

Appendix

**Designomics: The Role of Financial
Literacy in Design innovation**

Master Graduation Project
Strategic Product Design

Faculty of Industrial Design Engineering
Delft University of Technology

October, 2023
Amir Anwar-Hameed

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IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

! USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME

Save this form according the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy". Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !



family name Anwar-Hameed 6701

initials A given name Amir

student number _____

street & no. _____

zipcode & city _____

country _____

phone _____

email _____

Your master programme (only select the options that apply to you):

IDE master(s): IPD Dfl SPD

2nd non-IDE master: _____

individual programme: - - (give date of approval)

honours programme: Honours Programme Master

specialisation / annotation: Medisign

Tech. in Sustainable Design

Entrepreneurship

SUPERVISORY TEAM **

Fill in the required data for the supervisory team members. Please check the instructions on the right !

** chair Sicco Santema dept. / section: DOS - MCR

** mentor Nikolas Kyriakopoulos dept. / section: DOS - MCR

2nd mentor _____

organisation: _____

city: _____ country: _____

comments
(optional)

⋮

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v..



Second mentor only applies in case the assignment is hosted by an external organisation.



Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair Sicco Santema date 24 - 07 - 2023 signature ema

**sicco
sant
ema** Digitaal ondertekend door sicco santema Datum: 2023.07.24 14:40:18 +02'00'

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: 30 EC
Of which, taking the conditional requirements into account, can be part of the exam programme 30 EC

List of electives obtained before the third semester without approval of the BoE

YES all 1st year master courses passed

NO missing 1st year master courses are:

name Robin den Braber date 01 - 08 - 2023 signature Braber

**Robin
den
Braber** Digitaal ondertekend door Robin den Braber Datum: 2023.08.01 11:18:24 +02'00'

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **. Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)?
- Is the level of the project challenging enough for a MSc IDE graduating student?
- Is the project expected to be doable within 100 working days/20 weeks ?
- Does the composition of the supervisory team comply with the regulations and fit the assignment ?

Content: **APPROVED** **NOT APPROVED**

Procedure: **APPROVED** **NOT APPROVED**

comments

name Monique von Morgen date 22 - 08 - 2023 signature _____

Designomics: The role of Financial Literacy in Design Innovation project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date 12 - 06 - 2023 03 - 11 - 2023 end date

INTRODUCTION **

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

In today's rapidly evolving and globally competitive business landscape, design thinking has gained prominence as a human-centred approach for innovation (Brown, 2009; Martin, 2009; Liedtka, 2015). This approach involves understanding user needs, generating creative ideas, prototyping and testing solutions, and iterating until successful outcomes are achieved. Designers play a crucial role in this process by framing projects around user needs and adopting a user-centric problem-solving approach (Design Innovation themes).

For design thinking to be truly innovative, organisations must foster knowledge exchange across the entire organisation and its value creation network, extending beyond direct customers and suppliers (Adner, 2006; Moss Kanter, 2006; Pisano, 2015), also known as interconnectedness. As design thinking gains popularity among innovation practitioners and academics, the importance of a specific and shared innovation strategy becomes increasingly recognized (Brown, 2009; Martin, 2009; Liedtka, 2015). One common denominator among interconnected partners is the role of finance in business cases of innovations.

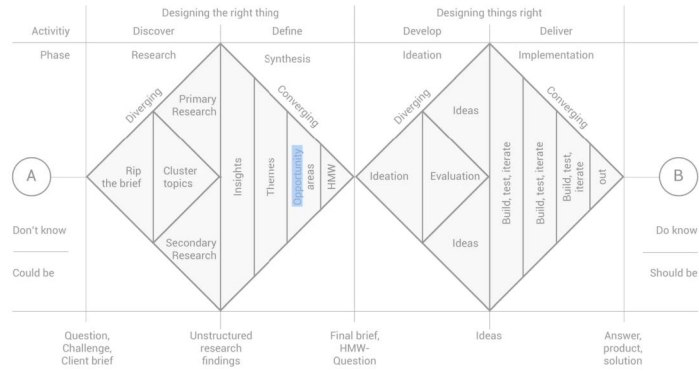
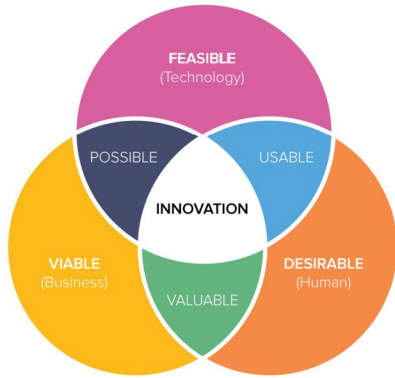
Therefore, the significance of financial literacy in innovation cannot be overlooked (Liedtka, 2015). It should empower designers to communicate effectively with stakeholders, including investors, executives, and accountants, ensuring the successful implementation and growth of their innovative solutions. Research consistently highlights the impact of financial literacy on economic outcomes (Keskinen & Raijas, 2006; Lusardi et al., 2010; Lusardi & Mitchell, 2011, 2014), reinforcing its significance in decision-making aligned with both innovation and business goals. Financial concepts that stem from the business model, such as budget structure, cash flow analysis, and return on investment (ROI), are necessary components for the long-term viability of innovation. Thus, designers should not only be financially literate but also financially capable of implementing these components at the appropriate stages of a project (Koskelainen et al., 2023). This would create more security and adaptability for a project as it moves forward in its decision-making process.

However, the synergy between financial literacy and design thinking during the 'fuzzy front end' of project innovation remains understudied. This research aims to uncover how financial literacy can enhance design innovation success by bridging the gap between creative thinking and financial acumen, with a specific focus on the framework of feasibility, desirability, and viability. The hypothesis proposes that there is synergy between financial literacy and the design thinking framework, and financial knowledge significantly impacts a design innovation project's outcome. Moreover, financial literacy plays a crucial role in the viability of an innovative design project. By understanding this relationship, designers and engineers can be empowered with the necessary financial knowledge to make better-informed decisions, ultimately increasing the viability of their design innovation. The goal is to create a roadmap and learning module that equips designers with essential financial skills, enabling them to make better decisions during the 'fuzzy front end' of design innovation.

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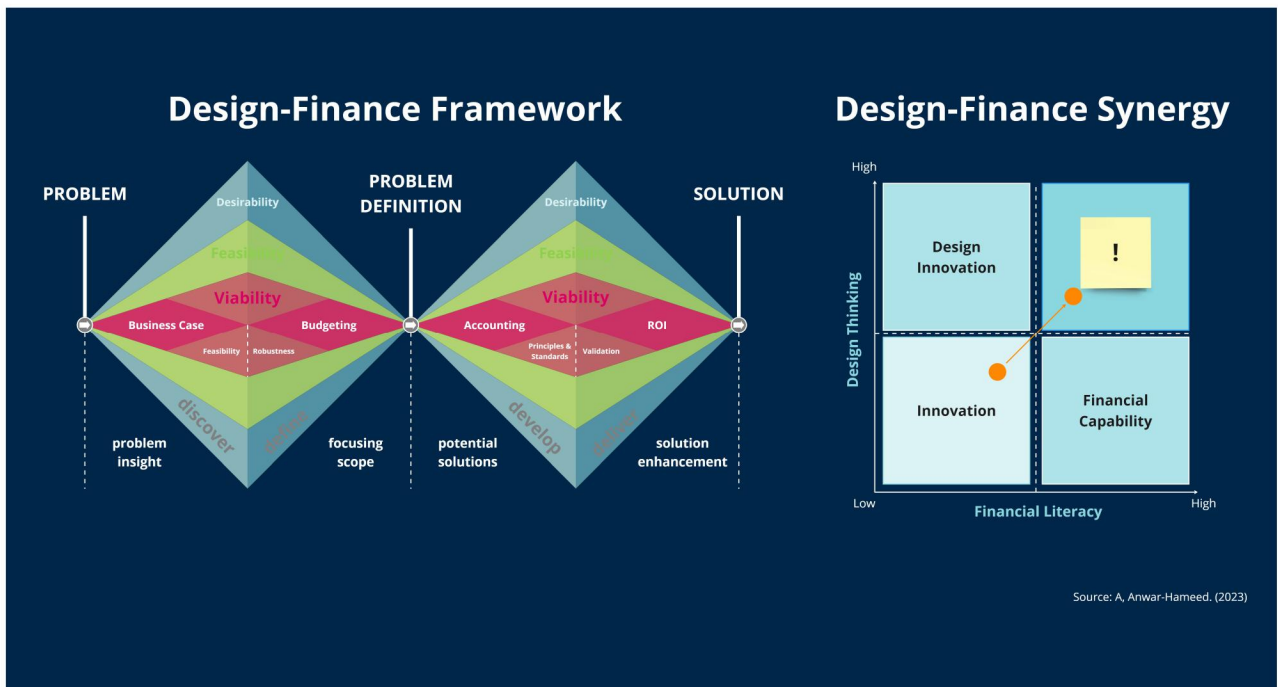
introduction (continued): space for images

Design Innovation



Source: D. Nessler. (2016)

image / figure 1: Components of Innovation and the existing framework for design thinking.



Source: A. Anwar-Hameed. (2023)

image / figure 2: Incorporating viability into the design thinking framework.

PROBLEM DEFINITION **

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

In today's competitive business landscape, design thinking is a powerful approach to innovation. However, the role of financial literacy within this framework remains underexplored. Therefore, the overarching project definition aims to explore the role of financial literacy during the 'fuzzy front end' of design innovation. To address this, the following research questions have been defined:

1. What relationship do design innovators have with finance?
2. How does financial literacy influence decision-making in design innovation projects?
3. Which components of financial literacy are most relevant during the problem definition and solution proposal stages of the design thinking process?
4. What are the main challenges practitioners face when integrating financial literacy into the design thinking framework?

ASSIGNMENT **

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

Design a roadmap and learning module for designers to integrate financial literacy during the 'fuzzy front end' of design innovation, improving decision-making and project viability.

The objective is to investigate the practical application of the design thinking framework, with a specific focus on the double-diamond approach, and explore the seamless integration of the viability aspect into the design innovation process. Additionally, the study will include a comparison of other innovation frameworks, such as scrum and the stage-gate process, to evaluate their consideration of financial aspects. By conducting interviews with practitioners and academics in the field of design innovation, the aim will be to uncover the synergies between design thinking and financial capability. The insights gained from this research will inform the development of a targeted learning module for designers and engineers, enabling them to understand the significance of financial literacy and identify essential components relevant to their project's scope.

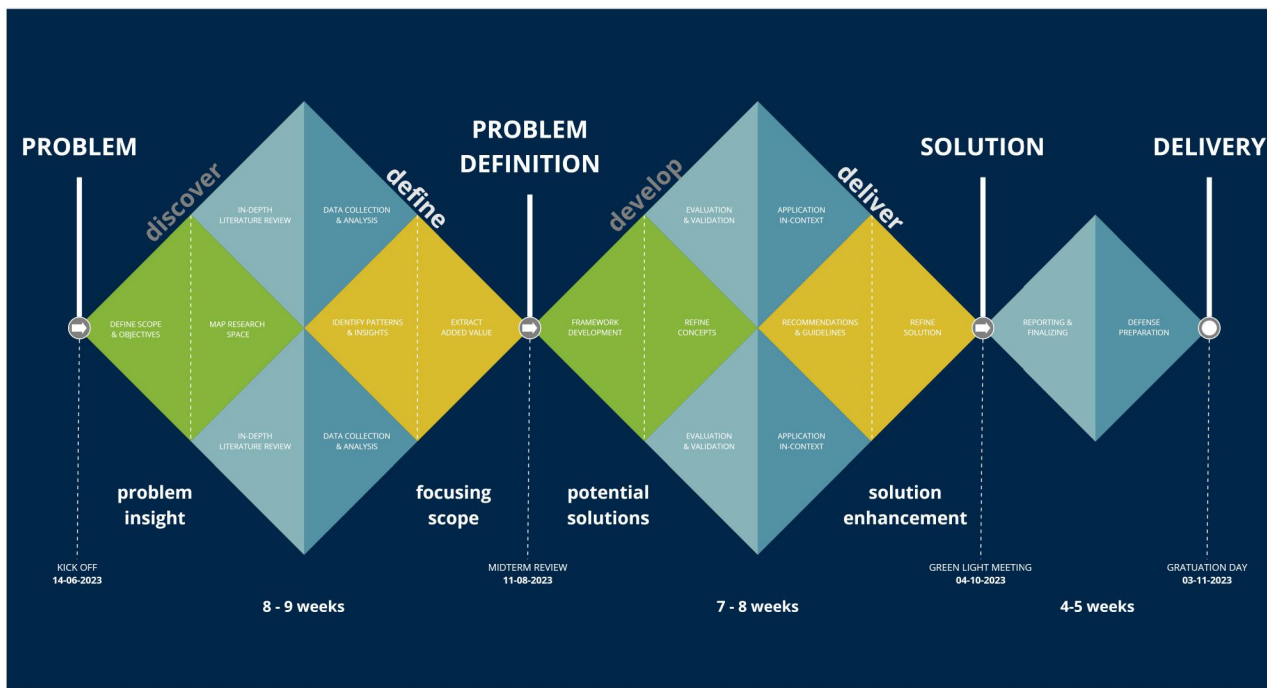
PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the different phases of your project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities should fit within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, mid-term meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining your approach, and please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any, for instance because of holidays or parallel activities.

start date 12 - 6 - 2023

3 - 11 - 2023

end date



The study follows a systematic qualitative approach to explore the impact of financial literacy on design projects during the fuzzy front end of concept development. The approach follows the double-diamond framework, with the inclusion of a third diamond that focuses on project delivery.

Weeks 1-8: The first phase includes an in-depth literature review on financial literacy and design thinking, identifying knowledge gaps and conducting expert interviews with design practitioners and academics. The collected data will be categorised into different orders of narratives, through which each research question can be addressed.

Weeks 8-16: The second phase involves developing the learning module and design thinking roadmap. It also involves assessing the relationship between designers and finance on an education-level through student surveys. Frameworks will be tested for iteration by obtaining feedback from interviewees of the first phase.

Weeks 16-20: The final phase prepares the project assignment for delivery, ensuring clear and accurate reporting. The presentation format for the project execution will be decided.

The project timeline spans 20 weeks, encompassing literature review, data collection & analysis, framework development, and reporting. In pursuit of the research objectives, the project will be structured as an innovative approach, addressing the parameters of desirability, feasibility, and viability. This will be achieved by addressing overarching research questions aligned with these parameters, guiding the project plan and approach.

MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, Stick to no more than five ambitions.

As a former aerospace engineering bachelor student, now pursuing industrial design engineering for my master's studies, I have observed the secondary role finance plays in most design projects. My hands-on experience as the finance manager for Stichting Out of the Blue Delft and as a business developer for the student Dream team, Silverwing Aeronautics, has shown the practical need for financial literacy in effective communication and seeking funding opportunities. Financial literacy empowers better decision-making, leading to long-term business success and increased credibility in a competitive landscape.

With a background in aerospace engineering, business development, and financial management, I am determined to enhance my financial literacy while exploring its impact on project success. This project engages a diverse set of skills, including design thinking, financial literacy, research, project management, communication, problem-solving, and creativity. My hypothesis is that seamlessly incorporating financial knowledge into the design thinking process enhances project viability and success during the fuzzy front end of concept development. By hopefully proving this, I aspire to gain a career that allows me to exercise this knowledge, whether it be on a project or executive level.

I am excited about this research project as it aims to fill a significant gap in the existing literature regarding the role of financial literacy in design innovation. By addressing this underexplored area, I hope to contribute valuable insights to the field of industrial design by emphasising the importance of financial literacy in the early stages of design innovation. The project involves conducting in-depth qualitative research, including interviews with practitioners and academics familiar with financial literacy, to uncover the synergy between design thinking and financial capability.

The goal is to develop a comprehensive learning module and design thinking roadmap that equips designers with essential financial skills, empowering them to make informed decisions and seamlessly navigate financial aspects in their creative process. The hope is that this research benefits the design community by emphasising the value of financial literacy and expands my own expertise, positioning me as a skilled professional driving positive change within the design industry.

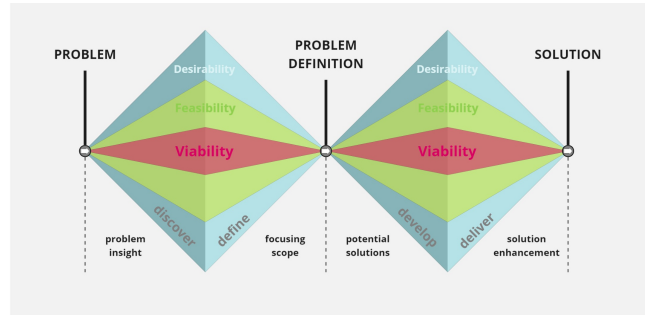
FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.

"Nothing is easy about finance. It will always be a pain-point in any business."

Appendix B: Research Direction

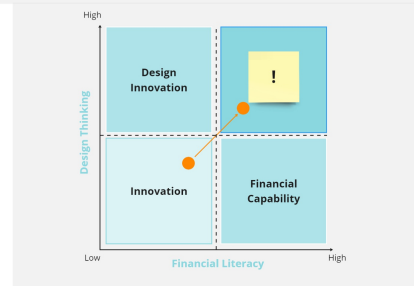
Designomics: Maximizing Design Innovation with Financial Literacy



My goal is to find synergy between financial literacy and the design thinking process during the 'fuzzy front end' of project innovation.

By understanding this I can help designers and engineers during innovation projects by designing a roadmap and learning module for their guidance.

This not only helps them to make better informed decisions but will hopefully increase the viability of their design innovation.



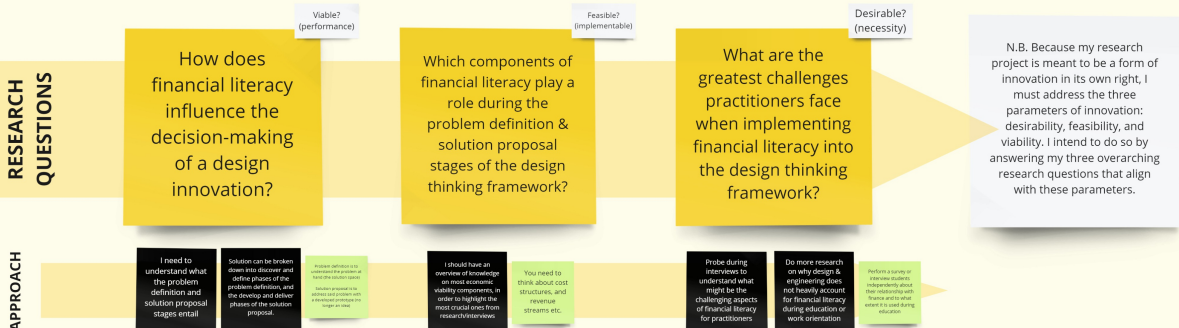
So what are my research questions? To know this I must first understand what assumptions I am making.

There is synergy between financial literacy and the design thinking framework.

Financial knowledge impacts a design innovation project's outcome.

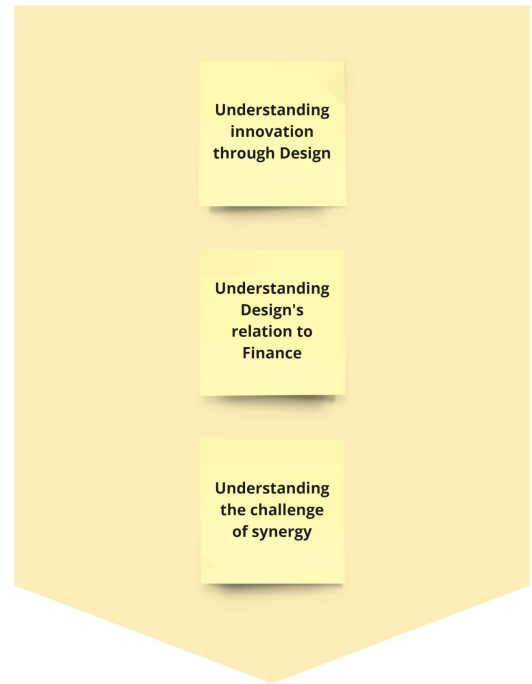
Financial literacy plays a crucial role in the viability of an innovative design project.

Phase One: Problem Definition



Appendix C: Literature Overview

Design Thinking & Financial Literacy






Problem:

What is the role of financial literacy during the 'fuzzy front end' of design innovation?

Assignment:

1. Design a roadmap which addresses the role of financial literacy during the 'fuzzy front end' of design innovation
2. Design a learning module that enables designers to make better decisions during the 'fuzzy front end' of design innovation using financial knowledge.

The future of a designers approach to Innovation    

Identifying the synergy between finance and design within the design innovation framework

Research in context

Outcome

Objectives

Finance

A significant body of research has demonstrated that more financially literate managers have better economic outcomes (Atkinson & Ryan, 2008; Lounsbury et al., 2011; Lounsbury & Glynn, 2001, 2004).

Our primary interest here is to explore how financial literacy is related to how they can have an impact on the company's performance.

Research has shown that having strong financial literacy skills is a significant predictor of financial success in a variety of contexts, including personal finance, business, and investment decisions (Lounsbury & Glynn, 2001, 2004).

Financial tools such as digital financial trackers are believed to help individuals to keep track of their income and expenditure, and thus, were more relevant when faced with a financial shock.

Financial Literacy: Financial Knowledge + Skills, Motivation and Confidence

Financial Capability: Financial Literacy + Financial Tools & Services

Three key areas of financial literacy: conceptual definitions, measurement of the elements, and financial education.

Financial capability is broader than literacy - including not only the ability to act but the opportunity to act.

Budget allocation is very important during product innovation/development as it dictates which aspect of the project receives what amount of money. Therefore, miscalculating budgets or incorrect filing could lead to poor decision making.

When there is an imbalance of financial knowledge across departments, accounting & finance then tends to have the upper hand

Understanding finance has a positive relation with the success of a design project, though it is not clear how it is measured (KPI).

Financial capability is the ability to implement financial knowledge/literacy and find opportunities to act.

Affinity with digital tools is crucial for the future of financial performance

Having poor financial literacy can lead to mistakes which in turn leads to poor decision making or enforced influence from non-designers.

How can project success be measured when financial literacy is implemented?

What are the most common digital tools used to assess financial performance in a design project?

What are examples of poor decisions made during design projects?

Design

Design thinking has gained popularity with innovation practitioners and academics alike, many of which promote design thinking as a highly relevant innovation approach (Brown, 2008; Martin, 2009; Liedtka, 2015).

"We view design thinking as a human-centered approach for innovation"

"We've invested a lot in our capacity to generate new ideas and create prototypes, given a lot of time to ensure good implementation of these ideas"

To derive tangible benefits from technological innovation, companies need to learn to exchange knowledge across the entire organization and its value creation network - not only with direct customers and suppliers.

"This silo structure results in development teams becoming 'lost' when navigating through the company"

Practice shows that teams that use design methodologies encounter implementation challenges due to the larger infrastructure of the organization they are part of.

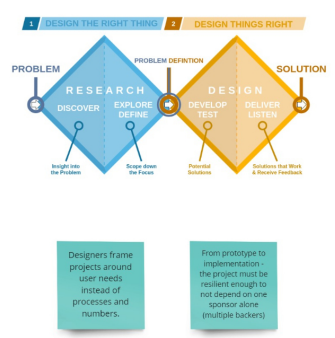
Communication overload sees multiple departments challenge the legitimacy, viability, and feasibility of an innovation project.

Design Innovation thrives. A user focus, iterative problem reframing, visualization, experimentation, and diversity

'Valley of Death' phenomena experienced between the opportunity discovery and product development phase.

Designers frame projects around user needs instead of processes and numbers.

The need for a specific and shared innovation strategy has been recognized (Kotler, 2006; Moss Kanter, 2006; Ripstein, 2015).



Design thinking is not only a highly effective innovation tool but also helps to bring projects from ideation to implementation

Research suggests that different departments of an organization that comprehend internal and external challenges would enhance future opportunities

Designers must balance all facets of development in order to avoid stunted project growth

At what stage of the design thinking process is it necessary to reflect on implementation?

What challenges do design projects face when presenting their ideas to other departments/stakeholders?

What is the most difficult aspect of an innovation project for designers?

Framework



Innovation coaching has become an important process for companies who are building internal innovation capabilities.

VUCA demands that you avoid traditional, outdated approaches to management and leadership, and day-to-day working. These are usually too sluggish and limited to be effective in a turbulent environment.

Strategic Product Design (SPD) brings the power of design to innovation strategy by integrating the strengths of design and business disciplines.

The programme prepares students to design strategies, processes and value propositions for enabling organizations and ecosystems to innovate collaboratively and with meaningful impact.



BUSINESS VALUE OF SKY ON
THE BENEFITS OF VENTURING BEYOND COMPLIANCE



Innovation coaches and managers understand project complexity and are familiar with the design thinking process

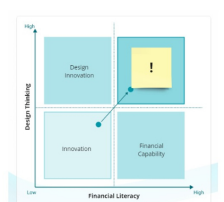
Risk Management and VUCA are countermeasures to prevent project failure

As an SPD student, I must merge design and innovation strategy by integrating design principles with business acumen.

Understanding the framework of merging two principles into one strategic value proposition

Are innovation coaches/managers the best individuals to interview?

What elements of Risk Management and VUCA are most relevant to financial literacy during design innovation?



Process

Interviewing involves interviewing team designers, stakeholders that are affected by the topic and an expert in the field during the design thinking process. It is important to understand the factors and context that influence and align with the topic objectives to interview.

Rich access to multiple projects and employees within an organization is essential for successful organization innovation research.

Embedded case study - Rich data - Semi-structured exploratory interviews

Materializing to Align: Visual expression of designers help teams to align (Integration and Materialization) and share perspectives by addressing tangibility (Carlgren, 2013).

The increasingly digital delivery of the teaching material threatens to marginalize some segments of the population.

To discover rich data, one must interview those who are familiar with the presented concepts and must probe to uncover hidden meanings behind decision making.

The delivery of a solution should consider visual comprehension and a means to prevent marginalization.



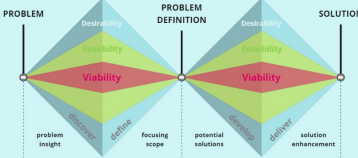
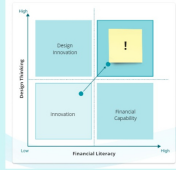
Quotation

Statement

Summary

INNOVATION

Appendix D: Interview Process

Introduction	About me	My academic/ professional background	My graduation project and working title	My connection to the topic
About them	About you	Your academic/ professional background	Your current role in your line of work	Your connection to the topic
Why you?	My goal is to find synergy between financial literacy and the design thinking process during the 'fuzzy front end' of project innovation.	Your background/role coincides with my topic from the design and/or financial perspective(s)	I am interested to know about your experiences on a project level	
Context		Approach to project innovation is to look at these main elements and see whether the problem you are addressing is aligning with them		A way which a lot of academics and practitioners like to follow is the 'design thinking approach' (according to Brown, 2009; Martin, 2009; Liedtka, 2015)
My Objective	But as I am someone obsessed with financial pragmatism, I would like to put more focus on the issue of viability - as this is the aspect most in line with financial literacy (my assumption)		I believe that becoming financially literate will have a significant impact on the outcome of an innovative project.	
Their current or past project	Could you tell me about a project you have recently worked on which you would consider innovative? Projects size, budget, number of stakeholders, length (ongoing or definitive) etc.	Why would you consider it innovative?	What was your role in the project? involvement level	Is the project going well - was it a success or a failure? Or can you not say at this time?
Probe 1	What kind of financial decisions had to be made during this project?	How did you know that this needed to be addressed?	How did you go about finding the answer?	Do you think there are any adjustments that could have been made in hindsight to improve the quality of the project?
Probe 2	You previously mentioned certain financial choices which were made during the project, which ones would you consider almost necessary to any project? They do not have to be ones which were previously mentioned.	Why these components?	Do you think that most project members grasp these components? Or are some better accustomed than others?	Why do you think that is?
Probe 3	Based on all your answers so far, which aspect of financial decision making do you find the most challenging?	Why?	Which aspect of financial decision making do you find most easy?	Why?
Final Remarks	Have you ever considered this much the impact of financial literacy on your project(s)?	Is there anything you feel like I missed when discussing this topic with you?	Would you like an update on how I plan to use this interview knowledge for the development of my graduation project?	What makes/made you feel capable of dealing with these aspects?

Expectations/Opinions

Challenges or concerns

Objectives

Specific aspects of decision making

Desires/Outcomes

Aspirations or effects of decisions

Problems

- Transition to innovation is a slow process. It takes time to build a business case. The value of innovation is often realized only after the business case is built.
- There is a lot of talk about innovation, but not much action. It is often just a buzzword.
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- There is a lot of talk about innovation, but not much action. It is often just a buzzword.

Difficulties

- Net present value is tricky to understand.
- Working off of assumptions is necessary but it can also be very difficult.
- If the business case is disappearing, it is necessary to re-evaluate the business case.

Budget is broad.

- Budget is a big concern.
- Having enough data to make informed decisions is a big hurdle.

Behavioural

- People are often risk-averse and prefer the status quo.
- People are often risk-averse and prefer the status quo.
- People are often risk-averse and prefer the status quo.

Market

- Learning the market is the first step. How much of it is accessible?
- Based on customer needs and market size, you can find a niche market.

Budget

- Security margin on use of additional external budget.
- Then follows the project budget.

Development

- For you need the product to determine the cost to build.
- Talking to suppliers and looking at cost to build.

Trade-off

- The cost of delay versus the cost of replacement.
- Doing a proper analysis of cost price and maximum spend.

Business Case

- It is important to understand your business case. How much of it is accessible and how much of it you can have a share in?
- It is important to understand your business case. How much of it is accessible and how much of it you can have a share in?

Value

- What challenge/problem is your innovation solving? This answers the desirability aspect.

Forecast

- A good forecast is a key to success. It helps you to understand the market and to make informed decisions.

Designer Skills

- Designers are often the ones who bring the vision to life. They are the ones who make the product work.

Timeline

- Things speed up when external requirements document was set.
- First days of project, deliverable value rises tremendously.

Communication

- Talking to stakeholders is key. It helps you to understand the market and to make informed decisions.

Impact

- You can measure the impact of your innovation by its financial success.

Value Case

- Having a value case for your innovation is key. It helps you to understand the market and to make informed decisions.

Project Skills

- Project skills are essential for success. They help you to manage the project and to deliver the results.

Performance

- Performance is a key indicator of success. It helps you to understand the market and to make informed decisions.

Learning Curve

- The learning curve is a key to success. It helps you to understand the market and to make informed decisions.

Methods

Higher level decisions and processes

Insights

Neutral statements or facts

Value

- Value is a key indicator of success. It helps you to understand the market and to make informed decisions.

KPI's

- KPI's are essential for success. They help you to manage the project and to deliver the results.

Process Phases

- Process phases are essential for success. They help you to manage the project and to deliver the results.

Awareness

- Awareness is a key indicator of success. It helps you to understand the market and to make informed decisions.

Project Components

- Project components are essential for success. They help you to manage the project and to deliver the results.

Budget

- Budget is a key indicator of success. It helps you to understand the market and to make informed decisions.

Business Value

- Business value is a key indicator of success. It helps you to understand the market and to make informed decisions.

Investment

- Investment is a key indicator of success. It helps you to understand the market and to make informed decisions.

Financials

- Financials are a key indicator of success. They help you to manage the project and to deliver the results.

Roles

- Roles are essential for success. They help you to manage the project and to deliver the results.

The goal is to create a roadmap and learning module that equips designers with essential financial skills, enabling them to make better decisions during the 'fuzzy front end' of design innovation.

Theme Clusters

Accrued Knowledge

Performance

Not only profit but design impact should measure innovation success, while assessing user adoption.

Profit should not be the only KPI. It also considers human impact on performance parameter.

KPI set for amount of desired customers by Q3(25).

KPI's

KPI's are necessary to measure progress or project success. But this can only come in a later stage once the business case is understood.

But implement KPI's before you actually build it.

Profitability and ROI come at a much later stage (Q3/15).

In later phases you need KPI's to measure progress.

Only really come - Most of the development is done can you understand what KPI's are needed.

Project Components

Understanding the necessary components of the value case and business case and indicating where they belong during viability assessment.

Research interest your market share by doing market research, fast response rate, the sales, customer experience.

How being used weekly, bi-weekly, quarterly, semi-annually, annually, bi-annually, etc.

Don't follow the double diamond approach - more stage gate method.

Development Costs

Developing your innovation comes with a bunch of costs: production, prototyping, software, hardware, etc. This is detailed for the purpose of the investment case.

first you need the production cost to determine the unit cost of each product.

Talking to supplier's and looking at cost to build.

Development costs are used to value than general market share for example.

Looking at concepts worth and cost to create it.

Product development cost for client.

Considering costs of new software.

Trade-off

The cost of delay versus the cost of replacement.

Being a proper analysis of cost price and maximum spend.

It's a problem if product development is too costly in relation to ROI.

Capex - Opex ratio.

You must understand your business/concept goal is to make money, create valuable reputation or reduce costs.

Market Awareness

Value

Maximizing design value is crucial for successful innovation. Therefore, customer validation is needed to determine potential value.

Product teams, business owners, users to the system, business value, user feedback, prototyping.

Value case: market revenue, potential or cost reduction potential.

Determining potential value of concepts has nothing to do with costs yet.

Therefore, concepts which are validated by customers are needed.

In scrum, Story points equate the value in money.

Value Case

Having a feeling for how value can be delivered to customers in reality. You increase the chances of long-term user commitment.

Lower the transition of ideas into something valuable, yet tangible.

It's really about the value on the customer side.

Being able to prove that you have the capabilities of doing being created or even development because share your product.

The goal is to keep them as customers for the rest of their lives.

Value

What challenge/problem is your innovation solving? This answers the desirability aspect.

Desirability = products & innovation.

Feasibility = IT.

Looking at the problem definition during the pre-funding phase.

Assess likelihood of funding after testing problem definition, then begin to write grant applications.

Market Value

It's important to understand your desired market to size and how much of it you can have a share in. This is a means to deal with competition and finding your USP.

Looking into the market: its size, how much of it is accessible, and the potential market share.

How much of the market is accessible.

Based on customer talks and market studies, you can find interesting market position combination.

Comparing yourself to the competition.

Looking at market share, competitors, etc.

Knowing your target market.

Business Case

Your business case contains the monetary value of your innovation. Therefore it must be unique and decisive, with description of potential income, as well as expenses.

In order to be eligible for funding, you must have a clear business case, or being value to the local economy.

Viability Track = Business Case.

Need to decide value to track. It is about making money, business value or reducing costs.

Business Value

Business value stream -> build a business case.

Business model and other components are left for the boss.

Business model and other components are left for the boss.

Never been being a successful innovator, you are the same then your competitors. Your innovation is often covering customer's needs and unmet needs.

Cost is not always as relevant as the whole business model.

Costs opportunities by looking at the patterns and behaviors, and then their purchase and target group.

Preceding Skills

Awareness

Being aware of the project scope and trying to remain within that scope. There is a case of understanding the necessary time and resources to make progress.

Key aspect of scrum is transparency and how much time stuff costs

Understanding what is the first thing you need to understand in order to progress the project. You have much to get out of these ideas, experiments, research

Designer Skills

Designers take a top-down approach to their work. Product development ideas for growth are ready to go. Some work with an MVP as a way to learn and iterate. Designers are good at understanding the user's needs and how to address them. They are also good at understanding the business and how to align the product with it.

Look into a more complete way of designing. Financial perspective of people in context for designers

Beer cooler method. When you can write in one minute what the potential value is.

Project Skills

Having a foundation in the project lifecycle is always a plus. Before you start, you need to know the scope and objectives of the project. This helps you to manage the project and avoid any issues that may arise.

Back of the envelope calculations are good enough to start a business case with

Forecasting the project outcome will reveal money saved and value added

Learning Curve

Better to make mistakes sooner rather than later in order to accelerate the learning process. Failure is a part of success.

High level value case - falling quickly to learn faster

Convincing the investor about value rather than their total investment. They are more likely to invest in a high level value case.

Impact

You can measure the impact of your innovation by its financial success.

Twisting the financial impact of your product sooner rather than later is highly rewarding

Associate spending with impact

Intrinsic Motivation

Roles

Client is the product owner and in charge of quality assurance

Product owners are not too worried about the project level finances

Their job is to think about the externalities of those financial decisions

Multiple responsibilities are involved. Designers are in charge of the product, but it is the job of the investor to provide the capital. Designers are responsible for the product, but it is the job of the investor to provide the capital.

Financial risk is a reality. Designers are not always aware of the financial risk. They are not always aware of the financial risk.

Product owners are not as much as designers. There are people on each side of the project who are not as much as designers.

There is a designer and a designer. There is a designer and a designer.

Communication

Having an insight, understanding of you, you need the money. Designers are not always aware of the financial risk.

Talking to the CFO for advice really helps

Making technology understandable for investors

Talking to investors with more experience, and having feedback. This helps designers to better articulate the need for financial support.

Wants to be able to talk to the CFO in their language

Being able to talk about money and not about things that are difficult to hear. Being able to talk about money and not about things that are difficult to hear.

Wants to be able to talk to the CFO in their language

Behavioural

Designers take on the responsibility of the product. They are not always aware of the financial risk.

Designers are not always aware of the financial risk. They are not always aware of the financial risk.

The result of financial consideration will close people off from the creative process

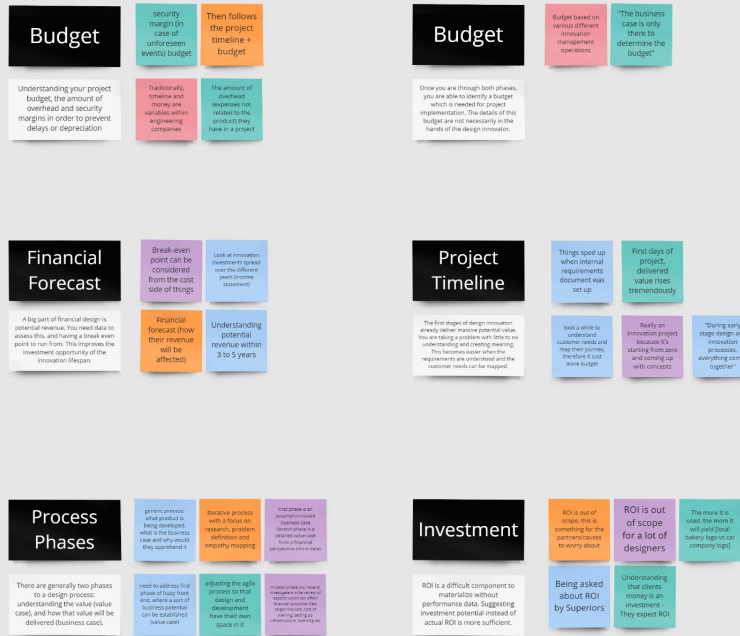
As an all-arounder, you have the ability to handle multiple tasks. This is a key skill for designers.

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Viability Process



Designer Challenges



Building Blocks

Establishing a Financial Foundation

Throughout the innovation process, designers must grasp specific financial knowledge. The primary constructs are understanding your customer, the development costs, and how that relates to profitability and thus return on Investment. In knowing this, one can establish viable performance indicators to determine project growth and performance.

Navigating Market Choices

It is essential for designers to be aware of the market they wish to deliver value in. Therefore, market fit & accessibility is critical to design viability. Without a customer or user, the innovation cannot succeed.

Primary

- Knowing the potential market (think your many customers, what do you want to provide it and how that impacts new revenue streams)
- Looking at concept worth and cost to create it
- First you need the production cost to determine the unit cost of such products
- Talking to suppliers and looking at cost to build
- Doing a proper analysis of cost price and maximum spend
- Its a problem if product development is too costly in relation to ROI
- More stage gate method than double-diamond approach
- Only really once most of the development is done can you understand what KPI's are needed
- Profitability and ROI come at a much later stage

Secondary

- KPI set for amount of desired customers by 2025
- Considering costs of new software
- Development costs, revenue growth, licensing costs, IT costs
- Capex - Opex ratio
- The cost of delay versus the cost of replacement
- In later phases you need KPI's to measure progress
- But implement KPI's before you actually build it

Tertiary

- Development costs are easier to attain than potential market shares for example
- Product development cost for client
- Time being used easily (to build means quality assurance (10% of project management (20%)) etc.
- Profit should not be the only KPI but also consider human impact as performance parameter
- You can increase your market share by doing proper marketing, fast response times, after sales, customer experience

Primary

- Have to decide value track to it about making money, business value or reducing costs
- Knowing your target market
- How much of the market is accessible
- "It's really about the value on the customer side"
- Looking at market share, competitors etc
- Comparing yourself to the competition
- Based on customer value and market study you are first interesting market product combination
- No business case for constantly improving an already existing innovation
- Being able to prove that you know the real value of what is being created or needs development time to value your product
- Iterative process with a focus on research, problem definition and empathy mapping

Secondary

- Love to translate ideas into something valuable, yet tangible
- The goal is to keep them as customers for the rest of their lives
- Therefore, concepts which are validated by customers are needed
- Looking into the market to see how much of it is accessible, and the potential market share
- Value case: market revenue potential or cost reduction potential
- Address likelihood of funding after defining problem definition, then begin to write business case
- Cost is not always as relevant as the whole business model
- Product owner engaged in business value for the business but not value there is a point of looking anything

Tertiary

- Determining potential value of concepts has nothing to do with costs yet
- In order to be eligible for funding, you must have a clear business case or bring value to the local economy
- Business value stream > build a business case
- Viability Track = Business Case
- In scrum, story points equate the value in money
- Value based pricing is not beneficial unless you are better than your competitors or offer something completely unique and innovative
- Establish opportunities by looking at the portfolio and attract, and then their priorities and target services

Mindset to Drive Innovation

Before an innovation process can begin, designers must already possess a holistic mindset. This will steady project growth, as they will continue to drive the project forward while quickly learning from their mistakes. This shifts the design process more efficiently from assumption-based to fact-based.

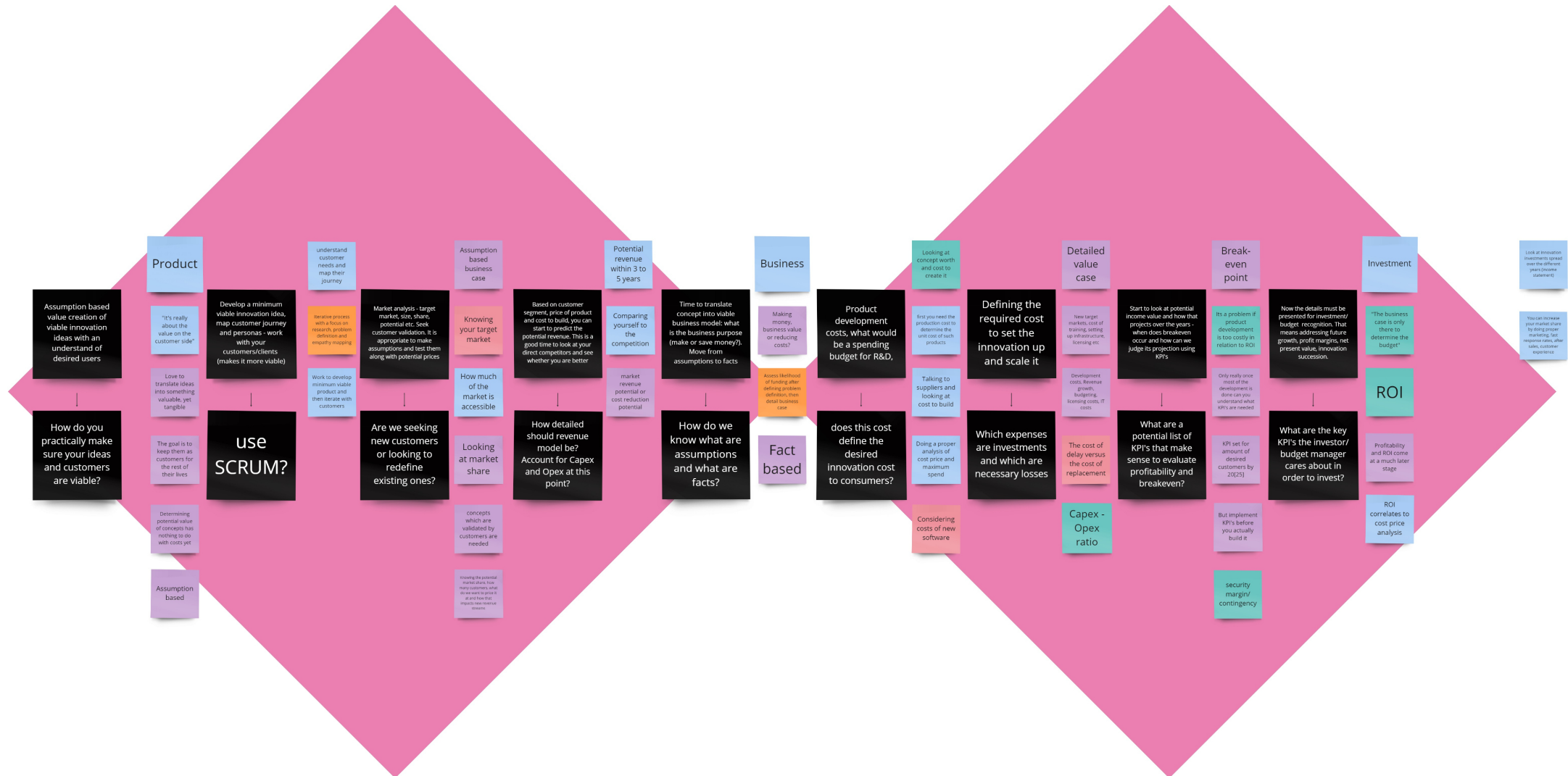


Opening up Financial Dialogue

Designers should understand why project viability is imperative to their innovation process. Open communication with finance officers and departments across the organization in the early phases of project development enables a proactive approach to financial components. Synergy between designers and financiers will also ensure equilibrium in their project roles, while opening dialogue for both parties to learn from.

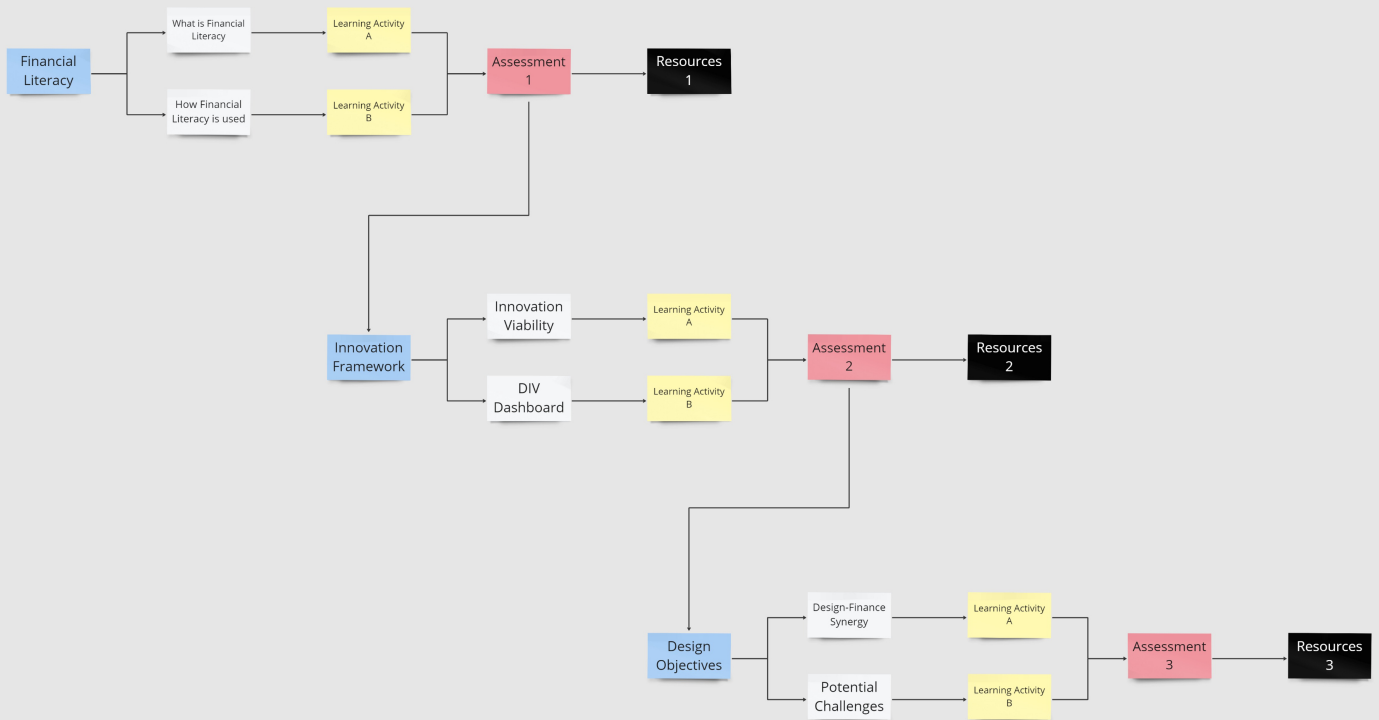


Appendix F: Data Integration

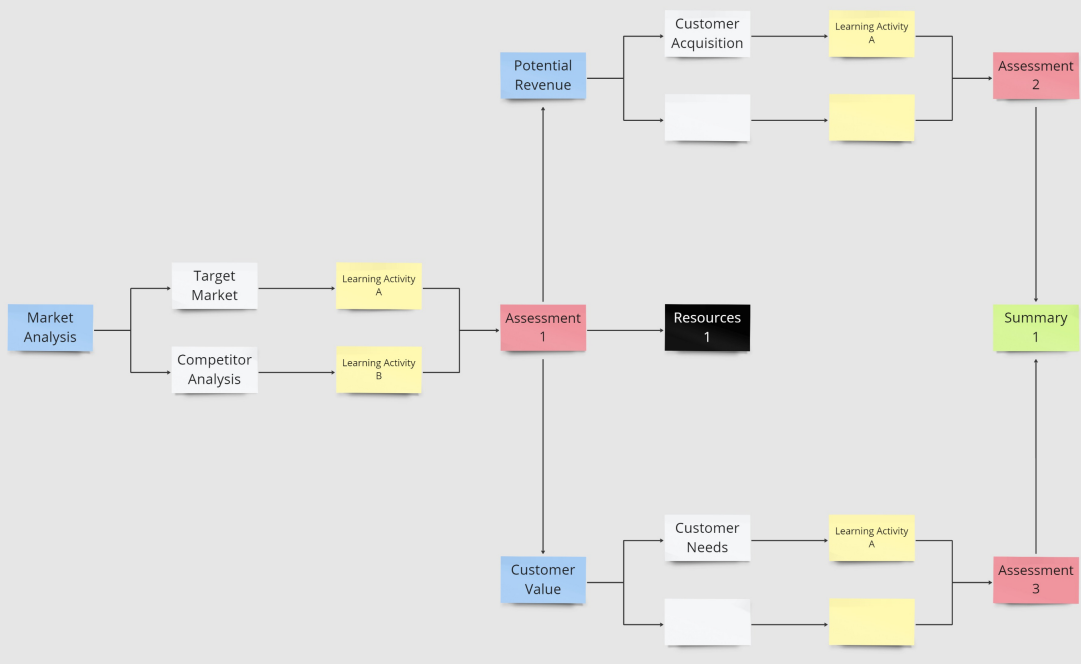


Appendix G: Module Architecture

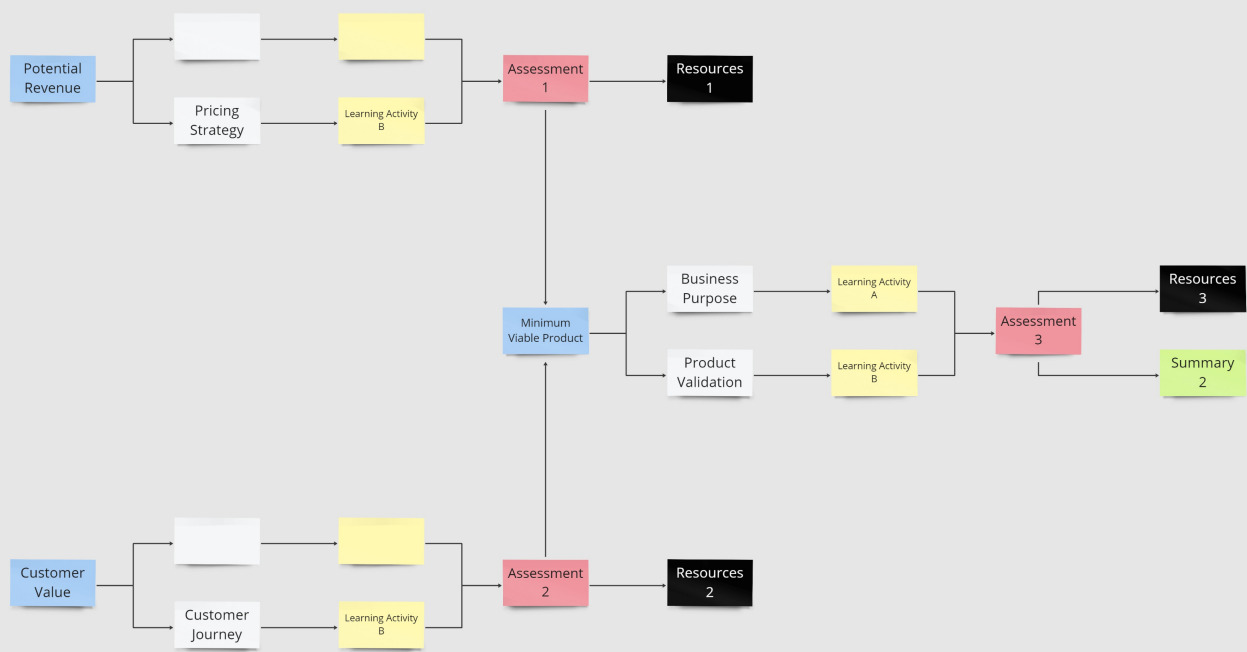
M0: Introduction



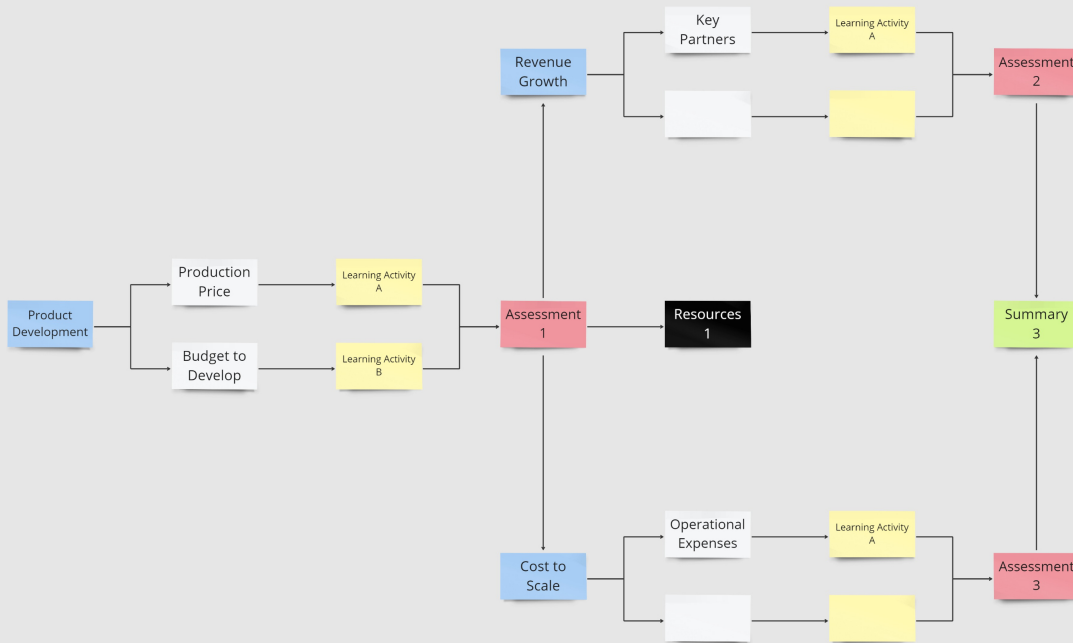
M1: Customer & Market



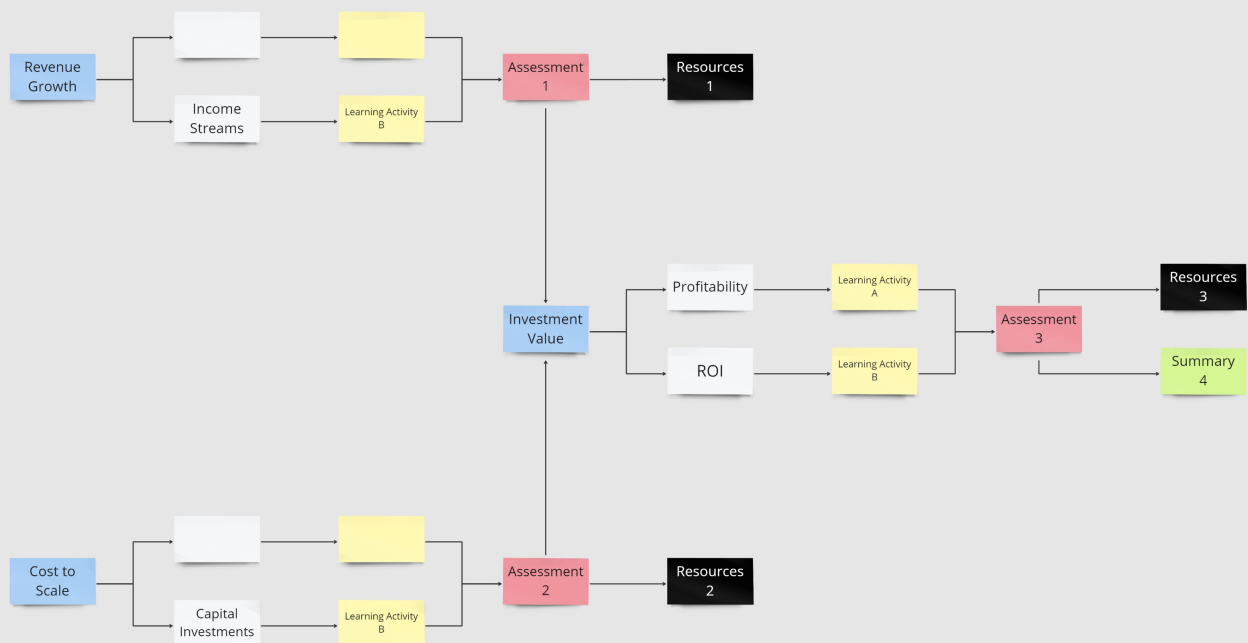
M2: Product & Market



M3: Expense of Income



M4: Solution Performance



Appendix H: Module Architecture

Learning Activity - Answers

Minimum Viable Product: Business Purpose

Feedback: Great job! You've successfully completed the Business Purpose activity. Here are the correct answers and explanations:

1. The correct answer is (b). The primary purpose of Business Purpose in design innovation is to establish the financial objectives and goals of the project.
2. The correct answer is (c). Marketing Strategy is NOT a component of Business Purpose. Business Purpose primarily focuses on financial objectives and strategies.
3. The correct answer is financial objectives and key performance indicators (KPIs). Business Purpose is a comprehensive description that outlines the financial objectives and key performance indicators (KPIs) of an innovation project.
4. The correct answer is cost-benefit analysis. Financial literacy in innovation projects involves conducting a thorough cost-benefit analysis.
5. The correct answer is: Return on Investment (ROI) is a measure of the profitability of an investment, calculated by dividing the net profit from the investment by the initial cost.
6. The correct answer is: Market Alignment involves ensuring that the innovation addresses market needs and demands, considers the competitive landscape, and aims to capture potential market share.
7. The correct answer is (b). It demonstrates the importance of setting clear financial objectives.
8. The correct answer is (c). This addresses the aspect of Cost-Benefit Analysis within Business Purpose.
9. The correct answer is False. The Business Purpose of an innovation project does not primarily focus on product design but on establishing clear financial objectives.
10. The correct answer is True. Financial literacy in innovation projects indeed involves assessing market needs and demands to make informed financial decisions.

Assessment - Answers

1. **Example of a Good Answer (3 points for explanation, 3 points for stating challenges):** The decision to acquire the new battery technology is of paramount importance in the context of our EV project's financial success. Firstly, it directly affects our financial goals, particularly our revenue targets and profit margins. The new technology could potentially reduce production costs, leading to higher profit margins. Secondly, in the fiercely competitive EV market, it's crucial to stay ahead in terms of technology. Acquiring this technology aligns with our Business Purpose's key performance indicator (KPI) of capturing a significant market share. By offering an improved product, we can compete more effectively. However, we must ensure that the initial investment aligns with our ROI goals outlined in the Business Purpose.
2. **Example of a Good Answer (3 points for benefits, 3 points for quantification):** In our preliminary cost-benefit analysis, we estimate the initial investment for acquiring the new battery technology to be \$5 million. This includes the purchase cost, research and development expenses, and any associated costs. On the benefit side, we anticipate several gains. First, by reducing production costs through the new technology, we estimate potential savings of \$2 million annually. Second, the improved battery performance can help us capture an additional 5% market share, translating to an estimated \$8 million in revenue annually. Considering these benefits against the initial investment, it appears that the benefits significantly outweigh the costs.
3. **Example of a Good Answer (2 points for recommendation, 2 points for justification):** Based on our analysis, I recommend proceeding with the acquisition of the new battery technology. This recommendation aligns with our Business Purpose, which emphasizes capturing a significant market share and improving profit margins. The cost-benefit analysis indicates that the benefits, including cost savings and increased revenue, significantly outweigh the initial investment. Additionally, staying competitive in the EV market is crucial, and this decision enhances our position. Therefore, investing in this technology not only aligns with our financial objectives but also supports our Product Validation principles by reducing time to market and ensuring market readiness.

