MA: Babson College; 1989. p. 69–80.
- Holm L. S Olsson M.,, "Strategic growth of Industrial Design Consultancies", 8th European academy of design conference, The Robert Gordon University, Aberdeen, Scotland, 2009
- India-Netherlands bilateral trade amp investment, Embassy of India, n.d. Retrieved from: <http://www.indianembassy.nl/eoi.php?id=Trade>
- Kaka, N., & Madgavkar, A. (2016). *India's Ascent: Five Opportunities for Growth and Transformation*. McKinsey and Company.
- Kaushik, M. *Role of Startups in The Economic Development of India*; 2016
- Kersten, W. C., Crul, M. R. M., Diehl, J. C., & Van Engelen, J. M. L. (2015). *Context Variation by Design*. Working Paper Version 4.0.
- Kogut B. *Designing global strategies: comparative and competitive value added chains (part 1)*. *Sloan Manage Rev* 1985;27:15–28 summer.
- Kotler, P. and Armstrong, G. (1989), *Principles of Marketing*, 4th ed., Prentice Hall, Englewood Cliffs, NJ.
- Kuemmerle, W. (2005). *The entrepreneur's path to global expansion*. *MIT Sloan Management Review*, 46(2), 42.
- MacMillan, I. C., & van Putten, A. B. (2008). *Unlocking opportunities for growth: how to profit from uncertainty while limiting your risk*. Pearson Prentice Hall. p.3
- McCullagh, K. (2003) 'Situating technological change within social and business dynamics', *Design Management Journal*, Vol. 14, No. 2, pp.10–16.
- Meit, J, Bouwhuis, R, (n.d.) *Sketching the startup ecosystem of the Dutch energy sector*, Retrieved from: <https://www.magnus.nl/wp-content/uploads/2016/04/Magnus-Red-Sketching-the-startup-ecosystem-of-the-Dutch-energy-sector.pdf>

Meyer, M. H., Crane, F. G., & Meyer, M. H. (2016). *Venturing: Innovation and business planning methods for entrepreneurs*. Boston, MA: The Institute for Enterprise Growth. P 132.

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis*. Sage.

Ministry of new and renewable energy, Government of India, *Four years achievement booklet* (n.d). Retrieved from: <https://mnre.gov.in/sites/default/files/uploads/MNRE-4-Year-Achievement-Booklet.pdf>

Naude .W. (2011, March 23). *Entrepreneurs and economic development*; United Nations University, Retrieved January 22, 2019, from <https://unu.edu/publications/articles/are-entrepreneurial-societies-also-happier.html>

Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: a handbook for visionaries, game changers, and challengers*. John Wiley & Sons.

Patton, M. Q. (2002). *Qualitative interviewing. Qualitative research & evaluation methods* (3rd ed., pp. 339-418). Thousand Oaks, CA: SAGE.

Porter ME. *The competitive advantage of nations*. New York: Free Press; 1990. Prescott EC, Visscher M. *Sequential location among firms with foresight*. *Bell J Econ* 1977;8:378–93.

Rafiq, Mohammed and Ahmed, Pervaiz K. (1995) "Using the 7Ps as a Generic Marketing Mix: an Exploratory Survey of UK and European Marketing Academics", *Marketing Intelligence & Planning*, Vol. 13, No. 9, 1995, pp. 4-15

Singer, M. (1999). *Unbundling the corporation*. *Harvard business review*, 77(2), 133-41.

Singh K. . *India will overtake the US economy by 2030*, *World economic forum*, Retrieved from : <https://www.weforum.org/agenda/2019/01/india-will-overtake-the-us-economy-by-2030/>

Singh R. *Netherlands, India Trade and Investment Ties Affirmed on Rutte Visit*, *India briefing*, Retrieved from: <https://www.india-briefing.com/news/netherlands-india-trade-investment-relations-strong-16925.html/>

Stangler. D, Vijverberg. L, Santing. C, *From Global Expansion to Global Integration: How Can the Netherlands Become a Top Five Ecosystem?* April 19, 2018. <https://startupgenome.com/blog>

Startup-solutions-for-the-energy-transition, Startup Delta, 2018, Retrieved from: <https://www.startupdelta.org/wp-content/uploads/2018/09/Startup-solutions-for-the-energy-transition-%E2%80%94-Bid-book-StartupDelta.pdf>

The Ministry of New and Renewable Energy-India, 2017, *MNRE- four years achievement booklet*, 2017.

The week, *India, Netherlands agree to deepen engagement in trade, agriculture*. (2018, May 24). Retrieved January 23, 2019, from <https://www.theweek.in/news/india/2018/05/24/india-netherlands-agree-to-deepen-engagement-in-trade-agriculture.html>

World energy outlook 2017, Nov 14, 2017. Retrieved from: <https://www.iea.org/weo2017/>

Appendix A

The appendix provides files that shows interactions between Venturedam and Solar Monkey before the field trip to India.

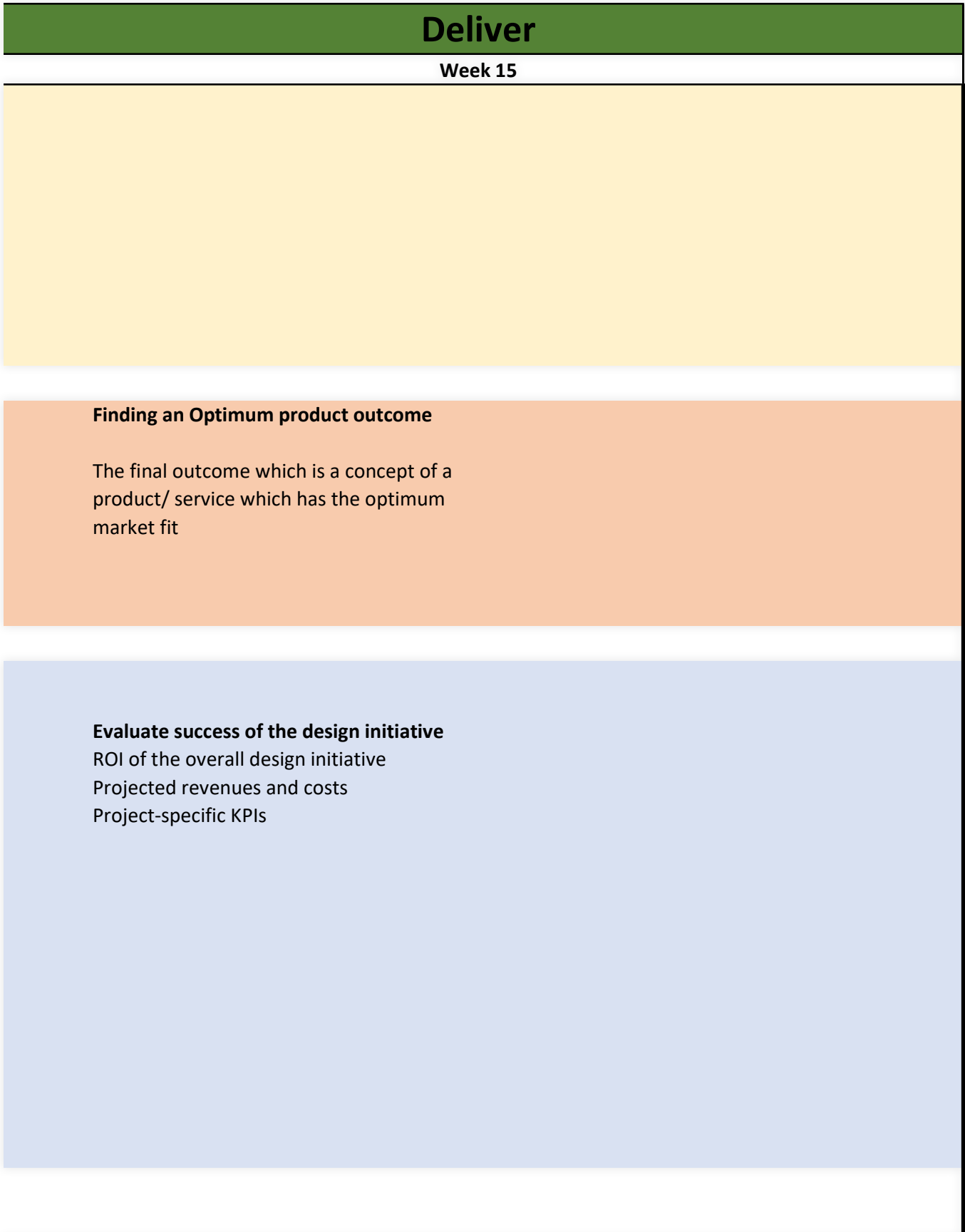
Time	Week 6-8	
Desirability	<p>Setting up a future vision V0</p> <p>Broaden the strategic thinking and workflow of client organizations, and enable them to generate various outputs - products, policies, visions - for long-term success.</p> <p>From organization's perspective, by being sensitive to its needs and concerns.</p>	<p>User research India</p> <p>Developing an in-depth understanding of behavioral patterns, motives, emotions and needs to create a possible future, with opportunities. With this is not to simply solve a problem, rather to explore future vision that lends a solution of their clients.</p>
Feasibility		
Viability	<p>Understanding Solar monkey</p> <p>Products, company Business and financial objectives Organisation and financial hurdles</p> <p>Understanding the Business landscape</p> <p>Dutch vs Indian context Competitive analysis Market analysis For indian context Trend analysis Macro economics trends</p>	<p>Documenting assumptions</p> <p>Customers in India Market Organization Possible business model How to work in India?</p> <p>All relevant assumptions across the entire ecosystem of our initiative: Context, Collaborators, Customers, Company and Competitors (5Cs)?</p> <p>What Blind spots might we have about 'Implicit' assumptions?</p> <p>Designing experiments to validate and test these assumptions</p>

Define	
<p>Aligning Solutions and Business</p> <p>Aligning the solution in a direction that complements or matches the organization's strategy, values and assets.</p> <p>Combine understanding of both how customers behave and how a business works.</p>	<p>Co-creating with the Client</p> <p>A creative session together with the client</p> <p>Nail the Customer Story</p> <p>Translate the Story Across Different Business Units</p> <p>Design for Multi speed Impact.</p> <p>Agile Robust</p> <p>Divide tasks and responsibility and</p> <p>Roadmap to future</p>
Empty row	
<p>Co- creation of the business case, assumptions and solutions</p> <p>Role of Designer and a business designer</p> <p>Quantify the insights and opportunities</p> <p>Identifying financial parameters to constrain the design process</p>	
Empty row	

Fig A.1.2- Second part of the framework made in the excel sheet

		Develop	
Week 13-14			
breakdown work	<p>Codify key design features Need to bottle the 'essence of design' All the key features and elements need to identify here</p>		
	<p>Designing for feasibility A feasibility audit to establish the types of resources/ capabilities that are needed to exploit an opportunity.</p> <p>Devise an action plan if those resources or capabilities do not exist</p> <p>Build- Test- Learn- Repeat</p> <p>Will the organization have the financial means to do so?</p>		
	<p>Determine critical assumptions Identify those assumptions that are the most critical to the business case</p> <p>Eg. if the following three key assumptions are achieved within the assumed ranges, there is an 80% likelihood of the business case being achieved'</p>		<p>Possible business model changes</p> <p>Any possibility to develop a business model which could achieve these resources and capabilities externally?</p> <p>Design measurement plan Critical assumptions and ranges being tested or validated</p>

Fig A.1.3- Third part of the framework made in the excel sheet



Understanding of the product in little more detail.
Functions and options it have (Sales perspective).

Any new updates you are working on- Major and minor.

What kind of different modules you have?

How is the UX is defined? Did you have any designer on board to design it?

What kind of pricing schemes you have. What are other types you had already tried and what do you wish the ideal pricing strategy. Learnings from those trials.

How much does it cost internally to produce it?

How does customers perceive the price?

How do you charge them? and how do they pay it?

What are the prices competitors offer?

How do you promote your product to potential buyers?

How do you retain your present buyers?

Any people stopped using the product? any reason?

How do your competitors promote themselves?

Special offers? Free trials?

Any collaborations? to sell product?

How about entering into other EU countries? how you are promoting it?

How you are getting clients from EU countries?
What is the reason behind?

How your customers come to buy?

In which way you do more sales?

How do you provide the software? CD, Online?
any security features to prevent Netflixing?

Employees- Roles and responsibilities

Management

Culture

How do you manage the flow of the project?

How does the flow of product development happen?
From requirements to features? Or tech to features?

Product

Price

Promotion

Placement

People

Process

Fig A.2.1 - Questions for step:
Understanding the company

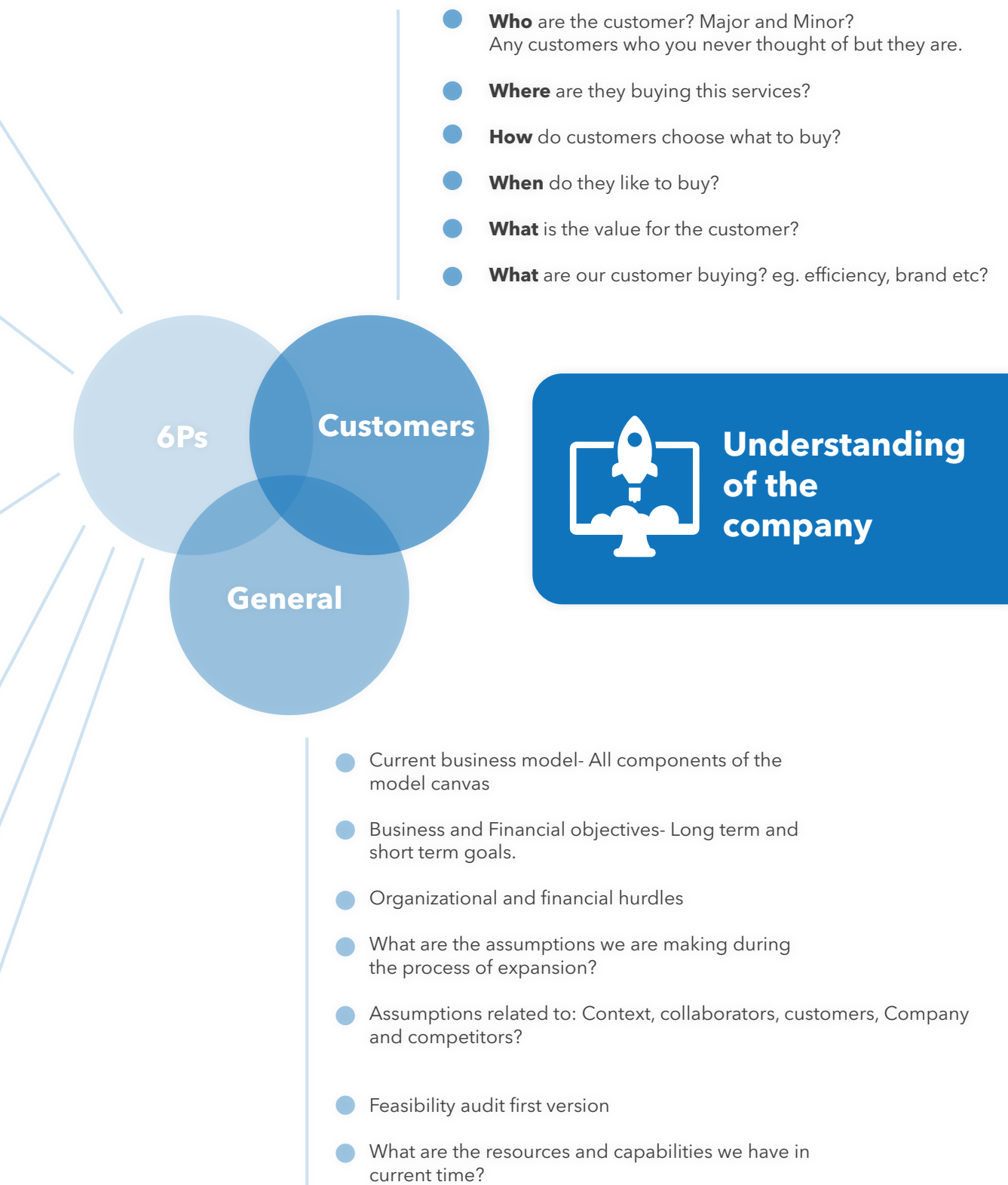


Fig A.2.2 - Poster summarizing the product of Solar Monkey

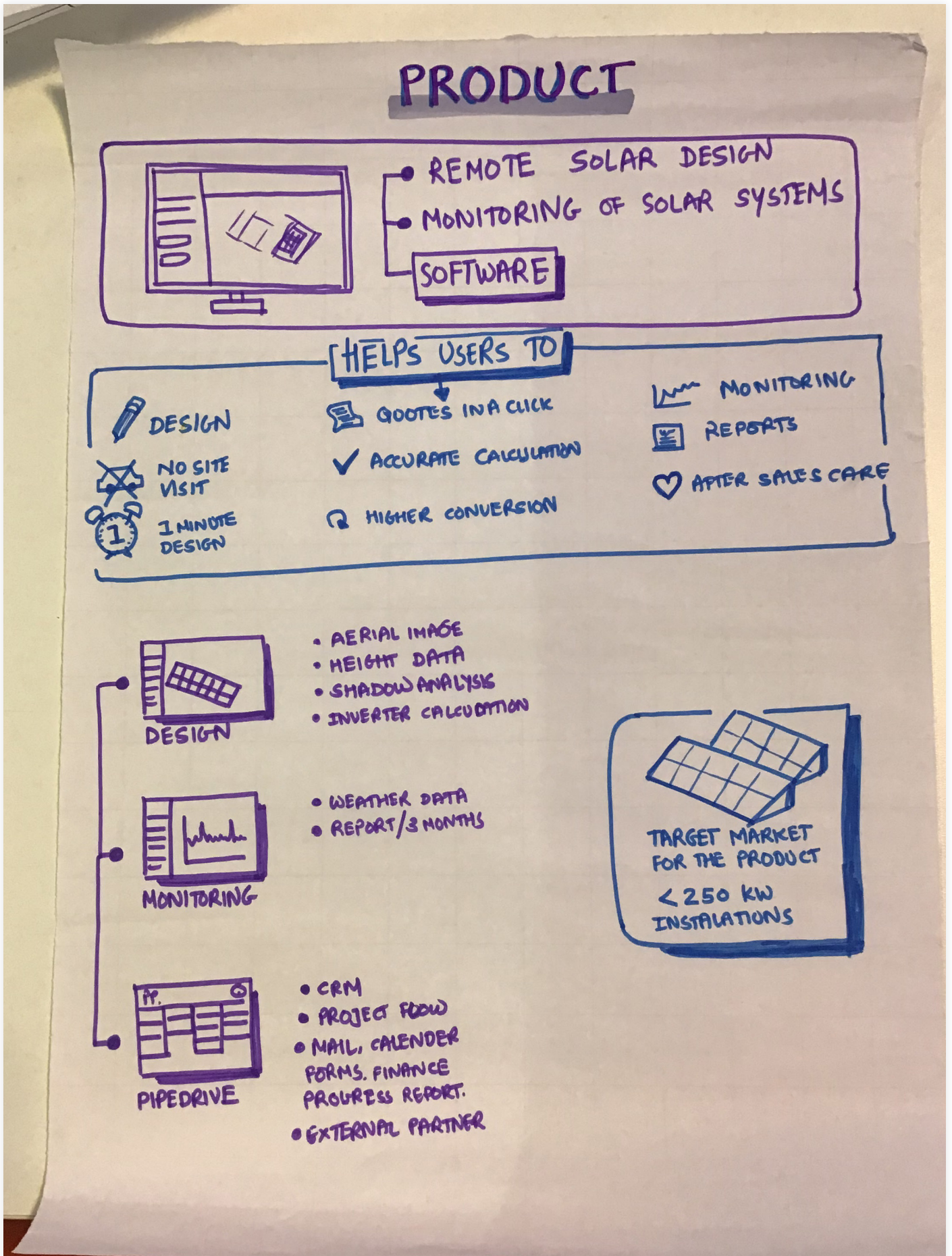


Fig A.2.3 - Poster summarizing the Customer segment of Solar Monkey

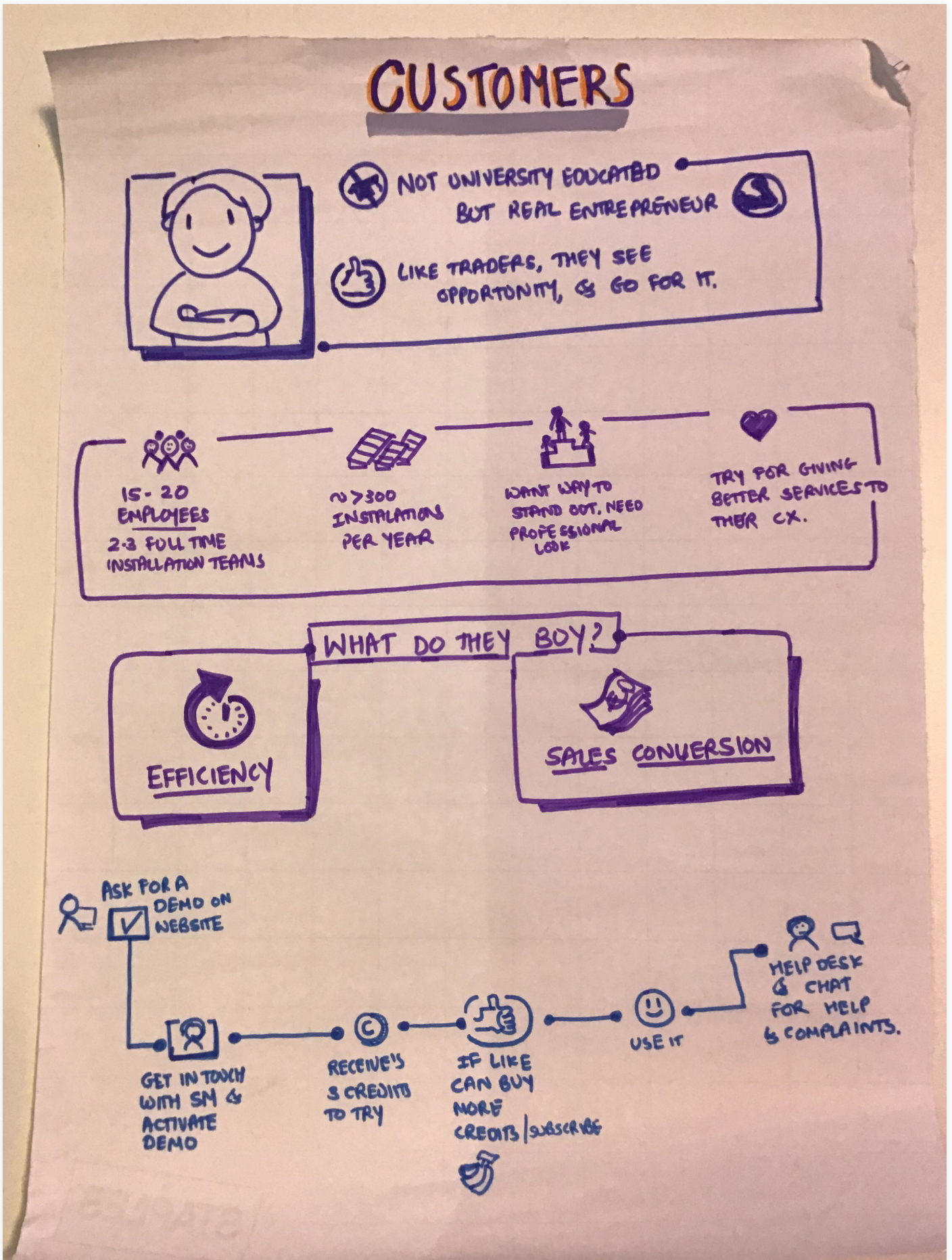


Fig A.2.4 - Poster summarizing the price and promotion of Solar Monkey

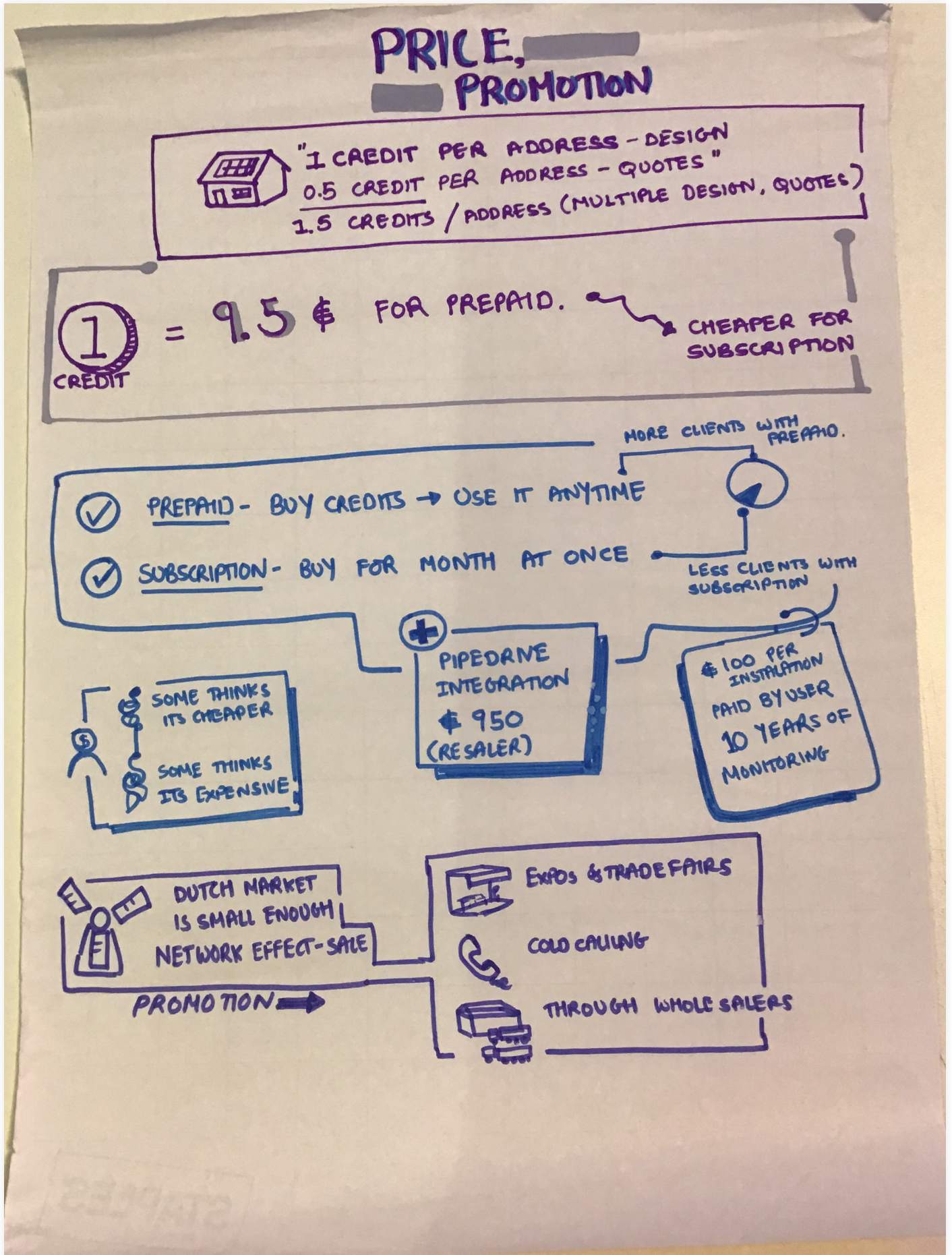
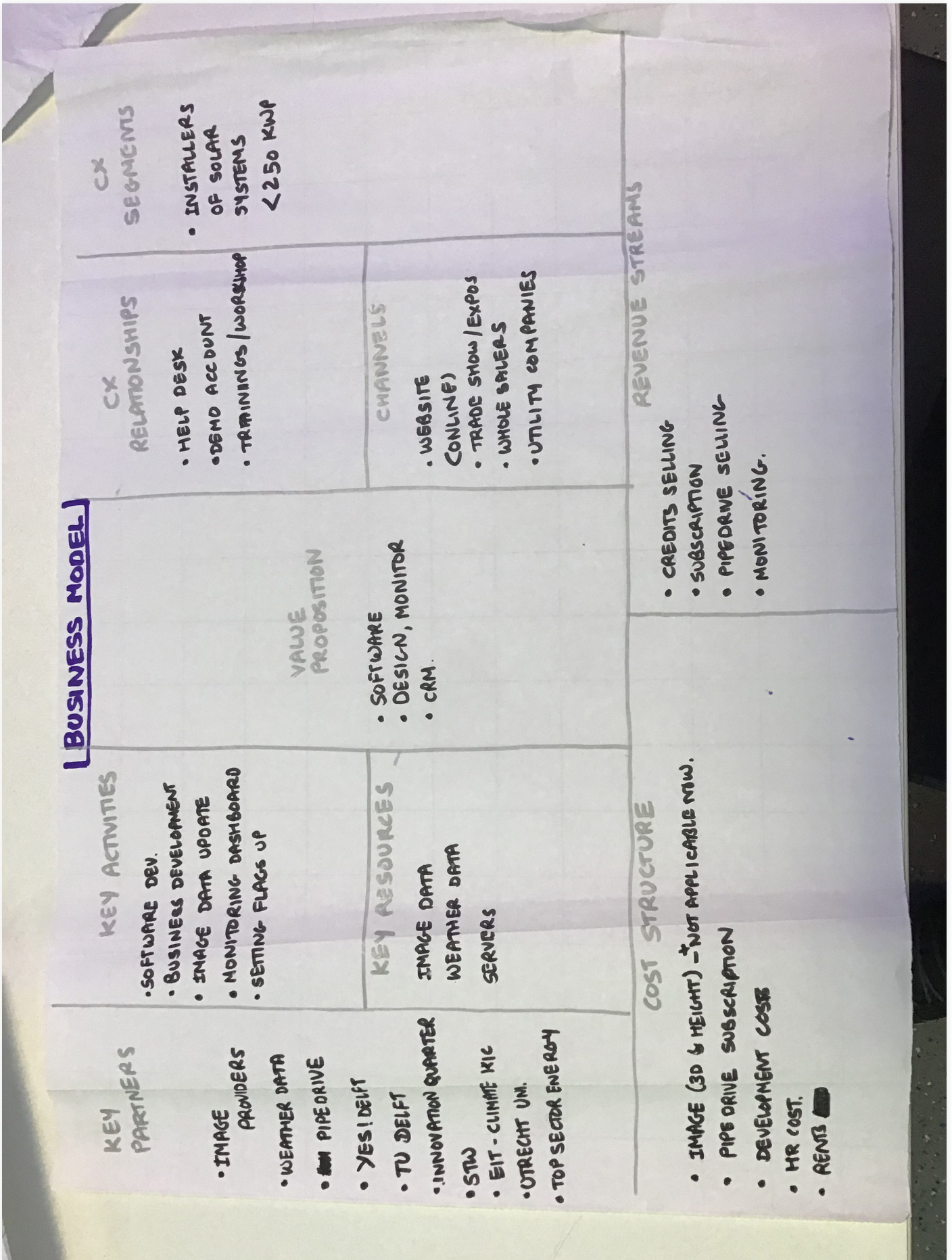


Fig A.2.5 - Poster summarizing the business model of Solar Monkey



Competitive analysis

- Who are our competitors?
- Who are the dominant players in our particular sector?
- What are their competitive advantages or disadvantages?
- Describe their main offers.
- Which Customer Segments are they focusing on?
- What is their Cost Structure? How much influence do they exert on our Customer Segments, Revenue Streams, and margins?

Jobs to be done

- Which products or services could replace ours?
- How much do they cost compared to ours?
- How easy it is for customers to switch to these substitutes?
- What business model traditions do these substitute products stem from?

- What are the crucial issues affecting the customer landscape?
- Which shifts are underway?
- Where is the market heading?

Segments

- What are the most important Customer Segments?
- Where is the biggest growth potential?
- Which segments are declining?
- Which peripheral segments deserve attention?

Needs

- What do customers need?
- Where are the biggest unsatisfied customer needs?
- What do customers really want to get done?
- Where is demand increasing? Declining?

Switching cost

- What binds customers to a company and its offer?
- What switching costs prevent customers from defecting to competitors?
- Is it easy for customers to find and purchase similar offers?
- How important is brand?

Suppliers and Value chain experts

- Who are the key players in your industry value chain?
- To what extent does your business model depend on other players? Are peripheral players emerging?
- Which are most profitable?
- Which stakeholders might influence your business model?
- How influential are shareholders? Workers? The government?

Competitive analysis

Macro economics trend analysis

Trend analysis

Market analysis

Price attractiveness

- What are customers really willing to pay for?
- Where can the largest margins be achieved?
- Can customers easily find and purchase cheaper products and services?

Fig A.3.1- Questions for step:
Understanding the company

- What is the state of the capital markets?
- How easy is it to obtain funding in your particular market?
- Is seed capital, venture capital, public funding, market capital, or credit readily available? How costly is it to procure funds?
- Describe the current status of markets for commodities and other resources essential to your business (e.g. Solar panels prices).
- How easy is it to obtain the resources needed to execute your business model (e.g. attract prime talent)? How costly are they?
- Where are prices headed?



- Identifies technology trends that could threaten your business model— or enable it to evolve or improve.
- Which regulatory trends influence your market?
- What rules may affect your business model?
- Which regulations and taxes affect customer demand?
- What are the key demographic trends?
- How would you characterize income and wealth distribution in your market?
- How high are disposable incomes?
- Describe spending patterns in your market?

Fig A.3.2 - Poster summarizing the competition for Solar Monkey

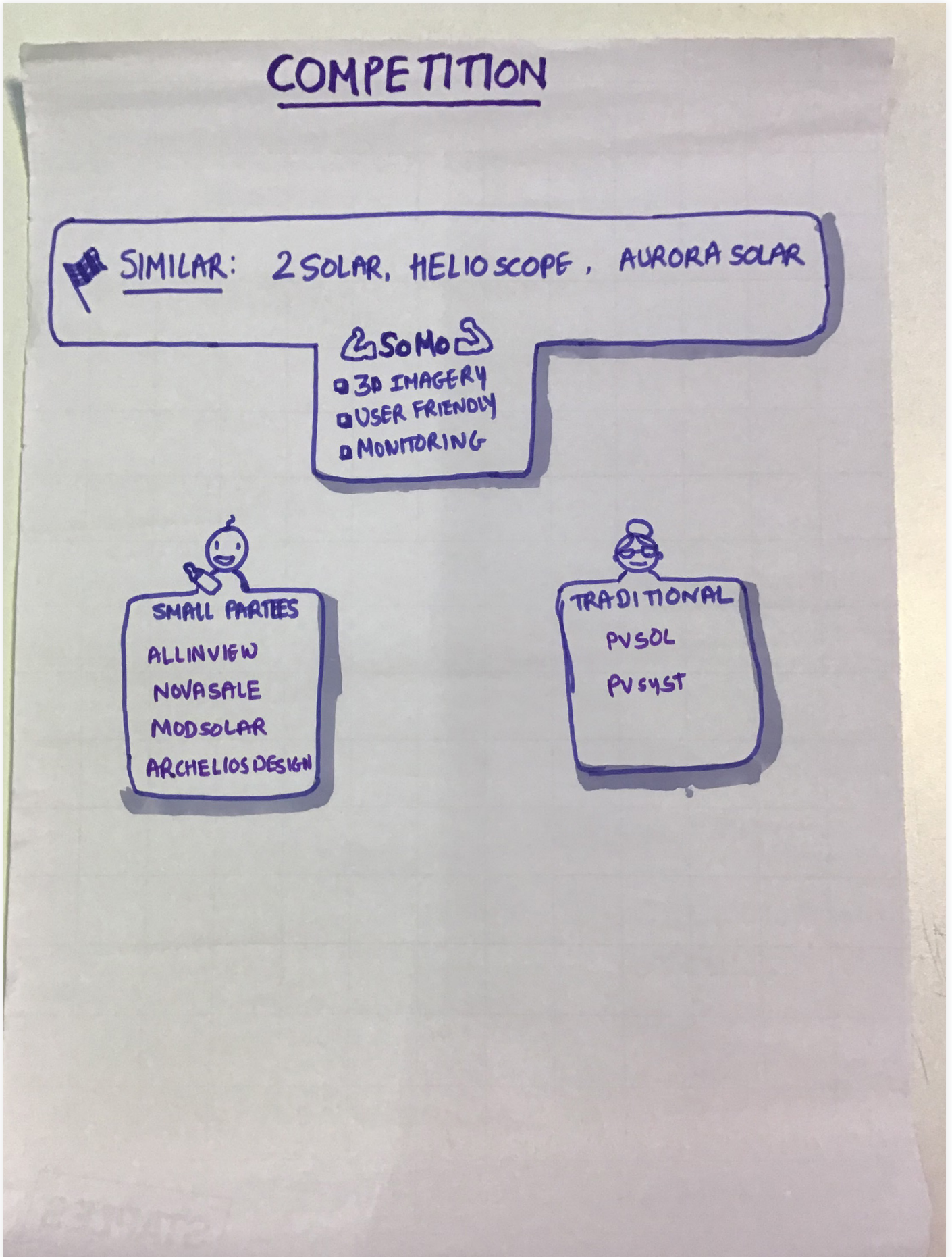
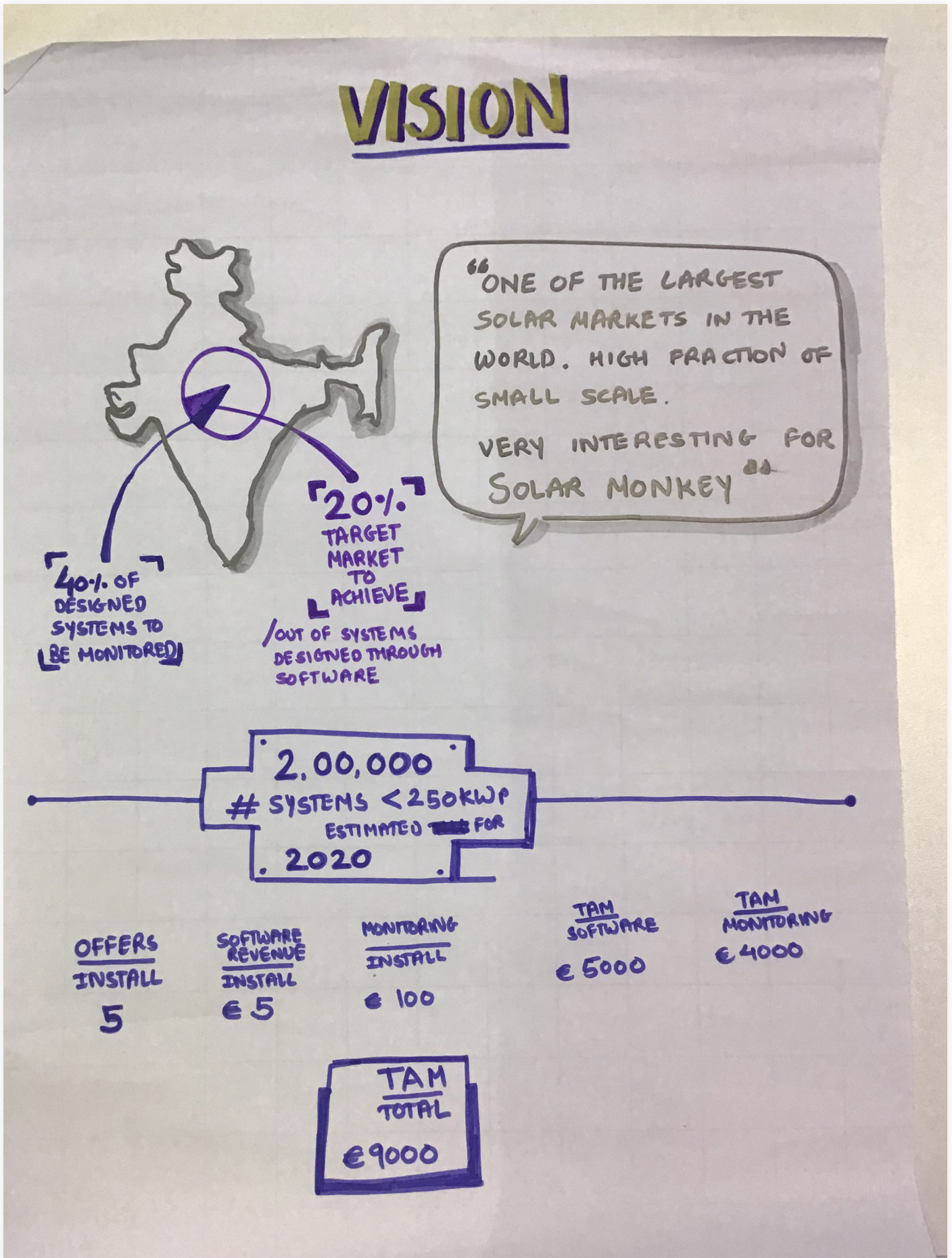


Fig A.4.1 - Poster summarizing the Vision of Solar Monkey



Appendix B

This appendix includes deliverables referring to the interaction between Venturedam and Solar Monkey after the field trip to India. Some of the deliverables are in the form of excel sheet. while some of them are from the presentation provided to Solar Monkey

subsidy

4-5 units a day, 1KW is enough. For 4-5 people, 3BHK house- 3KW is enough

in MH- 9-12 Rs for electricity, Cost of Solar is 3-5 Rs. In Gujarat- DISCOM power- 6.90 Rs and cost of solar generation is 1.80 Rs.

Base rate- last year 69000, this year- 48,300, Once it will reach in affordable range of 30-35000, it wont need subsidy

Central government is giving 30% of subsidy. 30% of fix base price they have set. MNRe has put price for each KWs. Like till this plant, this is the base price- they have slabs. Earlier 69000 was a base price and 30% was given on that. that has reduced. 48000 is right now the cost is.

Customers gets subsidy in their account directly

QUOTES

The solar scene in India is like a Gamling and "Survival of the fittest"

"Everyone knows one person directly who is in solar" - that became joke

Fig B.1.1 - Excel sheet summarizing some of the insights from the field research

Bad practices

Many of players cuts margin in different ways
Margins at small small details, CX goes with the cheaper one. They do not have much understanding. Falls in rumors. CX are aware- lot of people are doing solar, still no regulations of who and how they should do solar, some certifications are there but not
Many of the people do not have team to design, they just do it because they think they can do it
Many projects should not happen but still going on
After subsidy will go, there will not be pressing need to do that. They are getting electricity, its not you are not getting electricity. Its just they are paying more but they dont realise it and
Bad safety practices, ACDB,DCDB, earthing for AC and DC.Earth pit standars, lightning arrester, distance
We try our est but other 60-70% people spoil the market.

Cost

Safeguard duty for Non-Waffers imported from china	Panels major- inverters after Acquisition cost is not much- if have multiple runs for the material then only
Waree- inverter- 22000,	
Panels are major part in the cos for 1kw project, 20-22000 for panels, 8-10000 for inverter	Material major cost, service- not much Spending: Materials. its EPC so major costs are purchase of material. 80% cost is materials
There are 3 main chunks there. Solar panel, inverter and structure. Thats 95% of the cost. The man power	Cot of material is most expensive
For subsidy project- buy from India, for others- from china.	

Market

India's target by 2022 is 100 GW. Out of 40 GW is on the roof and 60 on the ground. India has done around 22 GW. Out of 20 GW on ground is already done and only 2 GW on rooftop is done. Solar is a huge market in India and has a long term perspective- it will stay for few years.

Major driver: Cost competitiveness. Its very viable now for industrial and commercial cx. 3-3.5 Rs price. So 3 years ROI.

Wind had a time of 2000 to 2015- They had lot of installments. was a good time lot of people made lot of money. They did tie ups and government connections they fixed prices to certain level. so you could able to sell your windmill. Now its time for solar and it will be there for next 10 years atleast, who will do business in this- gonna earn a lot

Solar falls under priority sector landing under the RBI rule. So banks are also very willing to fund such projects. And these are long term projects designed for 25 years. Its for the businesses or people who has a long term vision. that case its not difficult but they are looking for correct solutions and these are the people who really understands technology and comes from this background.

Before 10 years ago was slow motion, 2007-08 solar power rate was 18Rs per unit, now its 3-3.5 Rs rate. The power tariff is increasing day by day. if its 6-7 Rs now, it could go to 8 or 10 tomorrow.

safe guard duty of 25%. if you import from china- you need to pay this

Fig B.1.2 - Excel sheet summarizing some of the insights from the field research

business models

For bigger projects consultancies gives design and guaranteed generation

People selling on their own, many do not count own cost in the acquisition. Labour pays are minimum because they are not certified most of the time. So they only focus on

PPS is not workable in smaller size, only in bigger projects

Customers are becoming smart, squeeze you and make sure they talk with 4 other people, which is getting tough. The cost of acquisition which people are ignoring will make difference. Some do with 5 people, some do with more- once they will count this cost- it will become cheaper

Competition

Open market- no criteria- High competition

Installers- most of them are educated- makes good deal, many of them young- Try to differentiate with whatever they have. Try out small incremental things. Not very radical. They are middlemen and earning a good amount of chunk with when have high volumes

Whatever happened was word of mouth, still around 90% people are remaining. The one who will do good marketing and presentation would make difference. And survive after the subsidy. That happens when best work. Making people aware is important.


The market needs more tech, bringing tech from foreign will make lot of money

Fig B.2.1 - Interviews performed during the field research

Following pages are derived from the presentation to the Solar Money. (Step- 6- Communicating the outcome of the field research)



Fig B.2.2 - Personas of installers




SOLEX Solar
Installer+ manufacturer

18 Years old- One of the oldest manufacturer in the state.

Installation and selling, **manufacture max 325 watts**, max in India is 350 watts

Assembly, outer body and fabrication, selling and installing




Sutarias Solutions
Small- medium size installer

Solar as a side business.
Runs schools and institutes

Team of 11 people

Solar panel installation technician school- **250 Students/ batch**

Solar engineer school



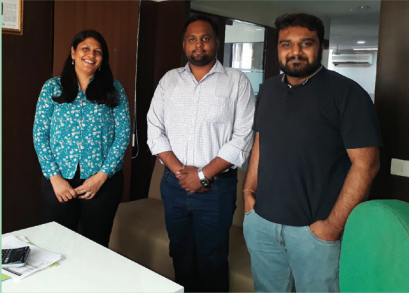
Renesys energy
Small- medium- Large size installer

Family background in Energy business

2MW-30 Customers in one year

UTAH university, USA graduated
70% projects referrals

Team: 7 people



Kanoda Solar
Small- medium- Large size installer

'God father' of Solar in Gujarat

Founded by a couple- PhD Georgia tech, USA
Principal scientist- Gujarat energy & management institute

Team: 40-50 people
Design: 6-7, Marketing, 7-8



Deccan Solar
Small- medium- Large size installer

Partner- Wife

Hardcore engineer-marketer
25 projects- 1MW

2 years old
Team: 8 people
In the sector- 18 years
Previously CCTV business

Less projects- More returns



Sunshot Solar
Small- medium- Large size installer

India's Top 20 rooftop solar player

Team: 100 People
>300 KW projects
Turnkey projects in India

Out of target segment with the size, but needs and requirements matches with our segment



Sunbeam Solar
Small- medium-installer Distributor

Thermal water heater business

Solar PV as a distributor
Less installation projects

PHD Chemistry, Cornell university
Dont like bad practices of other people, wants to stay away from PV installation .

Fig B.2.4- Full consumer journey in India for solar panel installations

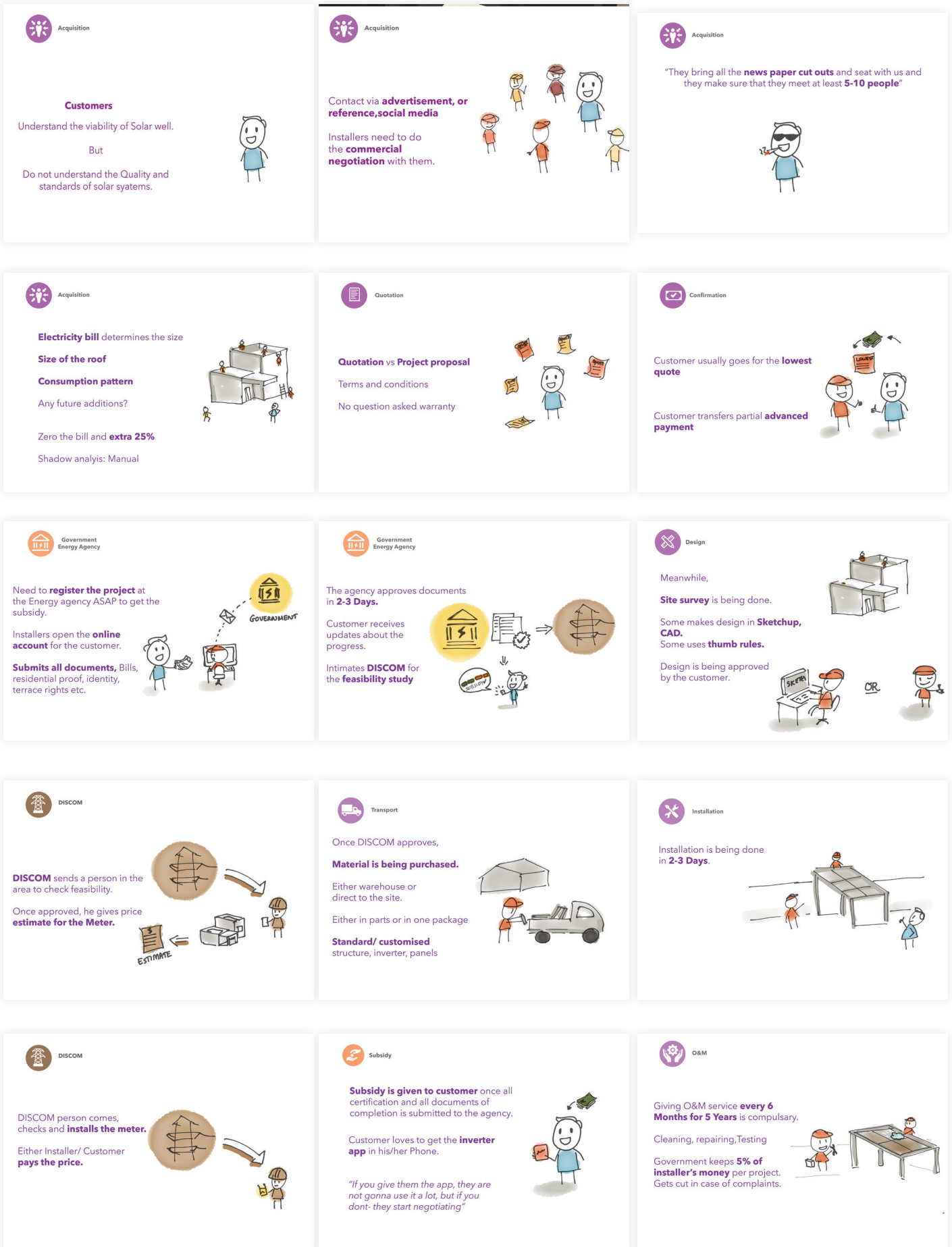


Fig B.2.5 -Possible competition in the market

Thumb Rules: Majority of installers use thumb rules in projects.

PvSyst: Some small scale installer use it when they need to look professional

More established installers use it to provide guaranteed generation and calculate angle and generate reports.

Sketchup and CAD: Major use of these softwares in sketching the site and giving visuals to the customers. Takes some more time.

Helioscope and other web based software: Less knowledge about it and feels not accurate with maps data.

Bad practices



Majority of installers tries to **gain profit margin in each and every small parts.**

Panels, inverter, structure, cables, even base plates.

Make business when subsidy is there. And **get out of the business**

Fig B.2.6 -Major problems faced by installers in India

Educating customers



Customers do not understand the value of right practices and good engineering standards.

Educating customers is the biggest challenge good installers are facing.

Site visit challenges



First survey does not go well all the time. Lot of dependency on the person.

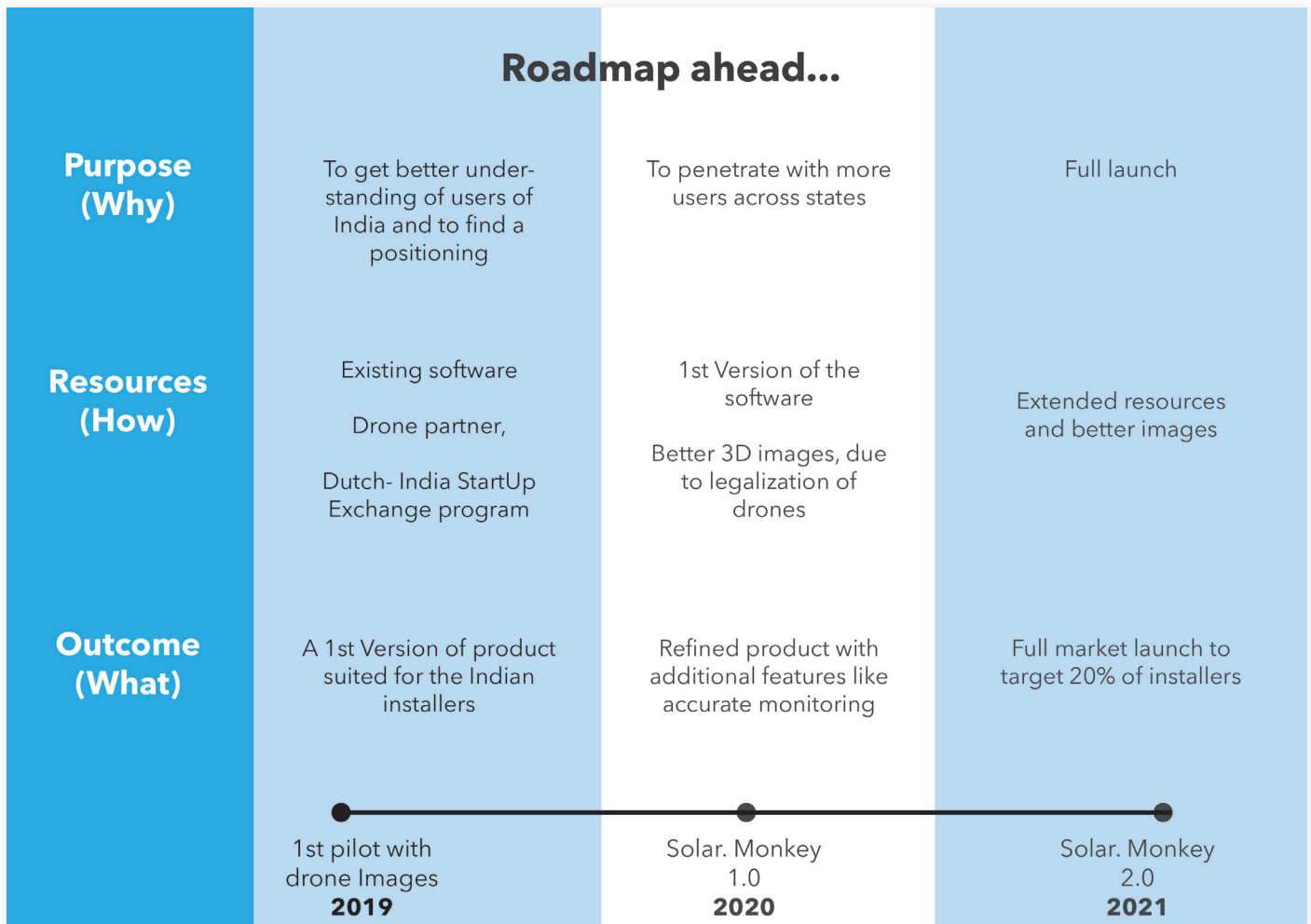
It is a trouble when the roof is not accesible.
Availability of customer is necessary during site survey.

Design challenges



Troubles in **capacity estimation, layout preparation** and analysing panels for **maintainance and health checkup** of the plants.

Fig B.2.7 -Roadmap suggested by Venturedam to Solar Monkey for the pilot in the Indian market





Bridging boundaries through innovations