

MASTER THESIS 2021

PRIYANKA SHAH

ACCELERATING TWIN TRANSITIONS THROUGH A LIMINAL STRATEGY

A RESEARCH WITH BARCO TO FACILITATE CUSTOMER CENTRIC SUSTAINABILITY



what

what



was

could



GRADUATION COMMITTEE
PROF. IR. VOUTE
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be.

IN COLLABORATION WITH
GUY VAN WIJMEERSCH
AN SAVEYN

MASTER STRATEGIC PRODUCT DESIGN

Faculty of Industrial Design Engineering, Delft University of Technology

COLOPHON

MASTER THESIS

ACCELERATING TWIN TRANSITIONS THROUGH A LIMINAL STRATEGY
MASTER STRATEGIC PRODUCT DESIGN

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ELABORATING ON THE TITLE

Accelerating twin transitions through a liminal strategy, a research with Barco to facilitate customer centric sustainability.

Accelerating twin transitions:

Accelerating means increasing the speed or rate of occurrence. Transition means the process of passing from one stage to another.



Img 1. Visualization to represent Barco's transition towards customer centricity.



Img 2. Visualization to represent Barco's transition towards sustainability.

The two internal transitions or the twin transitions at the core of this research are: customer centricity (*Img 1*) and sustainability (*Img 2*). Hence in this case, accelerating twin transitions refers to increasing the pace at which Barco becomes customer centric and sustainable.

Liminal strategy:

Liminal space is a connecting space like a bridge (*Img 3*) or corridor. It is not an end in itself but supports a transition. Liminal strategy can be described as **a bridging strategy**.



Img 3. Bridge as an example of a liminal space

In this context the aim of liminal strategy is to bridge the distance between Barco Employees and Barco's End customers **through integrated conversations** around the topic of sustainability. It is essential that these integrated conversations stay consistently relevant. There should be **dual value creation** during this process of bridging i.e. these conversations should create value for both the stakeholders involved.

Research with Barco:

Research means to systematically and creatively explore a topic in order to increase knowledge. Barco is a B2B company that provides innovative visualization and collaboration solutions to Healthcare, Enterprise and Entertainment markets. In this case the topic of exploration was regarding how to include End customers in Barco's transition towards sustainability. For this thesis the scope for research was narrowed down to the Clickshare product that offers collaboration solutions to the Enterprise market.

Facilitate customer centric sustainability:

Facilitate means to help bring about. **Customer centric sustainability** is a new concept introduced where companies are encouraged to prioritize their end customers' needs while maintaining a long term perspective. Through this thesis the intention is to help in accelerating the desired internal transition around sustainability by being customer centric. Understanding the needs of the customers around **sustainability** will make it **a more tangible concept** for the employees at Barco. Eventually, with adequate demand from the customers' side, it could also become part of the product value proposition or drive innovations within the company.

ACKNOWLEDGEMENTS

I feel a deep sense of gratitude as I write this master thesis. This document marks the end of a very special journey catalysing both personal and professional growth. On this journey I came across some very special people who challenged and supported me through the master. Being away from home, especially in the middle of a pandemic, was a challenging experience. These special people were instrumental in making this experience bearable and in some ways also a positive one. I would like to take this opportunity to express gratitude and show my appreciation for them.

Firstly, to my family who has always been there for me, Sona (my mother), Rahul (my father), Varun (my brother), Ketan (my uncle), Namrata, Mona, Rupa (my aunts), my cousins and my grandparents. The past few months have been very challenging for my family, especially my mother and yet they always found the strength to look out for me. Thank you for challenging me, reasoning with me but eventually always backing my decisions. I also feel very grateful for my uncle's unwavering belief in me. I might not have pursued this masters if it were not for his encouragement and support.

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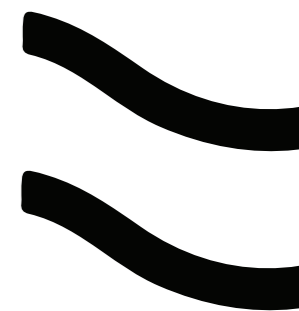
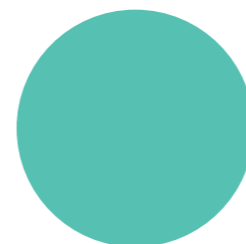
I can't thank my other family, here in Delft, enough. We met each other as strangers in the past two years but you stood by me through thick and thin. I couldn't have asked for anything more. Thank you Luca, Jeroen, Lorena for inspiring me, bearing with my eccentricities and yet always making me feel loved. Thank you Ashni, Hardik, Simone, Vivian, Layla, Aman, Gianmarco, Elena for guiding me, motivating me and helping me grow not just on my thesis but as a person. Thank you Megha and Saurabh who took me in whenever I craved a sense of familiarity in these crazy times. Thank you Toni, Reddhi, Elisabeth, Poornashri, Ale, Alex for giving me those small moments of escape, and some deep conversations whenever I needed.

I came here and found many inspiring people who I got a chance to work with at different points. They shaped me through this journey and I would like to extend a big thank you to them. Orla, Ehsan, Charlotte, PJ Stappers, Froukje, Corrie, Gert Hans, Sijia, the entire BPC team and IDE Academy team. Thank you so much for the opportunities and the encouragement.

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I would like to dedicate this thesis to everyone mentioned above and all those who in diverse ways have contributed to the success of this study. I hope you enjoy reading this report and this project inspires you in some ways.

**"Connectedness has the power to counterbalance adversity."
-Bruce Perry**



SUMMARY

The master thesis “Accelerating twin transitions through a liminal strategy”, with Barco, intends to facilitate inclusion of their End customers in the company’s transition towards sustainability. For this, the topics of customer centricity, sustainability were researched using scientific literature. Insight into the company was gained primarily through interviewing various employees. Additionally, End customers and End users of the product were interviewed to understand their needs around collaboration and the topic of sustainability. While conducting research, interviews were also used as a means to test the level of abstraction of open questions that could elicit the most relevant and elaborate responses.

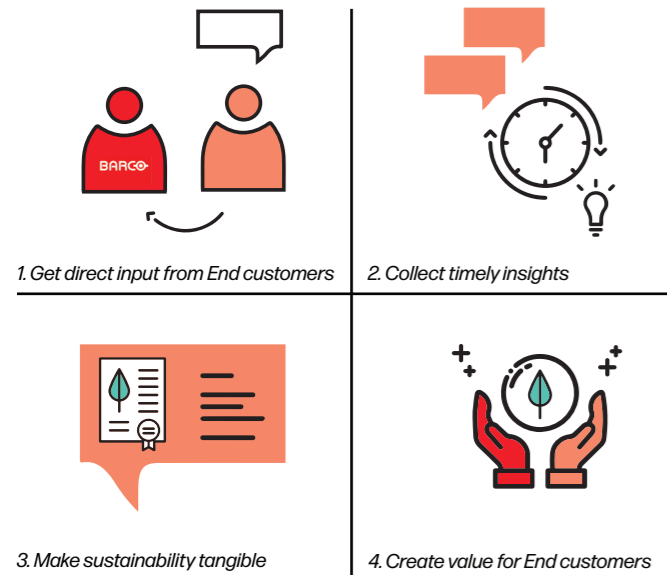
The key insights obtained from this research were:

Insight 1: Barco should seek **‘right’ input from** carefully selected **customers**.

Insight 2: **Timely insights** from End customers are required by Barco to drive swift action.

Insight 3: Barco should connect sustainability with customer engagement, to **make sustainability tangible**.

Insight 4: Initiatives undertaken by Barco on the **topic of sustainability should create value** for customers.



These insights were difficult to directly translate into a solution. The complexities surfaced in the form of paradoxes as soon as they were placed in context of the company’s current way of working. For example, Insight 1 was difficult to translate into a solution because End customer input is seen as necessary but difficult to obtain by Barco due to the way in which distribution is organised. Currently, *intermediaries are used as a proxy for customer input. Since *intermediaries are used, the ‘right’ input is not gathered. Such inherent paradoxes were addressed by using steps from the frame creation method, namely paradoxes, themes, frames and futures.

The key theme between the different paradoxes was identified as “distance between the company (Barco) and end customers.” To explore this theme various concepts were explored during the co-creation session. The learnings

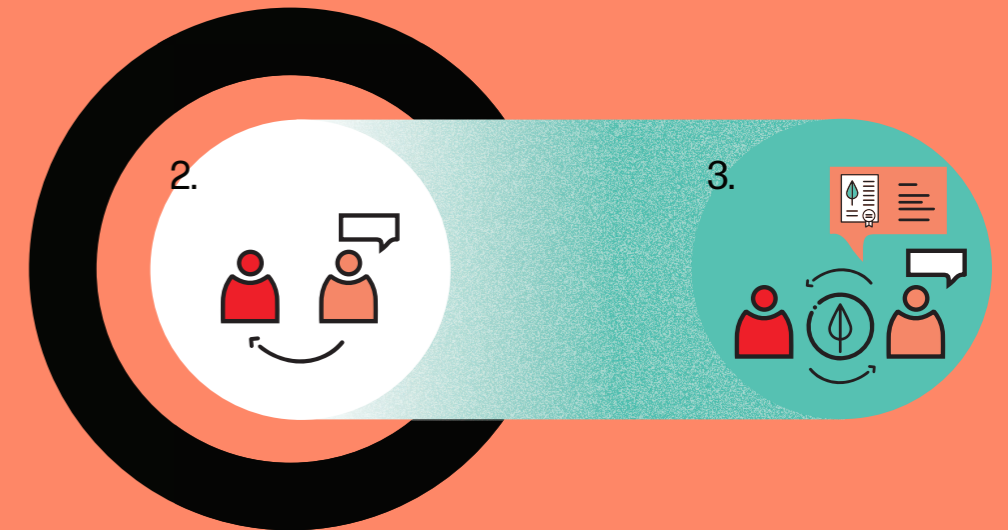
obtained helped in building a brief for the solution. The owner of the solution was defined as Barco since the problem requires them to create a space and adequate processes to bridge the distance.

The resulting solution of this process was a liminal or bridging strategy. This strategy was exemplified through the tactical solution of an AI-chatbot which faced both end-customers and Barco employees. It aligns with the core Barco strategy around growth through digitalization. This chatbot intends to support the end customer through their journey while initiating sustainability as an *integrated interaction. It also supports Barco employees with their routine tasks while keeping them aware about the customers needs and making sustainability tangible. The validation of the tactical outcome was done iteratively with both the end customers and Barco employees. They were excited about the solution and saw value in it.

To conclude, the key challenge of including End customers in Barco’s transition towards sustainability is the distance between the End customer and the Barco employees. It is expected that the findings of such a thesis can contribute to exploration of liminal strategy through integrated interactions as a means to drive customer centric sustainability by activating customers, communicating company values and making sustainability tangible for both the stakeholders.

**Intermediaries are described as those who carry messages between parties that are not able to meet, according to Cambridge Dictionary. In the context of this thesis Distributors, Integrators, Resellers, Consultants are the intermediaries between Barco and their End customers.*

**Integrated interactions: Integrated means to combine two or more things to be effective, according to Cambridge Dictionary. In the context of this thesis, integrated interactions means including sustainability conversations at relevant points while interacting with the End customers.*



Img 4. Visualization represents 1. the current way of communication via the intermediaries 2. liminal strategy or bridging strategy adopted to establish communication between Barco employees and the Barco End customers accelerating the transition 3. the dual value created through integrated interactions around sustainability.

CONTENTS

01	INTRODUCTION Project Context Project Brief									10
02	STAKEHOLDER OVERVIEW Company Context Key Stakeholders									18
03	PROJECT APPROACH Methods Overlap									26
04	DISCOVER Phase Literature Review Field Research Steps from Frame Innovation									34
05	DEFINE Phase Codes, Categories and Takeaway Triangulation and Scoping Paradox and Themes Problem Statement									56
06	DEVELOP Phase Frames and Futures Design Brief Initial Concept Concept Evolution									76
07	DELIVER Phase Final Concept Concept Validation Roadmap Final Solution Recommendations									88
08	CONCLUSION Discussion Recommendations Contributions Personal Reflections									102
09	REFERENCES Sources Appendix A Appendix B									110

01 INTRODUCTION

1.1 Project Context

1.2 Project Brief

*"Knowledge is a rare thing- you gain by giving it away."
- Ivan Sutherland*

What to expect

The introduction chapter elaborates on the context and set up for the project. It also discusses the situational relevance and aim of the project.

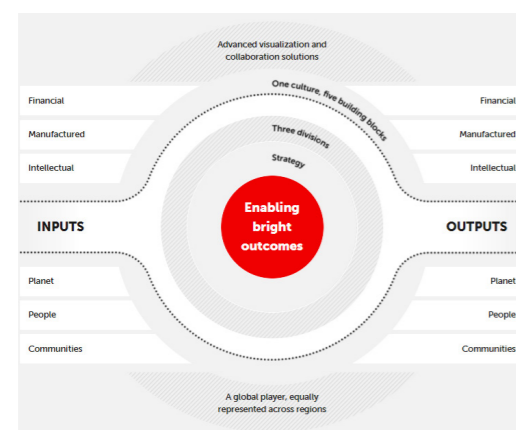
01 INTRODUCTION

1.1 Project Context



Img 1.1 Barco headquarters at Kortrijk, Belgium. (One Campus, n.d.)

This graduation project has been set up with Barco. Barco is a publicly listed company with 3303 employees that develop visualizations and collaboration solutions to help their customers work together, share insights and wow audiences. They focus on 3 main markets: Enterprise, Healthcare and Entertainment. ("Annual Report 2020," 2021).



Img 1.2. Enabling bright outcomes (Value creation model, n.d.)

Since 2017, Barco has held sustainability strategy as an integral part of their corporate strategy, 'Enabling bright outcomes' (Img 1.2). This is one of the reasons why Barco is going through various internal transformations. The three core areas within the sustainability strategy as defined by them are: Planet, People and Communities. ("Sustainability," n.d.) The planet area is defined as an intention to lower the footprint of the company and its customers. Current approach to meeting this intention is to use the Ecodesign program as a means to guide various processes within the organisation. Ecodesign is set up with a mindset of being future proof by benchmarking the latest environmental legislations, initiatives/ strategies from peers and leading organisations (Appendix B).

The four environmental domains that are used to calculate an Eco score for the

Ecodesign program are: Energy, Material use, Packaging & logistics, and End-of-life optimization (Barco, 2021). The people area is intended to nurture the company's employees by offering them the opportunity of learning and growing while providing them with a healthy and inclusive work environment. Finally, the community area is focused on operating ethically to deliver quality products. Within the scope of this area, they also intend to make technology and innovation accessible to more people ("Sustainability," n.d.). **This sustainable strategy is currently unidirectional,** meaning Barco is designing for some aspects of sustainability and communicating this to its customers.

Their latest *materiality assessment identified "Customer engagement" as one of the primary factors of importance to the business and its stakeholders. This factor is explained as meeting or surpassing customer expectations, building successful relationships with customers, and encouraging co-creation ("Downloads and more," 2021). Consequently, another major internal transition that Barco is going through is around being customer centric ("Barco Annual Report 2018," n.d.). They recently hired Mark Spenle as their Chief Digital & Information Officer, an addition to their core leadership titles ("Downloads and more," 2021). Amongst his many roles, one is to improve Barco's Customer Experience (CX) strategy. Barco is a B2B (business to business) company more often than not supplying through its intermediaries, thus having very limited contact with its End customers/ users (depending on the go-to

market approach of a product-service and the size of market). Barco has identified that it is beneficial to have inputs directly from the End customers and is allocating resources, creating processes, tools, channels while changing the company culture.

Simultaneous transitions (towards sustainability, customer centricity, innovation (1), product as a service (1), etc) within the organisational ecosystem result in complex and paradoxical challenges that require redefinition of the problem frames, bridging of various sources of data points and creating new relevant data points for capturing the necessary information.

Project set up:

The graduation brief was set up with Barco to work on the challenge of **including End customers** in Barco's transition towards sustainability and develop solutions with the lens of an outsider while building an adequate understanding of the company.

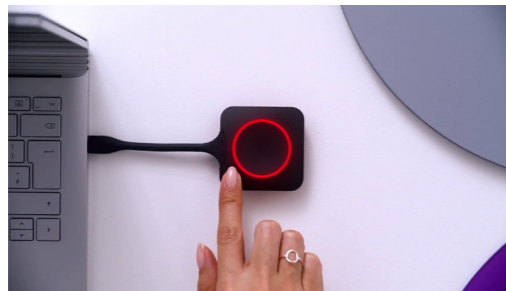


*Materiality assessment (Appendix A) is carried out to identify the potential ESG (Environmental, Social and Governance) topics that are relevant to the business or its stakeholders.

(1) These transitions have not been described since they are not the focus of this thesis.

1.2 Project Brief

The proposal formulated for Barco was “How to include End customers in Barco’s transition towards sustainability.” The scope of this research has been narrowed down to the value offerings of the Enterprise division and to the specific value of collaboration offered by the product-service of Clickshare.



Img 1.4. Clickshare for collaboration. (Clickshare CX, n.d.).

During the initial interviews, the Corporate Sustainability Manager of Barco talked about the ambitions of Barco to be one of the forerunners in the topic of sustainability. To reach there, Barco has quantified specific targets for 2023, while others are more descriptive. It has been recognised that internally there is a lack of knowledge about the topic of sustainability, and how it can be integrated into the product value proposition. Sharing best practices from the industry is seen as one way to bridge that gap. (Appendix B) Further, a lack of internal knowledge about the end customers’ and users’ needs, especially around the topic of sustainability has been acknowledged. In another interview with the Director Innovation and Design Thinking of Barco,

the encouragement given by the top level (CTO) to innovate around the topic of sustainability was revealed (Appendix B). **The topic of sustainability is of strategic relevance within the industry. It demonstrates the company’s values, keeps up with the changing regulations, and meets the expectations of its shareholders. Also, many companies use it as a differentiator in their value proposition, a driver for innovation, a tool to create engagement, instil a sense of purpose and build relationships with both partners and customers.** This not only benefits the company’s reputation, but also enables their customers to meet their personal, or organisational goals around sustainability. Working together with various stakeholders including customers builds a larger ecosystem making sustainability a shared goal, easier, faster and more viable to pursue for each member involved. Currently the sustainability efforts of Barco are driven internally. Knowing what the End customers need and want to achieve in the coming future can help Barco prioritize existing efforts, (Appendix B) create new dedicated efforts while creating an internal buy-in which is not just noble but also understood as good for business (profitable).

Therefore, Barco is looking for ways to involve End customers in its transition towards sustainability in a way that **End customers can contribute to and benefit through shared goals.**

Situational relevance:

Our economic system is based on the concept of “Small world on a big planet”. This has placed enormous pressure on the planet while inadequately catering to the needs of the population (Rockström, 2017). Recognising the need and importance of being sustainable, many companies want to address the ESG (Environmental, Social and Governance) **factors that are material to their industries** (Bernow & Nuttall, 2020). Companies that are the forerunners on this topic also enjoy competitive advantage in the industry (Nidumolu, Prahalad, & Rangaswami, 2009). Parallely the shareholders are increasingly expecting companies to take a broader role in society while maximizing the shareholder value (Bernow & Nuttall, 2020). Finally, according to the Environmental Compliance Officer at Barco, legislation around sustainability is considered one of the fastest changing legislations (Appendix B). This gives the company an **external push, making the transition towards sustainability a necessity for a company to be future proof.**

Meanwhile, Organisations are increasingly becoming customer centric. Throughout this century, the marketing literature has emphasised on the **economic benefits of having customers at the core of the organisation** (Pardo-Jaramillo, Muñoz-Villamizar, Osuna, & Roncancio, 2020). Parallely there is significant pressure on the organisations from their customers to be more sustainable by paying attention to the social and environmental impacts of the product or services that they deliver.

“Given customers’ emerging concern about the environment and the broader scope of the sustainability literature that adds to the economic perspective and environmental and social perspectives, the relationship between customer centricity and sustainability is desirable.”

Sheth, Sethia, and Sriniva (2011) introduced the concept of “**Customer-Centric Sustainability**” where companies are encouraged to prioritize customers’ needs while maintaining a long-term perspective. In this concept, significant attention is given to include the opinion of the various stakeholders so that there is alignment to have sustainability as a key criterion for all the organisational activities. Also, during a study by McKinsey (2014) on strategic worth of sustainability, customer communications were identified as the key activities that maximize financial value. (Bonini & Bové, 2014)

Hence, **involving End customers in a company’s transition towards sustainability is important for the company to stay relevant, efficient and effective.** For this thesis, the scope is limited to finding an approach to involve the End customers based on the research suggesting that interviewing all the stakeholders, distributors, retailers, salespeople would be detrimental to the process because extra information can complicate the research and lead the company astray. (“Turn Customer Input into Innovation,” 2014)

Aim of the project:

The project aims to design how Barco can involve their end customers (with a focus on Meeting room experience (MX) within the Enterprise division), using strategic design processes by understanding the drivers and needs of the stakeholders and their approach towards sustainability. It is hypothesized that, using a customer-centric approach Barco can **drive sustainability efforts in a way that is desirable for the customers, while being feasible and viable for the company.** Consequently it is expected that these two significant transitions the company is going through will help Barco **steer sustainable initiatives and create relevant value propositions based on what is relevant for the End customer, rather than their assumptions of customers’ needs.**

“Firms should care about the environment, society, and money through different strategies such as innovation, customization of products, productivity improvements, mindful consumption, and considering greater product life cycles. However, to effectively accomplish these strategies, it is necessary for the companies to obtain and analyze the right information at the right time and be coherent with corporate purpose.”

(Pardo-Jaramillo, Muñoz-Villamizar, Osuna, & Roncancio, 2020)

01 KEY TAKEAWAYS

1. The topic of sustainability is of strategic relevance within the industry. It demonstrates the company's values, keeps up with the changing regulations, and meets the expectations of its stakeholders.
2. Barco's latest materiality assessment identified "Customer engagement" as one of the primary factors of importance to the business and its stakeholders.
3. Given customers' emerging concern about the environment, the relationship between customer-centricity and sustainability is desirable.
4. Knowing End customers need around sustainability can help Barco prioritize existing efforts and create new dedicated efforts that are **not just noble but also good for business.**

02 STAKEHOLDER OVERVIEW

2.1 Company Context

2.2 Key Stakeholders

What to expect

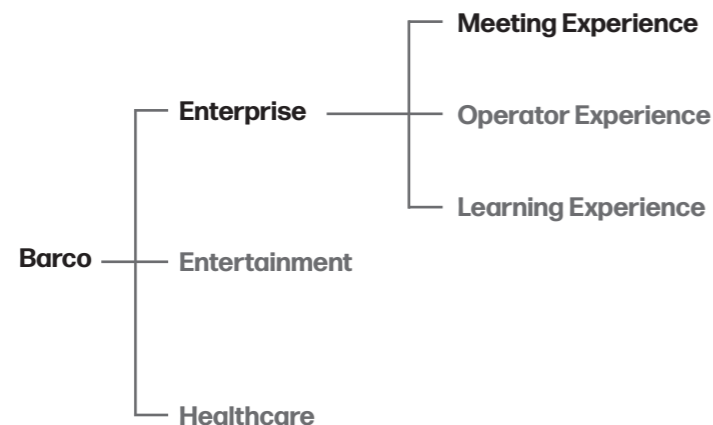
Stakeholder overview chapter gives an overview of important stakeholders for this project. Different stakeholder groups across two main categories: internal stakeholders and external stakeholders have been identified and discussed. From within these stakeholder categories, three key stakeholder groups for the project have been selected based on the literature and discussed in depth.

*"Realise that everything connects to everything else."
- Leonardo Da Vinci*

02 STAKEHOLDER OVERVIEW

2.1 Company Context

It is essential to understand the company and its context in order to understand the parties that would have interest in the company i.e. the stakeholders. Barco is a B2B company, meaning that it has a business model which focuses on selling directly to other businesses. With its 3303 employees for the scale of operations, it is not feasible for Barco to manage sales with all its end customers directly. Consequently, **Barco needs its channels (Distributors, integrators, resellers) for sales.** For different business divisions, the channels differ. (Appendix B) The channel also differs based on the significance of the end-customer. For e.g.: Barco has a direct sales approach for Fortune 1000 customers. Meanwhile, as mentioned earlier Barco serves in three business divisions: Entertainment, Enterprise and Healthcare. Within each of these business divisions multiple solutions are being offered. For e.g.: Within the Enterprise division, MX (Meeting experience), OX (Operator's experience), LX (Learning experience) solutions are being offered.



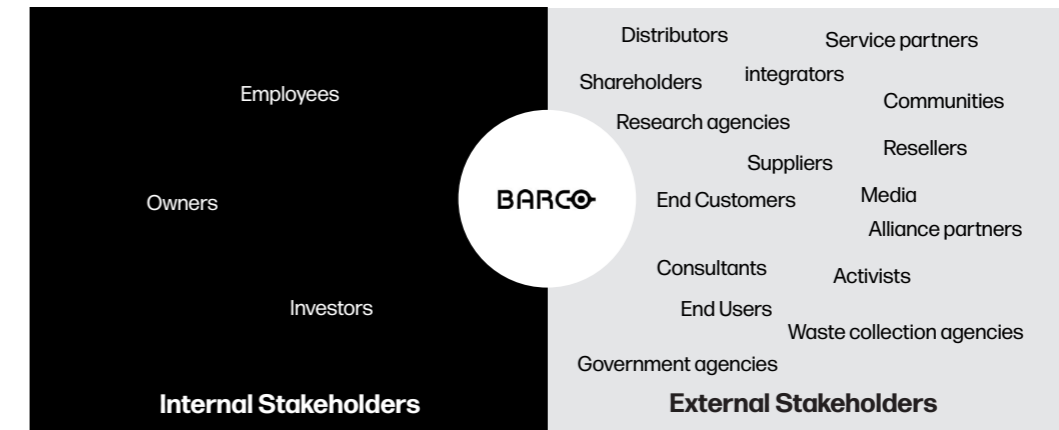
Img 2.1 A visualization to represent Barco, its three business divisions and solutions offered within the Enterprise division.

According to Global Sales Enablement Manager at Barco, for each solution offered by these divisions, Barco has a different sales approach. (Appendix B) Employees of Barco recognize that distance from end-customers and the complexity in bringing their various solutions to market through the channels make it difficult for them to transition towards customer centricity. Furthermore, these solutions are eventually used by end users, who are not the same as end customers. The distance to end users of Barco products is also quite large. This prevents Barco from moving away from its technocentric approach towards a customer and user-centric approach.

For this research the scope is limited to MX solutions within the Enterprise business division. One key product-service offered as a part of the MX solutions is called Clickshare. It is a wireless conferencing system with both hardware and software components. This is taken as a case study for the thesis. Focusing on the value offered by Clickshare, i.e. collaboration experience for the regions Americas and EMEA helps narrow the focus for the research to understand and build a relevant yet scalable approach, as advised

External stakeholders: They affect or are affected by the company's actions and outcomes. In this case the Customers (Distributors, Integrators, Resellers, End Customers), End Users, Shareholders, Activists, Suppliers, Communities, Government agencies, Media, Research agencies, Waste collection agencies, Alliance partners, Service partners, Consultants fall into this category.

Further based on the intention of the thesis,



Img 2.2 A visualization to represent two stakeholder categories: Internal stakeholders, External stakeholders

by the experts on customer centricity ("Webinar takeaways: driving customer centricity by design," 2020). Besides this, the Enterprise division is one of the most advanced within the company for its customer centric efforts. Clickshare has a two tier model as mentioned by VP Corporate Marketing, just like the majority of solutions provided by Barco. i.e. they don't have direct access to the end customer and its end users. (Appendix B) This makes it a very interesting case to study. Based on the understanding of the company and scope of the thesis various stakeholder groups are identified. (Img 2.2) These stakeholder groups broadly fall into two categories:

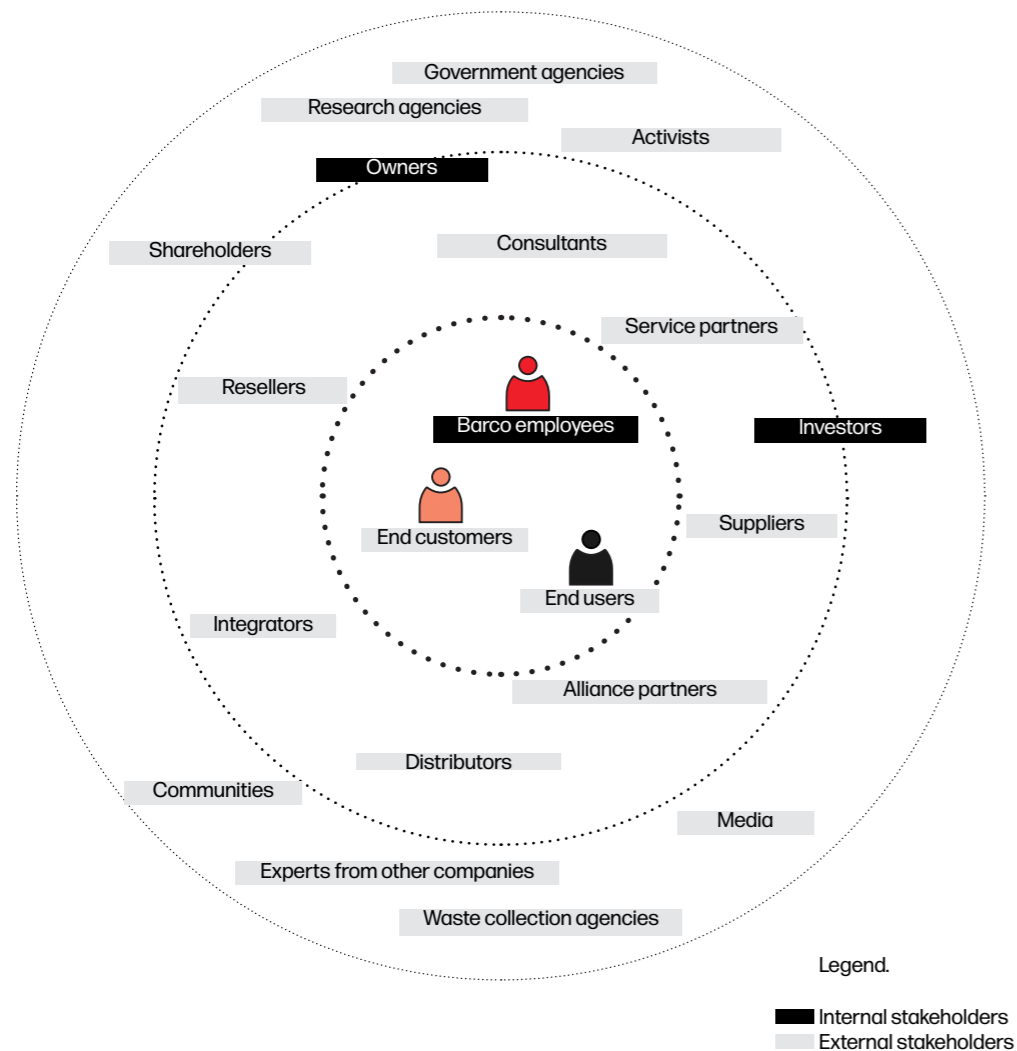
Internal stakeholders: They have a direct interest in the company through employment, investment or ownership. In this case Employees, Owners, and Investors fall into this category.

some stakeholder groups are more important than others. Based on the level of importance of the stakeholder groups a stakeholder map is generated. (Img 2.3) The least important stakeholders for this research are in Level 3 or in the outermost ring. While, the most important stakeholders or key stakeholders are in Level 1 or at the core of the map. They are:

1. Barco employees: Own the challenge of adopting customer-centricity, and sustainability. They play a role in researching for, creating and communicating the solution.

2. End customers: Purchase the solution to meet the end user needs while being aligned with their company's corporate strategy.

3. End users: Need and use the solution.



Img 2.3 The stakeholder map with 3 levels of importance. The three key stakeholders are shown at the center of the map.

2.2 Key Stakeholders

In this part, three key stakeholder groups and the reasons for choosing them are explained.

1. Barco employees

Barco employees is a term used to represent the employees within the Enterprise division who are directly (employees who play a significant role in the company's transition) or indirectly involved (employees who don't play a significant role but are still affected by this transition) in Barco's transition towards being customer centric and sustainable. E.g.: Employees working in the Marketing Department such as a Consumer Insight Specialist are directly involved in collecting feedback from the customers and turning it into action points. Employees working in the Barco labs, who set up the Ecodesign guidelines are directly involved too. Meanwhile the Product Owner from the Enterprise division is indirectly involved since they will be using the processes set up for taking this customer feedback and ecodesign guidelines into consideration while developing the solution.

This group is identified as one of the key stakeholders. Understanding their roles, challenges, and mindset regarding the defined problem space, becomes important because they might play some part in executing the solutions developed at the end of this thesis.

2. End customers

End customers is a term used to represent the stakeholders who play a key role in purchasing the collaboration solutions offered by the Enterprise division e.g., the IT managers, Facility managers etc. They are responsible for recognising the needs of employees within their company, identifying the right solution that also aligns with the company's needs (security, costs etc.) and strategy (sustainability, integrated etc.). They are also responsible for managing/overlooking procurement, installation, maintenance, and support. **Interaction between Barco employees and these End customers is very limited even though it is recognised as necessary. This is due to the way distribution is organised.** The End customers are the technical decision makers for the customer companies and can give a wealth of knowledge about the customer companies' needs and expectations.

Hence this group is also one of the key stakeholders for the project. They might eventually play a role as a user of the solution developed at the end of this thesis.

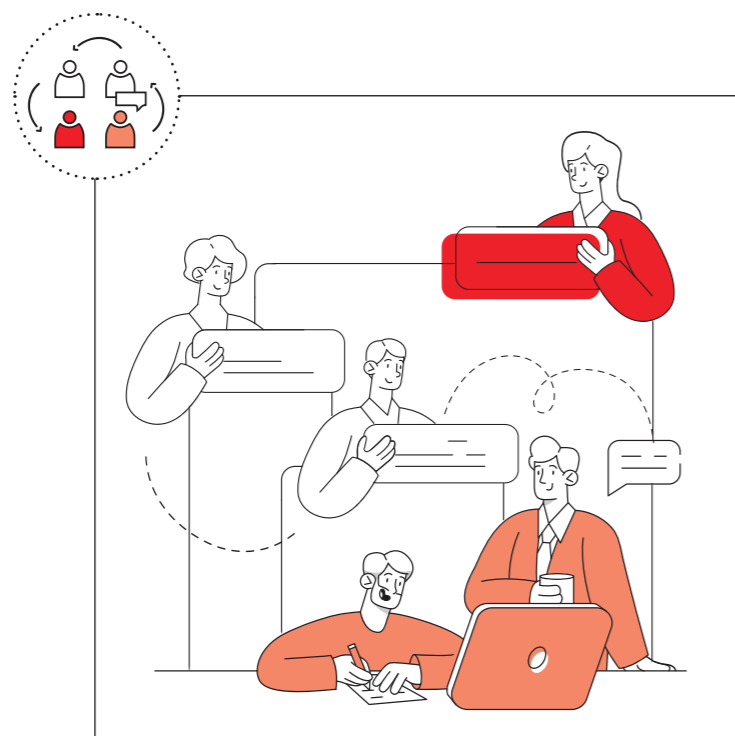
3. End users

End users is a term used to represent the stakeholders who will be using the collaboration solutions offered by the Enterprise division. These End users could be frequent users, infrequent users or guest users. They could be using the solution for collaboration in a physical or hybrid set up. **Their needs trigger the End customers to look for solutions,** hence they are considered as one of the key stakeholders. They might not have a large role to play in giving inputs regarding the sustainability needs. Here the terms end customers and end users are not to be confused with roles or titles of employees within the organisation. The difference lies in the value that is sought from the task at hand. If an employee who is responsible for procuring is using collaboration devices in a meeting, then he will still be considered the End user of the solution.

As we talk about Barco transitioning towards being a customer centric and sustainable organisation, the two key stakeholders that need to be addressed are Barco employees, End customers. Barco employees fall into the larger category of Internal stakeholder group while End customer falls into the larger category of External stakeholder group. End users' influence on the End customers also needs to be considered. Hence, the research and ideation done for this thesis naturally focuses on these stakeholders. The other stakeholder groups are not considered for this thesis because they are either not significantly influenced by the problem space or are not influenced at all. Although they might exert some influence on the ecosystem in which the problem space exists.



Img 2.4 Visualization representing the relationship between End user (in black) and End customer (in peach). End users needs can trigger End customers to look for collaboration solutions.



Img 2.5 Visualization representing the distance between End customer (in peach) and Barco employees (in red). Interaction of Barco employees with their End customers is limited due to the way distribution is organized.

02 KEY TAKEAWAYS

1. The goal of this thesis is to include end customers in the company's (Barco's) transition towards sustainability.
2. Based on company context, the identified stakeholder groups fall into two main categories: internal stakeholders, external stakeholders.
3. Given the problem space the key stakeholders considered for the research and ideation phase are: Barco employees, End customers and End users.

03 PROJECT APPROACH

3.1 Methods

3.2 Overlap

What to expect

The Project approach chapter describes the design process followed for the thesis. It also explains how the process relates to the report's structure and the reasoning behind adopting the processes.

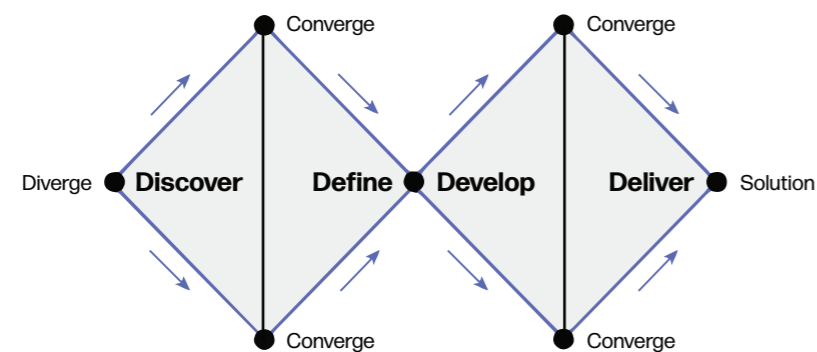
*"The beginning of knowledge is the discovery of something we don't understand."
-Frank Herbert*

The need to have more tools arose during the Define phase of the thesis since the findings from the Discover phase were inherently paradoxical in nature. These paradoxical findings did not help with moving ahead in the design process. Meanwhile, the realisation that the **Frame Innovation method uses paradoxes as a tool to create a frame helped in reframing the process challenge into an opportunity**. Further, the Frame Innovation process helped in viewing the problem from a fresh perspective to arrive at a desired solution.

03 PROJECT APPROACH

3.1 Methods

The design process that forms the base of this thesis and helps structure it is the Double Diamond Design Process ("Design Council's evolved Double Diamond," 2019). The 4 key phases of this process are Discover, Define, Develop, Deliver. The Discover and Develop phases are divergent in nature, meaning exploratory, while Define and Deliver are convergent in nature, meaning focused. This process is not a linear process but ideally it starts with Discover and Define to understand and define the problem. Once defined, the Develop and Deliver phases guide the exploration and design of the solution.



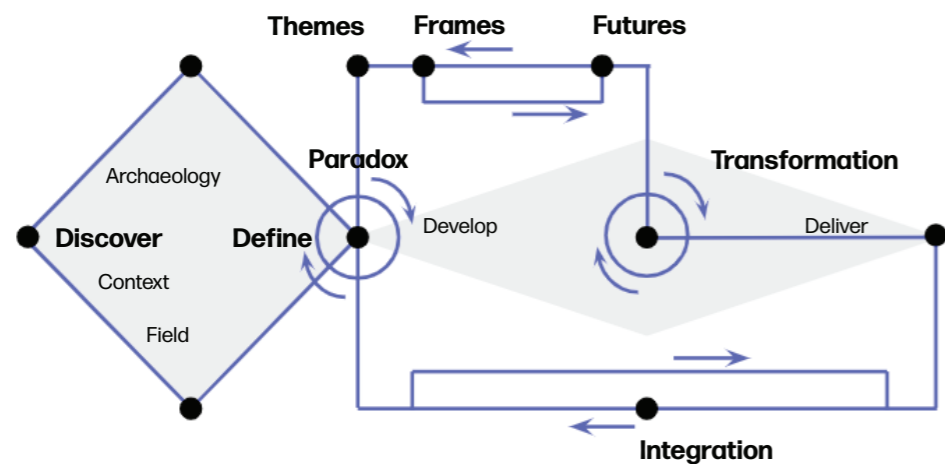
Img 3.1 Double Diamond design process. ("Design Council's evolved Double Diamond," 2019).

The second design process that is used to supplement the Double Diamond Design Process is called Frame Innovation. Tools and methods from Frame Innovation were used to supplement the Double Diamond Design Process. Frame innovation is recommended as an approach to address problems that are open, dynamic, complex and networked in nature. These problems are usually fuzzy and systemic, with multiple stakeholders involved. The different phases for the Frame Innovation process are Archeology, Paradox, Context, Field, Themes, Futures, Transformation, Integration.



Img 3.2 Frame Innovation as an approach to address open, dynamic and complex problems. (Dorst, K., 2015)

3.2 Overlap



Img 3.3 Visualization to represent the overlapping of Double Diamond Design Process with Frame Innovation steps.

The Discover phase in the Double Diamond Design Process is about understanding the problem and challenging the previously held assumptions. To gain insight into this phase of the design process, tools to examine the problem, the context, processes, existing approaches and stakeholders are used. The steps from Frame Innovation that are supportive of doing this are Archeology, Field, Context. Although these steps were not used in my design process since the need for having a supplementary process was not yet identified, the findings from the research do fit into these categories of the frame innovation process. The Discover phase of the design process, the choice of tools and methods used and their outcomes will be discussed in-depth in Chapter 4.

The Define phase in the Double Diamond

Design Process is about using the findings from the Discover phase to redefine the problem. During this phase, the data from the Discover phase is analysed individually and triangulated. The steps from frame innovation that are supportive in doing this are Paradox and Themes. It was during this phase that the need for having a supplementary method/supporting method was recognised.

These steps were not used in the beginning but since they were instrumental in helping with the next stage they were used once the first set of analysis was already done to help with the further phases of the design process. The Define phase of the design process, the choice of tools and methods used and their outcomes will be discussed in-depth in Chapter 5.

The Develop phase in the Double Diamond Design Process is about exploring the problem space to start identifying solutions. During this phase the solutions, for problem areas defined during the Define phase, are explored keeping the key stakeholders in mind and also involving them. The steps from Frame Innovation that support this are Frames and Futures. In this phase the proposed frame is opened, explored for the purpose of coevolution of the problem area. The purpose of this phase is to eventually create a concept which sparks the interest of the stakeholders involved. The concept is also evolved and validated during this phase. The Develop phase of the design process, the choice of tools and methods used and their outcomes will be discussed in-depth in Chapter 6.

The Deliver phase in the Double Diamond Design Process is about creating the final solution and making recommendations so that the solution can be integrated with the stakeholders' way of working. The steps from Frame Innovation that support this phase are Transformation, Integration. Transformation is not only a passive testing of whether a solution fits within the existing processes of the company but also a tool to give recommendations to the organisation.

These recommendations would help the company to systematically integrate the idea for the desired results. The Deliver phase of the design process, the choice of tools and methods used and their outcomes will be discussed in-depth in Chapter 7.

While the structure proposed by the Double Diamond helps in organising the project and the report, it is also not entirely reflective of the actual process. There were phases that overlapped, that went through multiple iterations. Further, the Frame Innovation process that is used as a supplementary process through the research is not derived from the Double Diamond Design process. And hence they don't always fit into different categories or occur at separate instances. For e.g. Integration is the last step from Frame Innovation which would ideally overlap with the Deliver phase of the Double Diamond Design Process. Although for this thesis the Integration step happened alongside the Develop and Deliver phase. Recommendations for integrating the "process" part of the tactical solution were made and discussed in the Develop phase, while recommendations for integrating the tactical solution were made and discussed during the Deliver phase.

“A disadvantage of this process model is that it looks deceptively linear. While the nine steps of the frame creation model can be seen as a general and logical progression, in practice the activities that are captured in the steps all interact with each other—in a frame creation session there is a constant to-ing and fro-ing between the steps, and that is absolutely crucial in order to arrive at a good and balanced result to the frame creation process. The deceptively linear progression of the nine steps also obscures the fact that the starting point for a frame creation project can actually occur at any of the stages—the world doesn’t always provide us with a neat “old” problem to react against. “

(Dorst, K., 2015)

03 KEY TAKEAWAYS

1. The project is structured using the Double Diamond Design Process.
2. Steps from Frame Innovation supplement the Double Diamond Design Process.
3. Frame Innovation process is actively used from the Define stage of the Double Diamond Design Process.
4. **Both processes are not linear.** Steps from Frame Innovation don't always overlap with the Double Diamond Design Process.

"Write what should not be forgotten"
-Isabel Allende

04 DISCOVER

4.1 Phase

4.2 Literature Review

4.3 Field Research

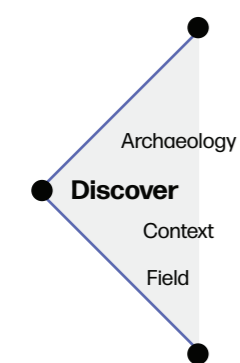
4.4 Steps from Frame Innovation

What to expect

The Discover chapter gives an overview of the tools, methods and steps used to understand the problem space and the key stakeholders involved in it. It highlights the key points of relevance that were identified while conducting a Literature Review about the context and the theory relevant to the problem space. Finally it also gives a brief overview on how Field Research was conducted.

04 DISCOVER

4.1 Phase



Img 4.1 Discover phase of the Double Diamond Design Process.

Purpose: Clearly understand the problem space and the stakeholders within it.

Literature review and Field research (Stakeholder Interviews and Observation Session) was conducted to research on the topics relevant to the problem area. Data obtained from this was then analysed to create insights and impressions. This chapter will elaborate on the process and outcome of Literature review and Field research. As discussed earlier, during this phase the steps from frame innovation namely Archeology, Context and Field were not used. Although looking back, the insights found during the Discover phase do fit into the results expected from the steps of the frame innovation process. The purpose of the three steps from the Frame innovation process that overlap with the Discover phase of this thesis are stated briefly underneath:

Archeology: This step helps in understanding the depth of the problem, existing organisational processes, and hard non negotiable boundaries. It also gives a frame of reference and impression about the dynamics of organisation.

Ideally the next step would be Paradoxes, but they were identified naturally in the Define phase and it was then that the need to have the Frame innovation process as a supplementary process was identified. Hence, this will be discussed further in Chapter 5 while elaborating on the Define phase.

Context: This step helps in exploring the practices of the key stakeholders who have been part of the problem space and will also likely be the stakeholders of any proposed solution. It will help gain a sense of current practices and scenarios necessary to be considered while developing the solution.

Field: This step helps in exploring the role, interests, values of all the potential players and map them out in context of the problem. It would thus help in understanding the universal context and in the formation of themes at a later stage.

The learnings from the Discover phase will inform the next phase, i.e the Define phase, to define the problem area.

4.2 Literature review

The aim of this thesis was to research the topic of including end customers of Barco in Barco's transition towards sustainability. This made theoretical exploration and in-depth understanding about the topics of Customer Centricity, and Sustainability essential. Barco has diverse customer groups for three key divisions: Enterprise, Entertainment and Healthcare. The scope of this research was narrowed down to the value offerings of the Enterprise division and to the specific value of collaboration offered by the product, Clickshare. The knowledge of product, company and the future of work (relevant to the value created through the product) was necessary to make any solution effective. Hence to clearly understand the problem space the following topics were explored:

1. Contextual

- About the product
- About the company
- Future of work

2. Theoretical

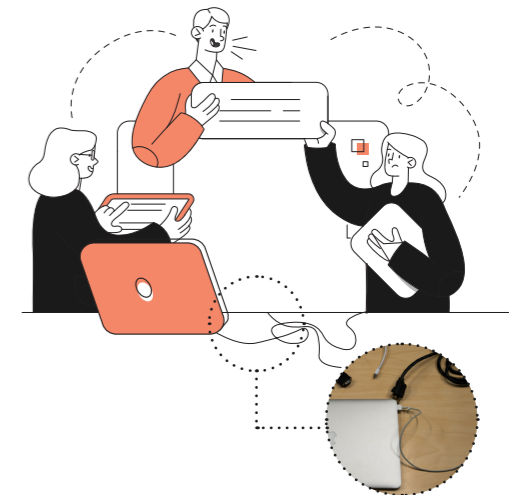
- Customer centricity
- Innovation driven by customer centricity
- Sustainability
- Innovation driven by sustainability
- Sustainability for Enterprise/ Green IT

1. Contextual

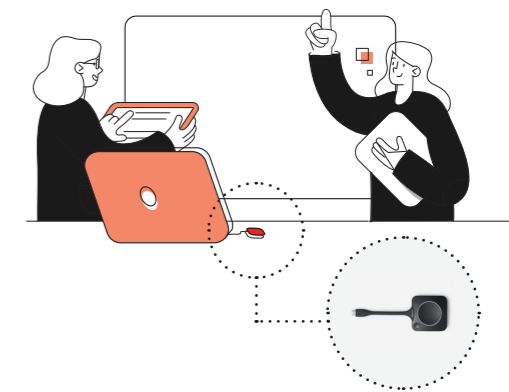
- About the product

Clickshare is a product-service that enables end-users to share their device screens with a presentation screen without the use of cables (Img 4.2, Img 4.3). **It offers the value of being easy to install, and intuitive to use for effective collaboration.** It was launched in 2012 with a tagline "Plug into Simplicity, Tap into Amazing". ("Plug into simplicity, tap into amazing," n.d.) The current tagline is "Great things happen when people click" and focuses on the value proposition of facilitating hybrid collaboration. The two models being offered currently are: Clickshare Conference (BYOM- bring your own meeting for hybrid settings) and Clickshare Present (BYOD- bring your own device for meetings in fixed conference rooms). ("ClickShare - Wireless Presentation & Conferencing," n.d.) **The end user and customer base of Clickshare is quite large.** Currently, +2 million clickshare buttons are being used around the world. They are considered easy to use and intuitive. Clickshare is present in 45% of Fortune 1000 companies. ("ClickShare - Wireless Presentation & Conferencing," n.d.) **By enabling hybrid collaboration, clickshare equips the organisation to cut back on business travel.** As per Barco's integrated

annual report, Barco has seen a 56% drop in its mobility related greenhouse emissions between 2015 and 2020. ("Annual Report 2020," 2021)



Img 4.2 A visualization to represent the challenges of collaboration without Clickshare. It shows an End user (in black) flagging the problem to the End customer (in peach)



Img 4.3 A visualization to represent a good collaboration experience with Clickshare.

- About the company

As discussed earlier, Barco is a technology company developing collaboration and visualization solutions. **It invests a large part of its revenue in innovation.** Three key markets for Barco are Enterprise, Entertainment and Healthcare. Within Enterprise, Barco has 3 business units:

Operator Experience (OX), equipping control rooms with monitoring solutions. Meeting Experience (MX), equipping businesses with collaboration solutions. Learning Experience (LX), equipping universities and business schools with virtual classroom solutions.

All these markets have been impacted by COVID-19 crisis to a varying degree. For eg: As the offices were locked down, sales for the Enterprise market were affected. Their approach to this challenge was to reduce

“To ensure we’d emerge even stronger from the downturn we kept investing in research and development, kept launching new products and invested big in customer engagement in 2020”

- Jan De Witte, Former CEO

“No matter how good our solutions are, we have to offer mind-blowing services and build and foster outstanding customer relationships to retain our position in today’s rapidly evolving markets.”

-Marc Spenlé, Chief Digital and Information Officer

‘the worker feels himself only when he is not working; when he is working he does not feel himself. He is at home when he is not working, and not at home when he is working’ (Hodder, 2020)

and control costs while continuing to invest in research and development. (“Annual Report 2020,” 2021)

Furthermore, as a part of strategy “Enable bright outcomes”, Barco is investing heavily in digitalization (2019-2023) and focusing on integrating sustainability in every aspect of the business. Eg: Changing the annual report to an **integrated report**, to highlight that sustainability factors are as important as financial factors. **They are also looking at ways to deliver a combination of hardware, software and services via new business models (2023 onwards).**

Another key transition that they are currently going through is moving towards customer centricity.

This strategy has been shaped based on three key factors:

Market Dynamics: technological and socio- economic trends

Materiality: topics that matter most to business and stakeholders

Risks: challenges that can affect their ability to meet their targets

Understanding these key factors are important to understand the problem space and to develop the solution space.

Market dynamics:

Some key technological trends are: IOT sensors for providing real time updates, Shift to cloud computing, **using AI, machine learning, natural language processing to become data driven**, and the need for systems to be secure and protected from data breaches. Some key socio-economic trends are: **Rise in service model since it helps businesses acquire new technology with lower upfront cost**, reduction in product life cycles due to advancement of technology, globalisation, and **increasing competition**, rise of emerging economies towards becoming largest economies of the world, **balancing economic growth with sustainability initiatives.** (“Annual Report 2020,” 2021)

Materiality:

Some of the key materiality topics are: **Customer engagement, employee engagement**, product quality, safety and security, **climate change and energy, innovation management** etc.

Risks:

The risk categories identified by the CLT members in 2020 were:

Digital transformation and new technologies, Information security, Macroeconomic geopolitics and market,

Human capital and talent management, Data governance and privacy, Product quality etc

Finally and most importantly, Barco’s sustainability strategy is focused on three pillars. They are:

Planet: To lower their and their customers’ footprint.

People: To invest in sustainable employment by encouraging learning and development, inclusivity in the workplace, etc.

Communities: To engage customers, make Barco products more accessible.

c. Future of work

Since the solution is based in the context of the Enterprise market it is essential to explore the future of work. This will help build an explicit understanding of a future context which is necessary while building the solution. COVID-19 has significantly affected the work environment. **As employees work from home, boundaries between work and personal lives are blurred.** (Carnevale & Hatak, 2020)

Contrary to the perception of telework, which was that it was technologically feasible, desirable, family and community friendly, the reality is seen to be quite different. Employees have seen eradication of leisure, felt increased pressure of being present even when they are not up to it, have seen consequences of ergonomic deficiencies as a result of working at home and there is lack of support from colleagues. (Hodder, 2020) There is a need to provide cognitive and emotional resources along with informational support to help employees navigate through these changes. Additionally, supporting employees to build connections where they can find meaning, and strengthen purpose is advised.

Although hybridization seems to be the new norm, it is not true for all kinds of jobs. This is limited to jobs where employees such as accountants, legal secretaries can perform site independent work and tasks can be communicated virtually. **One precondition to effective remote work is connectivity and digital infrastructure which would require significant investments.** (Lund, Madgavkar, Manyika, & Smit, 2021) Some of the infrastructural recommendations to make this transition successful are:

- Build infrastructure for distributed working to support collaboration and reduced distance from employee’s homes
- Resizing footprint to reduce the real estate to reduce cost and develop fit-for- purpose designs (Boland, de Smet, Palter, & Sanghvi, 2021)

2. Theoretical

a. Customer centricity

Customer centricity is an approach where creating value for customers is seen as the key driver behind business and organisational decision making (Hemel & Rademakers, 2016). Customer centricity has been considered relevant for organizations for a long time now (Shah, Rust, Parasuraman, Staelin, & Day, 2006). Drucker (1954) wrote in *The Practice of Management*, "It is the customer who determines what a business is, what it produces, and whether it will prosper." Many reputable and profitable companies, alongside 30 percent of Fortune 500 companies, including Apple, Dell, etc have customer centricity at the heart of their organisation. (Hemel & Rademakers, 2016) **It is considered essential for developing customer relationships, improving customer retention and consequently improving the organisation's performance.** (Weinstein, 2020) **As per a recent report by Forrester (2020), improving the customer experience will be the key area of focus to support the organisation's business strategy in the coming 2 years.** The other important key areas of focus are significantly changing **how organisations reach customers to achieve competitive advantage, introducing new business models, improving employee experiences, embracing corporate social responsibility practices, and reorganising the company significantly.**

Despite the need to be customer centric, many organisations are struggling to adapt their approach. With the IT revolution in the late 20th century, **large improvements in collecting, storing, analyzing and transmitting data were seen. These improvements made it possible, theoretically, to maintain consistent, to certain extent customized dialogue with the customers, across omnichannel touchpoints.** Yet, in practice it was difficult to build and sustain a large organisation.

As one CEO of a company put it, "**Customer focus and customer centricity is in every annual report, but who can really do it?**" (Sawhney and Brobst, 2002).

Various studies have been conducted to understand the difficulty in transitioning from being product-centric to customer centric. In one study the challenges identified were related to organisation's:

Culture eg: one transition inhibiting norm in many firms is that the sales department

"owns the customer." (Shah, Rust, Parasuraman, Staelin, & Day, 2006)

"In the end, creating the desired cultural shift appears to come from making things tangible to stakeholders on all levels. This is, ultimately, what builds the necessary mindset. ("Webinar takeaways: driving customer centricity by design," 2020)

Structure eg: A product-centric company is organised around functional silos with traditional roles. (Shah, Rust, Parasuraman, Staelin, & Day, 2006)

"Not only does this imply that the function of marketing may need to be expanded or restructured, it also implies transferring the management of marketing resources from a brand/product manager to the customer manager of the firm."

Processes eg: A customer centric organisation needs to have dual value creation process at the heart of the organisation, they need to have a centralized database to provide a unified, comprehensive, organisation wide view of the individual customers. (Shah, Rust, Parasuraman, Staelin, & Day, 2006)

"The odds of success are much improved if there is a sense of urgency and a compelling strategic rationale. Then it is possible to justify a change in the organization structure and processes and base the incentives on customer-centered metrics."

Financial metrics: Brand equity is a product centric concept, which is commonly measured. Customer equity is suggested as an alternative approach to measure growth. (Shah, Rust, Parasuraman, Staelin, & Day, 2006)

"The challenge of moving from product-centric to customer-centric arises from the fact that functional differences are deeply rooted in incentives, backgrounds and interests, time scales, and task priorities. Hence, any effort to improve alignment is tantamount to balancing numerous contending forces (Day 1999)."

Continental airlines was ranked lowest in its desirability by both its employees and customers. By adopting a Go Forward Plan and revising the metrics to be more customer centric, it became one of the top airlines to work in. The profits tripled and stock prices rose from \$5 to \$50 in 3 years. To conclude, transitioning towards customer centricity is a challenging task, but necessary and very rewarding. **Being leaders in this domain, building distinctive value propositions for the customers will help differentiate and substantially outperform the competition within the rapidly changing markets, globally.** (Weinstein, 2020)

b. Innovation driven by customer centricity

By putting customers at the center of decision making, companies are not only able to create a stronger customer relationship through improved marketing, sales and support but also by offering relevant or desired product innovation. Barco is a technological company, where they invest more than 10 percent of their revenue in innovation. **Von Hippel (2005) in his research mentioned that about 75 percent of all commercial innovations in a product centric organisation fails.**(Lewrick, Omar, & Williams, Jr, 2011) This is due to the fact that there is a large difference between market expectations and their business plans. **By systematically taking customer needs as the starting point for innovation allows companies to invest and develop relevant solutions and value propositions which leads to profitable growth over a long term.** (Selden, & MacMillan, 2006)

"People don't want to buy a quarter-inch drill; they want a quarter-inch hole."

It is very essential that the right kind of input is sought from the right customers for identifying opportunity areas, developing the product, formulating concepts, evaluating the concepts and eventually during market segmentation. (Ulwick, 2002)

The success of an innovative product depends on the quality of input received during the early stage of understanding the customer needs to identify the opportunity. It is difficult to do so since there is a lack of clarity as to what one should ask the customers. (van Kleef, C.M.Van Trijp, & Luning, 2003) Right input can be sought by framing the job that the customer is trying to do correctly (eg: Listen to music(mp3) or music management (Apple), and then deconstructing the job to ask for customers' input on each part of the process. Once captured, these insights can be processed and value can be created by: helping customers define and plan, improving execution of specific steps, eliminating need for certain inputs or outputs, adopting responsibility for a certain step of the job, monitoring the tasks, reordering the tasks or enabling customers to perform steps in a different location at a different time, troubleshooting in cases of issues. (Bettencourt, & Ulwick, 2008) The right input should be sought out from carefully selected customers i.e. specific people who are directly involved in performing, funding or assisting with the activity and the frontline workers (Weinstein, 2020). Collecting extra information from the other stakeholders would complicate the process. Besides that, collecting insights only from lead users will result in a solution that is not applicable to a larger customer base.

Steps for Customer Centered Innovation:



Img 4.4 A visual representation of steps for Customer Centered Innovation. 1. Identify customer segments 2. Develop mutually beneficial value propositions 3. Build internal capabilities to create, communicate, deliver new values 4. Create customer advisor panel, train and include frontline workers to accumulate detailed customer knowledge 5. Institutionalize customer centricity by using customer segment as the organizing unit.

"Use consumer journey as a vehicle, communication tool to seek alignment from all the stakeholders." ("Helping a Sportswear giant become customer-obsessed," 2020)

This said input has been traditionally collected through surveys. With the advances in digital technology, organisations have access to a large amount of customer data, collected by them and through third party sources. **Current technology allows us to aggregate, analyse and act upon this vast amount of data.** Sharing the insights obtained from this data through an API as actions the frontline employees should take, would improve the customer experience. It is also important to have a single source of truth across multiple channels to have coherent communication. Unlike the survey based systems, this approach would deliver timely insights to trigger swift action. Hence, as the companies transition towards being more customer centric, it is also essential that they invest in digital transformation, as both of these transitions would go hand in hand. **To jump start this transition, basic customer level data from a single touchpoint will be essential with a detailed journey that includes the potential drivers for their customers.** It is important

**“To prosper over time, every company must not only deliver financial performance, but also show how it makes a positive contribution to society.”
(G. Eccles & Klimenko, 2020)**

to focus on use cases that can drive quick value and demonstrate its potential. Then once the system is perfected, data from across channels can be integrated and predictive models can be designed. This data should adhere to all the privacy and cyber security best practices. (Diebner, Thompson, Malfara, Neher, & Vancauwenberghe, 2021)

In order to achieve this transition successfully, an organisation has to identify the right stakeholders, get the right input across channels as timely as possible, while involving the frontline workers. It is important to remember that value can only be co created when both parties benefit from the interaction. Then it has to process these inputs to turn them into insights for the employees across the organisation to act upon, in a way that people have their own aha moment. (Livework studio, 2021) By designing relevant interventions at the customer touchpoints and within organisational processes, along with an internal shift in the mindset will help organizations be more relevant and profitable in the long run. **This transformation demands cost, time and effort and hence it is necessary to start by leveraging what is existing in terms of available tools, processes and channels and evolving from there.**

c. Sustainability

Sustainability is defined as “the ability to be maintained at a certain rate or level” or “avoidance of the depletion of natural resources in order to maintain an ecological balance.” Although **every organisation and company defines sustainability in a different way.** Some focus on the social aspects while others on the environmental aspects. One reference point that many organisations are currently working with is the UN SDG (Img 4.5) (Sustainable development goals). (“THE 17 GOALS | Sustainable Development,” n.d.)



Img 4.5 The image shows 17 Sustainable Development Goals by United Nations.

Most organisations strategically pursuing sustainability, focus on topics material to their industry. These issues may also differ based on regions: for European organisations governance is prioritised

while for North American companies environmental factors have a higher importance. These sustainability goals are also referred to as ESG (Environmental, Social, Governance) goals.

E: Environmental criteria. Energy the company takes in, the waste it discharges, the resources it needs, consequences for living beings as a result.

S: Social Criteria. relationships your company has and the reputation it fosters with people and institutions in the communities where you do business. S includes labor relations and diversity and inclusion

G: Governance. Internal system of practices, controls, and procedures your company adopts in order to govern itself, make effective decisions, comply with the law, and meet the needs of external stakeholders.

Acting upon ESG goals is deemed important, both by the customers and the employees. Legislations also increasingly extend certain climate related responsibilities towards the companies, which could make certain business products and models illegal in the long run. (Jolly, 2021) According to one study, it was found that companies with the right ESG propositions create more value . It facilitates top-line growth, helps reduce cost, minimizes the regulatory interventions, increases employee productivity and optimizes investments. **In short, a strong link between purpose and profit is seen.** (Henisz, Koller, & Nuttall, 2021) Companies with better ratings on ESG propositions are also more financially resilient and are preferred for investments. (Jolly, 2020) While there are divestment pledges for companies not including sustainability in their strategies and following through on them.

d. Innovation driven by sustainability

Organizations used to believe that sustainability will add to their costs without delivering any monetary benefits. One study of 30 large corporations found **that sustainability is the “motherlode of organizational and technological innovations.”** By becoming environment friendly the organisation ends up reducing their expenses while generating revenue from better or new products. The organizations that are successful in doing so, usually go through the following stages of change:
- Innovate to comply with the most stringent rules.



Img 4.6 The above visualization shows employees of a company (in red) connecting sustainability with customer engagement (left) and processing the customer insights to create new value propositions (right).

**“Sustainable Customer Engagement becomes Märkbar when you make your sustainability initiatives visible and tangible, as well as enable your customers to promote and engage in your sustainability efforts through all phases of their consumption of your product or service.”
(Deloitte, 2018)**

- Innovate to make their value chains (supply chains, operations, workplaces, returns) sustainable.
- **Innovate for new sustainable product and service solutions by understanding customer concerns.**
- **Innovate to create sustainable business models to create novel ways of delivering customer values and exploring new ways of doing business. Again in order to do this, customer needs have to be understood.**
- Innovate to share best practices with their peers or their customers. (Nidumolu, Prahalad, & Rangaswami, 2013)

Eg: Logitech made a commitment to be transparent, allowing customers to see the carbon impact of each product like calories on food packaging. They also developed a tool called Product Impact Calculator tool and made it open source. Since they aggressively started pursuing sustainability, they have seen their share prices rise more than 15 times. (Works, 2021) They achieve this by going through different levels of innovation as top management/ leadership takes responsibility, and right talent is retained.

Sustainability is a moving target, with systemic property and hence addressing it requires a process-based, multi-scale, systemic approach guided by a vision instead of an goal-based optimisation approach. (Bagheri & Hjorth, 2007; Clayton & Radcliffe, 1996; Holling, 2001; Walker, Holling, Carpenter, & Kinzig, 2004). **To address this challenge, a radical change encompassing technological, social, cultural, institutional and organisational are imminent.** The earlier approaches on sustainability were mainly related to product innovation and required technical expertise on material, production etc domains with a know-how of tools such as ecodesign. The more recent approaches to sustainability such as design for sustainable behaviour require human-centered design skills to gather insights from the users or to codesign with the users. (Ceschin & Gaziulusoy, 2016) Another concept that is recently gaining traction is the circular economy, with a simultaneous focus on achieving environmental benefits and economic growth. It is also considered essential to involve the various stakeholders to create new business models and scale up innovations.

To work towards the sustainability vision, irrespective of the approach, it's increasingly becoming important to have a clear shared vision between

the various stakeholders to stimulate a strategic dialogue and innovation through a designer's facilitation. On the other hand, as organisations are increasingly becoming customer centric, there is a lot of pressure to become green and sustainable. Given this demand from customers, **a relationship between customer centricity and sustainability is considered to be desirable. A fairly recent terminology introduced to define this concept of keeping customers at the focus of strategy while looking at the long term perspective is called Customer-Centric Sustainability. (van Dam et al., 2020)**

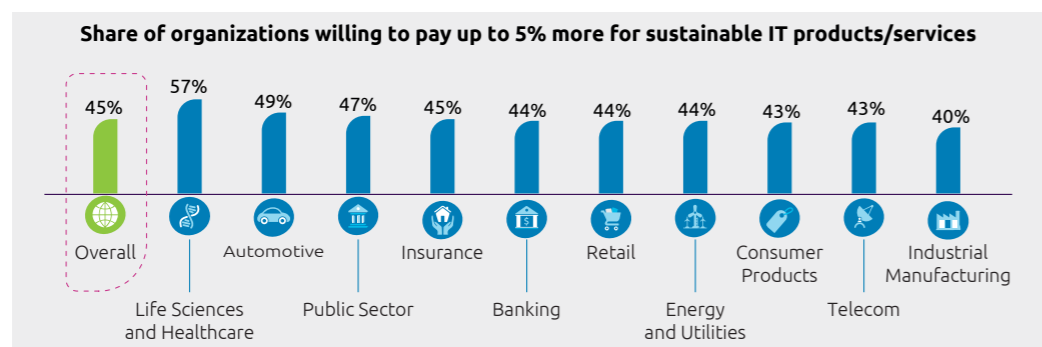
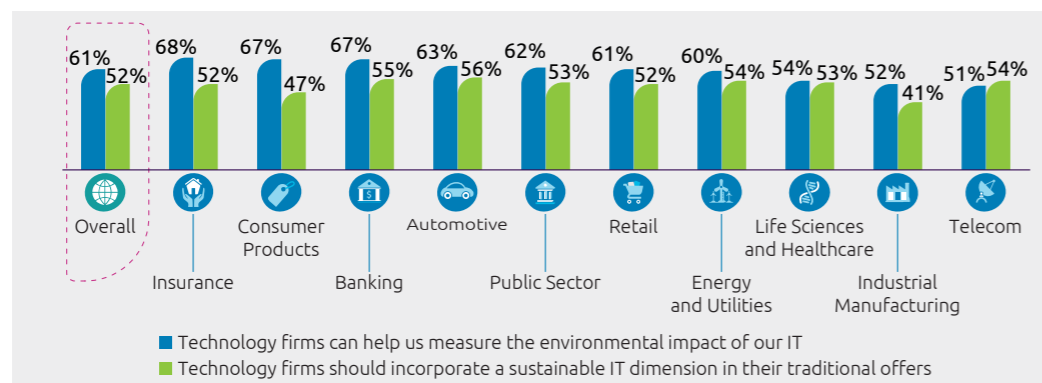
e. Sustainability for Enterprise/ Green IT

Organizations are increasingly trying to balance their financial growth and sustainable strategies. The need to adopt digital technologies for both customer centric initiatives and sustainability initiatives has been established in the previous parts of the literature research.

Sustainable IT is an umbrella term that describes an environment-focused approach to the design, use, and disposal of computer hardware and software applications and the design of accompanying business processes. There is a rise in the number of smart devices to collect vast amounts of information from the customers while simultaneously there is a rise in the number of data centers to process and store this information. Overall, estimates indicate that the carbon cost of producing these devices is nearly equal to, or exceeds the carbon cost of using them. Extending the lifespan of electronic devices is therefore critical.

While digital technologies can help address the current challenges they themselves have a large ecological footprint which is expected to grow significantly. **78% of the organisations plan to adopt more sustainable IT in the coming 3 years** (without carbon offsetting). Although they do lack maturity to be able to achieve these targets themselves and are looking for the tech industry to take the lead. By scaling sustainable IT, organisations have achieved 12% cost reduction, improved their brand image, have better customer satisfaction and also more tax savings.

This also means that there is a large scope for Barco to support organisations that have low maturity but a desire to move towards sustainability while working with organisations that have high maturity to improve their offerings. (“Sustainable IT,” 2021)



Img 4.7 The above statistics are from a report based on a study by Capgemini Research Institute. It shows that customers are expecting tech industries to help them with adopting sustainability. They are also willing to pay up to 5% more for such sustainable IT products and services.

4.3 Field Research

As mentioned earlier, the stakeholders of the project were divided into 3 groups:

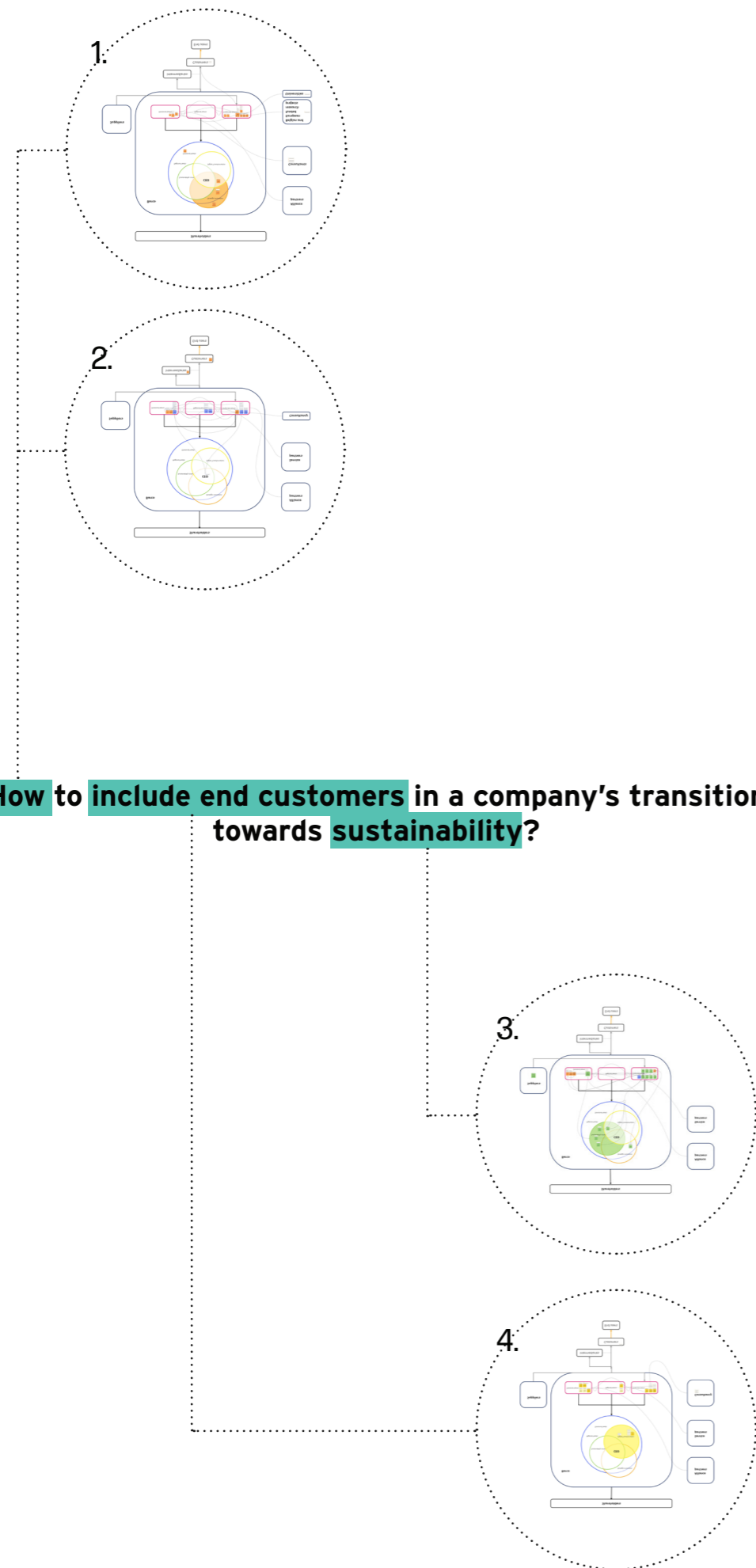
- Barco employees: Expert on their role and company
- End customers: Expert of experience
- End users: Expert of experience

In total 27 interviews were carried out. Out of those 27, 16 were interviews with Barco employees, 6 were with End users, 1 was with an End customer (more customer interviews were carried out in the later stage while designing the solution), 4 were with Experts. The 4 Expert interviews (expert on the topic and its challenges) were carried out to understand the challenges and best practices for approaching such a complex problem at hand. These experts do not belong to the key stakeholder group. Besides these interviews several informal conversations with customers and internal stakeholders were held to obtain very specific insights and one observation session was conducted to understand how customer journey mapping exercise is currently being done.

List of interviewees:

a. Barco employees	<ul style="list-style-type: none"> Director Innovation and Design Thinking Corporate sustainability manager Segment marketing director VP corporate marketing Customer Insights Specialist VP Global Services Enterprise, Director supply chain & customer journey VP Digital transformation Environmental Compliance Officer & Optical Radiation Safety Expert Product Manager Clickshare Apps EMEA Field Marketing Director Global sales enablement manager VP Sales Collaboration EMEA VP Global Alliances Segment Marketing Manager Clickshare Product Manager
b. Barco End users	<ul style="list-style-type: none"> Product Manager at multinational technology company Security Service Designer at a leading telecom company Trainee consultant at a global consulting company Design Technologist at a multinational electronics company Project Consultant at a digital agency CMF Design Manager at a high end consumer electronics company
c. Barco End customer	<ul style="list-style-type: none"> Commercial product manager at a leading telecom company
d. Experts	<ul style="list-style-type: none"> CMO at a leading audio collaboration technology company Group director of Innovation at service design and innovation consultancy Director, Global Compliance and Sustainability at a leading furniture company Partner at a management consultancy firm

* The transcripts from the interviews can be found in Appendix B.



How to include end customers in a company's transition towards sustainability?

Img 4.8 The visualization shows organisational structure, roles and processes mapped with 4 lenses. Lens 1: Communication, Lens 2: Innovation, Lens 3: Sustainability, Lens 4: Customer Centricity. For more information refer Appendix B.

**Sample:
a. Barco employees**

To understand the challenge or the problem area, it is important to understand the organisational structure, roles and processes. It is also essential to understand what is already being done to address the challenges at hand i.e especially from the lens of sustainability, customer centricity. Two other lenses i.e innovation and communication were also researched since they could either be a means or outcome of the research on this topic. In order to do this, the interview participants were chosen from across different teams and departments within Barco. The three key teams within Barco are **Divisional team, Regional team and Corporate team**. The intention was to have each interviewee lend insights into the lenses that they were directly involved with and their perception on the lenses that they were involved with directly.

Divisional team:

Divisional teams can be divided into 3 parts: Enterprise, Entertainment and Healthcare. For the purpose of this research the scope was limited to the Enterprise department. Within Enterprise the key focus was on MX offering, i.e. the meeting room experience offerings. Within these teams there is Product team, Segment marketing team, R&D team and Serviceability team. They are responsible for research and incremental innovation for the product offerings, adopting the Eco label guidelines into the process, understanding the customer needs, building customer journey, creating relevant value propositions, creating content for sales enablement, looking after the serve phase, work with regional teams to understand the root causes for not meeting KPI goals, gather transactional NPS scores etc. This team is expert in the product and the user. They understand the market trend and also take part in the strategy exercise. By interviewing this team some insights around how feedback from end user are collected, how customer insights from NPS surveys are made actionable, how sustainability is currently embedded in the product development process, the communication and marketing strategies, what role they play in the innovation process, how they collaborate with the regional and corporate teams, etc were obtained.

Regional team:

Regional teams can be divided into 4 parts: EMEA, Americas, Asia-Pacific and China. For the purpose of this research the scope was limited to the EMEA region and to a certain extent the Americas region. Within the Regional teams there are Field Marketing, Sales and Service departments who are closest to the customers. They are incharge of executing marketing strategies, building up marketing plans, setting up events (eg: inner circle), have direct relationships with the customers and could potentially alert the different departments upon encountering change in customer needs. In the current process, people from sales teams are interviewed as a proxy to understand customer needs, they direct the customers to the right contacts in case sustainability questions arise, they implement the marketing strategies and tailor it specific to the region and also give insights on where their input is sought during the innovation process. Hence a lot of insights about approaches of understanding customer needs, current methods for communicating the customer needs with the relevant department were obtained through these interviews.

Corporate teams:

Within the corporate teams various departments are present such as Corporate marketing, Operations, Legal, GEAX(Software development), IT, Barco labs, Finance, HR etc. The corporate marketing department has a consumer insight specialist who sends out the relational NPS (Net Promoter Score) surveys and prepares a report to show the progress. The Operations department has an employee responsible towards sustainability for infrastructure, suppliers, and logistics. These employees collaborate with the CSR lead within the Finance department but are not answerable to her. Barco Labs have the innovation team and the Eco office under them. The innovation team leads or supports technological innovation while the Eco office creates the Eco score guidelines and helps different departments align with it and/ or implement it. Hence interviews with employees within this team gave insights on how the innovation process works, how the sustainability guidelines are established, communicated and implemented, how customer insights are collected and communicated, how different departments collaborate and who is answerable to whom. This team also has employees in charge of digital transformation and customer journey mapping exercises. Understanding the process currently used to map the customer journey was an important aspect for the project. Hence an additional observation session was also planned where my role was to silently observe the process of customer journey mapping.

b. End users and c. End customers

The scope of the project was to include end customers in the organisation's transition towards sustainability. Hence a potential end customer, i.e. a person responsible for procurement of the collaboration tools, was interviewed. This interview was conducted to help understand their role, how they procure collaboration tools, their understanding of companies' approach to sustainability, and how they see it impacting their decision making process. There was also an attempt to have other end customer inputs on the project, but with the given timelines and difficulty in accessing the customer group, it was only possible to do so at a much later stage i.e. while exploring the solution.

The product being used as a case for this project is Clickshare, a collaboration tool. The end users of this product are the employees in Enterprises who are participating in different kinds of collaboration activities. Due to the way the distribution is organised, Barco is far from its end users. Hence interviews were conducted with the end users to understand their needs around collaboration, if their needs influenced the decision making of end customers and to get their inputs on their company's approach towards sustainability and customer centricity. These interviews were also used as a means to test which questions elicit more in depth responses for eg:

Higher Abstraction Level	<p>"What are your needs during collaboration?"</p> <p>"What are the biggest challenges for collaboration now?"</p>
Lower Abstraction Level	<p>"What are the tasks you need to perform during collaboration?"</p> <p>"What makes the collaboration process time consuming/ frustrating?"</p>

This also links back to literature on semi structured quantitative interviews. It suggests asking open, singular, clear and neutral questions. All the above questions are open questions and yet some questions elicit better responses than others. The slight change in wording changes the abstraction level of the questions. This needs to be tuned depending on the audience. **But for most cases, as a general observation it was easier for participants to answer open questions with lower abstraction levels. This insight is later used while designing the solution.**

d. Experts

Along with the pre-identified relevant stakeholders, 4 experts were also interviewed. These experts were either driving sustainability in their organisation or giving consultation to other companies on related topics. These interviews were to largely gain insight into what is currently being done for the topic of customer centricity and sustainability, what are the challenges they have encountered or have seen being encountered. These interviews were unstructured since the intention was to gain knowledge and to make them feel comfortable talking about the topics they knew the most about instead of making any comparisons.

Data collection

Two qualitative research approaches were used to collect data at this phase of the project.

1. Interviews
2. Observation session

Interviews give a thorough understanding of what drives the participants, what their needs and beliefs are. It helps get an understanding of the participants' decision making process and underlying motivations. It is also a useful method to gain expert insights on the issues one could possibly anticipate while addressing the problem space (van Boeijen, A., Daalhuizen, J., & Zijlstra, J., 2020). Hence, in depth interviews were chosen as one of the key methods to collect the data from the employees, end customers and end users since the goal was to understand their drivers and limitations for either being customer centric and sustainable or making sustainable choices as end user or end customers. For the employees, the interviews were also used as a tool to uncover the complexity of the company's organisational structure. Meanwhile for experts, in-depth interviews were chosen as a means to gain their insights about the topics at hand based on their experience.

Snowball sampling and convenience sampling were two key methods to identify and

recruit the participants. Snowball sampling is a method where the selected participant nominates further participants. This was useful for Barco employees since the chosen participants were within the company and could direct to further colleagues who might be able to give relevant insights on the topic being discussed. Where this approach didn't work, convenience sampling was used, mainly for reaching end users. It is important to note that since the sample was collected through convenience sampling the data cannot be used to generalize for the entire population.

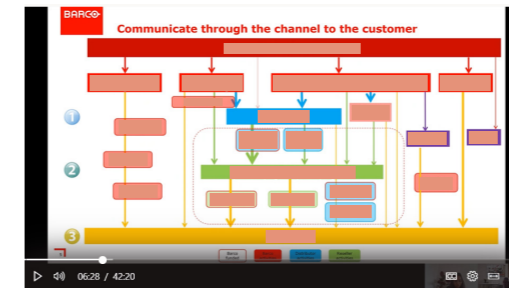
Below is the format used as a guide for different participant categories:

1. Interviews

a. Barco Employees



Img 4.9 A screenshot from an online interview with a Barco employee.



Img 4.10 A screenshot from another online interview with Barco employee to understand communication channels.

Semi-structured interviews | Snowball sampling- participants nominated their colleagues who could lend useful insights into the topic | Time: 45 min- 1 hr approx.

Theme 1: About the expert and the department

- Their role
- Roles of other employees in the department
- Routine workflow
- Their role in context with innovation
- Their role in context with sustainability

Theme 2: About customers

- Their customers
- Process of recording customer journey
- Tools to communicate with customers
- Primary channels and touchpoints
- Other department with close proximity to customers

Theme 3: Future of work and changing needs

- Evolving customer needs
- Future of work
- Current approach to eliciting sustainability goals of customers
- Current approach to meeting customer needs around sustainability

Theme 4: Desired involvement in a hypothetical project (innovative and sustainable)

- Their role
- Limitations and challenges

* Asking for relevant contacts of other employees, customers

* Asking for their preferred mode of communication for future queries.

b. End users

Semi-structured interview (iterative) | Convenience sampling- reached out to professional connections within the known circle | Time: 30-45 min approx.

Theme 1: About role and the organisation

- Their role
- Reasons and ways of collaboration
- Challenges
- Collaboration tools
- Tasks pre, during and post collaboration
- Collaboration process challenges
- Collaboration process going off track
- Collaboration process being wasteful
- Decision maker on the collaboration tools
- Process of identifying user needs regarding collaboration

Theme 2: About sustainability in the organisation

- Organisation's sustainability efforts
- Sustainability efforts into decision making
- Challenges

Not too important but nice to know:

- Organisation's customer centricity efforts
- Customer centricity into decision making
- Challenges

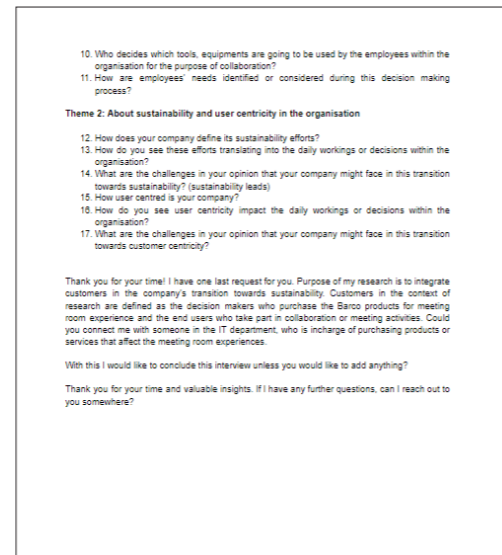
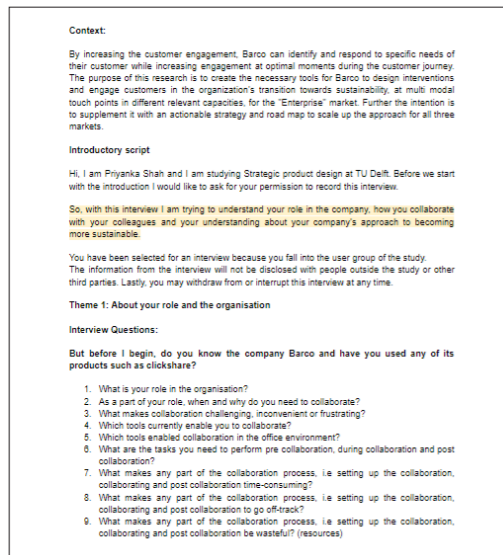
*Asking for relevant contacts of employees in the IT department or facility management.

c. End customers

Semi-structured interviews | Snowball sampling- end users nominated their colleagues who could lend useful insight into the topic. Failed for most cases with IT department/ Facility management being hard to reach, busy in case of larger organisations, or non-existent in smaller organisations | Time: 45 min approx.

Theme 1: About role and the organisation

- Their role



Img 4.11 A script was prepared prior to each interviews. The above images are of a sample script for end user interviews. They were only used to guide the interview and not always followed to the letter.

- Procurement responsibilities and examples
- Routine workflow around device and tool procurement
- Factors of consideration
- Trigger to procurement
- Current approaches to identifying employee needs
- Challenges during the procurement process
- Biggest user pain points regarding collaboration tools

- Topics discussed:
- About their role in their organisation
 - Customer centric initiatives and the challenges
 - Sustainability initiatives and the challenges
 - Reasons behind the transition towards sustainability and customer centricity

*Asking for relevant contacts of employees in the IT department or facility management.

Theme 2: About sustainability in the organisation

- Organisation's sustainability efforts
- Sustainability efforts into decision making
- Challenges

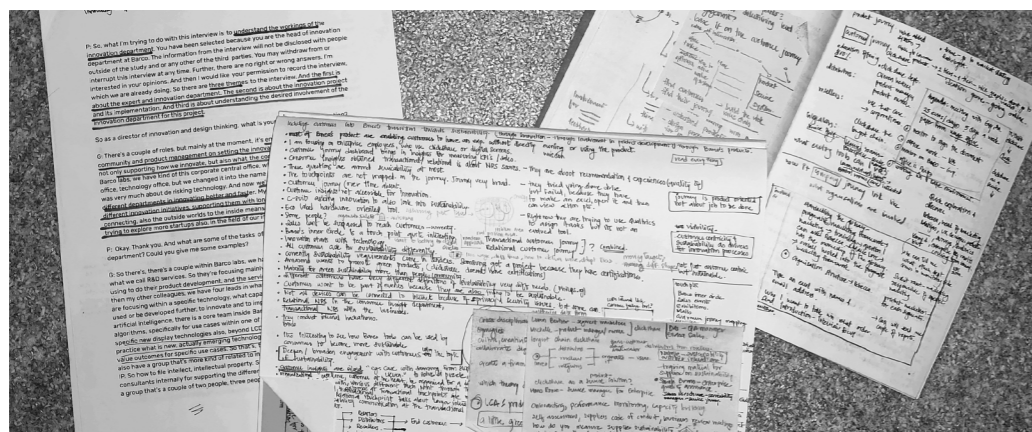
* Asking for relevant contacts of other customers

d. Experts

Unstructured interview | Snowball sampling- employees suggested conversations with external contacts who could lend insights & Convenience sampling- reached out to professional connections within the known circle | Time: 30-45 min approx.

2. Observation session

Observation sessions can help understand the how and why behind the tasks described in the interviews. It can give a glimpse into the tactical processes that go behind the conceptual ideas. The observation sessions are usually conducted in the setting of the participant without intervening (van Boeijen, A., Daalhuizen, J., & Zijlstra, J., 2020). This observation session was conducted to understand the existing process of customer journey mapping exercise. It was followed up by an unstructured interview of the stakeholders (Barco employees) involved.



Img 4.12 The image shows the notes taking during the interview and points highlighted on the transcripts post the interview.

4.4 Steps from Frame Innovation Archeology

This is the first step in the frame creation process. This step is useful to investigate the problem in depth and the earlier attempts to solve it. As mentioned earlier, the need for using a frame creation method was not yet recognised and hence the data was not gathered with this step in mind. Yet the data gathered through literature review and field research helps in exploring the depth of the problem, existing organisational processes, and hard non negotiable boundaries, which is the intention for this step. The depth of the problem is understood through literature review and interview of employees, the existing organisational process is understood by asking employees about the roles and processes during the interviews, and taking part in an observation session and finally hard non-negotiable boundaries are identified through the employee interviews. Some of these non-negotiable boundaries also emerge during the co-creation session with the company employees while exploring frames and futures.

Context

This is ideally the third step in the frame creation process. The intention of this step is to explore the practices of the key

stakeholders who have been part of the problem space since they will also likely be the stakeholders of any proposed solution. This will help gain a sense of current practices and scenarios necessary to be considered while developing the solution. This was explored during the interviews with employees, end users and end customers. The key practices of all stakeholders were explored from two lenses,
 - Their practices/roles within the company
 - Their practice/role in context with the problem area defined

Field

This is the fourth step in the frame creation process but was done alongside Archaeology and Context. The tacit knowledge from the literature and field research helped improve the stakeholder map. The research helped in increasing the understanding of the roles, interests and values of all the involved stakeholders and how they were connected to each other.

Hence, even though the steps were not used as is, the required knowledge has still been gathered intuitively. This exploration in the Discover phase will help in identifying the problem area during the Define phase i.e the next phase of the Double Diamond Design process.

“I know that the question from our boards...was how can you help build more sustainable products. Be involved in that part and try to innovate in that field as well.”

-Director Innovation and Design Thinking, Barco

04 KEY TAKEAWAYS

- The Discover phase is useful to clearly understand the problem space and the stakeholders within it.

- Literature review on contextual and theoretical topics was conducted to begin exploring the problem space. Parallely, Field research was carried out by interviewing the key stakeholders and taking part in an observation session.

- **Contextual topics explored during the literature review gave insights into the challenges and benefits of transitioning towards customer centricity and sustainability.**

- **The theoretical topics explored gave an insight into Barco's strategy, organisational structures, priorities, Clickshare and the future of work/ collaboration.**

- **Field research was carried out by conducting 27 interviews in total and one observation session.**

- These interviews were set up to give insight into the company of the participants, their roles, and their inputs on the defined problem area (in context of sustainability and customer centricity).

- The observation session gave an understanding about the current processes for customer journey mapping exercises.

05 DEFINE

5.1 Phase

5.2 Codes, Categories and Takeaways

5.3 Triangulation and Scoping

5.4 Paradox and Themes

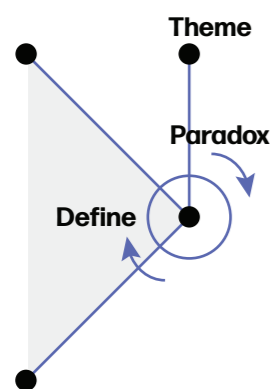
5.5 Problem Statement

What to expect

The Define chapter gives an overview of the tools, methods and steps used to turn the data collected during the Discover phase into insights to redefine the problem space. It shows all the codes, categories and takeaways that emerged out of the interviews and the observation session. Further it gives a glimpse into how the data was triangulated to generate insights. The key insights obtained were paradoxical in nature and hence steps from frame innovation were used to define the paradoxes and identify an underlying theme. At the end of this chapter and phase, the problem was redefined based on the underlying theme.

05 DEFINE

5.1 Phase



Img 5.1 Define phase of the Double Diamond Design Process.

Theme Purpose: Analyse and redefine the problem space.

This phase is about analysing the data from the research conducted during the Discover phase. The obtained insights are used to redefine the problem area. In depth analysis of interviews was conducted to extract the data. **The data was triangulated and converted into insights.** From the many insights obtained, a few were selected using the Eisenhower Decision Matrix. **The reason behind using this matrix to identify the key insights was that it helps in prioritizing the area of interventions based on their urgency and importance.** The resultant insights were inherently paradoxical in nature and hence difficult to directly design for. To move further, steps from the frame innovation process were used to define the paradoxes, and explore relevant themes. The steps from frame innovation that were supportive in achieving the purpose defined were:

Paradox: This step is useful to identify **why this problem is hard to solve.** Ideally this step is carried out after the Archeology step in the Frame innovation process. But this process is not linear and the result of this step is not considered till much later in the process. **Paradox is expressed as a clash of rationalities in a series of statements conjugated with "because".**

Themes: This step is useful for **exploring the deeper factors that underlie the motivation and experiences of stakeholders.** Themes are stakeholder-specific and hence the knowledge from the Discover phase or direct involvement of stakeholders is necessary for creation of relevant themes. After exploration of many themes one theme is chosen and this theme is used to redefine the problem.

The creation of themes is the most abstract activity in the frame creation approach. Yet it is also the step that more than any other defines the depth and quality of the end result. (Dorst, 2015)

The clarity from the Define phase will inform the next phase, to explore the solution space.

5.2 Codes, Categories and Takeaways

Data gathered from all key stakeholders (employees, end customers and end users) was analysed to generate codes and categories based on commonalities or differences within their stakeholder category. The interviews were manually coded (content analysis). The expert interviews were coded not to identify commonalities but with the intention to gain insights from the expert's experience and exposure. The initial codes were clustered and more developed categories were identified.

The process of analysis generally included five steps. They are as follows:

Step 1: Audio or video record (unless not allowed)

Step 2: Transcribe

Step 3: Code with or without a template

Step 4: Categorize or build a diagram

Step 5: Triangulate to build insights

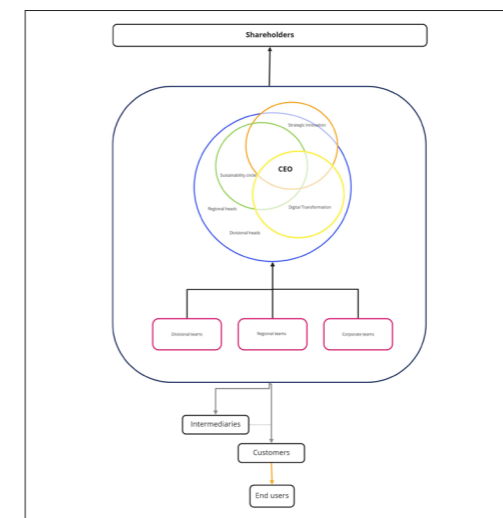
about products as a service, seeking input from customers along their journey about their needs. However since the building elements are product-focused, some actions have inherent subtle contradictions such as mapping the customer journey per product.

Codes:

- The society is turning to listen to customers
- Making change possible through feedback
- Customer reluctance to own products
- Customers seeking an experience
- Improving product touch points
- Breaking the product centric thinking
- Not asking customers about products
- Investing in R&D and markets
- Best product but difficulty in scaling
- Improving value for customers
- Going beyond specific outcomes
- Integrated input from various streams around features

Codes and categories:

a. Employee interviews



Img 5.2 Base template created to map out employees role.

For the interviews with employees, a basic diagram template (Img 5.2, Appendix A) was created to map out their role in the company **in context with sustainability, customer centricity, innovation and communication.** This diagram kept on evolving with more information. But for understanding employees' approach, perception, and understanding of sustainability and customer centricity, no templates were used. The following are the codes and categories that came out as a result of this exercise.

1. Move away from being product-oriented

This category comes as a reflection on the ongoing change within the company and the interviewees' roles and their desires. They notice a shift in the organisation- away from product first attitude and towards thinking

2. Distance from stakeholders

This category comes from employee's understanding of the current way of working vis-a-vis their needs. The stakeholders either refer to end users, end customers and also customers (distributors, integrators, resellers). The distance of Barco employees from their end user is mainly attributed to the scale of their audience, their distribution channels, and the nature of the work environment. Meanwhile, the **distance to their end customers is mainly attributed to their go-to market strategies and distribution approach.** Finally the **distance from their customers is attributed to the way teams and roles are organised and an absence of correct tools to collect the input.** Their over reliance on special instances such as trade shows or events, lack of proactive measures and fragmented approach adds to the challenge of increased distance both from the end customers and the customers. Hence, **although there is a clear desire and need to reduce the distance from the various stakeholders, the current tools and processes don't allow for that.**

Codes:

- Distribution system making it difficult to know the customers
- Intermediaries as proxy for customer insights
- Some teams closer to customers than others
- Sales teams gate customer access
- Need for a feedback loop
- Training for feedback collection
- Over reliance on specific events
- Connecting via internet/ digital tools

- Absence of user data
- Addressing the right pain points to create value
- Fragmented approach to feedback collection
- Lack of appropriate tools to collect the data, assign task and actions
- Passive relationship, gap met through customer efforts

3. Action oriented culture

This category arises from the incentives that are seen to **drive behaviour** within the organisation. In general there is an expectation to have immediate results from the inputs and a loss of interest in absence of clarity. The company strategy is broken into targets and targets are measured across the customer journey in the form of KPIs. Based on the customer journey mapping exercise, new KPIs are determined which have new targets associated with them. These KPIs have associated measurable metrics. Hence in order to drive any internal transition within the organisation, a process to get the **insights in a visible way** that can **have associated KPI's with it**, will become important. It will also be important to show immediate results, hence an **agile approach to a project** showing results would be more beneficial than investing to create a complete solution in one go.

Codes:

- Immediate results
- Lose interest in absence of clarity
- Targets and associated metrics to drive action
- Using insights to track ROI
- Centralized information to drive action
- Customer journey mapping to generate and communicate KPIs
- Customer centric KPIs for customer centric behaviours
- Sustainability measured through targets
- Absence of measures in place to pass feedback

4. Limited insights and resources

This category represents the challenges that are recognised by the employees in their organisation's current approach in transition towards sustainability and customer centricity. The key challenges are **lack of knowledge, time and shared insights**. This is also essential to keep in mind while building any solution, as to not over-ask from Barco employees in terms of knowledge, time while making sure that one more additional tool is **not created to further distribute the already staggered insights**.

Codes:

- Diversified tools and siloed insights

- Lack of specialists and human resources
- Lack of knowledge on sustainability
- Best practices for reducing the knowledge gap
- Volunteering a part of time/ knowledge for additional support
- Absence of segmentation for sustainability topics
- Lack of insights from customers
- Absence of dedicated resource for customer journey exercises
- No time to process raw, unfiltered information

5. Including customers input

This category comes from how the employees have experienced the process of including customers' input within their daily workings. There is **an agreement across the different functions to include customers and put them at the heart of the organization's decision making**. There is some amount of streamlining done with the customer journey mapping exercise per product line but most inputs coming from various touch points are **staggered**. The customer input also depends heavily on the type of tools used to capture it. Furthermore, they **need to have adequate incentives to give input. This is easy for certain stages like the serve or maintain phase but much harder for phases like the engage phase**. Finally the inputs received from the customers are shared within the department in the form of reports or emails as they come.

Codes:

- Including customer input from larger market
- Input from customers to scale innovation
- Going beyond early adopters
- Long term co creation for innovation
- Dangers of taking input from few customers
- Understanding customers challenges and needs for sustainability
- Talking to customers to build sustainability related value proposition
- Different personas at different parts of the process with different needs
- Customer input documented in the customer journey
- Customer insights shared via mails or reports
- Different insights collected from different touchpoints
- Putting customers at the heart
- Type of inputs collected dependent on the tools
- More frequent input from customers desired
- Incentivising customers for giving input
- Sustainability requirements in tenders
- Passive approach- queries coming from customers
- Dual purpose- sustainability a means to end

- Increasing importance of sustainability with increased customer demand
- Sustainability topic needs a context- nudge
- Research needed on how region and industry affects the customer needs

6. Top down approach to sustainability

This category is a result of how the sustainability initiatives are **led from top down**, but there is **absence of individual targets for employees**. With the push from industry and legislation there is an **increase in communication** regarding sustainability initiatives **but not enough action**. These initiatives are not seen as relevant to businesses **due to lack of customer input or need regarding the same topic**. Most of the efforts are product oriented and the minimum is done as a standard practice. Pioneers are benchmarked for product related sustainability goals and then internal targets are set. **Different departments are given basic training on this topic and from time to time information is shared through tools like Yammer or mails**. There is still an absence of alignment within each department about the need of customers and how they can influence the topic of sustainability. Hence, although a top down approach is necessary, **a need for bottom up verification and specific actions to drive change in a sustainable manner has been recognized**.

Codes:

- Executives asking departments to take up sustainability initiatives
- Board asking executives to drive sustainability initiatives
- Sustainability as better for business
- Sustainability a part of corporate strategy
- Absence of personal targets on sustainability
- Incentives as annual bonus for the sustainability workstream lead
- Department trained on sustainability relevant topics
- Sustainability- a corporate initiative and not a business differentiator
- Sustainability as part of the standard practice
- Growing sustainability related communication
- Valued differently for different decisions
- Making sustainability tangible to be on top of the mind
- Internal certification used for setting internal targets and external communication
- Internal link yet to be established between sustainability and customer centricity
- Fast changing regulations driving the sustainability transition
- People and Communities part of corporate offering, Planet targets are product specific

- Knowledge sharing of sustainability through diverse tools
- Absence of knowledge on how they could influence

7. Future of work

This category emerges from the reflections about the behaviour in the recent past leading to anticipations around what is to come. **The new normal is expected to be distributed and hybrid**. There is increased adoption of technology with higher expectations from it. **There are also increased expectations to have better experiences in workspaces to make up for the missed connections**. With many tools enabling them to perform the same tasks, and their staggered adoption, **people also expect others to meet them where they are and not be forced to use a particular tool**. Hence, as a result of the pandemic, many transitions have been accelerated affecting people's behavior, expectations, needs and way of working.

Codes:

- New normal, distributed working
- Fast adoption of new technology
- Acceptance of hybrid working
- High expectations, less patience
- Expectations of better experience in workspaces
- Reduced travel, less time for thinking
- Missing the connections
- Agnostic tools, meet people where they are



7. Future of work

Fast adoption of new technology
 Agnostic tools, meet people where they are
 New normal, distributed working

Expectations of better experience in workspaces
 Acceptance of hybrid working
 High expectations, less patience

1. Move away from being product-oriented

Best product but difficulty in scaling
 The society is turning to listen to customers

Absence of personal targets on sustainability
 Absence of knowledge on how they could influence
 Sustainability- a corporate initiative and not a business differentiator

6. Top down approach to sustainability

Internal certification used for setting internal targets and external communication

Knowledge sharing of sustainability through diverse tools

Distribution system making it difficult to know the customers
 Intermediaries as proxy for customer insights
 Some teams closer to customers than others
 Sales teams gate customer access

Internal link yet to be established between sustainability and customer centricity

2. Distance from stakeholders

Need for a feedback loop
 Training for feedback collection
 Connecting via internet/ digital tools

Putting customers at the heart

Absence of user data
 Addressing the right pain points to create value

Different insights collected from different touchpoints

Fragmented approach to feedback collection

Customer insights shared via mails or reports

Lack of appropriate tools to collect the data, assign task and actions

Passive relationship, gap met through customer efforts

Incentivising customers for giving input

Input from customers to scale innovation

Sustainability topic needs a context- nudge

5. Including customers input

Immediate results
 Centralized information to drive action

Understanding customers challenges and needs for sustainability

Customer centric KPIs for customer centric behaviours

Talking to customers to build sustainability related value proposition

3. Action oriented culture

Targets and associated metrics to drive action

Research needed on how region and industry affects the customer needs

Using insights to track ROI

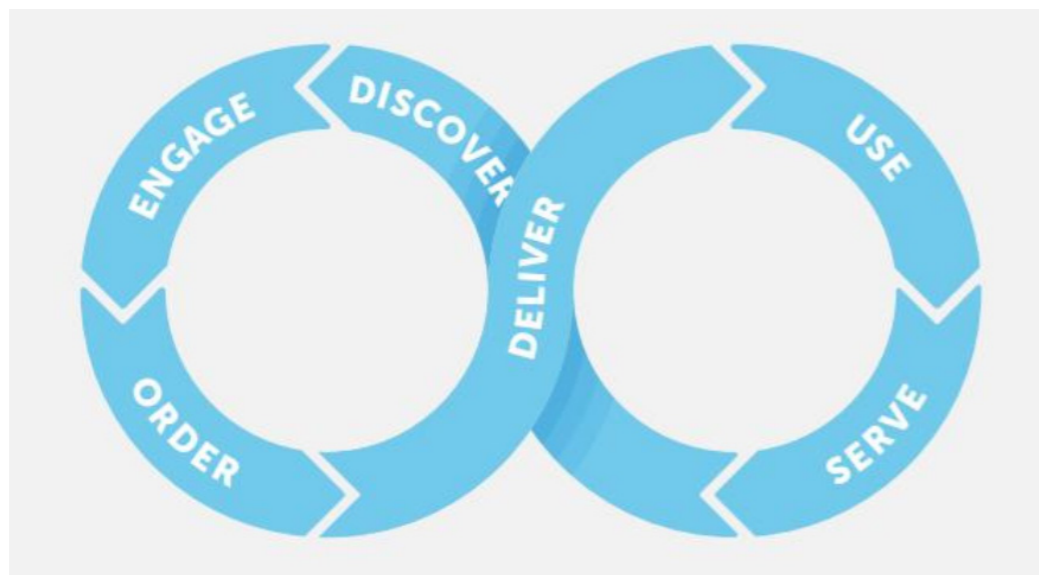
Lack of knowledge on sustainability

Lack of insights from customers

4. Limited insights and resources

Absence of dedicated resource for customer journey exercises

No time to process raw, unfiltered information



Img 5.3 Six phases of the customer journey forms the base for the customer journey mapping exercise at Barco.

Takeaways:
Observation session

1. Process takeaways:

The general process of customer journey mapping was already discussed in the interview with the Vice President of Digital Transformation (Appendix B) prior to the observation session. Customer journey as shown in Img. 5.3 forms the base of this mapping exercise. More about the process can be found in Appendix B. The observation session helped in building on the insights obtained from the interviews about the process and content of the customer journey mapping exercise.

- Intermediaries as proxy for customer insights
- Free flowing interview
- Mapping exercise starts from the Discover phase (where the end customer goes to look for the technology.)
- Note taking on Miro board
- Cross verification post interview

2. Content takeaways:

Since the internal employee being interviewed for this mapping session was from the marketing department, many end customer expectations around communication were revealed primarily for the **Discover and Engage phase** of the journey.

- Seeking personalized experience
- Expecting crisp communication
- Absence of personal connection at Barco
- Making the right content, consumable
- Customers wanting to be company advocates
- Relevant communication according to the journey phase
- Under-utilization of the current tools due to knowledge bandwidth
- Distributed tools
- Manually noting customer inputs
- Lost interest due to difficulty in access.
- Important to know the language of customers
- 70% of the customer journey is completed before their first contact with the sales person
- Responsiveness is appreciated
- Technology benefits only with a good understanding of customers

These takeaways are important for the later stage of the design process.

(Requirement generation, Transformation phase and Integration phase)

Codes and categories:
b. End user interviews

For the interviews with end users, a basic template (Appendix A) was made to map out their role in the organisation, the nature of the organisation, how they interpreted collaboration, the departments that were in charge of procurement of collaboration tools, their perspective on the procurement process, who they collaborated with, the process, tools used, the pain points of collaboration and finally their understanding on how their organisation is adopting customer centricity and sustainability. **Since this research is not trying to primarily include end users in the company's transition, certain parts of the interview were not coded.** It was already **recognised during the literature review that user journeys could affect the end customer's journey that had something to do with the procurement process were coded.** **Also their views on sustainability and customer centricity were coded.**

The rest of the interview was to set the base and also test how to ask the right questions to elicit responses. There was also an attempt to see whether the needs or understanding of sustainability were consistent across departments. Since IT department or facility managements are notoriously hard to reach within an organisation, snowballing allows reach and access. Finally, these interviews also allowed me to build an understanding about sustainability topics across industries. These observations were seen as takeaways useful for developing the solution.

1. Sustainability in organisations

This category comes from the end users' understanding about sustainability within their organisations. **In context with the organisation's industry, their materiality aspects differ.** Their interest level varies. Some companies still see sustainability as a CSR effort and consistent knowledge through the company about how the strategic goals translate is missing. **In the absence of personal targets and adequate information, sustainability is not on top of employees' minds.** These employees are people too and they also understand sustainability within more visible aspects such as cafeteria, and mobility. Sustainability is used a lot in communication for improving reputation. Hence **although sustainability is deemed necessary at varying levels in an organisation, it doesn't always translate to daily practices.**

Codes:

- Varying levels of interest depending on materiality
- Sustainability as a commodity
- Correlation between scale of companies and sustainability
- Sustainability for cost reduction
- Sustainability associated with CSR activities
- Personal targets and information
- Difficulty in translating sustainability in daily practices
- Sustainability not on top of mind
- Dedicated resources
- Perception key to success
- Things different on paper

2. Employee centricity

This category comes from the end user's understanding about the end customer's approach to the procurement process.

The needs from end users are either proactively collected by the end customers or there are feedback mechanisms in place for end users to flag certain issues around their unmet needs.

End customers also share best practices with the end users and this triggers new purchases in the organisation unless it is a corporate infrastructural decision.

Codes:

- Proactive research
- Employee raising requests
- Sharing best practices
- Needs collected through flagged issues

3. Customer centricity

This category comes from the end users understanding about customer centricity in relation to their organisation. **The employees from agencies saw a rise in clients seeking customer centric transitions while the end users in large organisations have already seen this transition happen.** All of them recognise the need to be customer centric although they are at different levels of maturity. Some challenges mentioned are to **identify the source of truth and also place it on a scale of importance in the context of their users' profiles.** Digitalisation, with considerations of privacy, is an important tool in this process of moving from being product driven to being solution driven. Hence, the need for being customer centric is clearly understood but it's easier to do so when customers care about the products which is difficult in case of (technical) products.

Codes:

- External support during the transition or adoption process
- Customer centricity and digitalisation
- Sustainability being asked for by customers
- Varying levels of maturity
- Solution vs product driven
- Difficulty in implementation differs for different products
- Use it in the value proposition
- Identifying sources of truth
- Some feedback is more valuable than others (regular user, high volume user)
- Privacy considerations

Codes and categories:

c. End customer interviews

For the interviews with end customers, a basic template (Appendix A) was made to map out their role in the organisation, the nature of the organisation, how they identified employee needs, their inputs on sustainability and future of work.

1. Employee centricity

This category emerges from the end customers approach to end users needs within the organisation. The primary **collaboration needs are collected by the end customers from the end users of the devices unless it is a very large corporate or infrastructure development project.** Various approaches are used to proactively collect the needs. Pre corona times they were done by talking to end users while currently they are being done through floating surveys. End users also take the initiative to reach out in case of very specific needs.

Codes:

- Interaction for identifying employee needs
- Changing tools for employee interaction during COVID-19
- Taking care of employees
- No one size fit all solution

2. Future of work

This category emerges from the anticipations around what is to come. **The new normal is expected to be distributed.** The role of the IT department/ Facility management then would be to take care of end users where they are and **facilitate them with adequate resources as per their needs to work effectively.** Although there is expected to be a lot of freedom for the end users, the complexity for the end customer is expected to increase.

Codes:

- Taking care of employees where they are
- New normal, distributed working
- Facilitating work from home
- No fixed location
- Freedom with complexity
- Customized approaches

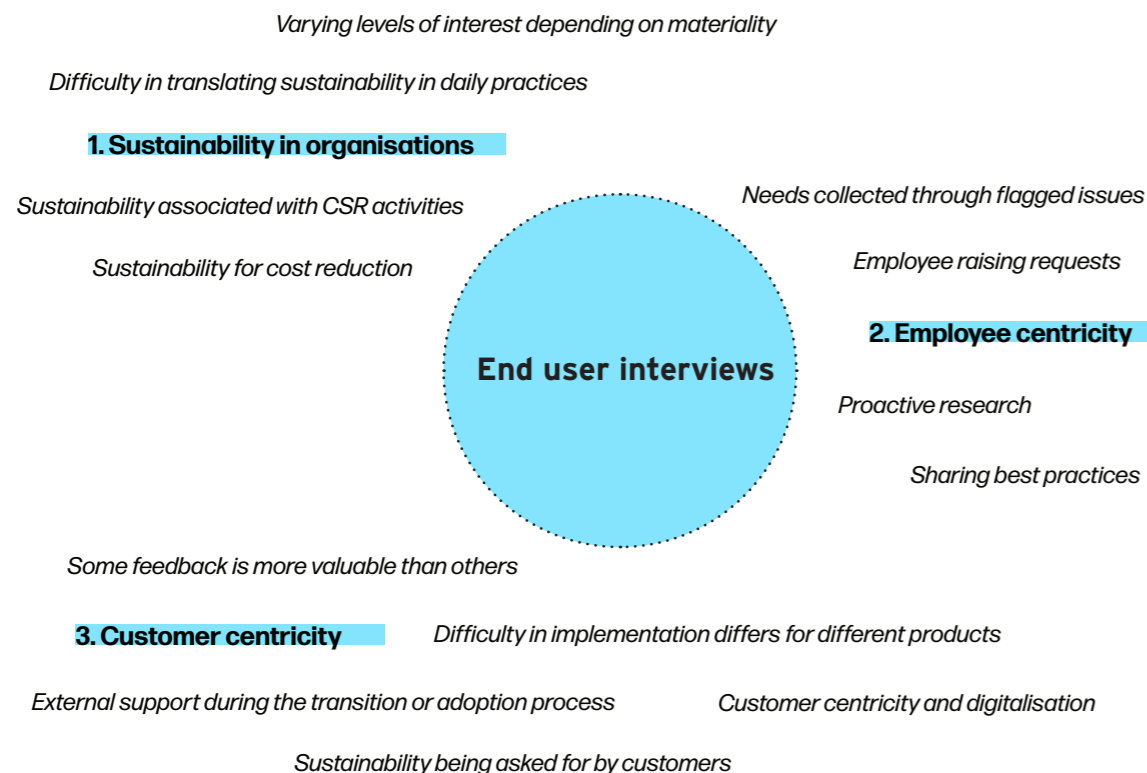
3. Factors of consideration

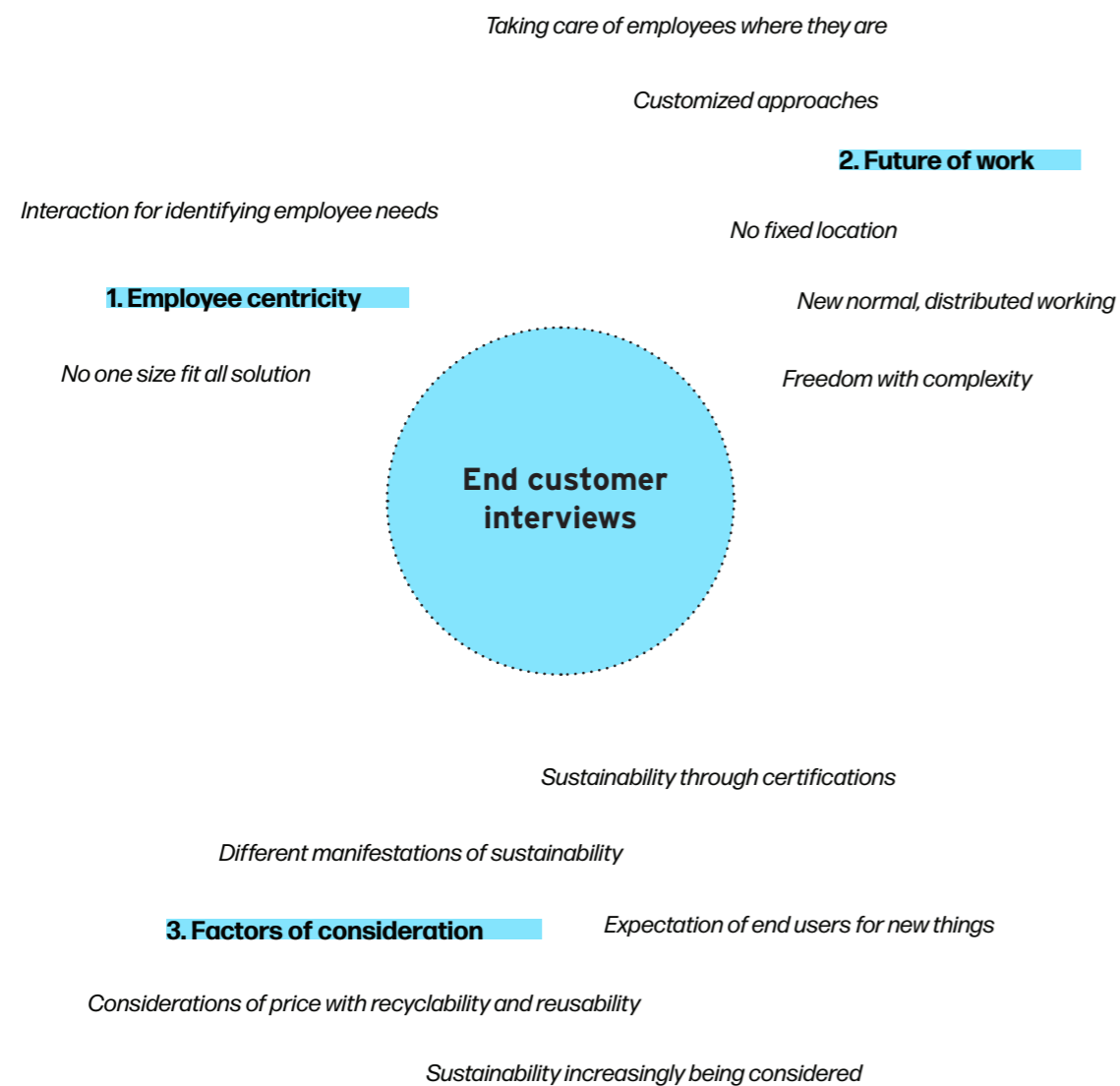
This category comes from the factors that are considered essential by the end customers while purchasing the product. The **primary factor is functionality followed by price.** But **given the sustainability goals of the organisation, at times products of higher price range are chosen if they have relevant aspects of sustainability in their value propositions.** For this particular

segment, it's preferred to purchase products over leasing them and one important aspect with regards to sustainability is certifications. Furthermore, an observed behaviour of end users is that they have different standards for their own self and what others should do and don't want to compromise on the newness of the products to be sustainable. Hence although sustainability is an increasingly important criteria, there are **other nuances that need to be known to create relevant value propositions for the end customers.**

Codes:

- Prioritize functionality, long term contract and services
- Considerations of price with recyclability and reusability
- Purchase over leasing devices
- Different manifestations of sustainability
- Expectation of end users for new things
- Sustainability increasingly being considered
- Sustainability through certifications
- Different standards for others and self





Takeaways: Expert interviews

The unstructured interviews with experts helped in gaining an industry perspective on topics of customer centricity and sustainability initiatives and the challenges they have encountered or seen being widely encountered. Customer centric sustainability is considered to be highly important. **Many organisations take intermediaries such as universities, consultants, etc. as a proxy to identify customer needs. When they do identify the needs themselves, these needs come in through the sales channel and are then passed on to the relevant department.** It requires the sales team to have adequate time and resources, and personal incentives to process and communicate these insights to the relevant department. **Sustainability related work is communicated through reports, visible certifications and marketing materials.** Every customer (in a B to B setting) is at a different maturity level and a different priority regarding the topic of sustainability. It is essential to be relevant to the customers while discussing the topic of sustainability. **Lastly, even though both the topics of customer centricity and sustainability have proven to have a positive impact on the business and increase customer retention, there are many challenges that make this transition difficult.** These challenges need to be addressed strategically with adequate resources. **Employees need to be supported with the right tools and incentives while customers need to be supported with access, information, and incentives.**

a. Insights from drivers of sustainability

1. Contextual enablers:

- Ease of access of sustainable product or services
- Behavioural change due to environmental factors driving sustainability
- Demands from the youth

2. Industry driven sustainability:

- Meeting mandatory requirements
- Dependent on information from suppliers
- Making impact visible through reports and carbon disclosure projects
- Sustainability as a driver for innovation
- Considered additional effort, need management support
- Employees, partners demanding action
- Competitive benefits of sustainability
- Isolated initiatives

3. Customer centric sustainability:

- Tailoring communication to sustainability needs

- Sales teams gate customer access
- Passive approach, queries coming from customers
- Mismatch in industry requirements and customer expectations
- Making impact visible through certifications
- Supporting customers meet their targets
- Needing adequate time and resources to work on sustainability topics
- Distance from end customers and users
- Intermediaries as proxy for customer or user needs

b. Insights from consultants who address sustainability and customer centricity

1. Operationalising transition:

- Challenge to stay human
- Employees are people too
- Need for incentives to drive employees
- Important to be aligned on what the organisation holds true.
- Triggering holistic way of thinking
- Redefining what is valuable
- Need to look at KPI's differently
- Know what is important for customers
- Convince each for what they care about

2. Being customer centric:

- Going beyond operational excellence
- Competition driving customer centricity
- Profitable to be customer centric
- Excitement and visible impact/information as key drivers
- With visible impact, don't mind paying more
- Customer centricity is a new imperative
- Sensemaking from data is time consuming
- Anticipating and responding to customers strategic goals
- Have a full view

3. Being sustainable:

- To value one needs to measure
- Core to a company's business strategy
- Translates differently through the organisation
- Helps forge stronger relationships with customers
- Fear being obsolete
- Different levels of maturity and approaches for sustainability
- Make environmental costs visible
- Educate to make the right decision
- Person in business to person in another business instead of B to B
- Incentivise preferred decisions
- Many small careful decisions
- Systemic challenges or reverse incentives and budget allocation
- Challenges of single point focus

5.3 Triangulation and Scoping

The data synthesised during analysis was triangulated, either using data triangulation or investors triangulation. Data triangulation essentially means using multiple data sources for a single inquiry to build an insight while investor triangulation means using insights from different experts to build an insight. At certain points data triangulation and investors triangulation were even used in combination. Further, these insights were placed on an Eisenhower Decision Matrix in order to identify the most urgent and important problem that needs to be addressed.

Triangulation

During this process of triangulation **a comprehensive list of insights was generated in context of the key challenges to “including customers in a company’s transition towards sustainability,” and then the data that cannot be triangulated was left out to limit the bias.** The insights obtained were as follows:

Example insight:
It is essential to seek the right input from carefully selected customers.

Because they are closest to the customer with a regional marketeers, regional sales people and service people. So they are absolutely best to get input next to talk to customers yourself, of course.

- VP Digital transformation, Barco

It is very essential that the right kind of input is sought from the right customers for identifying opportunity areas, developing the product, formulating concepts, evaluating the concepts and eventually during market segmentation. (Ulwick, 2002)

The right input should be sought out from carefully selected customers i.e. specific people who are directly involved in performing, funding or assisting with the activity and the frontline workers (Weinstein, 2020)

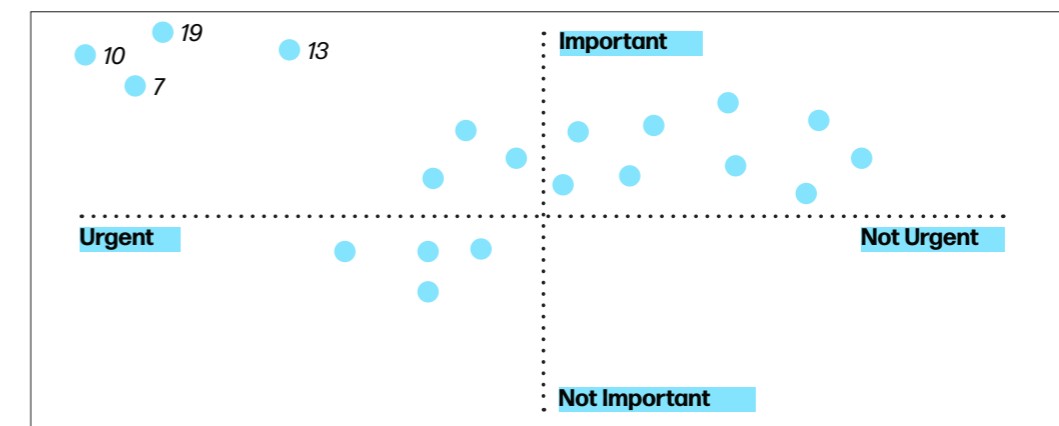
Img 5.4 As shown in the above visualization, atleast three different data points are triangulated to formulate each insight.

1. Adopting a new customer centric mindset is challenging for a product-centric organisation.
2. Digitalisation aids in being customer centric but consistency is difficult.
3. Customer centricity requires both top-down and bottom up approach.
4. Customer centricity requires a cultural shift through tangible actions.
5. Customer centricity requires different departments to be aligned on customer needs.
6. Customer centricity is challenging when departments are organised around functional silos, defined by product categories and types.

7. **A customer centric (sustainable) organisation needs to have dual value creation.**
8. A customer centric organisation requires a central database to provide a unified view of the customers.
9. Customer centric organisations need a new approach to measure growth.
10. **It is essential to seek the right input from carefully selected customers (i.e. specific people directly involved in performing, funding the task etc).**
11. It is essential to seek input from a representative group.
12. Transition is more likely to be successful if there is a sense of external (customer-centered) urgency.
13. **Timely insights are required from customer data to drive swift action.**
14. Quick value demonstration is essential for internal buy in.
15. Customers’ approach to sustainability is defined differently by different organisations and translates differently within different departments.
16. Organisations pursuing sustainability strategically need to focus on topics material to their industry.
17. For sustainability to be profitable, the organisations need to comply with the most stringent rules.
18. Sustainability is a moving target and hence consistent input from customers is essential.
19. **Sustainability needs to be made tangible for adoption in organisations.**
20. Customers are expecting tech companies to take lead for sustainability offerings.

Scoping

For a company to include customers in their transition towards sustainability, it first requires the organisation to be customer centric and then a process in place to continuously bring in input regarding sustainability topics. Since there are a range of approaches and initiatives that can be taken to facilitate this transition it was important to identify which ones are the most important and would be the focus for this thesis. In order to do so, The Eisenhower Decision Matrix is used to prioritize the areas of interventions.



Img 5.4 The above visualization is representative of how the insights were mapped onto the Eisenhower Decision Matrix

From this matrix four challenges are considered imperative to accelerate the transition towards customer centric sustainability:

- Insight 1:** Barco should seek ‘right’ input from carefully selected customers.
- Insight 2:** Timely insights from end customers are required by Barco to drive swift action.
- Insight 3:** Barco should connect sustainability with customer engagement, to make sustainability tangible.
- Insight 4:** Initiatives undertaken by Barco on the topic of sustainability should create value for customers.

The other insights are kept in mind as essential to building the solution, but are not primary aspects that will be addressed during this thesis.

5.4 Paradox and Themes

The insights obtained were paradoxical in nature. Hence steps from frame innovation methods were used to proceed with the challenge at hand. After defining the key paradoxes, themes were explored to define the deep factors that motivate the key stakeholders.

Paradox

A paradox is a statement with conflicting rationales. According to Kees Dorst, it is a statement where each part is true and yet not aligned. Once the triggers that make this problem difficult to be addressed are known, they are expressed in a series of "because statements". The following key paradoxes emerged from the insights when placed in the context of the organisation:

Insight 1: Barco should seek 'right' input from carefully selected customers. (i.e. specific people directly involved in performing, funding the task etc)

Paradox: Intermediaries are used by Barco as proxy for customer input
Because customer input is seen as necessary but difficult to obtain
Because intermediaries are used, the 'right' input is not gathered.

Insight 2: Timely insights from end customers are required by Barco to drive swift action.

Paradox: Customers need relevant and crisp communication from the organisation based on timely insights

Because customer insights are staggered across different platforms and gated by sales, timely insights are hard to collect

Because timely insights are hard to collect it is difficult to drive swift action.

Insight 3: Barco should connect sustainability with customer engagement, to make sustainability tangible.

Paradox: Sustainability is a corporate initiative and not a business differentiator
Because although necessary, there are no processes in place to get concrete/tangible end customers input (from different customer organisations and relevant department)
Because tangible customer input is necessary to build sustainability related value propositions and see them as a business differentiator.

Insight 4: Initiatives undertaken by Barco on the topic of sustainability should create value for customers.

Paradox: Giving input on sustainability is considered an additional effort by the customers
Because sustainability input is sought from a generic audience in terms of separate surveys or polls

Because the surveys and polls do not create any specific value for participants, it is considered additional effort by the customers

Because they are considered an additional effort by the customers, they are not desired..

Themes

Once the key paradoxes have been identified, the main cause in which the paradox is rooted in, is identified. This is called a theme. By shifting the focus away from the problem as stated before based on the knowledge gained in the previous steps a new approach is arrived at.

Some of the themes that were explored were:

- Disengagement
- Distance
- Engagement
- Static
- Routine
- Portal

Of these themes, the key theme that was the most relevant to the 4 paradoxes was distance.

There is distance between the organisation and end customers. The distance here is in the sense of communication. To bridge distance between two people there needs to be a space, an initiative, a process that leads to a conversation around common values, responsiveness and value exchanged during the conversation. This has to be a repetitive, effortless process and then the distance can be spanned. Similarly, to bridge the distance between the end customers and the organisation, i.e. **for the organisation to be customer centric, the organisation needs to take up the initiative to create a space and process that initiates communication to allow for an exchange of values in an iterative manner across time.**

To explore this theme in the further stages a problem statement was created.

5.5 Problem Statement

Redefined problem statement:

How might we span the distance between representatives of Barco and the end customers (in the context of sustainability)?

The initial problem was defined as how to engage/ or include customers in the company's transition towards sustainability. This served as a good starting point to explore the relevant theories. The nuances of using engage and include as terminologies were explored after the discovery phase. Engage could mean singular interaction while include is more involving and also hints on the process of internalising the customer insight. This distinction was adequate for the Discover and Define phase of the project. But as we moved into the Develop phase, a redefinition of the problem statement was required to guide the solution exploration. It needed to give more insight into where the problem of inclusion really lay, was it a mindset issue, a process issue, etc.

Based on the literature study and field research it is known that Barco is aware about the need and benefits of being customer centric. In fact they are proactively making many changes within the organisational processes to include initiatives such as customer journey mapping exercises. These initiatives will develop over time and become more mature. But there is an absence of adequate and consistent touchpoints with the end customers to get feedback from them directly. Hence, the key challenge here is spanning the distance between the end customers and the organisation.

Furthermore, sustainability is a corporate topic and not seen as valuable to include in the product value propositions. Even though there is a rise in the trend of end customers adopting customer centricity in their decision making processes, the discussion about sustainability being included in the value proposition is a belief-based discussion. Being able to extract end customers insight on this topic is considered relevant but challenging and hence this would be a case for exploration in the solution.

“I know that the question from our boards...was how can you help build more sustainable products. Be involved in that part and try to innovate in that field as well.”

-Director Innovation and Design Thinking, Barco

05 KEY TAKEAWAYS

- The Define phase is useful to clearly define the problem space that needs to be explored.
- Analysing the data from the field research gave a set of codes and categories.
- By triangulating the data from the Field research and Literature review, various insights were obtained.
- To scope down the large number of insights, the Eisenhower Decision matrix was used. The most urgent and important insights were identified.
- The 4 selected insights were:
 - Insight 1: Barco should seek ‘right’ input from carefully selected customers.
 - Insight 2: Timely insights from end customers are required by Barco to drive swift action.
 - Insight 3: Barco should connect sustainability with customer engagement, to make sustainability tangible.
 - Insight 4: Initiatives undertaken by Barco on the topic of sustainability should create value for customers.
- Each of these insights was challenging to act upon due to their inherently paradoxical nature. For example, Insight 1 was difficult to translate into a solution because end customer input is seen as necessary but difficult to obtain by Barco due to the way in which distribution is organised. Currently, intermediaries are used as a proxy for customer input. Since intermediaries are used, the ‘right’ input is not gathered.
- To address these complexities, two steps from frame innovation were employed: Paradoxes and Themes.
- Paradoxes helped in defining why each of the insights were difficult to address in the context of the organisation.
- Once the paradoxes were defined, themes were identified as the root cause that made the problem difficult to address.
- The identified theme, namely distance, leads to redefinition of the problem statement.
- The problem was redefined as **“How might we span the distance between representatives of Barco and the end customers (in the context of sustainability)?”**

06 DEVELOP

6.1 Phase

6.2 Frames and Futures

6.3 Design Brief

6.4 Initial Concept

6.5 Concept Evolution

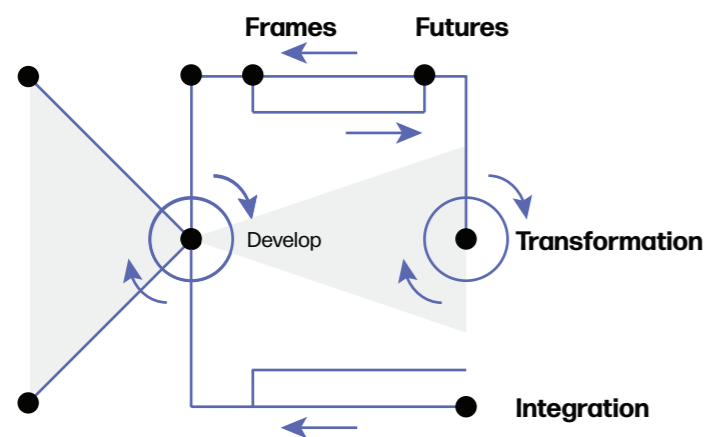
What to expect

The Develop chapter gives an overview of the tools, methods and steps used to explore the solution space and discusses the concept chosen for further evolution. It shows how the steps from Frame Innovation, namely Frames and Futures, were employed to explore the solution space. A project brief was created based on the obtained insights and previous explorations. This brief and the concept that evolved from this brief are also discussed in this chapter. By the end of the chapter, the concept was explored adequately to finalise it in the Deliver phase.

*“ The great myth of our times is that technology is communication.”
- Libby Larsen*

06 DEVELOP

6.1 Phase



Img 6.1 Develop phase of the Double Diamond Design Process.

Purpose: Explore solution space, select one concept for further development and iterate on it.

This phase is about exploring the solution space and selecting one concept that can be evolved. The steps from frame innovation that were supportive in exploring the solution concepts were:

Frame and Futures: Theme from Define stage is taken as a base to form Frames and Futures. **Involvement of multiple stakeholders is preferred during this phase.** Themes can be written down in the format of

If the problem situation is approached as if it is ... , then ...

Futures are a playful exploration for identifying how things might work. This is useful for generating feedback on the explored frames and not necessarily for pursuing one of the solutions offered. **A co-creation session with the Barco employees was set up in order to explore certain Frames and Futures.** Several solutions emerged from this exercise. They were pitched and their limitations and opportunity areas were identified. The input from this exercise along with the insights obtained in the Define phase were used to define a project brief. This project brief acted as the base for exploring the final solution concepts. A few explorations were made and then one concept was selected for further development using the Feasibility, Viability and Desirability Model. The concept was also evolved and validated in this phase. **Meanwhile two other steps from the frame innovation process were used alongside, unintentionally, namely Transformation and Integration, but for clarity, they will be discussed in the Deliver chapter of this report.**

The final concept and recommendations are presented in the next chapter.

6.2 Frames and Futures

The Theme becomes the base for the Frame creation step. Since involvement of multiple key stakeholders is preferred during this process, a co-creation session was designed for the employees of Barco. Once a Frame was created then its Futures were explored. **To make exploration of the concept of Frames and Future easier for the participants, two brainstorming sessions were set up.** In order to explore the Frames during the first brainstorming session the following task was set up to span the problem of distance: **“Individually brainstorm activities/ events/ programs where two or more people come together to exchange some value. Mention the value exchanged.”**

In order to explore the potential of some of the frames, the second brainstorming session was set up. The task for the second session was to answer either of the following questions in a group:

“How might wecreate an information channel (a portal/ touchpoint/activity that helps) span distance between representatives of Barco and the end customers?”

Or

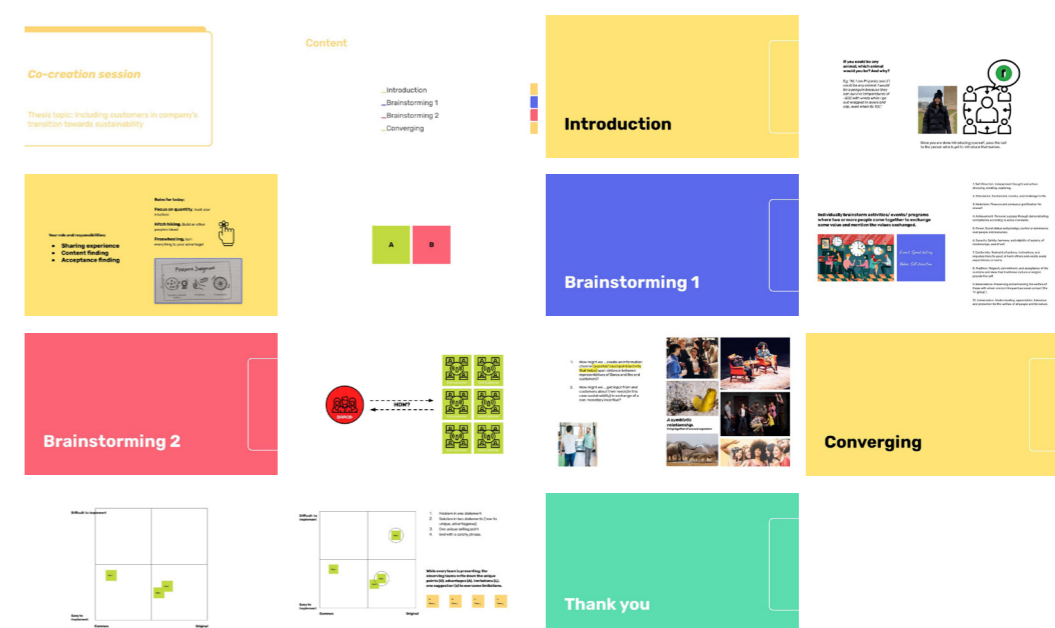
“How might weget input from end customers about their needs(in this case sustainability) in exchange for a non-monetary incentive?”

This helped in checking the potential of one or a combination of Frames. In the co-creation session, these Futures were then reflected upon to further identify the critical factors during the solution development. This co-creation session acted as a reference point to create the final frame to develop a concept.

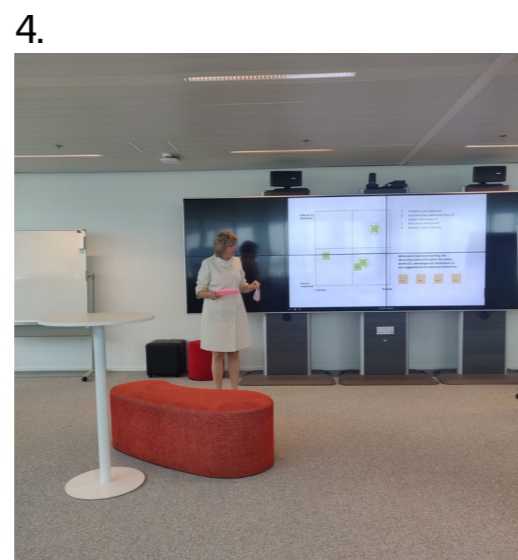
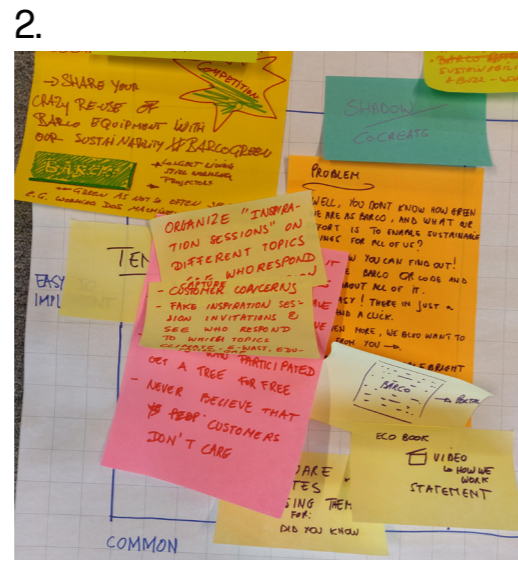
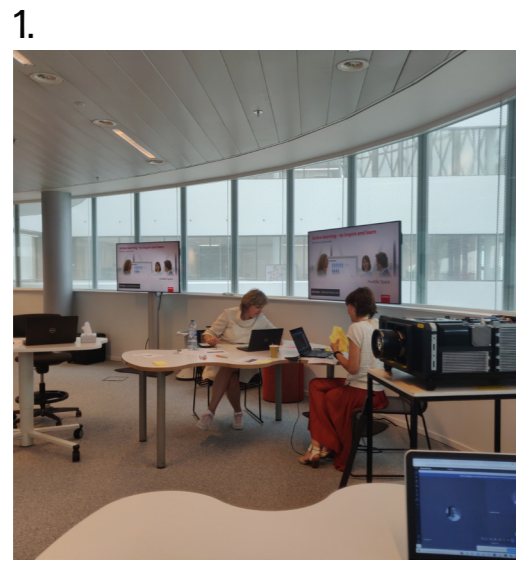
Setup of the session:

The co-creation session was 1.5 hours long and employees from different departments across Barco were invited to participate. The set up was tested out and iterated twice before the real session. It was held in a physical space where two participants couldn't come and tried to join online. The hybrid approach requires special planning and hence that didn't work. There were 6 employees who participated in the session. I was facilitating the session and the Director of Innovation and Design Thinking was appointed as the problem owner. The other 5 participants were part of the resource group. The plan of the session was as follows:

Introduction	10 minutes
Explaining the rules	5 minutes
Rapid round	5 minutes
Brainstorming 1 (for Frames)	10 minutes
Brainstorming 2 (for Futures)	30 minutes
Converging	10 minutes
Pitching and reflecting	20 minutes



Img 6.2 The above images are slides from presentation for the cocreation session. More information about it can be found in Appendix A along with the reference script.



Img 6.3 Some images from the cocreation session with Barco employees. 1. Brainstorming frames 2. Some ideas from the brainstorming session 3. C-boxing the ideas 4. Pitching the ideas

Outcome of the session:

The outcome of the session was a set of frames and futures, a C-box (Matrix with Easy to Implement and Unique), pitches and UALo (Unique, Advantages, Limitations and Opportunities) and certain observations. Although the main output of the session was the elucidation of underlying values that were important to the employees in reference to the proposed futures.

Example:

Frame: Cultural event

Value generated: Universalism

Futures:

Idea: Organize (fake) virtual sessions on sustainability (Education Gaps, Digital Divide, Greta) and see how many people respond to which session, to check what kind of interest they have. The session will never take place.

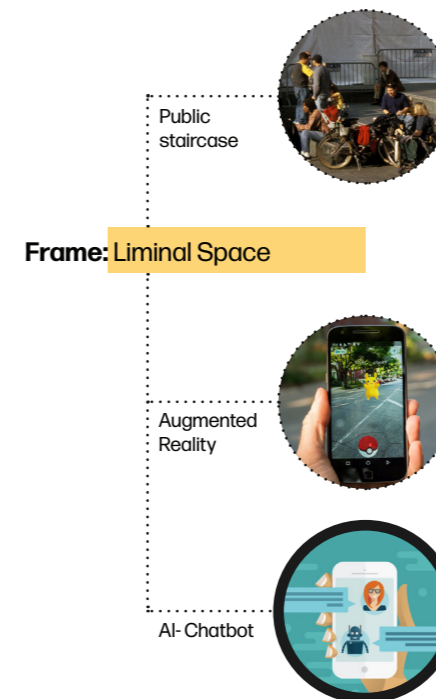
C-boxing: This was placed in the quadrant of being Easy to implement and Common.

Quick pitch: "We build fake inspiration sessions since we need to capture customer concern and sustainability, and we need to know this in an unconscious way, not by asking them, but by checking their behaviors. We send out fake invitations for inspiration sessions to see who responds to which session, is it climate, is it E waste, is it about education, yes, and then see how many responses we get. So, it's unique because it's cheap, we can get a mass response, and it's one thing. Everyone likes to be inspired, so we expect that there will be a huge response. Well they are a bit too fake, but we can give a tree for free as an incentive or a gesture because they participated. Never believe that customers don't care."

UALo: The main feedback on this idea was that the idea was feasible and interesting but no initiative where Barco's reputation was at stake could be implemented.

6.3 Design Brief

Based on the learning from the co-creation session, the final Frame and Future was devised for this project.



Img 6.4 Examples of physical and digital liminal spaces

If the problem situation is approached as if... it is one of a distance between Barco end customers and Barco employees, **then the solution...** will be a liminal(transition) space bridging that distance.

Futures:

Idea: Integrated interactions that lead to value creation for both Barco employees and Barco end customers, through an AI-chatbot across various existing digital channels.

C-boxing: This can be placed in the quadrant of being Easy to implement and Unique.

Quick pitch: "We build an AI-chatbot that helps initiate sustainability discussions at relevant points during a conversation. It would help collect end customer data across various digital channels. This data can be processed and communicated to the Barco employees. The chatbot will also support the end customers with navigational tasks and employees with their routine tasks. It is unique because it will offer integrated conversations at relevant points unlike polls, we can also get consistent and timely user data for topics like but not limited to sustainability, it's also easy to test.

Revolutionizing business through meaningful conversations."

The final Frame and Future were used to define the goal of the design brief. The insights from Chapter 4 and 5 and the cocreation session were used to build the scope of the design brief. This brief contains

design directions and goals necessary for the solution to be fulfilled. They help in the decision making process and also during the evaluation process.

Some relevant takeaways from the cocreation session:

- Can overcome budget if they see value. Need people to see it is important.
- Reputation is key
- Difficult to change the supply chain
- Observing customers is considered difficult
- The solution has to land.
- The solution has to be integrated with the existing processes.
- Everyone needs to come together, the suppliers, the customers.
- They are assemblers and hence market dependent.
- Recycled materials are not always UL compliant.

Design Brief

Goal: Span the distance between Barco employees and the end customers using an AI-chatbot. There should be dual value creation for both the stakeholders involved in the process of spanning the distance but the solution should be owned by Barco.

Scope: Create space and process for the interaction between the Barco employees and Barco end customers to be meaningful. The solution should primarily address 4 key factors:

1. Get direct input from End customers
2. Collect timely insights
3. Make sustainability tangible
4. Create value for End customers

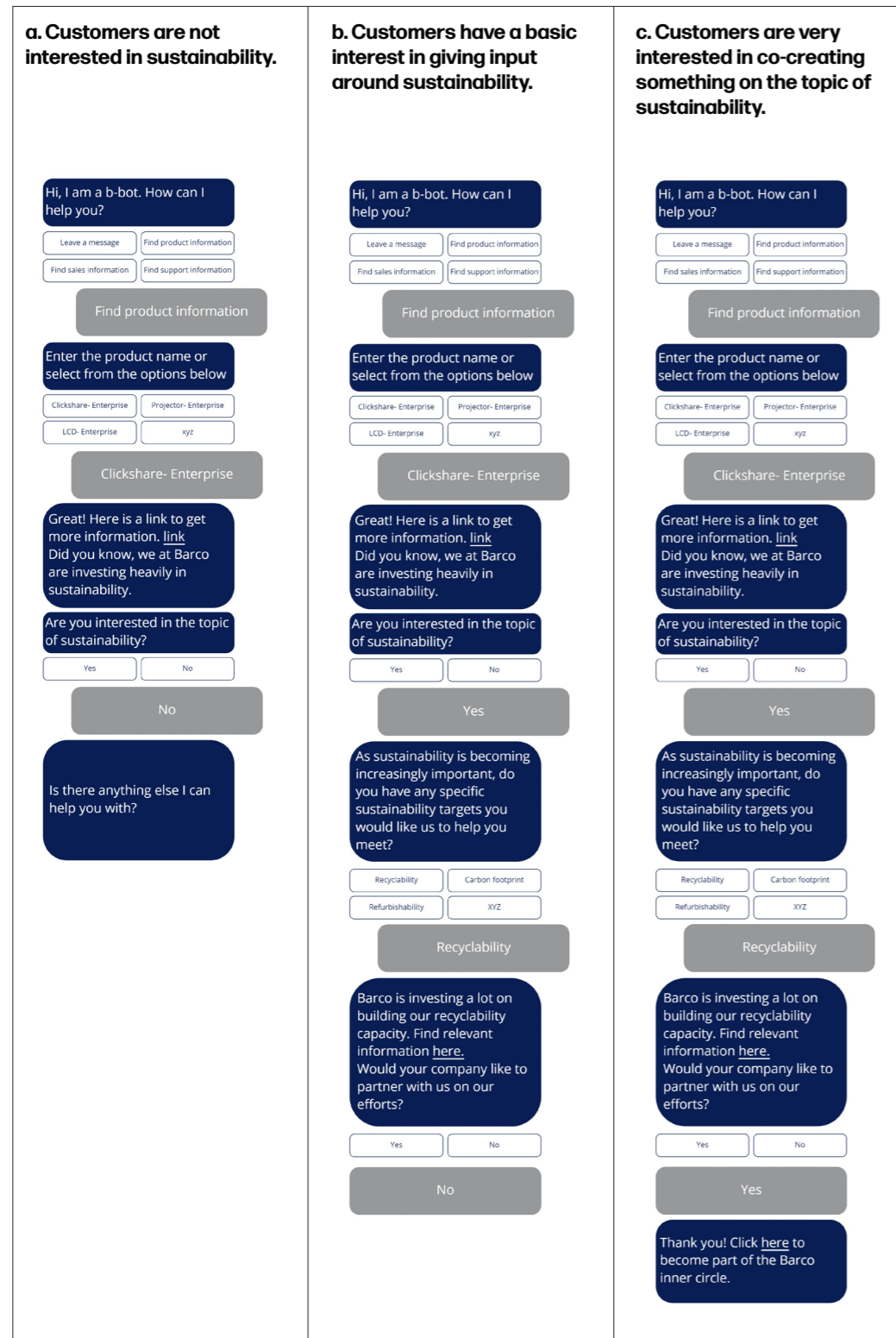
The solution should align with Barco's values and strategy.

The solution should be intuitive and easy to use for both Barco End customers and Barco employees.

The solution should make addressing sustainability visible, tangible, empowering, and emotional.

The solution should bring Barco End customers and Barco employees together to enhance Barco's reputation.

The solution should be able to gather adequate interest to overcome the budget limitation.



Img 6.5 The first set of mock conversations conceptualised to obtain End customer inputs are shown above.

6.4 Initial Concept

The initial concept of the AI-chatbot was created for the Engage phase of the customer journey. There were two reasons for selecting this phase of the customer journey:

- It was considered a tricky phase to create customer engagement.
- Sustainability conversations are considered beneficial during this phase (Ref. Ch 4).

The touchpoint where AI-chatbot was considered for integration for End customers was the website. Three mock conversations were conceptualised for the End customer based on the scenarios:

- Customers are not interested in sustainability.
- Customers have a basic interest in giving input around sustainability.
- Customers are very interested in co-creating something on the topic of sustainability.

This concept has certain implicit assumptions. **Before moving ahead these assumptions were made explicit and tested out.**

1. Different end customers will have different levels of interest based on their materiality. This was tested by talking to end customers in different organisations. For eg. The end customer from an online travel agency didn't have the same interest in sustainability as that of Multinational IT services and Consulting Company. For the online travel agency sustainable IT was not a topic of importance while the representative of the Multinational IT Service and Consulting company exclaimed, "One of the key goals as IT leaders is also to envision strategies for sustainability. So purchasing only green products. So as per our organization policies, when I am buying the product it has to be certified for green energy etc."

2. Chatbots are desired by end customers. This was verified by looking at multiple literature sources and interviewing end customers. They found chatbot as a valuable addition to the website. Some saw navigational benefits to it, since "Instead of looking for information, I will ask questions and it will answer." Some saw that it offered the value of relevant conversation. "This is very very relevant for 2 reasons. One, I don't waste time coming to your website and searching and doing the research myself...so for example on day 1 when I have to search for a particular product I see 10 websites. I will see how quickly I get (the desired

information) from those websites. The first point where anyone will get attracted is how fast one can get relevant information from retracibility point of view and also from a strategic point of view."

3. Website is the right touchpoint to develop a pilot on. This was verified by interviewing end customers. "Generally we use the company website twice or thrice in the initial stage. Then we look at the website for customer insights- some are sent directly to us, some are available on the company portal. We also look at their website to see their additional portfolio. I just don't want to purchase one single product." These responses were in alignment with the existing knowledge about the touchpoints being used by end customers during the Engage phase. (Appendix B)

4. People will find the information shared by chatbot to be relevant. This was tested by taking the end customers through the pilot flows and asking for feedback on it. Their feedback and consequent iterations can be found in the next section.

5. Chatbot will be able to reach a mass audience. This was verified by looking at multiple literature sources on chatbot and the value proposition offered by various companies offering chatbot as a service.

6. End customers will respond to sustainability questions and find it meaningful. This was tested by taking the end customers through the pilot flows. Their feedback and consequent iterations can be found in the next section.

7. It will be easy to build an MVP and expand it. Initial verification was done by looking at multiple literature sources on chatbots. This was verified at a later stage by talking to the sales team of companies offering chatbot as a service such as (ADA, Landbot, etc). Discussion with the person in charge at Barco for leading the new pilot on setting up a chatbot pilot also gave insights into this at a later stage.

8. AI chatbot will be able to collect the right data from the right end customers for the employees. This information is verified at a later stage by talking to both End customers, companies offering chatbot as a service and Barco employees.

Flow	Sample text	Intent	Input from End customers
1. Greet	Hi, I am a b-bot. How can I help you?	Once the End customer chooses the purpose of visit, the conversation should be tailored for that specific purpose.	<ul style="list-style-type: none"> • Use this to also build customer confidence in the company. • Allow the customers to type in while showing relevant fields for selection. Sometimes the requirements are complex than the offered options.
2. Product selection	Enter the product name or select from the options below.	Help the End customers navigate through the website and help them with finding the information that they are looking for.	<ul style="list-style-type: none"> • Take in customer information to tailor the conversation. • Visuals help in choosing products. • Sometimes customers don't know what they are looking for. Help them identify the right product for themselves. • Customers visit the Website for 2 reasons during engage phase. To find product information and to build confidence in the company. Those would be two slightly different flows.
3. Info. + sustainability	Great! Here is a link to get more information. link Did you know, we at Barco are investing heavily in sustainability. Are you interested in the topic of sustainability?	<p>Have integrated conversations with End customers while helping them with the tasks at hand.</p> <p>Make sustainability tangible for the End customers.</p>	<ul style="list-style-type: none"> • Mention this topic at different points in the conversation based on the reason for customer's visit. • The topic of sustainability should always be mentioned in a relevant manner. • Ask which specific information customer is seeking regarding the chosen product.
4. Gauge interest	Are you interested in the topic of sustainability?	Continue discussion on the topic of sustainability based on the level of interest expressed. Range from: Activate customers to actively engage customers on the topic of sustainability.	<ul style="list-style-type: none"> • Seems a little abrupt in the flow • Tailor the responses based on the customers profile. • Deliver information when customers need it, in the format they need it. • Could also give additional value to customers based on their painpoints.

Img 6.6 Input from the End customers on the first set of mock conversations are shown above.

6.5 Concept Evolution

The concept was evolved iteratively using the feedback received from the end customers. One example of the inputs received from End customers on the first mock prototype (Img 6.5) is shown in Img 6.6. At this stage the employee end of the concept was not developed.

Multiple such interactions were carried out, building on the previous end customers input and testing with the next end customer. 5 such iterations were carried out. Transcripts of some of those conversations with end customers can be found in Appendix B.

Recommendations to integrate the concept into the daily workings of Barco were made. Some of them were:

- Pilot integrated interactions within the ongoing pilot for the chatbot. A/B testing can be used for a single product, for a single phase across various relevant touchpoints. If value is seen then the pilot can be scaled up for across the three markets, across multiple phases.

- Select a chatbot provider that allows for various integrations across existing platforms and tools. Also pick a payment model where the payment is per integration and not per the number of customers.

- Use the existing scripts from the sales and service team as a base to build a mock up. Although the conversations might be quite different on a chatbot than by mail or by phone.

- Allow the conversations to be shifted between the chatbot and a support team so that the End customers can easily access someone and doesn't end up getting frustrated in case chatbot's inability to answer an unanticipated query.

The improved flow based on the 5 iterations:

1. **Greet and identify purpose of visit:** Hi, I am a b-bot. I represent Barco, a global technology leader that develops collaboration and visualization solutions What can I help you with?

2. **Request information:** Could you enter your company's valid email id? This will help us be relevant to you and send you desired information whenever you click on | Mail icon | Skip

3. **More clarification on purpose of visit:** Great! Please select the product/s you would like to have information on. | Visuals | Help

4. **Help:** What is the intended use of the product?

5. **Information:** Here are the specifications of the product. | Mail icon | Link

6. **Sustainability conversation:** Did you know that Barco is heavily investing in sustainability and <variable relevant to their industry and Barco> Do you have any sustainability goals that we can help you meet? | Skip

7. **Gauge interest:** Thank you! <Give product related and chosen topic related information if existing, if not tell them how you plan to work on those goals> <mention how we help fortune 500 with their sustainability goals> <Ask them if they want to become part of an innercircle with chosen peers, if the company goals are not met and there are a few companies recurringly mentioning those goals>

8. **Certifications:** Are there any specific certifications that you would require for the product?

9. **Additional value:** Our B-bot can help you build a comparison sheet, based on your criteria for the products that you want to compare. To try it out enter the names of products from market you would like to compare. Add or remove comparison criteria.

10. **End:** Hope the information was useful. Is there anything else you would like to know?

“I think your tool is good, for the start of the process and that is the most important part by the way. This is because it sets the base for the rest.”

-Strategic Buyer for a Large Education Institute

06 KEY TAKEAWAYS

- The Develop phase aids in exploring the solution space and selecting a concept for final exploration.
- Taking the theme of distance as the base, several frames and futures were explored.
- A co-creation session with the employees of Barco was set up to understand their values and reasoning.
- The final frame chosen for exploration was to approach the solution space as a liminal space.
- The futures were explored for various possible ideas emerging from it. The final idea chosen for developing the initial concept was an AI chatbot.
- A project brief was created using the learnings from literature review, field research and the co-creation session.
- A rough prototype was created and tested iteratively with end customers. (The initial prototype was only created for the end customers)
- Various literature sources were also referred to gain more insight into AI-chatbot.
- This concept was based on a lot of assumptions that were made explicit and tested.
- The concept of AI-chatbot was evolved based on the End customer feedback.

*“ The two words ‘information’ and ‘communication’ are often used interchangeably,
but they signify quite different things.
Information is giving out and communication is getting through.”
- Sydney J Harris*

07 DELIVER

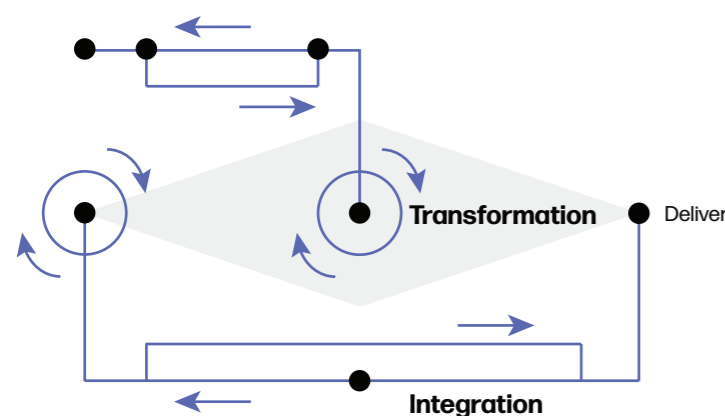
- 7.1 Phase**
- 7.2 Final Concept**
- 7.3 Concept Validation**
- 7.4 Roadmap**
- 7.5 Final Solution**
- 7.6 Recommendations**

What to expect

The Deliver chapter shows the final concept with recommendations for implementation of the same. A strategic roadmap proposed for the final concept based on the understanding of the organisation and the insights from research on the future of work topic, is shown in this chapter. Final output of this research besides the concept is a strategy, an executive summary for Barco and a design brief for designers who would like to explore this topic further. These are also shown at the end of this chapter.

07 DELIVER

7.1 Phase



Img 71 Deliver phase of the Double Diamond Design Process.

Purpose: Creating the final solution with recommendations for implementation.

This phase is about presenting the final concept selected in the Develop phase and validating it. A strategic roadmap is created for the selected concept and the chapter also showcases the final solution. For this research the final solution is a strategy that is presented in the form of

an executive summary for Barco employees and a brief for designers who would like to work on this topic further for Barco.

The steps from frame innovation that are supportive in this phase of the project are:

Transformation: This phase does not fit into the Deliver phase completely. A part of this phase is to weed out solutions that are not viable or would require too much organisational change in a short period of time. This part of the Transformation step was already carried out in the Develop phase to select the concept. The other part of this step is to create a transformation plan to make the solution work within a given organisation in terms of the short-term component for yielding quick results (work with organisation as is) and long-term component that requires organisation to first go through the transition. This output is presented in the format of a roadmap.

Integration: This is the final step of the frame creation model to reflect on the process and give recommendations to the different stakeholders involved. For this thesis the Integration step also happened alongside the Develop and Deliver phase. Recommendations for integrating the tactical concept were made during the Develop phase while strategic recommendations were made during the Deliver phase.

This phase brings an end to the thesis project and the final outcome is presented in the form of a thesis, poster and a presentation.

7.2 Final Concept

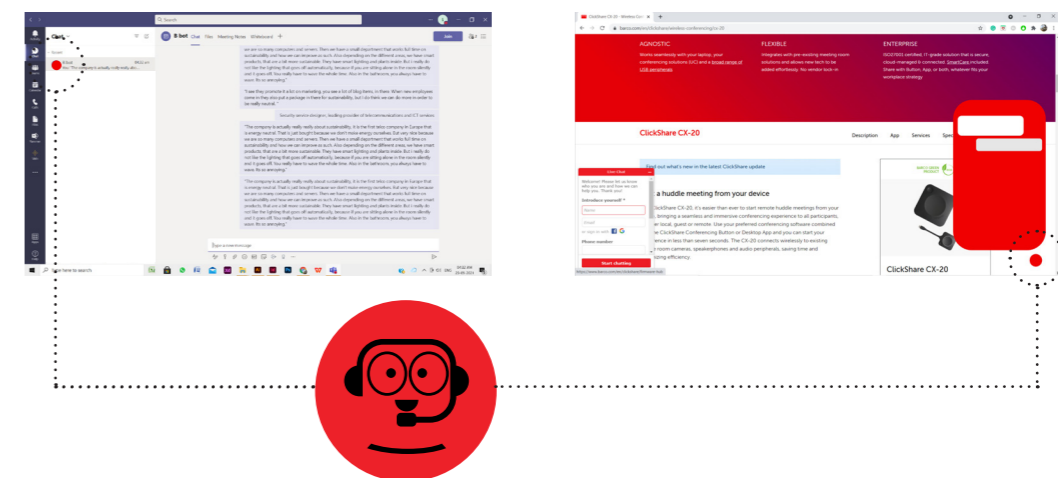
The final concept is a B-bot, an AI-chatbot. **B-bot is a valued employee of Barco. Its main role is to collect timely insights from the right stakeholders and bring it back to Barco's employees in a way that is relevant for their role. It is both an End customer and Barco employee-facing solution that bridges the distance between them.** B-bot intends to support the end customer while initiating sustainability as a relevant conversation throughout their journey. It has a transient nature and allows for integrated interactions. It is not an end in itself where the customers are expected to go to perform a task or give inputs regarding sustainability but rather a tool that supports them through relevant interactions when they go to a particular touchpoint. **It also supports the employees within Barco with their journey while keeping them aware about the customers' needs.**

B-bot primarily addresses 4 key factors:

1. Gets direct input from End customers
2. Collects timely insights
3. Makes sustainability tangible
4. Creates value for End customers

The concept also aligns with Barco's five culture building blocks and Barco's current strategy around digitalization. These five culture building blocks are:

- **We think with the customer:** Helps keep customer on top of their mind.
- **We look for the better way:** Helps Barco employees to reflect, share and coach to have a competitive edge.
- **We care, we grow:** Supports with sharing feedback and best practices.
- **We own our results:** Helps with including right people at the right time to collaboratively make a positive impact.
- **We team up to win, globally:** Supports Barco employees to collaborate across regions & functions, to reach their goals.



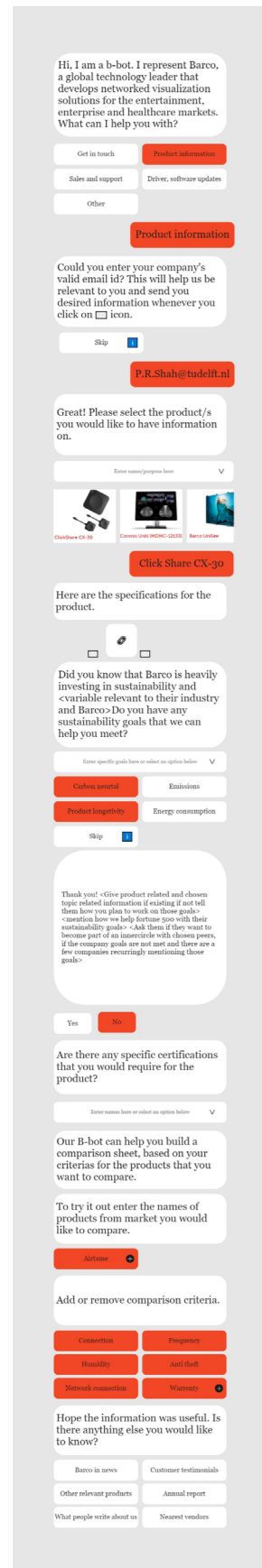
Img 72 B-bot is integrated on all the relevant touch points for Barco employees (eg. Teams) and Barco End customer (eg. Website). It meets the stakeholders where they are for ease of use.

In order for the concept to work, it is essential for it to be integrated with the existing digital channels. For end customers this channel for the Engage phase of the project was recognised as the website, while for Barco employees the integration with Teams and Outlook would be essential. The chatbot will also be integrated with the existing tools and CRM systems such as Marketo, Salesforce (in future).

The name B-bot comes from its association to a Bee. Like a bee the AI-Chatbot collects input from multiple sources to turn it into something useful, both for internal and external use. Bees are pollinators and play a very important role in the environment. In the same way, B-bot's role is that of a pollinator within Barco.

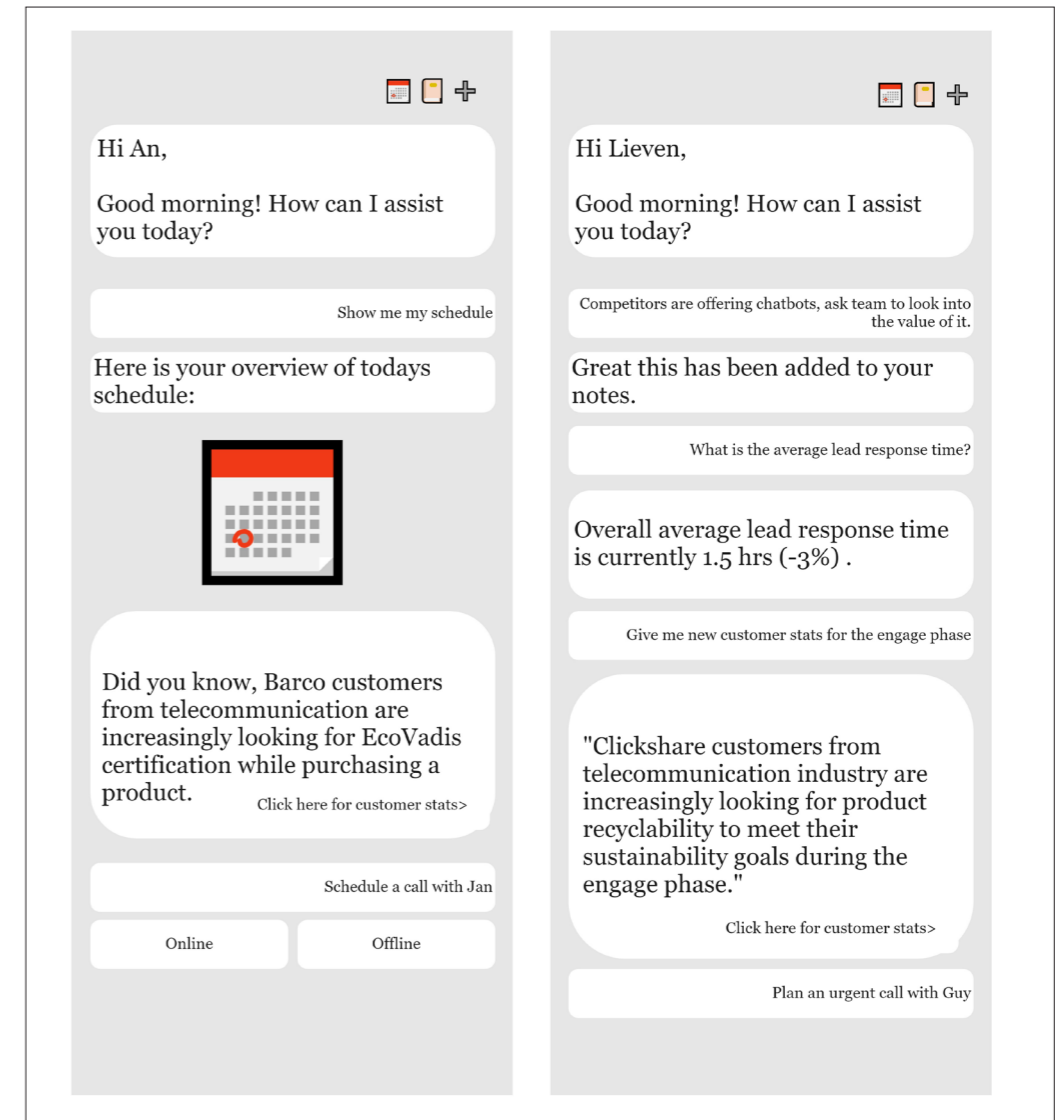
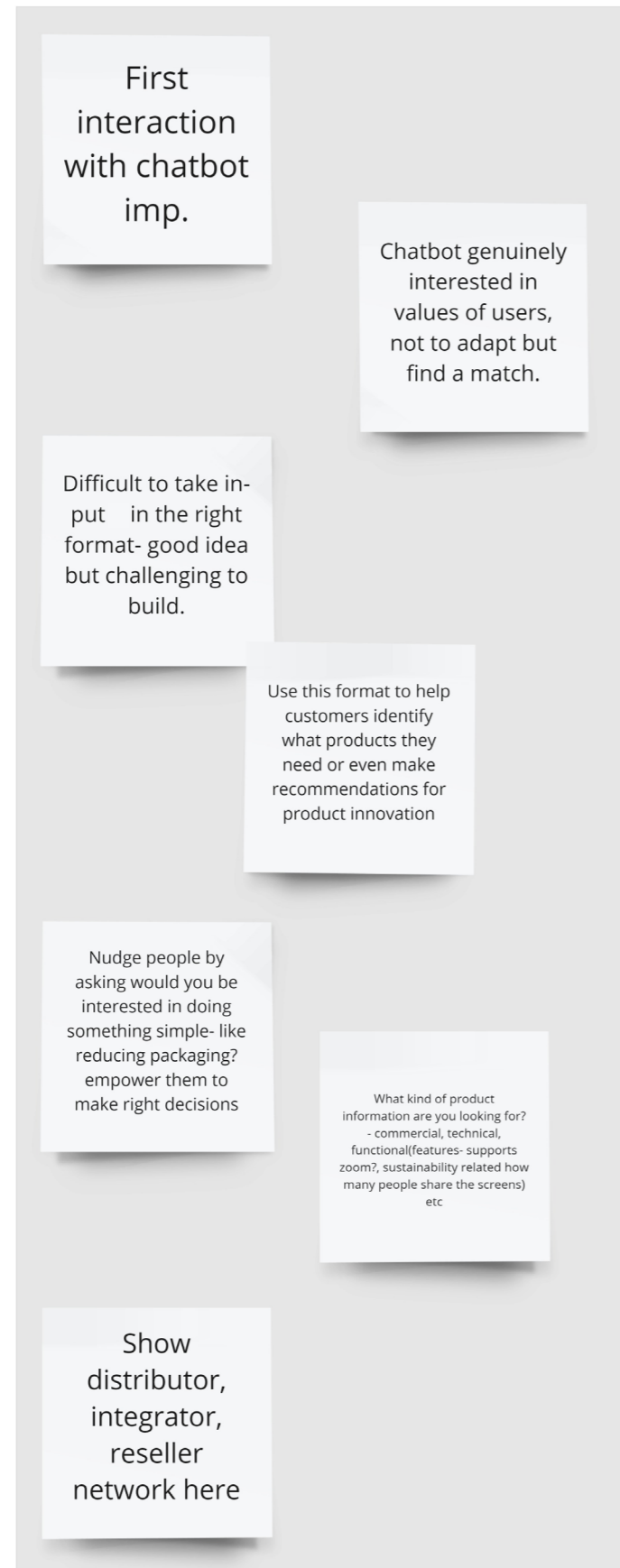
This concept is expected to drive customer centric sustainability, activate customers, communicate company values and make sustainability tangible for both the stakeholders through integrated interactions. It can help with timely collection of right inputs from customers, streamlining sustainability within Barco and integrating it in product value propositions. Finally it can **increase Barco's reputation while giving it a competitive advantage.**

B-bot conversation



Img 7.3 The final mock flow for customer facing side of B-bot is shown above. It is important to note that the intention of this flow was not to design interaction but to test the idea of integrated interaction, and its desirability by the stakeholders.

Some additional feedback:



Img 7.4 The final mock flow for employee facing side of B-bot is shown above. Mock conversation for two different personas are shown here to demonstrate how the same customer conversations can lead to different insights for different employees.

7.3 Concept Validation

The first version of the mock concept of B-bot offered the following values to the End user:

- Navigational support
- Integrated conversation on sustainability

The data collected from the conversation offered the following values to the Barco/

Barco employees:

- Customer retention
- Tangible sustainability needs of End customers
- Overall interest of End customers
- Timely input from End customers

The final version of the B-bot concept as shown offered the following value to the End user:

- Navigational support
- Personalized communication
- Support with identifying the product
- Integrated conversation on sustainability
- Additional support with the painpoints for that phase (eg: comparison of products, preparing spec sheet)
- New innovative products based on their timely feedback

The data collected from this conversation offered the following values to the Barco/ Barco employees:

- Segregated insights per region, product, market, customer segment.
- Competitor insights
- Insights into the product specs of importance
- Timely customer feedback
- Support with their routine tasks
- Role relevant customer insights
- Easy extraction of the necessary data from various tools and existing systems
- One source of truth

The concept was validated with 5 Barco End customers, 3 Barco employees and 2 chatbot development companies using the final version of the B-bot conversation as a base (Img 7.3, Img 7.4).

Feedback from Barco employees

Roles: Director Innovation and Design Thinking | Corporate sustainability manager

Purpose: For desirability

"This is a really differentiating concept, because you really bridge the data that comes in with the knowledge people need to be aware of."

"A chatbot facing inwards and outwards. That will give an Aha! moment with some people."

"Data assimilation and data synthesis through this tool will be very useful."

"We should bring this to the Salesforce teams and the CDIO to think about this as soon as possible because it will be helpful."

"For me this is great inofrmation, this would really help me. You can reach out to customers when you have a new Ecovadis scoring. You can also have active mailing with customers that are interested,"

Roles: Marketing Technology Manager

Purpose: For Viability

"Pilot project (on sales- service chatbot), we are not very far yet...We got the feedback ftom customers that sometimes its hard to start doig business with Barco, because when you go to the website you have to fill in the form. After you fill in the form then you wait for a few days and then we contact you. The whole process sometimes takes a bit long. We also saw competition doing it and we realised we need to have more direct streams for customers to talk with us."

Feedback from Barco End customers

Roles: Strategic Buyer for large education institute | Infrastructure and Operations Director, Barco | Regional IT head and program manager for Multinational IT services and consulting company

Purpose: For Desirability

"So, yes, while we talk about product and discuss about it, you try to understand these are my sustainability goals. And the chatbots reverts to me saying that, you know, what, in this space, we are doing this and this, would you be interested in, it's not marketing, it is basically telling that, are you aware that we are doing this? I'm interested already, well try to probe and get into next level, but if I don't know, because until unless I've scanned through your entire website, I would not know, that is what I'm saying."

"Sustainability goals are actually very, very important in the IT space, because we are the people who use maximum and it automatically becomes our core responsibility as a joint responsibility to save this planet on various sustainability initiatives. And because our organization, which is in the market, we have a lot of shareholders who would definitely want to know, look at it as a bigger picture, what we are doing in ensuring that we pass on the planet safely to our next generation."

"Well, and good, that's very good for me, because that's an added value for me, because while I'm buying a product, I'm also looking at sustainability of that product, not from organization point of view alone only, but also as a planet with, you know, people point of view as well."

"Because if I use this, they search the whole web for me. Yeah. And then they make summaries then for me of the different go companies. Yeah. Oh, that's handy."

"Also, I think that's a good one. on audio visual stuff. Uh huh. Yeah, we spend a lot on that, millions. In the old buildings. We are building the new building, we are busy with it. And sustainability is a big topic there."

"The question is, okay, you have certain needs. And what we see more and more today, of course, is you have IT departments that go look for solutions based on questions that you get. But of course, what you see a lot in the market today is that the companies like Barco, for that matter, would go directly to the end customer, in essence, and try to convince the end customer that this is what they would need, because it solves their specific business problem."

Feedback from Chatbot development companies

Roles: Account Executive at a chatbot development company| Business Development Representative at a chatbot development company

Purpose: For Feasibility

"It was great getting to know your project better. As we've seen you'll be able to automate the conversations and give a more customer-centric approach to your users asking only the relevant questions for you and your teams while controlling customer experience. This will result in an automatic qualification saving tons of time and giving an unbeatable customer experience."

"You'll be able to integrate the chatbot to any external tool or database, automating processes in your native tools and saving time."

While validating the concept, several inputs were also given by the interviewed stakeholders on how to make the flow better. These inputs can be found in Appendix B. The goal of this thesis was not to design an interface for interaction but rather to validate the concept adequately to see if there was value in the approach of integrated interactions. The collected feedback shows that the concept has value as per the expectations set in the project brief (Chapter 6). It also has ample input for an interaction designer to take it as a starting point for interaction design.

7.4 Roadmap

The final concept has been designed while keeping Barco's strategy in mind. **This strategy has been shaped based on three key factors:**

Market Dynamics: technological and socio- economic trends

Materiality: topics that matter most to business and stakeholders

Risks: challenges that can affect their ability to meet their targets

As a part of the strategy "Enable bright outcomes", Barco is currently investing heavily in digitalization (2019-2023) and focusing on integrating sustainability in every aspect of the business. B-bot rides along this wave to digitalise the business. It also demonstrates how sustainability can be integrated both in external communication with end customers and in every part of the business. This also supports them to transition towards customer centricity. In the current year, the first pilot of integrated interactions through the chatbot can be piloted for a single product, over a single channel and for one part of the journey. Upon receiving positive results the pilot can grow over multiple channels and for the complete customer journey of one product by 2022. Further the complexity of the conversations can be increased and all product ranges can be included by 2023. AI- integration can happen over the next two years starting from simple use cases to more complex ones.

In the near future, strategically, Barco is looking at ways to deliver a combination of hardware, software and services via new business models (2023 onwards). One insight from the interview was that collecting user data is necessary but since the products are in large enterprises with confidential settings, it is very difficult to get the user data. By approaching the problem as one of distance between Barco and End user, the problem of distance can be resolved through a physical liminal space. Based on these understandings, the future of this concept is visualised as a Barco offering tech as a service through different coworking or remote working hubs. **The future of work is distributed.** (Chapter 4, 5) This will allow Barco to reach the end users where they are and also democratize tech. Small offices, and startups will be able to use the best collaboration tools in a space near them at a reasonable fee. Partnering with the coworking spaces or remote hubs for this purpose might also allow them to be lean and experiment faster, through collected insights. This part of the thesis has not been validated but is given as a suggestion that can be explored further by Barco.

Reflecting back the final concept and its roadmap helps in responding to various factors that helped shape Barco's current strategy. They are:

Market dynamics:

Some key technological and societal trends being addressed through the final concept are:

- **Using AI, machine learning, natural language processing to become data driven**
- **Rise in service model since it helps businesses acquire new technology with lower upfront cost.**
- **Increasing competition**
- **Balancing economic growth with sustainability initiatives.** ("Annual Report 2020," 2021)

Materiality:

Some of the key materiality topics being addressed through the final concept are:

- **Customer engagement**
- **Employee engagement**
- **Climate change and energy**
- **Innovation management**

Risks:

The risk categories identified by the CLT members in 2020, and being addressed through this concept are:

- **Digital transformation and new technologies**
- Human capital and talent management

7.5 Final Solution

The final solution of this thesis is a strategy. It is as follows:

Liminal strategy:

Liminal Strategy or Bridging strategy

A liminal strategy can be described as a **bridging strategy**. In this context, the aim of the liminal strategy is to bridge the distance between Barco and its end customers through integrated interactions around the topic of sustainability. It is essential that these integrated interactions stay consistently relevant. There should be dual value creation during this process of bridging i.e. this conversation should create value for both the stakeholders involved.

Vision: Streamlining sustainability within Barco and integrating it in product value propositions.

Mission: Mobilizing both Barco employees and Barco customers to work towards sustainability goals and making sustainability goals tangible.

Goal: Accelerating internal transitions around sustainability and customer-centricity to span the distance between Barco employees and Barco customers through integrated interactions.

Objectives:

- Creating space for having integrated and relevant interactions around sustainability with Barco customers.
- Setting up internal processes to retain the insights and keep Barco employees in the loop.

Principles:

- Sustainability for driving value creation
- Customer centricity for enabling dual value creation
- Sustainability for making impact and profit
- Customer-centric sustainability to drive innovation

This strategy has been manifested in the form of an Executive Summary for the board of Barco and a Project Brief for designers who want to explore on this topic further. Three versions of Executive summary were created as an iteration to the first draft of the Executive summary. One of the three options was selected by the Barco mentors. The selected executive summary is shown in Img. 7.5 and the remaining two can be found in Appendix A. This part of the solution has been validated by showing it to the company mentors and asking for their feedback. The feedback on the first draft was that the language needs to be simplified and more clarity is needed. While the feedback on the chosen version of the second draft was *"I believe your second proposal is a good one, not too short and not too long, it is for me clear and easy to understand."*

Project Brief for designers was created as an additional contribution to Barco. This has not been validated.

7.6 Recommendations

Various recommendations were made throughout this thesis journey. The key recommendations for integration of the solution are divided into two parts:

1. Process recommendations

Process recommendations can be found in Appendix B. It mainly has recommendations about the process of customer journey mapping exercise and on the format of existing customer journey.

2. Touchpoint recommendations

Touchpoint recommendations: In the current digital space, there are so many touchpoints both employees and customers are exposed to. It is essential to create tools that aggregate data from across touchpoints, to create one source of truth.

Executive Summary

Observations: The key insights obtained from the research on “Accelerating twin transitions through a liminal strategy”, with Barco, were:

Insight 1: Barco should seek ‘right’ input from carefully selected customers. (i.e. specific people directly involved in performing, funding the task, etc)

Insight 2: Timely insights from end customers are required by Barco to drive swift action.

Insight 3: Barco should connect sustainability with customer engagement, to make sustainability tangible.

Insight 4: Initiatives undertaken by Barco on the topic of sustainability should create value for customers.

Problem statement: “How might we span the distance between representatives of Barco and the end customers (in the context of sustainability)?”

Recommendations:

- Adopt a liminal strategy or bridging strategy to span the distance between Barco and its end customers through *integrated interactions* around the topic of sustainability.
- It is essential that these *integrated interactions* stay consistently relevant and create dual value (for both the stakeholders involved).
- One tactical manifestation of this strategy is an AI-chatbot or B-bot with a dual function.
- It faces Barco customers and Barco employees to bridge the communication distance between them.
- B-bot supports the end customer through their journey while initiating sustainability as integrated interactions. It also supports Barco employees with their routine tasks while keeping them aware about the customers needs and making sustainability tangible.



Expected impact:

- It is expected that the findings can drive customer centric sustainability, activate customers, communicate company values and make sustainability tangible for both the stakeholders through integrated interactions.
- It can help Barco employees keep customers on top of their mind through timely collection of right inputs from customers. It can streamline sustainability initiatives within Barco and help with integrating sustainability in product value propositions.
- It can increase Barco's reputation while giving it a competitive advantage.

Img 7.5 The selected executive summary is shown above. The Dutch version of this summary can be found in Appendix A. The visual to the left in the executive summary shows B-bot, a valued employee of Barco activating customers and collecting insights, and the visual to the right shows B-bot helping Barco employees to keep customers at the top of their mind by showing them relevant insights.

**Integrated interactions:
Integrated means to combine two or more things to be effective, according to Cambridge Dictionary. In the context of this project, integrated interactions means including sustainability conversations at relevant points while interacting with the end customers.*

Project Brief for designers:

Design for purpose and profit

Mission: Mobilizing both Barco employees and Barco customers to work towards sustainability goals and making sustainability goals tangible.

Goal: Accelerating internal transitions around sustainability and customer-centricity.

Product design | Service system design | Business model design | Campaign design

Problem statement: How to span distance between Barco's customers and Barco employees to drive customer centric sustainability?

Target audience: Barco customers (Distributors/ Resellers/ Integrators/ End customers), Barco employees.

Time frame: 1-5 years

Opportunity: Since 2017, Barco has held sustainability strategy as an integral part of its corporate strategy, 'Enabling bright outcomes'. This is one of the reasons why Barco is going through various internal transformations. The three core areas within the sustainability strategy as defined by them are: Planet, People and Communities. ("Sustainability," n.d.) However, this sustainable strategy is currently unidirectional, meaning Barco is designing for some aspects of sustainability and communicating this to its customers. Meanwhile Barco's latest materiality assessment identified "Customer engagement" as one of the primary factors of importance to the business and its stakeholders. This factor is explained as meeting or surpassing customer expectations, building successful relationships with customers, and encouraging co-creation ("Downloads and more," 2021). Consequently, another major internal transition that Barco is going through is around being customer centric ("Barco Annual Report 2018," n.d.).

Simultaneous transitions (towards sustainability (1), customer centricity (1), innovation, product as a service, etc) within the organisational ecosystem result in complex and paradoxical challenges that require redefinition of the problem frames, bridging of various sources of data points and creating new relevant data points for capturing the necessary information.

Expected outcome:

Design moments for having consistent, integrated and relevant interactions around sustainability with Barco customers and/ or set up internal processes to retain the insights and keep Barco employees in the loop and/or design the conversations and define the resulting insights.

Core principles:

- Sustainability for driving value creation
- Customer centricity for enabling dual value creation
- Sustainability for making impact and profit

Img 7.6 A project brief for designers to work on this topic further with Barco has been created as shown above.

“To be good, you dont always have to sell it for the goodness. ”

07 KEY TAKEAWAYS

- The Deliver phase shows the final solution with recommendations for implementation.
- The final concept was created based on the project brief and initial iterations.
- The final concept was validated with the End customers, Barco employees and representatives from the companies offering chatbot as a service.
- A roadmap was created for the final concept while keeping Barco's strategy in mind.
- The final outcome of this thesis is called Liminal strategy or bridging startegy.
- The startegy has been manifested in the form of an Executive summary and a Project Brief for Designers.

08 CONCLUSION

8.1 Discussion

8.2 Recommendations

8.3 Contributions

8.4 Personal Reflections

What to expect

The conclusion chapter presents the limitations of this research, the recommendations that could expedite the desired transformations and the contribution this research has in the context of business and academics. It also contains a section with my personal reflections on both the research and the last period of my academic journey.

*"There are problems you can't manage your way out of.
You have to design your way out of them."
- Marty Neumeier*

08 CONCLUSION

8.1 Discussion

The aim of this thesis was to address the challenge of including end customers of Barco in the company's transition towards sustainability with the intention to drive sustainability initiatives that are relevant and as a consequence desired by the end customers. This fits in with the larger aim of being able to design an approach that makes sustainability tangible for both the key stakeholders i.e Barco employees and end customers. **Personally, I wanted to explore how to make a significant positive impact while being beneficial to business.**

"A new study reveals that boards accept the critical nature of sustainability, but may struggle with the right policies." (Hinks, 2019)

This topic attempts to explore two key transitions: customer centricity and sustainability, taking place within the company. There is adequate literature on both the topics of customer centricity and sustainability, but to my knowledge little literature on customer centric sustainability. This thesis explores this gap and gives a direction on how to **make sustainability a more tangible topic to work with.** My guess on why this topic has not been explored adequately is that the customer centric approach puts customer needs at the center of decision making. **Unless customers are pursuing sustainability and find discussions around sustainability as relevant, this approach might not be relevant to make a positive impact while**

benefiting the business. This approach is time and context dependent. With the fast changing legislation and the growing pressure on all businesses to be more sustainable, this topic becomes very relevant. The process and findings of this research would provide an illustration on how customers can be included in a company's transition towards sustainability. It also shows a different lens with which B2B companies can approach sustainability while building an ecosystem to accelerate the desired transition by bridging the distance between the company and the end customers through shared goals and lending a space to communicate expectations clearly.

Transitions are difficult for any company. It requires cultural, structural, process change and change in financial metrics. **The intention of the thesis was hence not to attempt and do it all at once but to find a space in the system and accelerate the desired transitions. The main outcome of this thesis is a liminal strategy and a tactical manifestation of the same.** The strategy is to be seen in alignment with the existing growth strategy. It's aim is to bridge the distance between the employees and the relevant stakeholders through integrated interactions around impact areas.

Along with this, through this thesis I have demonstrated a tactical manifestation of the strategy which has been validated both with

end customers and Barco employees. This allowed me to spark a conversation within the company to approach sustainability with a customer centric lens. In my opinion, this strategy still needs to be revised and sharpened while the tactical manifestation also needs to be developed further. **There**

is a lot of scope for further academic research from the strategic point of view and interaction design point of view.

More about this will be discussed in the Recommendations section.

“When purpose is hardwired, your company’s positions, communications, and external engagement become logical extensions of your business model; purpose eliminates the gap between walk and talk.” (David, 2020)

8.2 Recommendations

The findings from this thesis have to be viewed in the light of some limitations, as with the majority of the studies. This section elaborates on the limitations and proposes some recommendations to address those during further explorations.

Scope limitation: Although it is deemed essential to have a feasible scope for research, for this strategic outcome to be salient, it is important to explore the core research topic in context of all the solutions offered by Barco and across different relevant key personas.

Process limitation: While conducting the field research, the end customer and end user participants were recruited using convenience and snowball sampling due to time and resource constraint. The outcome of the field research hence cannot by itself be considered as complete or representative for the population. To meet with this limitation, data obtained from field research was triangulated with data obtained from literature review. In future, specific studies could be funded to do field research with a range of end customers and end users.

Solution limitation: The proposed outcome of this thesis was a liminal strategy with a tactical manifestation of that strategy. A strategy needs to be able to guide various tactical manifestations to meet with the desired vision. Due to the limitations of time and resources, this wasn’t possible during this research. This strategy can be taken as a starting point to build several solutions and then assessed for its usefulness.

The tactical manifestation that was designed to exemplify the strategy has been validated for its feasibility, desirability and viability with various relevant stakeholders for the scope. But again the validation has been performed with the end customer using convenience sampling for qualitative research. Performing quantitative research on a wide scale will be appropriate for testing such an outcome. The outcome also needs to be developed by an interaction designer, and in this process using A/B testing would be a good way to test for integrated interactions across various digital touchpoints across the customer journey.

Recommendation for Barco: Based on the research that I have conducted in the past 6 months, on the topic of customer centricity and sustainability with Barco, I would like to recommend Barco to view these two transitions as twin transitions rather than separate transitions.

Sustainability is largely seen as a good thing to do rather than something that is good for business. By understanding customer needs around sustainability, sustainability will become more tangible for Barco employees. Barco can also prioritize its investments on the topic of sustainability such that it is beneficial for business. This can help streamline the priorities, and sustainability would no longer be seen as conflicting to business. A separate study to understand customers (end customers, distributors, integrators, resellers, etc.) across regions should be commissioned. Cultural change follows behavioural change, and hence implementing the tactical manifestation of the liminal strategy will help in keeping customers and sustainability at the top of employees’ minds while driving process change. Further for effective transition, structural change and change in financial metrics would also be required in addition to process change and cultural change. This is a topic that should be explored in future.

Recommendations for researchers: In the current landscape there is a lot of potential for exploring the topic of customer centricity alongside sustainability. Another topic that can be explored intensively is using integrated interactions to prime end users for good. There is a lot of literature on the topic of social media marketing where the core is in priming end customers through integrated advertisements. Could priming be used to drive meaningful interactions? Could it become a standard practice that will be expected during an interaction with any organisation? Could AI chatbots drive the new wave of revolution for impact through integrated conversations? Finally to explore the topic of designing for transitions, within organisations, using Research Through Design approach would be recommended.

Recommendations for students: Interaction design master students can explore the topic of integrated interactions keeping various stakeholders in mind. They can also build on this research further and develop integrated interactions for chatbots with Barco for various product lines across parts of the stakeholder journey. Strategic design masters students can build different tools that would be essential for integrating the feedback form across channels and touchpoints into the daily workings of Barco. For example: How can the insights be integrated within the organisation’s innovation models? They can also develop more tactical outcomes based on the liminal strategy and test them out to improve the strategy.

8.3 Contributions

This thesis was set out to explore how Barco could include its end customers in its transition towards sustainability. The thesis helps in **identifying the key paradoxes that make this problem difficult to address**. It also demonstrates how such paradoxes can be explored to identify the core challenge. For this thesis the key challenge identified was one of distance in communication between the End customers and the Barco employees.

This thesis also explores **how this challenge of distance can be addressed through low threshold and low investment starting points**. As found during research, for a transition to be successful there needs to be cultural change, structural change, process change and change in financial metrics. (Shah, Rust, Parasuraman, Staelin, & Day, 2006) **The tactical solution of this thesis helps in driving cultural change and process change through the AI- chatbot facilitating integrated conversations. The collected information will also help drive change in metrics, and structural change**. Therefore, this thesis goes beyond including the End customers in the company's transition towards sustainability and also helps in accelerating the company's internal transitions by proposing a liminal strategy to facilitate customer centric sustainability.

With this thesis I also hope to demonstrate the possibility for **strategic designers to evolve into transition enablers**. Various companies are going through transitions around sustainability and customer centricity. The competencies of strategic designers can help identify the main challenges in the transition and form the "transition pathways". ("The Transition Design Framework - Transition Design Seminar CMU," n.d.) **Designers can go beyond designing future visions and can design tools and processes to include various stakeholders and together incrementally grow towards a more broad and abstract goal such as customer centricity and sustainability**. This being said, it is essential for strategic designers to work with businesses to research and pursue these topics of transitions since the challenges of transformations are largely practical and contextual rather than theoretical.

Finally, with this thesis I hope to demonstrate that **the topic of sustainability doesn't need to be addressed separately**. In the current context, there is a lot of potential in having integrated interactions with end customers. This could also be true for other stakeholders. Since 2020, Barco has adopted the format of integrated reporting to communicate with its shareholders. This concept could expand for other stakeholders and across different communication channels. **I hope that with this research I can demonstrate with an example that sustainability could be more than just something noble to do.**

8.4 Personal Reflections

As this thesis comes to an end I would like to reflect back on the experience and take some learnings with me into the next phase of my life. Looking back **I realise that I enjoyed every phase of the design process but had a lot of inertia during the transitions**. I was not always comfortable with not knowing the next steps. Slowly I am learning to be at peace with the unknowns by having faith in myself. I realised that unlike many people, acceptance of change doesn't come as a second nature to me, but I am learning to cultivate it.

For most part of my adult life I have been very bad with maintaining a work life balance. It was half way through this thesis that I realised that it was now or never and took steps to change the way I worked. It lasted for a while but I went back to my extensive work schedule again towards the end of the thesis. I was unable to accept that I wouldn't know everything about the topic or the organisation and **it was okay to know enough as long as it was adequate**. If I were to do this again, I would determine some goals for every phase and put a hard pause as soon as they were accomplished.

At the beginning of the thesis I had set some personal goals. With no previous experience of working within a large organisation I wanted to try it. By taking up the thesis with Barco I was able to meet this goal. **I wanted to learn client management and effective communication through this journey**. Reflecting back I feel that I learnt a lot in this regard. I have made so many conversations to either get input on the research topic or communicate my progress, that it has trained me to quickly and effectively communicate with the person while keeping it as short as possible. **It also helped me build confidence in my presentation skills. I also took this chance to explore new tools and frameworks as and when the need arose**.

Two of my personal goals were met through the result of the thesis.

- **Design a solution that could show that profit and impact is not paradoxical.**
- **Bridge capabilities of different silos within the organisation.**

Prior to this thesis, most of the projects in this masters required team work. I found myself very comfortable exploring content and building solutions while avoiding visuals. I also avoided presenting. **This thesis forced me out of my comfort zone that eventually gave me a lot of satisfaction once I started building my confidence in**

my presentation and visual skills.

This project of 6 months has challenged me to grow both personally and professionally. As I move towards its end, there is an inertia to stop, a desire to continue. So I end it with a comma instead of a period ,

"Maak een komma, geen punt."

09 REFERENCES

9.1 Sources

9.2 Appendix A

9.3 Appendix B

What to expect

The References chapter gives an overview of all the sources that were used for the thesis. Appendix A consists of reference information available for public view. Appendix B contains reference information that will only be visible to the mentors for confidentiality reasons.

*"There are no answers, only cross references."
- Norbert Wiener*

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9.2 Appendix A

1. Original Project Brief

DESIGN
FOR OUR
future



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	<input type="text"/>	Your master programme (only select the options that apply to you):
initials	<input type="text"/>	IDE master(s): <input type="radio"/> IPD <input type="radio"/> Dfl <input checked="" type="radio"/> SPD
student number	<input type="text" value="5019508"/>	2 nd non-IDE master: <input type="text"/>
street & no.	<input type="text"/>	individual programme: <input type="text"/> (give date of approval)
zipcode & city	<input type="text"/>	honours programme: <input type="radio"/> Honours Programme Master
country	<input type="text"/>	specialisation / annotation: <input type="radio"/> Medisign
phone	<input type="text"/>	<input type="radio"/> Tech. in Sustainable Design
email	<input type="text"/>	<input type="radio"/> Entrepreneurship

SUPERVISORY TEAM **

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

** chair	<input type="text" value="Prof. ir. Voûte"/>	dept. / section: <input type="text"/>
** mentor	<input type="text" value="Dr. ir. Keller"/>	dept. / section: <input type="text" value="HCD / DCC"/>
2 nd mentor	<input type="text" value="Guy Van Wijmeersch, An Saveyn"/>	
organisation:	<input type="text" value="Barco"/>	
city:	<input type="text" value="Kortrijk"/>	country: <input type="text" value="Belgium"/>

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.



Procedural Checks - IDE Master Graduation

APPROVAL PROJECT BRIEF

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

chair date signature

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: EC
Of which, taking the conditional requirements into account, can be part of the exam programme 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 date signature

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 date signature

Initials & Name Student number

Title of Project

Engaging customers in Barco's transition towards sustainability _____ 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 25 - 03 - 2021 end date 26 - 08 - 2021

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, ...).

Our economic system based on the concept "Small World on a big planet" [1] has placed enormous pressure on the planet while inadequately catering to the needs of the population. [2] Recognizing the need and importance of being sustainable, many companies want to address the ESG factors that are material to their industries [3]. Moreover companies are recognizing sustainability as one of the key drivers to innovation. [2] Parallel to the internal drivers, shareholders are increasingly expecting of companies to both maximize shareholder value and take a broader role in society. [3]

Barco is a publicly listed company that develops visualization and collaboration solutions to help it's customers (largely B to B) to work together, share insights, and wow audiences. Their focus is on three core markets: Enterprise, Healthcare, and Entertainment. [4] Since 2017, Barco has integrated sustainability strategy as an integral part of their corporate strategy, 'Enabling bright outcomes' and is currently undergoing a huge internal transition. Their sustainability strategy focuses on these three pillars: Planet, People, and Communities. This sustainable strategy is currently unidirectional, meaning Barco is designing for some aspects of sustainability and communicating this to its customers. Their latest materiality assessment identified "Customer engagement" as a one of the primary factor of importance to the business and its stakeholders. This factor is explained as: Meeting or surpassing customer expectations, building successful relationships with customers, encouraging co-creation. [5]

Barco is investing time and resources to become more customer centric while pursuing their sustainability goals. They recently hired Mark Spenle as their Chief Digital & Information Officer, an addition to their core leadership titles. Amongst his many roles, one is to improve Barco's CX strategy. There is a clear need and desire to be more customer-focused, i.e. designing for customers and proactively designing with customers. [5]

Hence, based on the given context the aim of this project is to equip Barco (through necessary tools, road map) to design for its customers and with its customers, using strategic design processes while understanding the needs, aspirations and values of all the different stakeholders (with focus on sustainability).

References:

- [1] 5 reasons why the economy is failing the environment, and humanity. (2017, January 10). Retrieved March 24, 2021, from <https://www.weforum.org/agenda/2017/01/5-reasons-why-the-economy-is-failing-the-environment-and-humanity>
- [2] Why Sustainability Is Now the Key Driver of Innovation. (2014, August 1). Retrieved March 24, 2021, from <https://hbr.org/2009/09/why-sustainability-is-now-the-key-driver-of-innovation>
- [3] Why ESG is here to stay. (2020, June 15). Retrieved March 24, 2021, from <https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/why-esg-is-here-to-stay>
- [4] Barco. (n.d.). Sustainability. Retrieved March 15, 2021, from <https://www.barco.com/en/about-barco/sustainability>
- [5] Downloads and more. (2021, February 11). Retrieved March 15, 2021, from <https://ir.barco.com/2020/downloads-and-more>

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introduction (continued): space for images

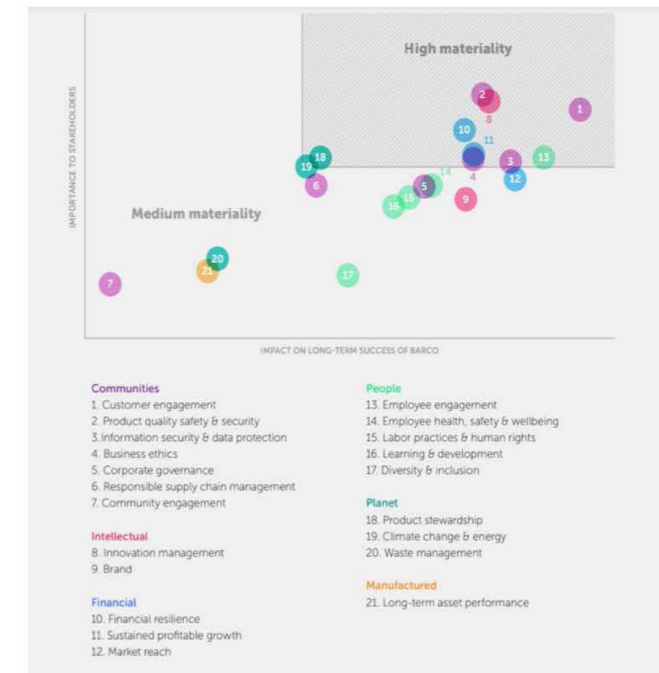


image / figure 1: Result of material assessment study

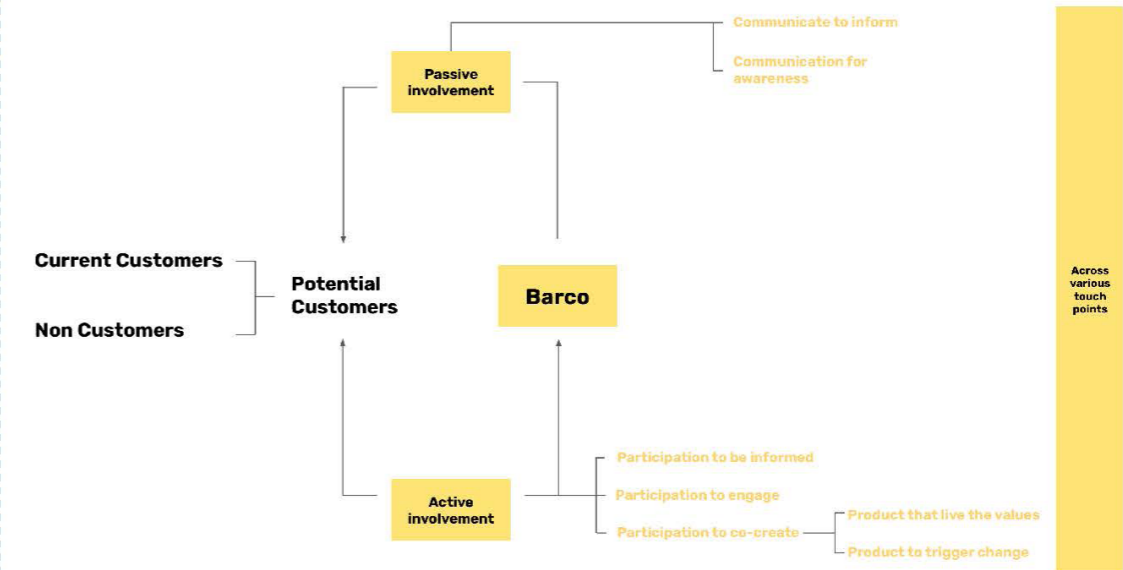


image / figure 2: Customer interaction purpose and opportunities

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.

Currently, Barco is in transition towards achieving its sustainability goals. These goals include 3 components: People, Planet, and Communities. [1] Within these components there are multiple actionable factors defined, based on the stakeholders perspective and the organizations internal perspective. These goal are ambitious and meeting them all is challenging since it requires changes from organizational level to product and service level. My scope for this project will be limited to involving customers into the company's transition towards sustainability and not design for sustainability itself. Barco is also a global company, meaning it operates in various regional contexts while focusing on 3 markets, namely, Healthcare, Enterprise and Entertainment. Within each market there are sub markets, Enterprise, includes corporate and control rooms; Healthcare, includes the diagnostic imaging and surgical and operating rooms; Entertainment, includes cinemas, venues and hospitality. [2] Each consumer within the sub-market would have different needs, aspirations and most importantly a different customer journey. This research will focus on equipping Barco with necessary tools, guidelines and road map to include customers at various touch points across their user journey. These tools will be built using the case of one market (eg: Enterprise) and a product-service range (eg: click share, control rooms) within the market. Further these tools will be scaled up for strategic applicability to other product ranges in other markets. The intention is to help in creating an internal buy-in for various actionable factors necessary to meet the sustainability goals while delivering on customer needs, aka being customer-centric. Further if time and resources permit then the strategy will also build guidelines for including employees in Barco's transition.

References:

- [1] Barco. (n.d.). Sustainability. Retrieved March 15, 2021, from <https://www.barco.com/en/about-barco/sustainability>
- [2] Downloads and more. (2021, February 11). Retrieved March 15, 2021, from <https://ir.barco.com/2020/downloads-and-more>

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.

Create the necessary tools for Barco to design interventions and engage customers in organization's transition towards sustainability, at multi modal touch points in different relevant capacities, for a single market. Supplement it with actionable strategy and road map to scale up the approach for all the three consumer markets.

By increasing the customer engagement, Barco can identify and respond to the specific needs of their customer while increasing engagement at optimal moments during the customer journey. In order to create this assignment the research questions that needs to be answered is:

At what stages and in what capacity should customers be involved in Barco's transition towards sustainability?

How to design necessary tools that can support Barco in involving range of customers at optimum moments in relevant capacities in context of a product case?

How to scale up the applicability of those tools in context of other product ranges?

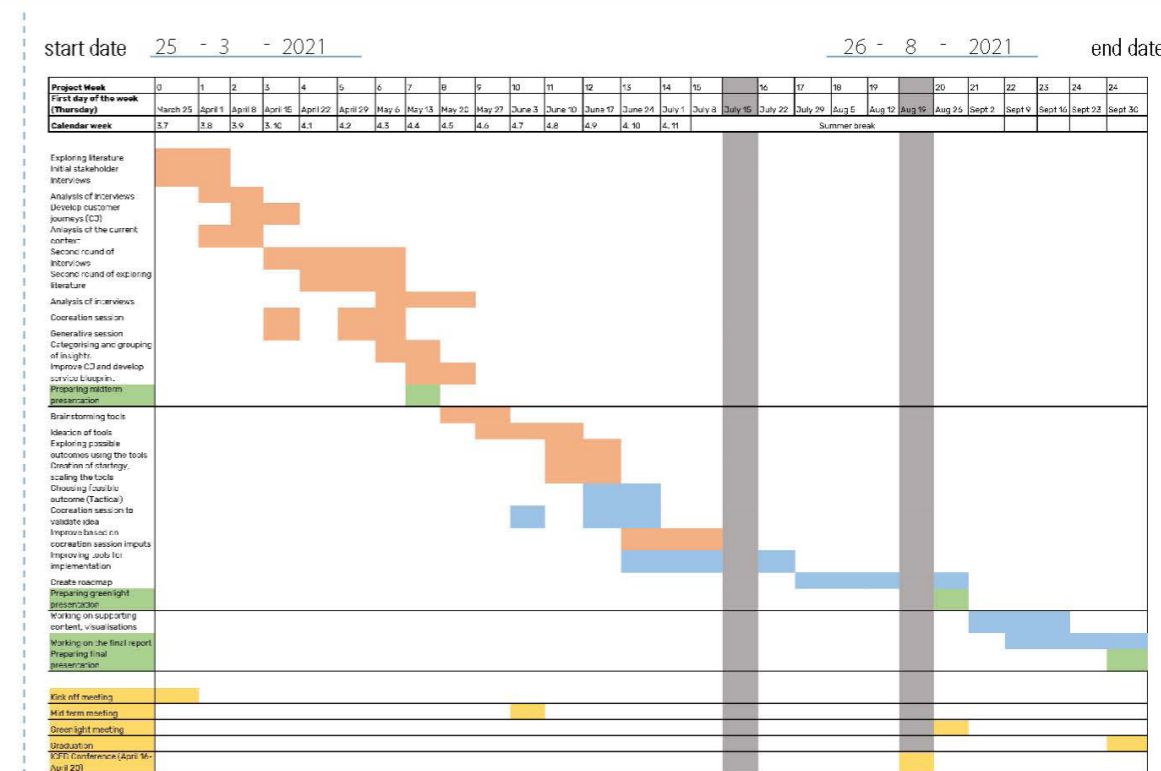
In order to answer these questions, I would like to investigate the following areas:

Consumer-end: Who are these customers? What are their (sustainability) needs and aspirations? How does their customer journey look like?; Where are consumer's needs and aspirations met with by Barco? Which needs are not met? What are the current channels for expressing this?; Are the customers aware of these channels?; What are the barriers they face in doing so currently, if any?

Industry-end: What is Barco doing currently to learn about the sustainability needs of their customers?; Is the approach reactive or proactive? What is Barco doing with these insights?; How is Barco translating these views and needs of their customers into something usable? Can these insights help Barco expand their customer base?

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.



The graduation is planned as a part-time (4 days a week) 24 week project since I will be assisting for two courses throughout my graduation. I will be taking two weeks of holiday during this period. One week is planned from July 8-July 15 and another week is planned from August 12-August 19 since my team's paper is currently conditionally accepted for the ICED conference (August 16-August 20). Given this planning, I should be able to complete the graduation by the end of September. The industry holidays are considered and delays for obtaining the right contacts for interviews are accounted for within this planning.

- In the above Gantt chart,
- Yellow represents key dates during graduation i.e. Kick-off meeting, Mid term meeting, Green light meeting and Final graduation.
- Green represents time for preparation for the key meetings i.e. Mid term meeting, Green light meeting and Final graduation
- Blue represents the time period when I will be working towards finalizing format, content for the thesis report along with working on the given topic.
- Grey represents the weeks when I will be on holiday.

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.

During my bachelor's thesis on "Frugal Approaches to Design" I came across many examples that led me to believe that real impact needs scale. This is what inspired me to do a masters in Strategic Product Design, where I could learn to work with industries with a potential to make larger impact. I strongly believed that profit and impact should not be paradoxical but complement each other. Luckily this is becoming the reality of the world now as many organizations are transitioning to achieve the triple bottom line ("People, Planet and Profit"). Amongst these, I have been personally very motivated to work on the topic of inclusion and diversity (Subset of "People" topic) since my Bachelors.

Academically, I would like to apply what I have learned in the Social Venturing Course(an elective), and the SPD-Research course, in this project while building on the existing knowledge. Social Venturing helped me understand elements of entrepreneurship, impact based social ventures, and SPD Research course gave me the tools to perform various kinds of research, such as qualitative, quantitative and customer research.

I see this project as an opportunity to practice skills that involve client-management, effective communication and adaptability. During this project I want to learn and experiment with new tools and frameworks. I want to understand how large organizations work and find a way to bridge the capabilities of different silos. I want to dig deeper into the capabilities of strategic design and strategic designers. I am keen to showcase with my project, the capabilities of strategic designers to build solutions that go beyond conventional product-service systems. At the end of this project I want to say that I know how to make a significant positive impact while improving the business.

FINAL COMMENTS

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

-NA-

2. Barco's five culture building blocks

Living our DNA: Barco's five culture building blocks

Next to 'we care, we grow', my favourite block is 'we team up to win globally' because I'm a firm believer in global thinking and local action. This leads to real value when combined with our cohesive culture and our focus on diversity and inclusion. For me, the words 'team' and 'globally' are the keys to this building block.

Anthony Huyghebaert
Chief HR Officer

We care, we grow

It all starts with us. We support each other to be the best we want to be. We build upon our talent to be ready for tomorrow. We ask and give feedback to become stronger. We leave room for vulnerability and expect authenticity and integrity. We learn from each other and invest in our growth, enabled by our leaders.

We look for the better way

Continuous improvement brings us where it matters. We are creative and stay curious. We reflect, coach, share to be the leader in our markets. We take time to learn from each other, our mistakes and the world around us. We challenge ourselves and the status quo. We take down obstacles and don't fear change.

We own our results

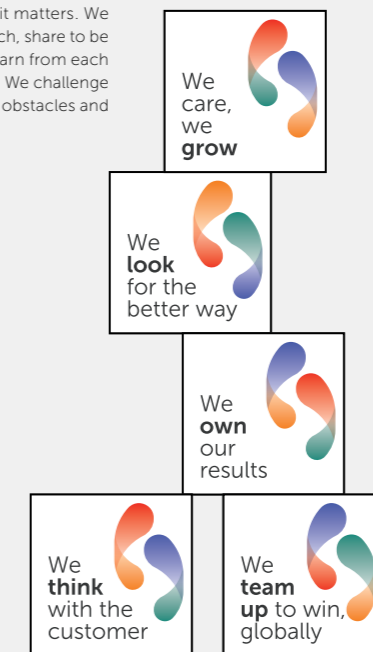
We get energy from moving forward and winning. We agree on goals and bring together the means to drive for full implementation, in a decisive and transparent way. We include the right people at the right time to make the best call along the journey. We are self-empowered to make a positive impact.

We think with the customer

Our customer is everywhere. It's our end-users, our resellers, our colleagues who depend on us to deliver. We prioritize customer value & experience in everything we do. To do so, we embrace our suppliers & partners as part of our eco system. We are empowered to explore ideas beyond today's market needs. We look for scalable & innovative solutions that add value for our customer, be it an internal or an external customer.

We team up to win, globally

We build the best team to take the leap from ideas to proof points, to execution. We truly understand what it is we want to achieve together. We regard diversity of background, experience and skills as our strength. We focus on helping each other, across regions & functions, to reach our goals. We celebrate success together and have fun while getting there. That's how we live our DNA.



2020 materiality matrix

Barco's materiality matrix has three categories – low, medium and high material topics. The illustration reflects our medium and high material topics.

Planet - People - Communities

Barco

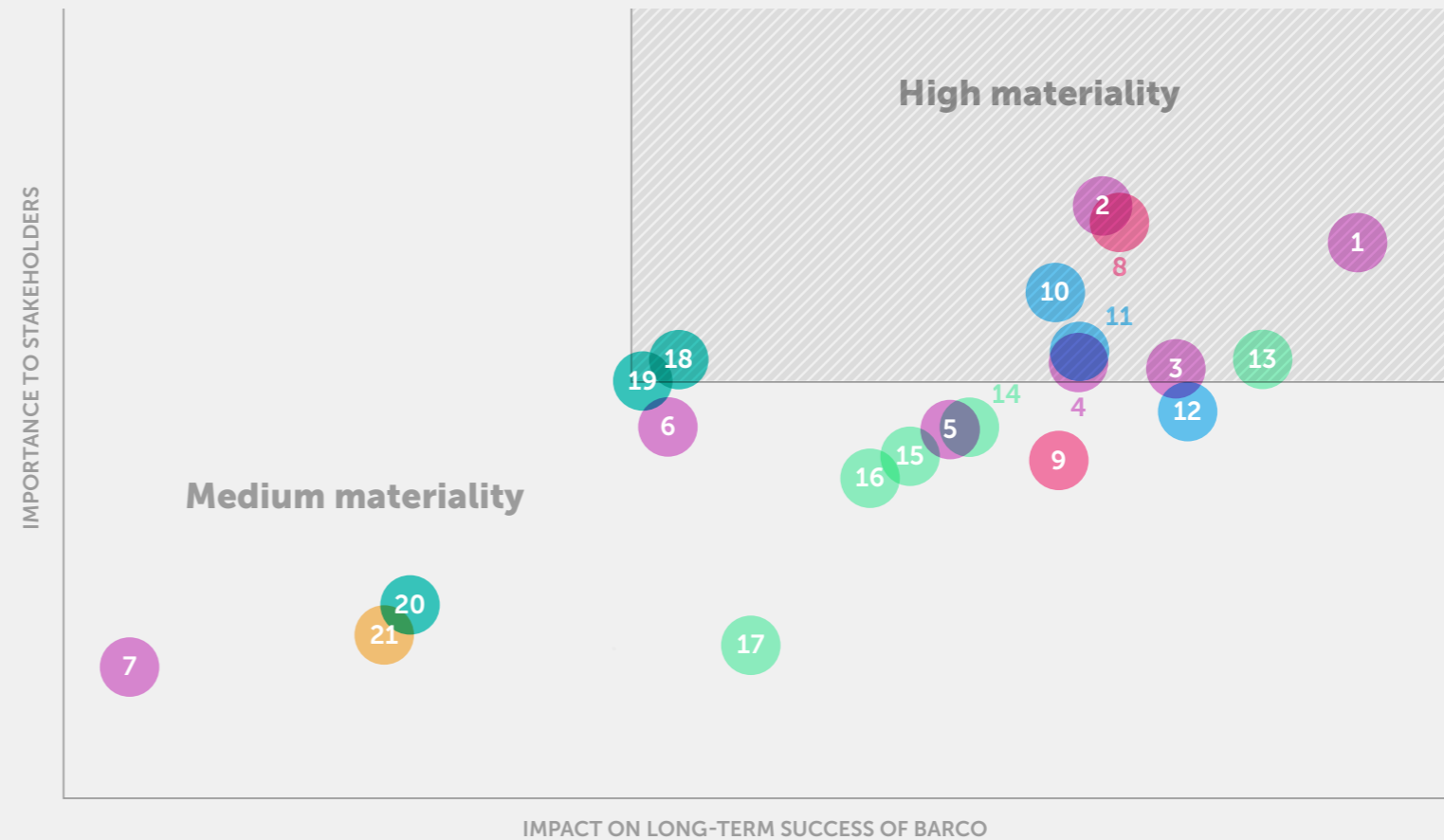
Integrated report 2020

PPC
7

Changes compared to the previous materiality

- In the previous annual report, materiality only included topics of the natural, human and social and relationship capitals (Planet, People, Communities). In line with our step-up to **integrated reporting**, we included topics of the three other capitals (**financial, intellectual and manufactured**) too.
- People:** 'Labor practices & human rights' is new.
- Planet:**
 - 'Climate change & energy' replaces 'Greenhouse gas emissions' and 'Energy efficiency of operations'
 - 'Product stewardship' replaces 'Energy efficiency of products'
 - 'Circular economy' is replaced by 'Product stewardship' and 'Waste management'.
- Communities:** 'Corporate governance', 'Information security & data protection' and 'Product quality, safety & security' are new topics.

Overview of the topics that might affect Barco's ability to create value for its stakeholders - linked to the six capitals of integrated reporting



Communities

- Customer engagement
- Product quality safety & security
- Information security & data protection
- Business ethics
- Corporate governance
- Responsible supply chain management
- Community engagement

Intellectual

- Innovation management
- Brand

Financial

- Financial resilience
- Sustained profitable growth
- Market reach

People

- Employee engagement
- Employee health, safety & well-being
- Labor practices & human rights
- Learning & development
- Diversity & inclusion

Planet

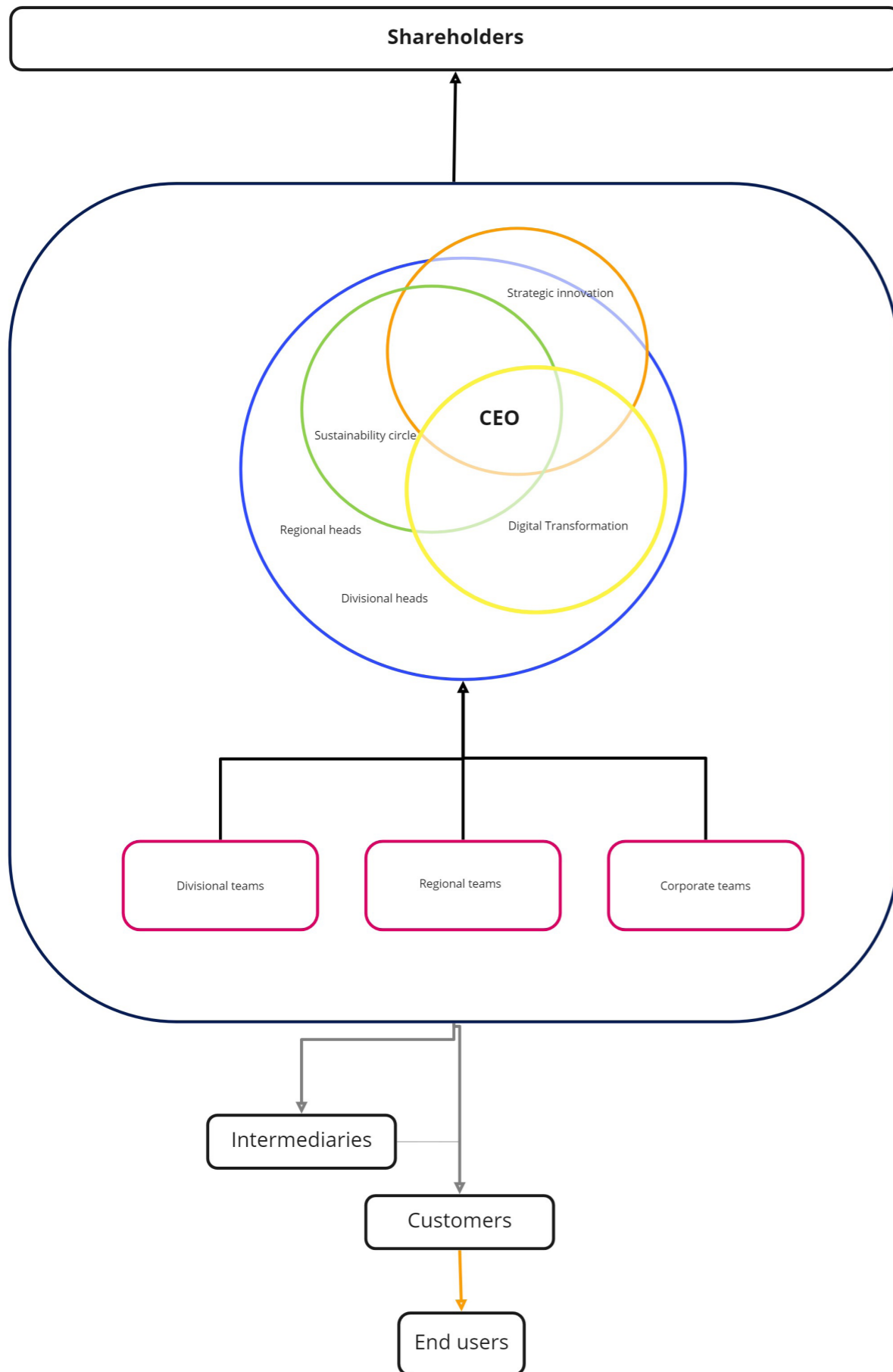
- Product stewardship
- Climate change & energy
- Waste management

Manufactured

- Long-term asset performance

3. Templates for interviews

Template for interviews with Barco employees



Template for interviews with Barco End customers

The form is designed for interviews with Barco End customers. It includes a "Business description" field, an "Employees needs identified" field, a "Logos" field, and a "Future of work" field. A large "Sustainability" section is provided for notes. At the bottom, there is a "Contact for further questions" field with a "Phone" sub-field.

Template for interviews with Barco End users

The form is designed for interviews with Barco End users. It includes a "Title" field, a "Business description" field, an "Interpretation of collaboration" field, a "Departments in charge" field, and a "Collaborates with" field. It also has a "Logos" field, a "How?" field, and a "Pain points for collaboration" field. A "Sustainability" section and a "Customer centrality" section are provided for notes. A "Key insights" section is highlighted in dark blue. At the bottom, there is a "Contact for further questions" field with a "Phone" sub-field.

4. Slides for co-creation session

1

Co-creation session

Thesis topic: Including customers in company's transition towards sustainability

2

Content

- Introduction
- Brainstorming 1
- Brainstorming 2
- Converging



3

Introduction

4

If you could be any animal, which animal would you be? And why?

Eg: "Hi, I am Priyanka and if I could be any animal, I would be a penguin because they can survive temperatures of -50C with winds while I go out wrapped in layers and cap, even when its 10C."



Once you are done introducing yourself, pass the ball to the person who is yet to introduce themselves.

5

Rules for today:

- Focus on quantity.** trust your intuition
- Hitch hiking.** Build on other people's ideas!
- Freewheeling.** turn everything to your advantage!

Your role and responsibilities:

- Sharing experience
- Content finding
- Acceptance finding

Postpone Judgment

6

Brainstorming 1

8

Individually brainstorm activities/ events/ programs where two or more people come together to exchange some value and mention the values exchanged.

Event: Speed dating
Value: Self direction

1. Self-Direction. Independent thought and action; choosing, creating, exploring.
2. Stimulation. Excitement, novelty, and challenge in life.
3. Hedonism. Pleasure and sensuous gratification for oneself.
4. Achievement. Personal success through demonstrating competence according to social standards.
5. Power. Social status and prestige, control or dominance over people and resources.
6. Security. Safety, harmony, and stability of society, of relationships, and of self.
7. Conformity. Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms.
8. Tradition. Respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide the self.
9. Benevolence. Preserving and enhancing the welfare of those with whom one is in frequent personal contact (the "in-group").
10. Universalism. Understanding, appreciation, tolerance, and protection for the welfare of all people and for nature.

9

Brainstorming 2

10

HOW?

11

1. How might we ...create an information channel (a portal/ touchpoint/activity that helps) span distance between representatives of Barco and the end customers?
2. How might we ...get input from end customers about their needs (in this case sustainability) in exchange of a non-monetary incentive?

A symbiotic relationship.
Living together of unrelated organisms

12

Converging

13

14

1. Problem in one statement
2. Solution in two statements (how its unique, advantageous)
3. One unique selling point
4. End with a catchy phrase.

While every team is presenting, the observing teams write down the unique points (U), advantages (A), limitations (L), one suggestion (o) to overcome limitations.

15

Thank you

5. Script for co-creation session

The script for the session was as follows:

Priyanka:

Slide 3:

Hi all, I am Priyanka Shah and I am studying strategic product design at TU Delft. For today's session I will act as a facilitator. But before I explain anything about today's session, I would quickly like everyone to answer a question. Once you answer that question then pass the ball to the other person in the room who is yet to introduce themselves.

Slide 4:

So the question is: If you could be any animal, which animal would you be? and why?

Let me start, "Hi, I am Priyanka and if I could be any animal, I would be a penguin because they can survive temperatures of -50C with winds while I go out wrapped in layers and cap, even when its 10C."

(Wait for everyone to introduce themselves)

Slide 5:

Now, I would ask Guy to step up front and for today be our problem owner. Everyone else together will be the resource group.

But what are the roles and responsibilities of the resource group?

(Keep it as is on one screen)

Briefly, your roles and responsibilities today are:

- Sharing experience
- Content finding
- Acceptance finding

And some rules for today are:

- Freewheeling: meaning that turns everything to your advantage, there are no mistakes, only opportunities.
- Hitch hiking: Build on other people's ideas.
- And focus on quantity, trust your intuition! Borrow from other domains.

Slide 6: Now let's move on to the next activity!

You will see a set of sticky notes, one pink and one green by your position marked A and B. Take them in your hands, when you agree with A) raise your hand with the green sticky note and if B) then raise your hand with the pink sticky note.

Let's start the rapid round:

- A) Work from office or B) home
- A) Corona pandemic or B) world war 3
- A) Walk or B) sprint
- A) A- grade student or B) excellent in sports
- A) Dutch or B) French
- A) Europe with brexit or B) without brexit
- A) Belgian waffles or B) Dutch stroopwafel

Now that we are warmed up, let's do some brainstorming.

Slide 8: Brainstorm activities/ events/ programs where two or more people come together to exchange some value and mention the values exchanged. Let's try to come up with around 10 ideas per person. There are some values for your reference, you don't have to use them. There is no right or

wrong answer. You have 7 minutes for this exercise and the time starts now.

Slide 9:

Now I hand it over to Guy to introduce the context and the problem for the next brainstorming session.

Guy:

Slide 10:

The problem is 2 fold:

First,

Barco recognizes the need to be customer centric But the way distribution is organized, there is distance between Barco and its customers (to varying degrees for each department)

And second,

Barco has its sustainability targets defined based on legislation, benchmarking peers and leading organizations (also competitors).

Customer requirements regarding sustainability are not understood, which doesn't help them create a value proposition that is seen as valuable by customers.

As a result internally sustainability is seen as a necessary maybe even noble thing to do, but not as part of the product value proposition.

Slide 11:

Everyone picks a partner to brainstorm on the problem statement. Use your past activities to brainstorm, remember to be wild, freewheel, hitchhike on others' ideas! Lets work with the aim to have 10 ideas per pair!

You can pick either one to work on or work on both:

"How might wecreate an information channel (a portal/ touchpoint/activity that helps) span distance between representatives of Barco and the end customers?"

" How might weget input from end customers about their needs(in this case sustainability) in exchange of a non-monetary incentive?"

Priyanka:

Slide 12:

Now we will start converging

Slide 13: Take your ideas and place them in the matrix, quickly and intuitively

Slide 14:

Pick one idea and try to use the next steps as a reference:
Problem in one statement
Solution in two statements (how it is unique, advantageous)
One unique selling point
End with a catchy phrase.

You have 5 minutes to prepare the pitch and one minute per team to present it

While every team is presenting, the observing teams write down the unique points, advantages, limitations, and one suggestion to overcome limitations.

Slide 15:

What did you like in this session?

What did you dislike and what can be improved?

Thank you

6. Executive summary

Executive Summary (Version 1)

The research on "Accelerating twin transitions through a liminal strategy", with Barco explores the topic of customer centric sustainability. It addresses the problem of "How might we span the distance between representatives of Barco and the end customers (in the context of sustainability)?" The proposed solution is a liminal strategy (bridging strategy) and a tactical manifestation of the strategy in the form of an AI-chatbot that facilitates integrated interactions. Unlike the other chatbots, this faces both Barco end customers and Barco employees. These interactions enable Barco to activate customers, collect timely customer input to create value, and make sustainability tangible for both customers and Barco employees. It demonstrates a way to give Barco competitive advantage while increasing Barco's reputation to drive purpose and profit together.

Executive Summary (Version 2)

Observations: The key insights obtained from the research on "Accelerating twin transitions through a liminal strategy", with Barco, were:

Insight 1: Barco should seek 'right' input from carefully selected customers. (i.e. specific people directly involved in performing, funding the task, etc)

Insight 2: Timely insights from end customers are required by Barco to drive swift action.

Insight 3: Barco should connect sustainability with customer engagement, to make sustainability tangible.

Insight 4: Initiatives undertaken by Barco on the topic of sustainability should create value for customers.

Problem statement: "How might we span the distance between representatives of Barco and the end customers (in the context of sustainability)?"

Recommendations:

- Adopt a liminal strategy or bridging strategy to span the distance between Barco and its end customers through integrated interactions around the topic of sustainability.

- It is essential that these integrated interactions stay consistently relevant and create dual value (for both the stakeholders involved).

- One tactical manifestation of this strategy is an AI-chatbot or B-bot with a dual function. It faces Barco customers and Barco employees to bridge the communication distance between them.

- B-bot supports the end customer through their journey while initiating sustainability as integrated interactions. It also supports Barco employees with their routine tasks while keeping them aware about the customers needs and making sustainability tangible.

Expected impact:

- It is expected that the findings of such a thesis can drive customer centric sustainability, activate customers, communicate company values and make sustainability tangible for both the stakeholders through integrated interactions.

- It can help with timely collection of right inputs from customers, streamlining sustainability within Barco and integrating it in product value propositions.

- It can increase Barco's reputation while giving it a competitive advantage.

Executive Summary (Version 3)

Problem Area

The master thesis "Accelerating twin transitions through a liminal strategy", with Barco, intends to facilitate inclusion of Barco's end customers in the company's transition towards sustainability. The scope of this research was limited to Clickshare products offered by the Enterprise business division. The topics of customer centricity and sustainability were researched using scientific literature and by getting insights from topic experts. Insight into the organisation was gained primarily by interviewing various employees. Additionally, end customers and end users of the product were interviewed to understand their needs around collaboration and the topic of sustainability.

The key insights obtained from this research were:

Insight 1: Barco should seek 'right' input from carefully selected customers. (i.e. specific people directly involved in performing, funding the task, etc)

Paradox: Intermediaries are used by Barco as proxy for customer input.

Because customer input is seen as necessary but difficult to obtain, intermediaries are used.

Because intermediaries are used, the 'right' input is not gathered.

Insight 2: Timely insights from end customers are required by Barco to drive swift action.

Paradox: Customers need relevant and crisp communication from the organisation based on timely insights.

Because customer insights are staggered across different platforms and gated by sales, timely insights are hard to collect.

Because timely insights are hard to collect it is difficult to drive swift action.

Insight 3: Barco should connect sustainability with customer engagement, to make sustainability tangible.

Paradox: Sustainability is a corporate initiative and not a business differentiator.

Because although necessary, there are no processes in place to get concrete/tangible end customers input (from different customer organisations and relevant departments).

Because tangible customers input is necessary to build sustainability related value propositions and see them as a business differentiator.

Insight 4: Initiatives undertaken by Barco on the topic of sustainability should create value for customers.

Paradox: Giving input on sustainability is considered an additional effort by the customers. Because sustainability input is sought from a generic audience in terms of separate surveys or polls.

Because the surveys and polls do not create any specific value for participants, it is considered additional effort by the customers.

Because they are considered an additional effort by the customers, they are not desired.

These insights were difficult to directly translate into a solution. The complexities surfaced in the form of paradoxes as soon as they were placed in context of the company's current way of working. To address these paradoxes a common theme was identified as distance and the core problem was identified as "How might we span the distance between representatives of Barco and the end customers (in the context of sustainability)?"

Recommended solution

The resulting solution of this process was a liminal or bridging strategy.

A liminal strategy can be described as a bridging strategy. In this context, the aim of the liminal strategy is to bridge the distance between Barco and its end customers through integrated interactions around the topic of sustainability. It is essential that these integrated interactions stay consistently relevant. There should be dual value creation during this process of bridging i.e. this conversation should create value for both the stakeholders involved.

Vision: Streamlining sustainability within Barco and integrating it in product value propositions.

Mission: Mobilizing both Barco employees and Barco customers to work towards sustainability goals and making sustainability goals tangible.

Goal: Accelerating internal transitions around sustainability and customer-centricity to span the distance between Barco employees and Barco customers through integrated interactions.

Objectives:

- Creating space for having integrated and relevant interactions around sustainability with Barco customers.
- Setting up internal processes to retain the insights and keep Barco employees in the loop.

Principles:

- Sustainability for driving value creation
- Customer centricity for enabling dual value creation
- Sustainability for making impact and profit
- Customer-centric sustainability to drive innovation

This strategy was exemplified through the tactical solution of an AI-chatbot. This AI- chatbot or B-bot has a dual function. It faces Barco customers and Barco employees. It aligns with the core Barco strategy around growth through digitalisation. B-bot intends to support the end customer through their journey while initiating sustainability as integrated interactions. It also supports Barco employees with their routine tasks while keeping them aware about the customers needs and making sustainability tangible. The validation of the tactical outcome was done for the Engage phase of the customer journey iteratively with both the end customers and Barco employees. They were excited about the solution and saw value in it.

Final thoughts

To conclude, the key challenge of including customers in Barco's transition towards sustainability is the distance between the Barco's end customer and the Barco employees. This thesis helps identify a low hanging fruit in the form of B-bot to test the liminal strategy. This can be tested with ongoing pilots of chatbots at Barco through A/B testing and implemented on a larger scale upon receiving positive feedback. It is expected that the findings of such a thesis can drive customer centric sustainability, activate customers, communicate company values and make sustainability tangible for both the stakeholders through integrated interactions. It can help with timely collection of right inputs from customers, streamlining sustainability within Barco and integrating it in product value propositions. Finally it can increase Barco's reputation while giving it a competitive advantage. For more information read the thesis "Accelerating twin transitions through a liminal strategy: A research with Barco to facilitate customer centric sustainability."

*Integrated interactions:

Integrated means to combine two or more things to be effective, according to Cambridge Dictionary. In the context of this project, integrated interactions means including sustainability conversations at relevant points while interacting with the end customers.

7. Executive summary (in Dutch)

Executive Summary (Version 2)

Opmerkingen: De belangrijkste inzichten die werden verkregen uit het onderzoek naar "Accelerating twin transitions through a liminal strategy", met Barco, waren:

Inzicht 1: Barco moet de 'juiste' input van zorgvuldig geselecteerde klanten zoeken. (d.w.z. Specifiek die mensen die direct betrokken zijn bij het uitvoeren, financieren van de taak, enz.)

Inzicht 2: Tijdige inzichten van end customers zijn vereist voor Barco om snel tot actie over te kunnen gaan.

Inzicht 3: Barco moet duurzaamheid verbinden met klantbetrokkenheid, om duurzaamheid tastbaar te maken.

Inzicht 4: Initiatieven van Barco op het gebied van duurzaamheid moeten waarde creëren voor klanten.

Probleemstelling: "Hoe kunnen we de afstand overbruggen tussen vertegenwoordigers van Barco en de end customers(in de context van duurzaamheid)?"

Aanbevelingen:

- Kies een "liminale strategie" of overbrugging strategie om de afstand tussen Barco en zijn end customers te overbruggen door middel van geïntegreerde interacties rond het thema duurzaamheid.

- Het is essentieel dat deze geïntegreerde interacties ten alle tijden relevant blijven en duale waarde bieden (voor beide betrokken stakeholders).

- Een tactische uiting van deze strategie is een AI-chatbot of B-bot met de volgende twee functies: (1) Het systeem is in contact zowel met Barco-klanten en (2) als een hulpmiddel voor Barco-medewerkers om de afstand tussen hen en de Barco-klanten te verkleinen.

- B-bot ondersteunt de end customer tijdens hun klantreizen initieert duurzaamheid als *integrated interaction. Daarnaast ondersteunt het systeem Barco-medewerkers bij hun routinetaken, houdt hen op de hoogte van de behoeften van de klant en maakt duurzaamheid tastbaar.

Verwacht effect:

- Verwacht wordt dat de bevindingen van dit proces klantgerichte duurzaamheid kunnen stimuleren, klanten kan activeren, bedrijfswaarden kan communiceren en duurzaamheid tastbaar kunnen maken voor beide belanghebbenden, door middel van geïntegreerde interacties.

- B-bot kan helpen bij het tijdig verzamelen van de juiste input van klanten, het stroomlijnen van duurzaamheid binnen Barco en het integreren ervan in product waardeproposities.

- Het kan de reputatie van Barco vergroten en tegelijkertijd een concurrentievoordeel opleveren.

8. Some quotes from End customers and End users on sustainability

"We spend a lot on audio-visual stuff, millions per year in the old buildings. We are building many new buildings now. And sustainability is a big topic there. We also work together with the real estate part of the university.. because the building has to be sustainable and we are in with it (audio-visual stuff, smart boards, screens, name it.)"

"For IT it's very easy because we buy and our vendors like Dell are also busy with it. Because they have to. What you see in the market is that because it is a big topic and the papers are full of it, I don't have to tell you, the markets are going very fast, big inventions, tweaks. That is all related to sustainability. Because if they don't do it, they don't sell anymore."

"Yeah, sustainability is always a difficult topic in IT."

- Strategic Buyer for large education institute

"What is important for one company is not always important for another company."

"Directly as IT what we look at is, I would not necessarily say how you produce your materials, what is the sustainability behind it, what if you need to recycle it and hence so forth. We look at the cost of ownership. So it would mean we look at how much power it would consume, that also gives us a cost advantage."

- Infrastructure and Operations Director, Barco

"Apart from use cases, we also look at the wear and tear, because I know how people in my organization operate. So I will build in those scenarios. On top of it, we also look at if this item also falls from the sustainability point of view. In general, within the organization, we look at a lot of products that are sustainable and environmentally friendly; while we use them and post using them. From a disposable point of view. We also look at the life cycle."

"There are certain sustainability organization goals, which are in line with the UN. Say, for example, my organization has a goal

to have zero emissions by 2030. Is there something that is relevant for me here?"

"One of the key goals as IT leaders is also to envision strategies for sustainability. So purchasing only green products. So as per our organization policies, when I am buying the product it has to be certified for green energy etc."

"Right now, one of the very imp goals for most of the IT space, they all are having visions of sustainability...Corporate sustainability is one of the cores of any organization. What they are doing in terms of people and environmental-related factors. Delivering IT eco-friendly and how as an organization we want to use what. These sustainability goals are very important in the IT space because we are the people who use the maximum it automatically becomes our core responsibility or joint responsibility to do something. Also, we have shareholders who would also want to know what we are doing to ensure we pass the planet safely to the next generation."

- Regional IT head and program manager for Multinational, IT services, and consulting company

"Price is very important, but also sustainability. Where the product is made, we do a lot of recycling and reuse. "

"Everything we do, we try to hold that (sustainability), so our waste management, everything we buy, everything we use, everything we build. we look at how sustainable is it. But it's not incentivized for the employees to do that."

"If you want to be a sustainable company and you want to say you are, you have to uphold to some standards. (in context of certifications)"

"When it is the same price, we would always go with sustainable products. And maybe even if it is the higher price. When there is a huge price difference then the price is more important. But sustainability that's a very high factor in decisions."

- Commercial product manager, a leading provider of telecommunications and ICT services

"The company is actually really really about sustainability, it is the first telco company in Europe that is energy neutral. That is just bought because we don't make energy ourselves. But very nice because we are so many computers and servers. Then we have a small department that works full time on sustainability and how we can improve as such. Also depending on the different areas, we have smart products, that are a bit more sustainable. They have smart lighting and plants inside. But I really do not like the lighting that goes off automatically, because if you are sitting alone in the room silently and it goes off. You really have to wave the whole time. Also in the bathroom, you always have to wave. It's so annoying."

"I see they promote it a lot on marketing, you see a lot of blog items, in there. When new employees come in they also put a package in there for sustainability, but I do think we can do more in order to be really neutral. "

- Security service designer, a leading provider of telecommunications and ICT services

"It's (sustainability) very much linked to longevity. The products are often time chosen for their quality and for the fact that they are really pieces that you want to pass on. It really depends on the products though, for example, large speakers or large televisions that you can imagine passing on to someone. And the design is also so unique that collectors are interested in it. Really taps into the idea of longevity, Then there are other products like trackers, etc."

"How you can have several cycles. You can have an impact on the cycle when the product is recycled because it's made up of components that can be disassembled. It can also be that the product is brought back to the company to be refurbished. Or the project is going to last so long that it's sustainable."

"(Topic of transparency) Where is the aluminium really coming from and can we have recycled aluminium, can we know exactly who is making the fabric. So this is a hard job and it takes a really long time to dig that up and replace what is not appropriate."

"I think people really want to do good and really participate. They want to be part of this journey because I think there is an awareness. In general, people are interested but don't know where to start exactly because it is a complex topic. Sometimes it makes sense not to make big presentations but to identify the low hanging fruits and act at your job level. When we say that this we should not do because it is not sustainable, people are really sensitive to that. It is really one of the main characteristics to make decisions."

-CMF Design manager, high-end consumer electronics company

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DELFT UNIVERSITY OF TECHNOLOGY

30TH SEPTEMBER 2021



“MAAK EEN KOMMA, GEEN PUNT.”