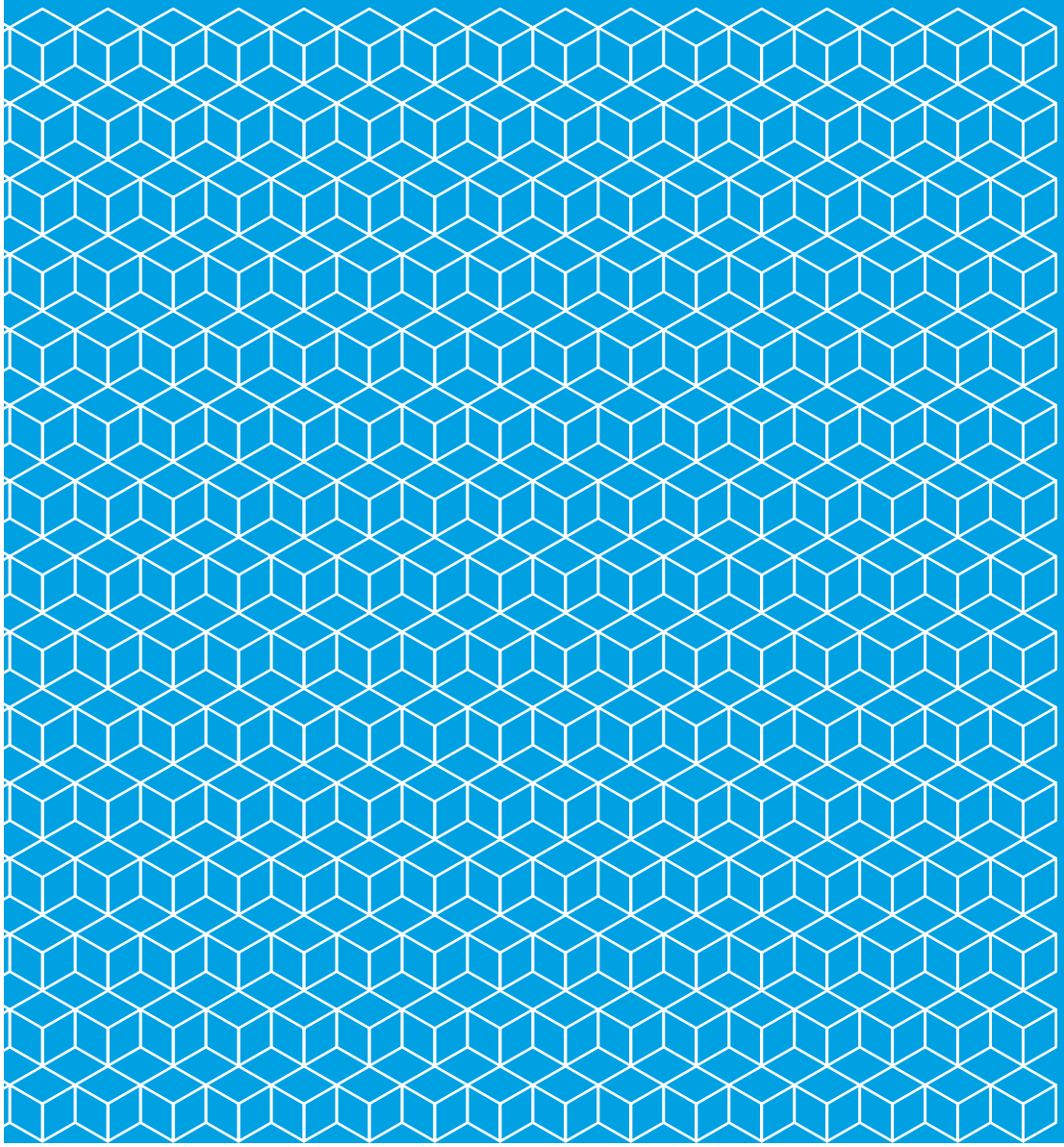
Fostering an innovation culture at KLM's Digital Factory

By: David Arellano Coria



MSc Strategic Product Design

Graduation Report 2019

Fostering an innovation culture at KLM's Digital Factory

Master Thesis Strategic Product Design
Faculty of Industrial Design Engineering | Delft University of Technology

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ACKNOWLEDGMENTS

This report represents not only the end of a challenging project, but also an important phase of my life. Two years ago I left my home in Mexico wanting to expand my knowledge and open new opportunities. Today I can clearly see that what I learned during my time at TU Delft will help me grow as a professional and tackle new challenges. However, what I will truly value and remember for the rest of my life is the great people I met and the things we made together. With that in mind, I'd like to thank those that helped me during this project, those that made these last two years a wonderful experience and those who have been with me for longer and helped me get to this point:

Firstly, thanks to my team for this project. To Oya for believing in this project and giving me the opportunity to work on it, and for all the help and support. Because of her I got the chance to talk to some very interesting people, and I learned a lot from them and her. Thanks to Henk for giving my project and me a chance and agreeing to be Chair. Thanks for his valuable advice and guidance. Thanks to Barend for being my Mentor, for the very useful sessions and helping me in times when I couldn't tell left from right. For listening to me and making me see things clearly. Thanks to Nounou, Vallentino, Stefan and many others at KLM that helped me in my process and made me feel like part of the team.
My hope is that this project is of value to this team, and that I'll cross paths with you again in the future.

Next, thanks to my family. To my mom Claudia, for her unconditional love and support. For making me the man I am today, while always making me value the kid inside of me. To my dad David, for always being an example of hard work and supporting my education with the best tools and institutions. To my sister Mariana, for being (in all seriousness) a strong, independent woman I can look up to. For being an example of working your ass off to create your own path. To Lian, for showing me a side of my family and myself I hadn't seen before. For making me happy.
My hope is that all of you are as proud of me as I am of you, and that you know how much I love you.

Continuing with the friends I've made along the way. On one hand, my adoptive cousins back in Mexico, and in the other, the cool people I met in the Netherlands, with special thanks to Sebas, Andrea, Liz, Ashni, Paula, Magnolia, Vicky and Sandra. Thanks for the good times and making me laugh even in the bad ones.
My hope is that we continue to have laughs like that for a long time.

Last, but definitely not least, I'll always be thankful to Augusto, without whom none of this would have been possible.

Enjoy the read,

David Arellano Coria
August 30th, 2019. Delft, NL.

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EXECUTIVE SUMMARY

The project started by carrying out academic research. As the goal of the project became more clear, the research focused on Organizational Culture and how to change it, the role of Design in that effort and Organizational Ambidexterity. This phase allowed me to understand the issues involved in the project, and apply tools previously developed by the researchers. It also helped me guide my further research and my proposal, given that there were a number of valuable insights.

The second stage was on-site research, where semi-structured interviews were carried out with people from different groups and teams involved in the project, plus following teams for a day to make observations and take notes. The interviews covered topics related to innovation and how the perceived culture and behavior in Digital affected the development of new ideas. The interviews benefited from a broad selection of participants, including individuals from varied levels of hierarchy of both Business and IT. This helped understand how KLM Digital is organized, and what are the concerns regarding innovation among the team members.

After collecting the insights from the on-site research, they were analyzed to figure out how they related to each other and to the academic research. Groups were formed that contained the main findings. Each group represented a challenge to innovation that was identified during the on-site research. After the groups were developed, they were analyzed using the tools from the academic research, plus input from the company. This resulted in a focus stage for the project.

The analysis of the findings resulted in a rephrased focus for the project. It was concluded that the challenge of Culture and Mindset was the most valuable to tackle at the moment. This is due to the fact that it is the underlying issue for the rest of the challenges. Additionally, the company recognized that there was a lack of overall direction and goals, so by targeting this problem, a series of guidelines would be created that would later be expanded in future related projects.

Then a design research phase was carried out, where there was a continued discussion with different team members and managers, in addition to trying different "prototypes" for creative activities, getting feedback from management and carrying out co-creation sessions. This was deemed as the right way to continue the project, given that the challenge was recognized to be a wicked problem, and a more linear process would not cover as much ground. Instead, this phase became an iterative process, one of constant experimentation, learning and adjustments.

Finally, the design proposal consists of two big elements: the Final Destination and the Runway. The first one includes a future vision representing a scenario where KLM Digital achieves the changes team members wanted to see. As part of this scenario, a new Organizational Identity was created. This new Identity aims to bring the team members together under a shared beliefs and values system, working towards Digital's Vision. The Runway is the collection of actions that Digital can take in the short-term to kick start the change process. More specifically, the Runway includes a number of activities that promote collaboration, creativity and communication among the people of Digital. This way, the proposal covers actions the organization can take in the near future to start testing ideas and learning from them, and a long-term vision to work towards to.

CHAPTER 1.

I don't wanna change your mind
I don't wanna waste your time
I just wanna know you're alright
I've got to know you're alright

Under Control
by The Strokes

INTRODUCTION TO THE PROJECT

INITIAL CHALLENGE

Introduction

The initial goal of the project was presented as "to improve KLM's current digital innovation processes", within the bigger topic of "Industrialization of Innovation".
The idea behind it came from one workshop done at TU Delft, where Design students were tasked with defining important challenges for the company, in collaboration with people from different KLM groups. The initial concerns were related to the perceived lack of innovation coming out of Digital, and how to better inject Innovation into the workflow. The company supervisor commented on how it was difficult to support and implement innovative ideas or projects, for example. In addition to a remark about being stuck with issues from the past, instead of looking into the future.
The project was then picked up by Oya Ünlü, Group Manager Organizer Commercial. She knew the value of bringing in new points of view and ideas to tackle this issue, so she offered the project as an internship or graduation project at the Industrial Design faculty.
This project has to consider both the IT and Business divisions within KLM Digital to align their points of view. On one end, IT tests and develops technologies, and implements new features into the different digital products, and on the other, Business plans and ideates products for end users. Getting their insights, and involving different stakeholders was very important to develop the final proposal. It needed to consider the priorities, points of view and worries in order to offer a solution that would truly reflect the conditions within the context.

Project overview

Following a selection process, I was selected to work on it with Oya as my Company Supervisor. The first challenge was to narrow down the scope of the project, and specify the area that was going to be worked on. After carrying out interviews and observations at the company, there was a better understanding of the underlying issues and challenges for innovation at Digital. Because of that, the goal was refined into "Fostering an innovation culture within KLM Digital". This was necessary because at the beginning there was no specific focus area for the project, and I needed to explore what opportunities were present to develop a design in the time period available. So, after the on-site research I was able to describe the main challenges to innovation I discovered (presented in a later section). This lead to a discussion with the Company Supervisor, who verified the research findings based on her own experience. After analyzing the findings, I made the hypothesis that by tackling the Culture challenge I could impact the others indirectly, given that the challenges formed a chained cycle where Culture was the underlying bigger issue, and the rest were feeding each other in a loop. The Company Supervisor agreed with this assessment, and thought that it would be beneficial to have this project focused on the bigger picture; with any following projects continuing with my proposal and refining the details.

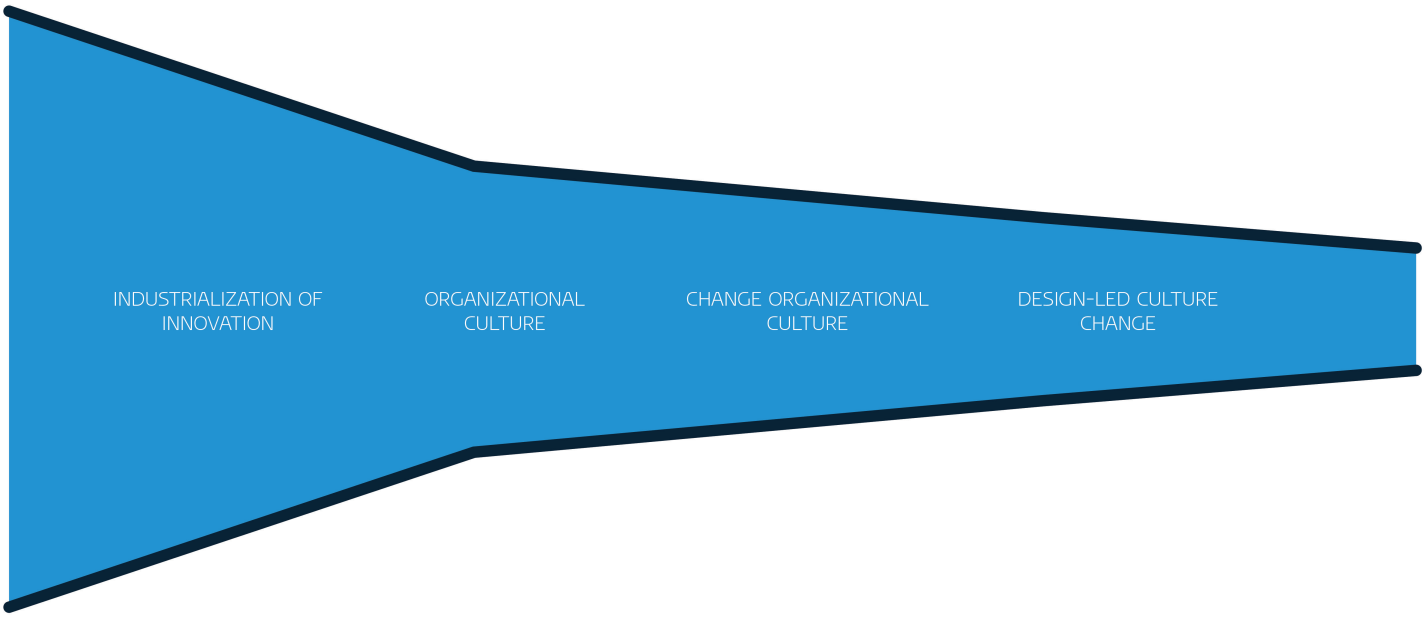


Figure 1. The evolution of the size for the project's scope. Starting with the broader topic of Industrialization of Innovation and ending with Design-led Culture Change.

COMPANY CONTEXT

Introduction to KLM

KLM is the most important airline in the Netherlands, and one of the oldest in the world, getting ready to celebrate its 100th anniversary in 2019. It is headquartered in Amstelveen, near Amsterdam Airport Schiphol. In 2004 a merger between Air France and KLM resulted in the holding company for both airlines Air France-KLM (Figure 2.), Headquartered in the Charles de Gaulle Airport, near Paris.

Figure 2. The different companies within the Air France-KLM group.

KLM currently employs more than 30,000 people and flies to more than 160 destinations, moving more than 34 million passengers in 2018 (KLM Annual Report, 2018).
The company has established 3 long-term ambitions for itself: being customer centric, being efficient and being innovative (Figure 3.). These ambitions are communicated to the different divisions within KLM, so that they can organize themselves and start initiatives to help achieve them.

Figure 3. KLM's long-term ambitions.

Introduction to KLM Digital

The company has a strong relationship with TU Delft and its Industrial Design Faculty, and they cooperate in many projects.
This particular project involves the Digital division within KLM, which is in charge of developing and maintaining KLM's digital products. Those products vary on scope, due to KLM Digital working on projects both for internal users (employees) and end-consumers (passengers). This means that KLM Digital is present in some capacity in most of the company's activities, and represents a key element in achieving KLM's goals.
To help develop products more efficiently, KLM Digital has divisions that target specific types of projects. This graduation project focused on the e-commerce division, given that the Company Supervisor, Oya Ünlü, works there.
e-commerce can be divided into 2 big subdivisions:
1) IT, which is in charge of developing the projects and researching technologies.
2) Business, which sets the course on product development and assesses the value of the projects.

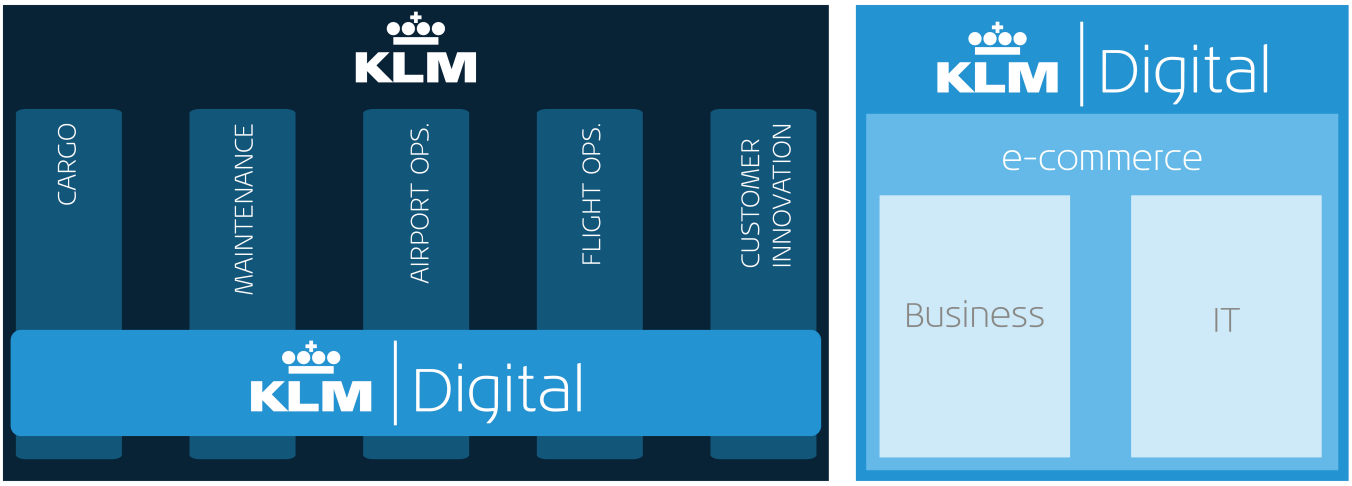


Figure 4. How KLM Digital relates to the other big divisions (Left) and the separation of Business and IT inside e-commerce (Right).

RELEVANCE

KLM is joining the expanding trend of companies that look at Design and Design Thinking to change their operations. More specifically, KLM Digital is undergoing a change of focus to become user-centered (Figure 5.), and because of that, a design-based intervention is valuable at this moment. Furthermore, it helps Digital to achieve the long-term goals and ambitions set by the leadership.

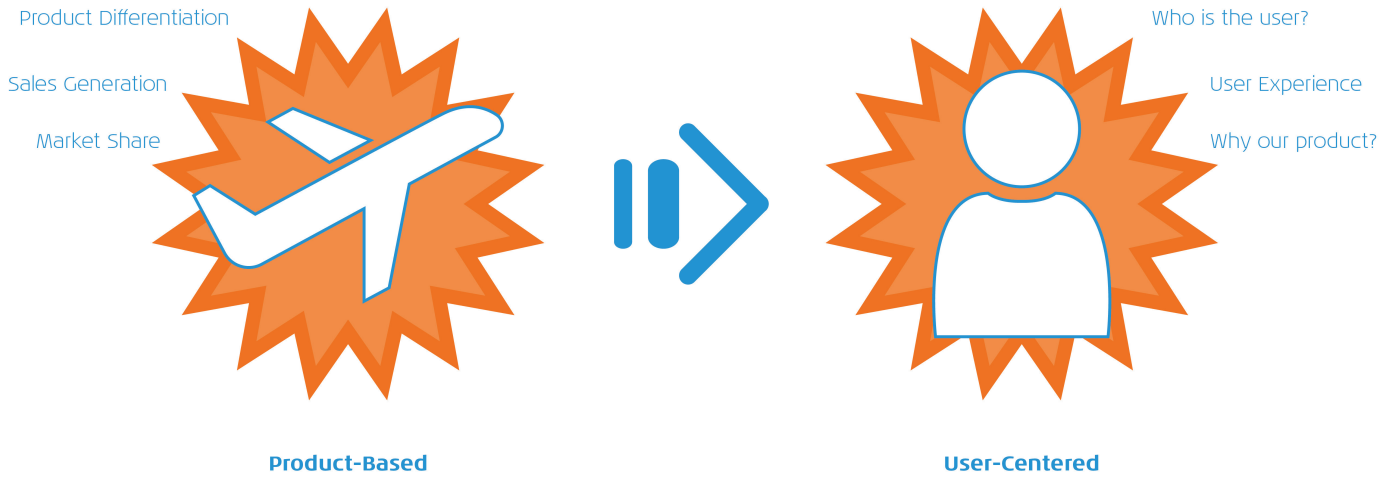


Figure 5. KLM Digital is transitioning from being Product-based to a User-centered company.

Moreover, given that product innovation is one very important way to adapt to changes in the market (Dougherty et al., 1996), this project aims to better prepare KLM for upcoming trends and challenges. The project looks to provide a general overview with goals, so that people within the division can understand the intended evolution of their workflow and workplace. Additionally, the project introduces the theory of Organizational Ambidexterity to KLM Digital, and underlines the importance of it for companies, so that it is easier to explain the importance of exploring new ideas, and thus convince people to give support.

The proposed way of achieving the cultural change is through changing the current product development processes and structures, in addition to creating some new ones.

That way, this project and thesis are of importance for Design research, given that the implementation of design practices and methodologies in Organizational Ambidexterity Organization Design (related to Organizational Culture) is relatively new, and researchers recommend further work on the subject.

Moreover, it is my aspiration that this thesis can be of help to future Master and PhD students at TU Delft when working on similar fields.

PROCESS OVERVIEW

Academic research

The first step I took when I got the project was to carry out academic research. At first, given the broad nature of the description, I researched materials related to innovation management and innovation within large organizations. As the goal of the project became more clear, the research focused on Organizational Culture and how to change it, the role of Design in that effort and Organizational Ambidexterity. This phase allowed me to understand the issues involved in the project, and apply tools previously developed by the researchers. It also helped me guide my further research and my proposal, given that there were a number of valuable insights.

On-site research

The second stage was on-site research, where I carried out semi-structured interviews with people from different groups and teams involved in the project, plus following teams for a day to make observations and take notes. The interviews covered topics related to innovation and how the perceived culture and behavior in Digital affected the development of new ideas. The interviews benefited from a broad selection of participants, including individuals from varied levels of hierarchy of both Business and IT. This helped me understand how KLM Digital is organized, and what are the concerns regarding innovation among the team members.

Analysis of findings

After collecting the insights from the on-site research, I proceeded to analyze them and figure out how they related to each other and to the academic research. I formed groups that contained the main findings. Each group represented a challenge to innovation that was identified during the on-site research. After the groups were developed, I was able to analyze them using the tools from the academic research, plus input from the company. This resulted in a focus stage for the project.

Focus

The analysis of the findings resulted in a rephrased focus for the project. It was concluded that the challenge of Culture and Mindset was the most valuable to tackle at the moment. This is due to the fact that it is the underlying issue for the rest of the challenges. Additionally, the company recognized that there was a lack of overall direction and goals, so by targeting this problem, a series of guidelines would be created that would later be expanded in future related projects.

Design research

The next thing I carried out was a design research phase, where I continued talking to different team members and managers, in addition to trying different "prototypes" for creative activities, getting feedback from management and carrying out co-creation sessions. This was deemed as the right way to continue the project, given that the challenge was recognized to be a wicked problem, and a more linear process would not cover as much ground. Instead, this phase became an iterative process, one of constant experimentation, learning and adjustments.

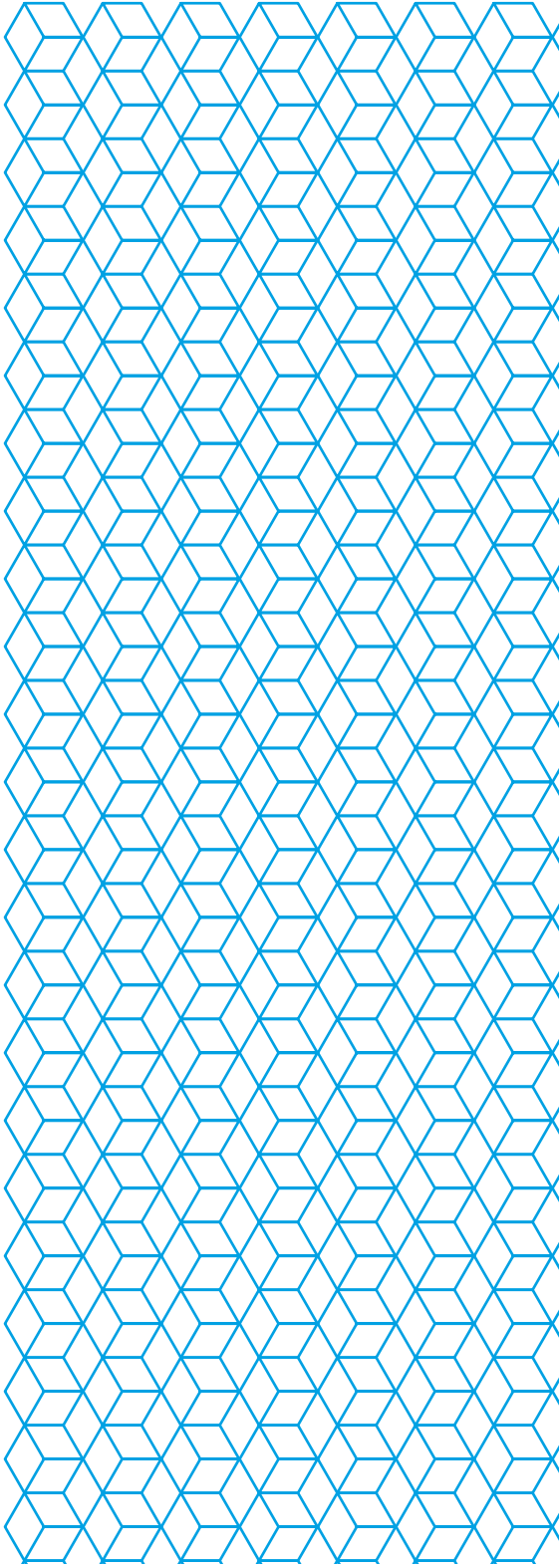
Design proposal

Finally, the design proposal was the conclusion for this particular project. It consists of two big elements: the Final Destination and the Runway. The first one includes a future vision representing a scenario where KLM Digital achieves the changes team members wanted to see. As part of this scenario, a new Organizational Identity was created. This new Identity aims to bring the team members together under a shared beliefs and values system, working towards Digital's Vision. The Runway is the collection of actions that Digital can take in the short-term to kick start the change process. More specifically, the Runway includes a number of activities that promote collaboration, creativity and communication among the people of Digital. This way, the proposal covers actions the organization can take in the near future to start testing ideas and learning from them, and a long-term vision to work towards to.

CHAPTER 2.

♫ *Guiding star shine bright tonight*
And light up my path
Time has come to know myself ♫

The Path of Least Resistance
by Scar Symmetry



ACADEMIC RESEARCH

RESEARCH QUESTIONS

The project considered 4 questions that guided the research and eventual proposal. These questions relate to the academic topics of Organizational Ambidexterity, Organizational Culture and the challenges for innovation.

1.How can strategic design help change Organizational Culture in order to achieve Organizational Ambidexterity?

2.How is Organizational Culture changed?

3.How is Organizational Ambidexterity currently achieved?

4.What is the impact of Organizational Identity in changing culture?

This way, the project stayed within the scope and I kept the work close to these topics.
I conducted design research to figure out the answers to them, or at least explore the possibilities. Furthermore, I consider the questions to be relevant and valuable for related academic research. I aimed to explore how Design can help improve Organizational Culture, and prepare the organization against upcoming challenges through Organizational Ambidexterity.

HOW TO CHANGE ORGANIZATIONAL CULTURE?

Culture

The term Culture is often used to encompass ways of thinking, values and ideas of things rather than concrete, objective and more visible parts of an organization (Alvesson & Sveningsson, 2008).
Hofstede et al (1990) list 7 characteristics of Culture as a general topic:

- Culture is holistic, and can't be reduced to single individuals; Culture happens in larger groups.
- Culture relates to history, it's an emerging phenomenon and is communicated through traditions and customs.
- Culture is difficult to change. People hold on to their values and ideas.
- Culture is a social construct; a human product that's shared by people from different groups.
- Culture is vague and difficult to grasp; it is qualitative and not easy to measure or classify.
- Culture is characterized by myths, rituals and symbols.
- Culture refers to ways of thinking, values and perspectives on things, rather than more visible, objective parts of an organization.

Organizational Culture

As stated before, that list refers to characteristics shown by any given manifestation of a culture, however, going from there, one can say that people in a company think, feel and act guided by ideas, meanings and beliefs of a cultural nature, thus creating an Organizational Culture (Alvesson, 2012).
A common assumption found in culture research is that organizations are coherent and all the members share comparable unique values (Alvesson & Sveningsson, 2008). As Alvesson & Sveningsson continue to explain, this is a delicate assumption given that different groups within an organization usually express different values. Organizations present a complex differentiation of work tasks, divisions, departments and hierarchical levels that can be interpreted differently by members and thus, create differences in terms of meanings, values and symbols (Figure 6.) (Alvesson & Sveningsson, 2008).

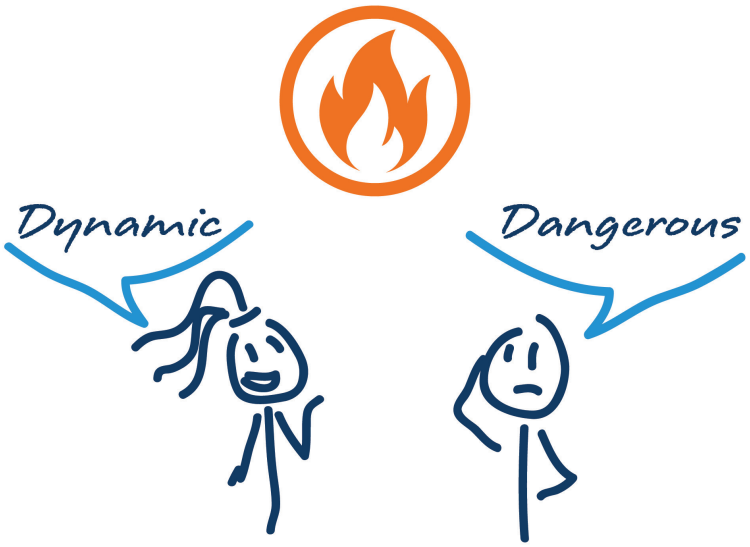


Figure 6. Different members of an organization can interpret things differently.

This means that even though one can recognize and describe a predominant culture within an organization, one should also keep in mind that there are always fluctuations, and individuals who behave distinctly and value aspects in a different manner than the majority of members. (Figure 7.)

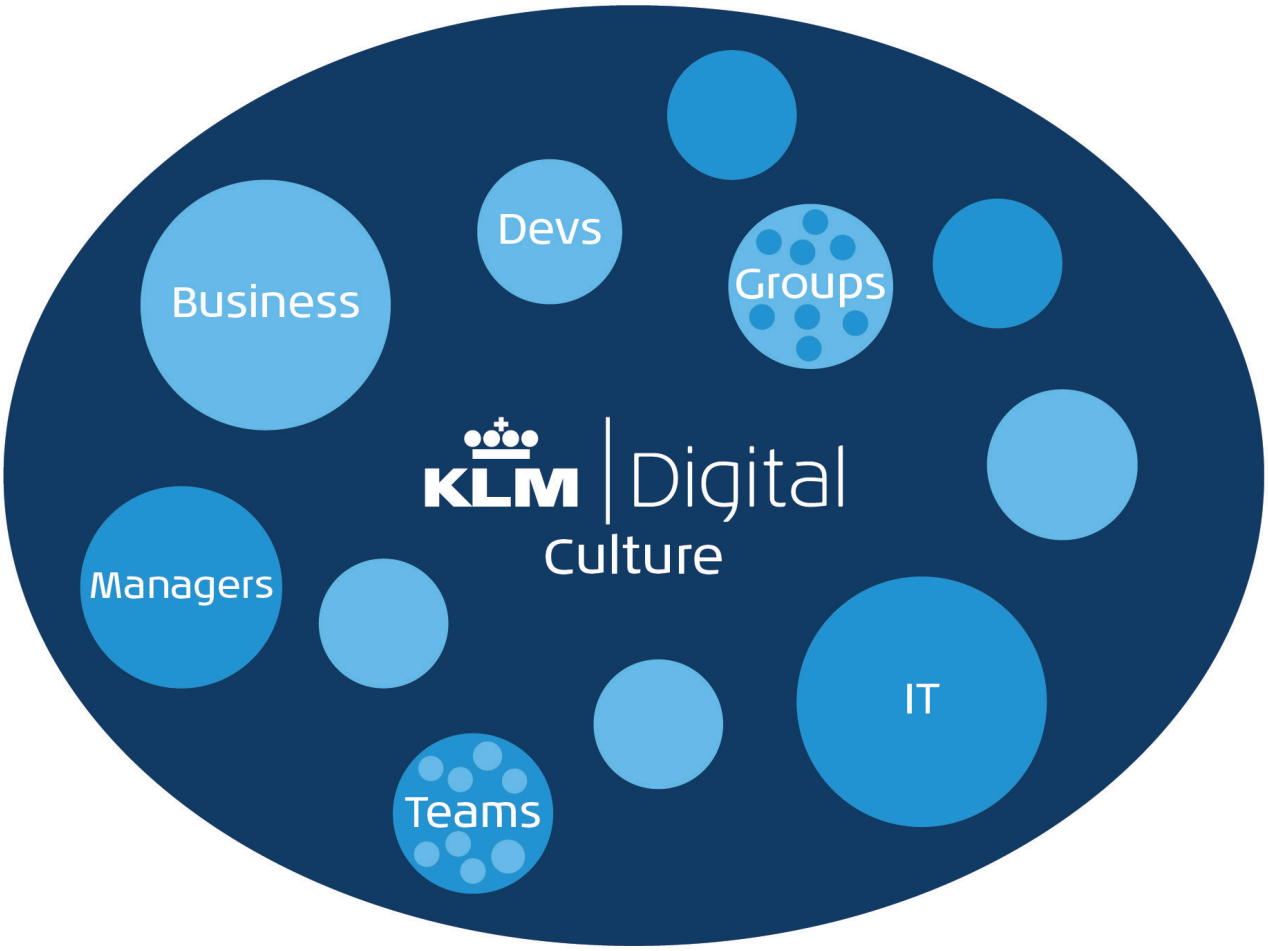


Figure 7. A shared,"main" Organizational Culture oftentimes contains many "secondary" cultures, reflecting the values of smaller groups of people.

However, there's agreement on the fact that Organizational Culture exists and helps shape behavior and performance within the organization, and therefore it has been suggested that it plays a significant role in the success of the organization (Idowu, 2017).
Senior members and managers in an organization are always, in various ways, "managing culture", given that they dictate what the organization should focus on at any time, and therefore framing how the members should work and behave (Alvesson, 2012).

The following figure shows a representation of how the construction of an organization gives origin to its culture (Johnson, 1992).

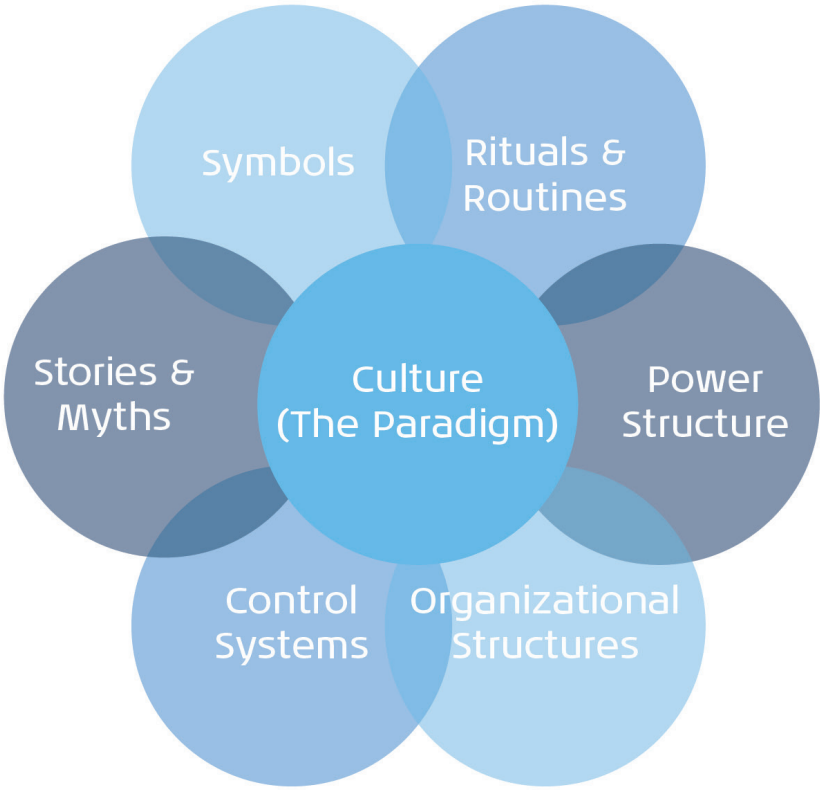


Figure 8. The different construction elements that give origin to an organization's culture.

Johnson (1992) proposed the construction elements as:

- Rituals and routines: the activities that form the organization's workflow; "the way things are done here (speaking from an organization)".
- Symbols: language and expressions commonly used that become a representation of the nature of the organization.
- Power structure: what individuals or groups hold the power to set guidelines and goals.
- Organizational structures: how operations and tasks are spread; how decision-making is distributed within the organization.
- Control systems: systems and rewards that set the relevant focus areas for the activities and the members.
- Stories and myths: how the present situation compares against the organization's history; individuals who for whatever reason stand out from the rest of the members and have become examples of the organization's culture.

Organizational Identity

One additional element to consider, given that it's closely related to Organizational Culture, is Organizational Identity: an organization that is distinct in regards to material practices (production and localization), symbolic expressions (slogans, logos, for example) and values, provides a social identity for its members, and allows them to feel as a part of its success (Alvesson & Sveningsson, 2008; Idowu, 2017). As long as the organization is seen in a positive light, the identity represents a shared "we" for the members, who experience closeness and unity. When the organizational identity is not clear and less noticeable, people tend to look elsewhere for sources of identity, like a department, project, specific tasks or their own hierarchical spot, rather than the broader organization (Alvesson & Sveningsson, 2008).

Figure 9. KLM as a whole has distinct identity elements that are used for specific purposes and following set guidelines (Left), KLM Digital, on the other hand, has none (Right).

Therefore, Organizational Culture and Identity are closely related, with some researchers saying that Identity is a consequence of Culture (Figure 10.) (Alvesson, 2012; Idowu, 2017). Culture relates to an implicit context, while Identity derives from it and is more language oriented, explicit and directly targeted (Hatch and Schultz 2002; Idowu 2017).

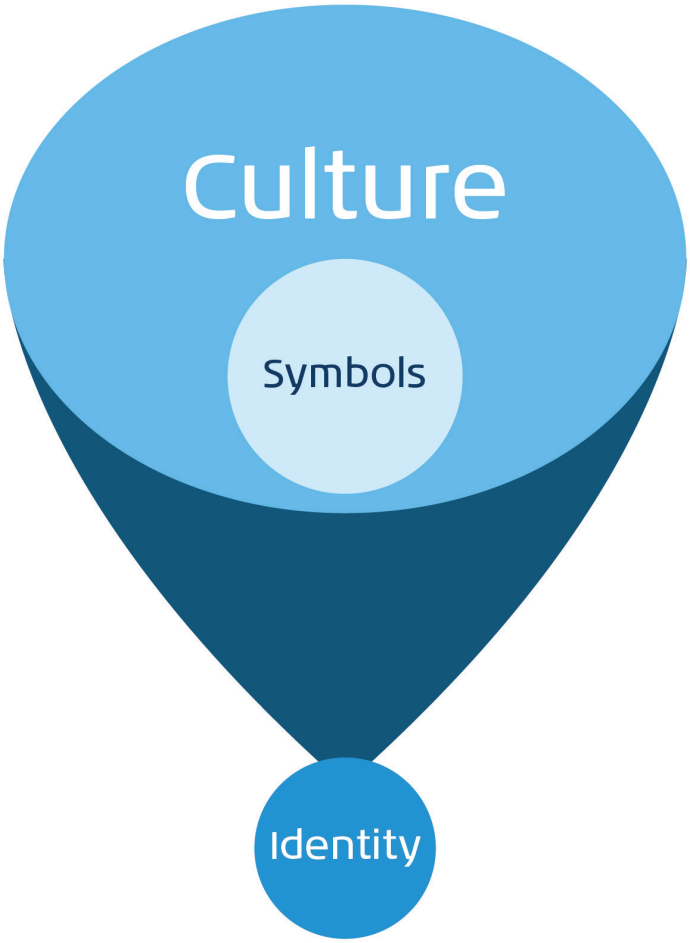


Figure 10. Identity comes as a consequence of the organization's culture and its symbols.

Changing Organizational Culture

Organizational Culture can undergo changes due to both external and internal factors, or a combination of the two (Alvesson & Sveningsson, 2008).
The external factors include: political, technological, cultural, demographic and economic factors (Figure 11.) (Child, 2005). Political actions like regulations or legislation can impact a company's efforts on becoming more global, for example, and therefore affect behaviors and values. Technological developments can alter workflows, with effects such as facilitating collaboration, or breaking up access to information. It can even change the workplace, with things like working from home becoming more common. Cultural norms dictate what is morally appropriate and popular at the time, with companies following current trends and changing accordingly. Demographics shape the composition of the work teams, and therefore their behavior; with a company being able to draw talent from different pools depending on its location and size. Demographics also refers to the competence of the workers. Economic factors dictate how the international economy grows or stagnates. Changes in the economy impact the size of the revenue and number of potential customers (Alvesson & Sveningsson, 2008; Child, 2005).

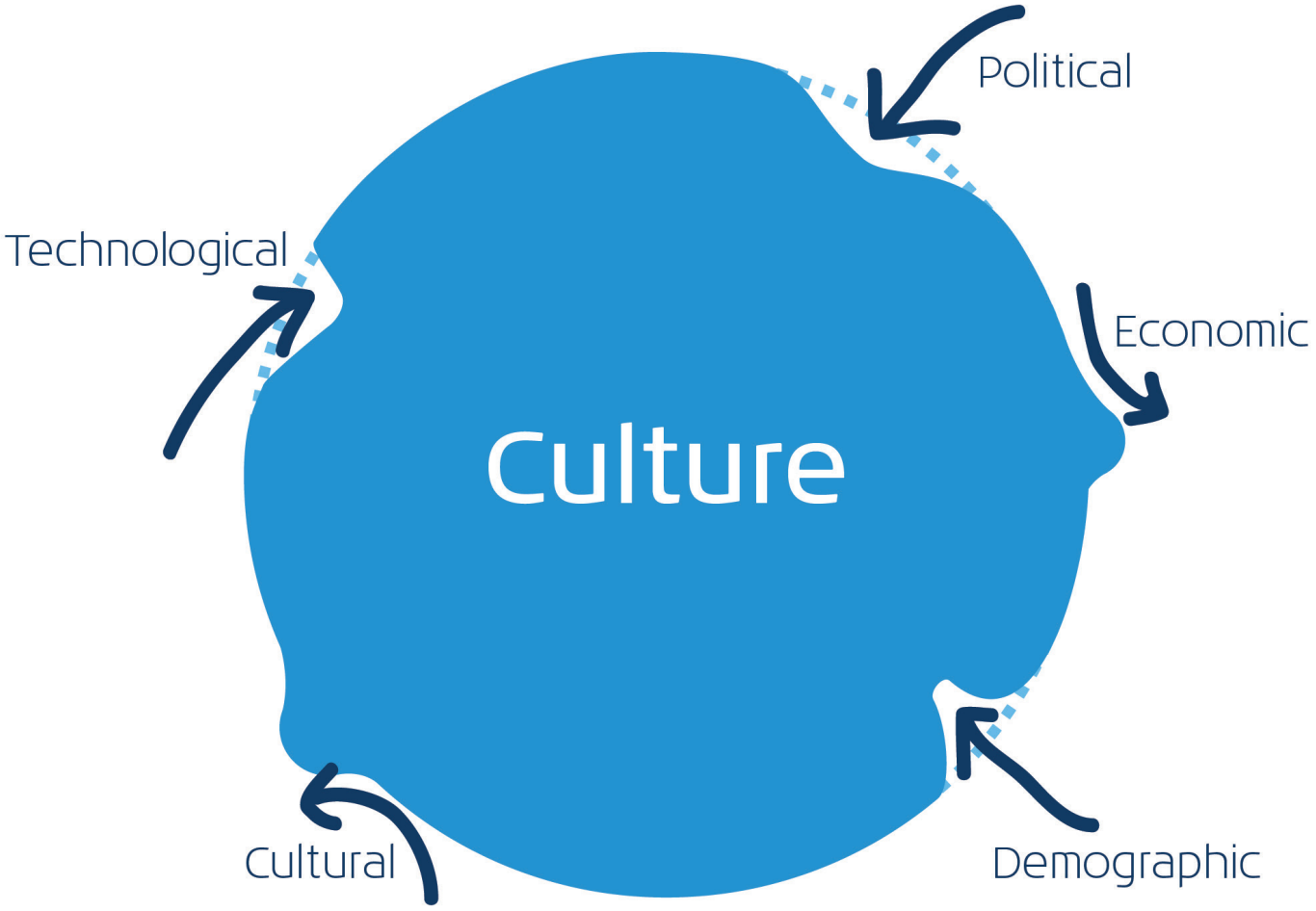


Figure 11. The external factors that can manifest at any time and alter the "shape" of a culture.

On the other end, internal factors that can lead to a change in the Organizational Culture include new products and services that affect priorities and tasks, new individuals in key positions, individuals changing interests or ambitions, and pressure to modify the organization's structures (Alvesson & Sveningsson, 2008). This means that oftentimes the internal driver for change is an individual, or small group, that pushes their own agendas and priorities, based on what they perceive to be urgent and valuable (Figure 12.) (Alvesson, 2012; Alvesson & Sveningsson, 2008).

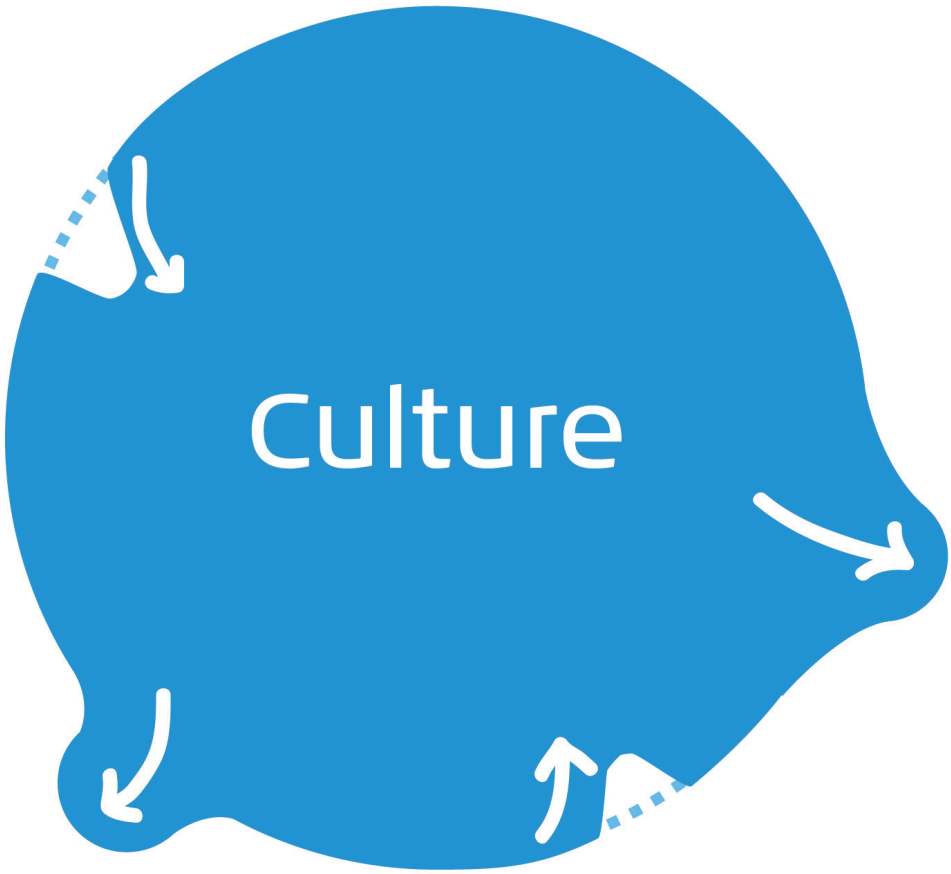


Figure 12. Likewise, some internal factors can have a sizable impact on the culture, effectively changing it. This includes individuals whose personal drive and / or position in the organization lets them change priorities and values.

However, it can be difficult to distinguish between external and internal factors for change. Both tend to blend and coincide on topics to be modified, and thus guide the orientation of the change (Alvesson & Sveningsson, 2008; Idowu 2017).
Organizational Culture change can be either planned or unplanned (Alvesson & Sveningsson, 2008), however, for this project I focused on the planned methodologies to achieve such change, particularly on a model proposed by Kotter (1996). This is because the model summarizes the process for change in 8 distinct steps that are easy to understand and communicate, and thus informed my on-site research and subsequent proposal. The steps helped shape my recommendations and designs, given that they give an overview of the actions needed for organizational change:

Step	Goal	Actions
1	Establish a sense of urgency	Examine organization realities, identifying current and potential crises, point out major opportunities.
2	Create a guiding coalition	Organize a group of people with the power to lead the change, getting that group to work as a team.
3	Develop a vision and strategy	Create a vision that guides the effort, develop strategies to achieve that vision.
4	Communicate the change vision	Use any available channel to communicate the new vision to the rest of the organization; use the guiding coalition as examples of what is desired.
5	Empowering broad-based action	Eliminate obstacles; change structures that are undermining the change effort; encourage risk-taking, new activities and actions.
6	Generating short-term wins	Plan and create visible improvements; recognize and reward the people that make those improvements possible.
7	Consolidating gains and producing more change	Use the gathered credibility to change all systems and structures that don't fit the vision; empower the people that can implement the vision; reinvigorate the change effort with new projects and activities.
8	Anchoring new approaches in the culture	Create better performance through customer-oriented behavior and better leadership; ensure the succession of leadership.

The model helped me to maintain consistency in my ideas and proposal. I knew from the beginning that I would not be able to complete all 8 steps, given the short timeframe and the complexities of gathering specific individuals at the same time and place, among other reasons. But I tried to cover as many as possible, at least with recommendations on how to tackle them. The model also helped in defining future tasks and requirements that would be needed in order to continue the change effort after this particular project ended.
For this project, of course, I aimed to develop my proposal around the value of Design and design thinking for cultural change. As per the research questions, I looked to ideate on how design processes and activities could help achieve cultural change and an ambidextrous organization. Given that these topics are fairly new, research and is still needed to draw definitive conclusions in regards to the involvement of Design (Elsbach & Stigliani, 2018; Stoimenova & de Lille, 2017; Norman & Stappers, 2015). Regarding Organizational Culture, for example, Elsbach & Stigliani (2018) state that research so far has focused on how organizations can make use of design tools and activities for their work; with more work needed to explore the benefits of embedding design as a key component of an organization's culture.

Changing Organizational Culture through Design

With this in mind, a tool was developed at TU Delft by Davidse (2019) called "the revolution checklist". This list, as the one proposed by Kotter (1996), gives clear goals and key activities to achieve them. However, the checklist was developed by a designer, and thus it provides design-led actions.

Goal	Actions
Be broad about the change effort	Involve informal and formal groups within the organization to get people to invest (time, effort, resources) in the activities. Form a guiding coalition: a group of well-informed, energetic and committed individuals responsible and accountable for the change effort. They are a select few that can connect with a diverse many.
Approach from all angles	Engage people by targeting both the mind and the heart. This means providing everyone with meaning and purpose for, and within, the change effort. Relate the change with the history of the organization and the stories of its members.
Talk about the future	Create a shared strategic vision. Engage the members to develop said vision. Constantly communicate about the progress and goals of the change effort.
Change by changing	Those involved in the effort, be it anyone in management, the guiding coalition or any other volunteer, should act according to the new thinking. These people should be examples of the desired change, and should convey to others that the effort includes all levels of the organization equally.
Take one step at a time	The change effort needs to be iterated to refine the initiatives. Learn from mistakes made and build upon them for the next iteration, and celebrate all wins and the people that made them possible. Keep the members informed on these developments.
Strengthen through technology	Use technologies to build communities and contact the users. Develop tools that facilitate the other goals.

There are parallels between this checklist and Kotter's (1996) model, which is expected given that Davidse researched Kotter's work for his project, and then created the checklist with Design as a centerpiece. I then used both as tools during my project, as guides for my proposal and recommendations. I did not follow them thoroughly, because of the time constraints and the complexities of the company, but I did go back to them from time to time to make sure my design fitted KLM Digital and their needs and their wishes.

Conclusion

To conclude, Organizational Culture is a very complex topic, with no consensus on exactly what it is. However, it is recognized as a key driver for an organization's success and performance. Organizational Culture describes the qualitative characteristics that individuals from an organization share and act upon. These characteristics include values, beliefs and history, and they exist in conjunction with more tangible and concrete elements, such as symbols, stories, rituals and hierarchy. To achieve change, one is more likely to succeed if the effort covers multiple of these characteristics.
Authors have noted that changing an organization's culture is a long and very difficult task, but it is possible to do so if there's enough force behind the effort. So to help guide the change efforts, some models have been developed, offering an overview of activities needed to achieve change. I concentrated on a couple of models for my proposal, one developed by Kotter (1996) and the other, with Design as a key component, by Davidse (2019) at TU Delft. The models have key similarities between them, including ones that helped me shape my design: create a guiding team that pushes the initiatives for change, involve all levels of the organization, gain executive support, take small incremental steps and iterate on them, constantly communicate on the efforts, learn from the failures and celebrate the wins.

HOW TO ACHIEVE AMBIDEXTERITY?

Organizational Ambidexterity

To compete in the present business arena, companies need to develop innovative products and services, by continuously exploring new technologies and knowledge, while at the same time exploit their present skills and improve their current output (Oehmichen et al., 2016). Organizational ambidexterity then, is the capacity to pursue and accomplish both of these activities simultaneously. It allows organizations to pay attention to current challenges and at the same time prepare for future changes (Stoimenova & de Lille, 2017).

Therefore, organizational ambidexterity defines and considers two distinct types of activities:

- Exploration: focuses on developing products and services that open new opportunities for the organization. It aims to improve an organization's capability to adapt to the environment. In other words, it encompasses activities that pay attention to and work on The Tomorrow. It is shaped by the acts of searching, risk taking, experimenting and innovating. It fosters variation and flexibility (Piao, 2010).
- Exploitation: focuses on fine-tuning, updating and upscaling current products and services. It aims to improve an organization's ongoing offerings. This means it deals with The Today, looking to react on the short-term to changes in the market. It is shaped by efficiency-seeking behaviors (Oehmichen et al., 2016). It fosters efficiency and incremental innovation (Stoimenova, 2017).

James March is credited as being among the first to make a distinction between these activities (O'Reilly & Tushman, 2008), and he stated how the balance between Exploration and Exploitation is fundamental in the long-term survival and prosperity of a system (March, 1991).

Exploration	Exploitation
The Tomorrow	The Today
Search, take risks, experiment	Fine-tune, update, be efficient
Fosters variation and flexibility	Fosters efficiency and incremental innovation
Open new opportunities	Take advantage of existing products
Long-term minded, not certain	Short-term success, greater certainty
Linked to loose controls and structures, flexible processes, curiosity	Linked to tight controls, disciplined processes, efficiency

Figure 13. Comparison between Exploration and Exploitation. (Piao, 2010. Oehmichen et al., 2016. Stoimenova, 2017.)

Stoimenova, N., & de Lille, C. (2017) have compiled the conclusions of Chebbi et al. (2015) and O'Reilly & Tushman (2013) They defined three ways of arranging for Organisational Ambidexterity.
Firstly, Sequential, is a form of temporal separation. It happens when companies change from Exploitation to Exploration and the other way around by adapting their structures and processes. Processes and relationships that facilitate the transformation between Exploration and Exploitation is of vital importance with Sequential Ambidexterity (Wang & Rafiq, 2012).
Second, Simultaneous or Structural Ambidexterity. It is carried out by spatial separation or parallel structures. It involves independent units, one for Exploration and one for Exploitation. The units operate their own team members and have unique structures and processes (Duncan, 1976). Additional parallel structures can be put in place to carry out specific tasks (Raisch, 2008). For this kind of Organizatinal Ambidexterity, there's a need to integrate members and share knowledge and resources (Stoimenova, & de Lille, 2017) It also requires a shared strategy and dedicated leadership to make sure the units pursue the same goals (O'Reilly & Tushman, 2013).
Lastly, Contextual Ambidexterity (Gibson & Birkinshaw, 2004) relies on an individual level. In this case, the organization sets up processes and systems that enable each member to judge how to divide their time between Exploration and Exploitation. Therefore, the emphasis in this case is on the individuals, rather than teams or units.

Although people at KLM Digital were not familiar with the Organizational Ambidexterity theory, some of them recognized that there was a lack of innovation and that they were too focused on The Today (Figure 14.). That's the reason why the initial challenge for this project revolved around the industrialization of innovation topic. Over the duration of the project, Organizational Ambidexterity theory served as one of the main topics to be covered by the final proposal. This is because it partly covers the original concern, plus gives a framework for the processes that could help foster an innovation culture.

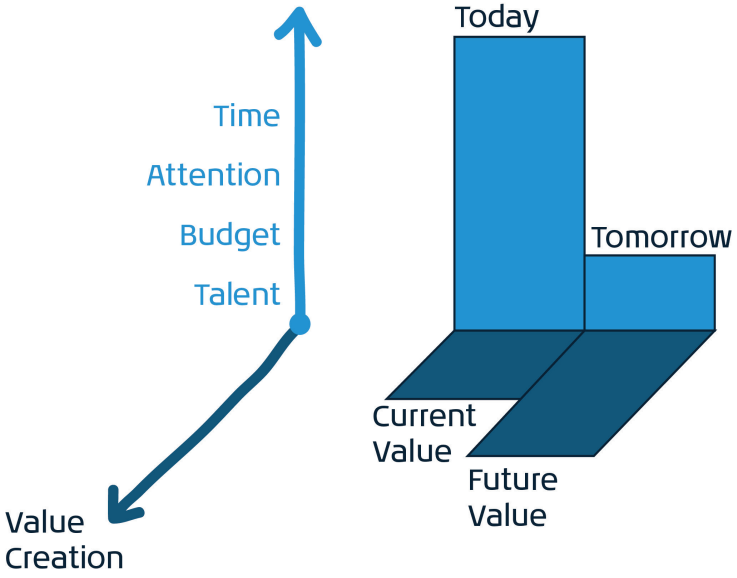


Figure 14. The difference on how organizations put more resources into the Today compared to the Tomorrow, even though the latter can bring more value.

Design-led Organizational Ambidexterity

Due to the inherent differences between Exploitation and Exploration, such as the scope and timeframe, it's been thoroughly discussed how to better shape organizations in order to achieve ambidexterity (Blindenbach-Driessen & van den Ende, 2014). It has been concluded that a balance between the two is a primary factor in organization survival and growth (March, 1991). Given that successful implementation of ambidexterity organizations continues to be problematic (Oehmichen et al., 2016), research has begun on how Design and its methodologies can help achieve ambidexterity. One of such research projects is from TU Delft, where Niya Stoimenova and Christine de Lille have developed a framework for big companies that are transitioning towards ambidexterity.
The logic behind this is quite simple: Design is a perfect fit for this issue because designers are used to deal with uncertainty and wicked problems, in addition to bring user-centeredness. Plus, the trend of companies resorting to design approaches for their development process is growing, which strengthens the argument of letting designers guide exploration and exploitation activities (Stoimenova & de Lille, 2017).

The Lighthouse Model

The framework developed at TU Delft is called Lighthouse Model (Figure 15.). It served as a reference for this project, because it deals with some similar challenges as those found at KLM Digital. Furthermore, it brings design thinking and design activities to the front, and aims at achieving ambidexterity thanks to that, which was part of the objective for this project. So, the model served as a starting point for my proposal, and gave valuable foundations to my ideas.

The model itself consists of five elements:

- Exploitation wheel: comprises the Today's regular activities. Support and further development of existing products and services.
- Exploration wheel: contains the experimentation and creative activities for *Tomorrow*. Development of future opportunities and long-term projects.

Given that these wheels turn in different directions, due to their differences and purpose, a third element is introduced, so that it can make them rotate in the same direction. Otherwise, the results of each wheel risk being countered by the structures of the other:

- Catalyst: ensures an organized rotation and facilitates the collaboration between wheels.

Two other elements complete the model:

- Executive support: helps set desirable outcomes. Commits to keep the different activities going and the wheels working.
- Users: both employees and customers. Serve as the initiator for exploration, and give the projects focus.

In Stoimenova & de Lille (2017), the authors say the model still needs development, and conclude that further research on design-led ambidexterity can produce valuable insights. I kept that in mind when I designed an adaption for KLM Digital. The results on that can be read in detail in the Proposal chapter, but broadly speaking, gathering insights from people at KLM Digital and aligning the elements of the model helped me design in a way that better suited the organization, giving special attention on the role Design and Designers can have in keeping exploration and exploitation activities balanced.

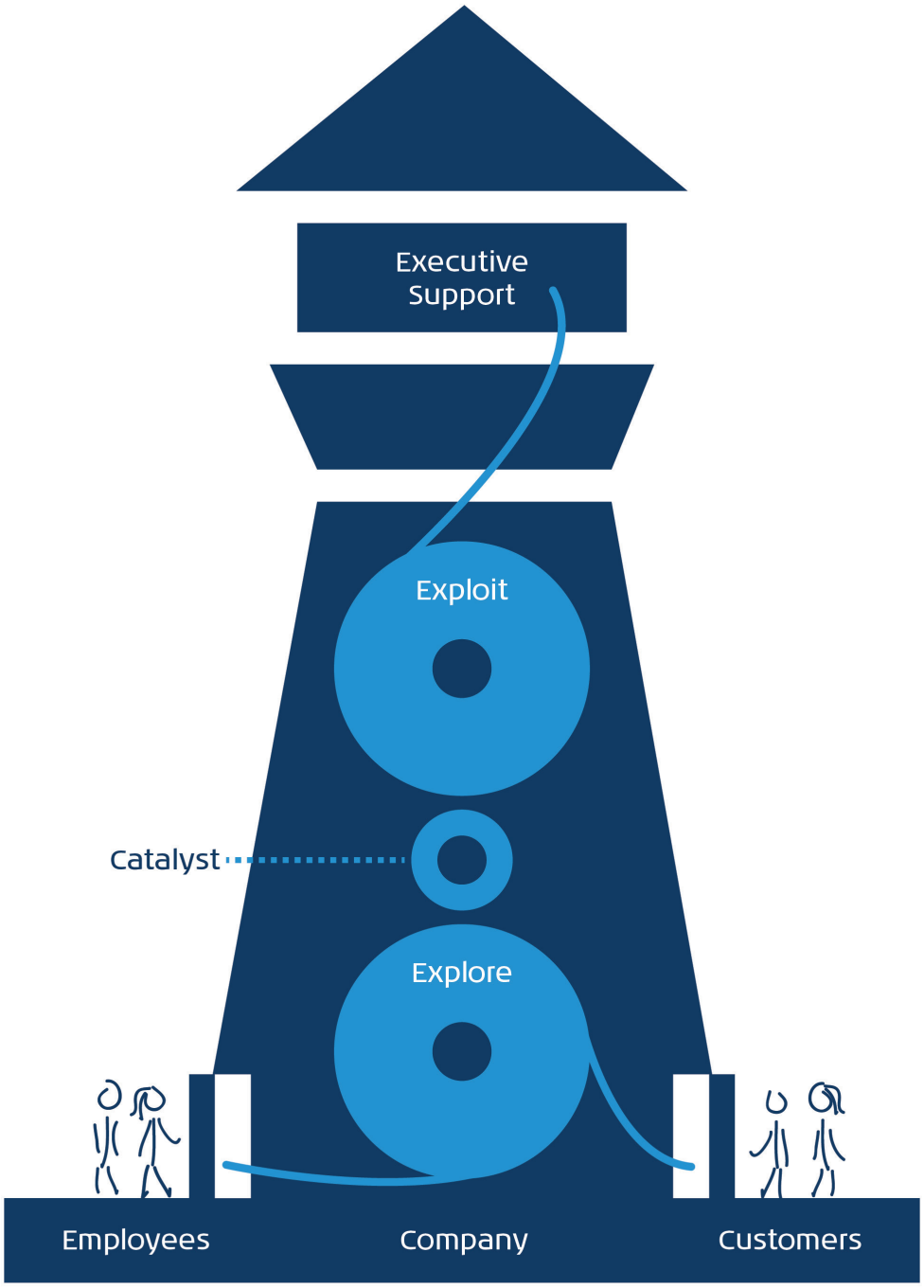


Figure 15. Design-Led ambidexterity: Lighthouse Model by Stoimenova & de Lille, 2017.

CHAPTER CONCLUSIONS

The academic research laid down a foundation of concepts and actions that would inform the posterior research and eventually the Design Proposal.
The models that explain how Organizational Culture can be changed were especially useful, since the project revolved around the idea, and need, to change the current Organizational Culture of KLM Digital. Those models offered clear actions to take to start a change effort. However, I needed to experiment with those actions in order to fit them to the context of KLM Digital. Additionally, I had to research with the team members about the practicality of those actions and how they could be adapted to their context.
Moreover, there was a difference on the timeframes for some of the concepts and actions. In other words, some elements corresponded more to a long-term vision, such as Organizational Ambidexterity, while other could be tested out in the short-term, like creating new visual identity.
Some things remained unanswered, such as the role Designers can have during a change effort, whether or not design methodologies and practices can add to the models of cultural change and if Organizational Identity can be created before having a Culture, as well as its importance to the change effort.

CHAPTER 3.

Tell me, baby, what's your story
Where you come from
And where you wanna go this time?

Tell Me Baby
by Red Hot Chili Peppers

ON-SITE RESEARCH

INTRODUCTION

Design approach

For this project I planned to follow the Double Diamond design process, as described by the Design Council (Figure 16.) (Design Council, 2005). The process involves iterative development that flows from diverging to converging activities, forming "Diamonds".
Due to the open nature of the project, with its broad definition and goal, I thought it would be very helpful to divide the project in such a structure, with time spent in digging in with the people involved to find out the different struggles and challenges, before narrowing them down and focus on a specific goal.
The first diamond aims to find the purpose (objective) of the design, while the second aims to develop, test and refine ideas.
The Discover phase would allow me to gain insights of the challenges through academic and on-site research. Then I would be able to Define my scope, thanks in part to the fact that I had gathered the different perspectives from Business and IT.
Once that was defined, the Develop phase could start, and it would involve co-creation sessions with individuals from both Business and IT. The sessions would enable me to develop a proposal that was valued by the people from Digital, and had their support. It was my intention then, that this approach allowed me to create a series of recommendations that were tailor made for the KLM Digital context.

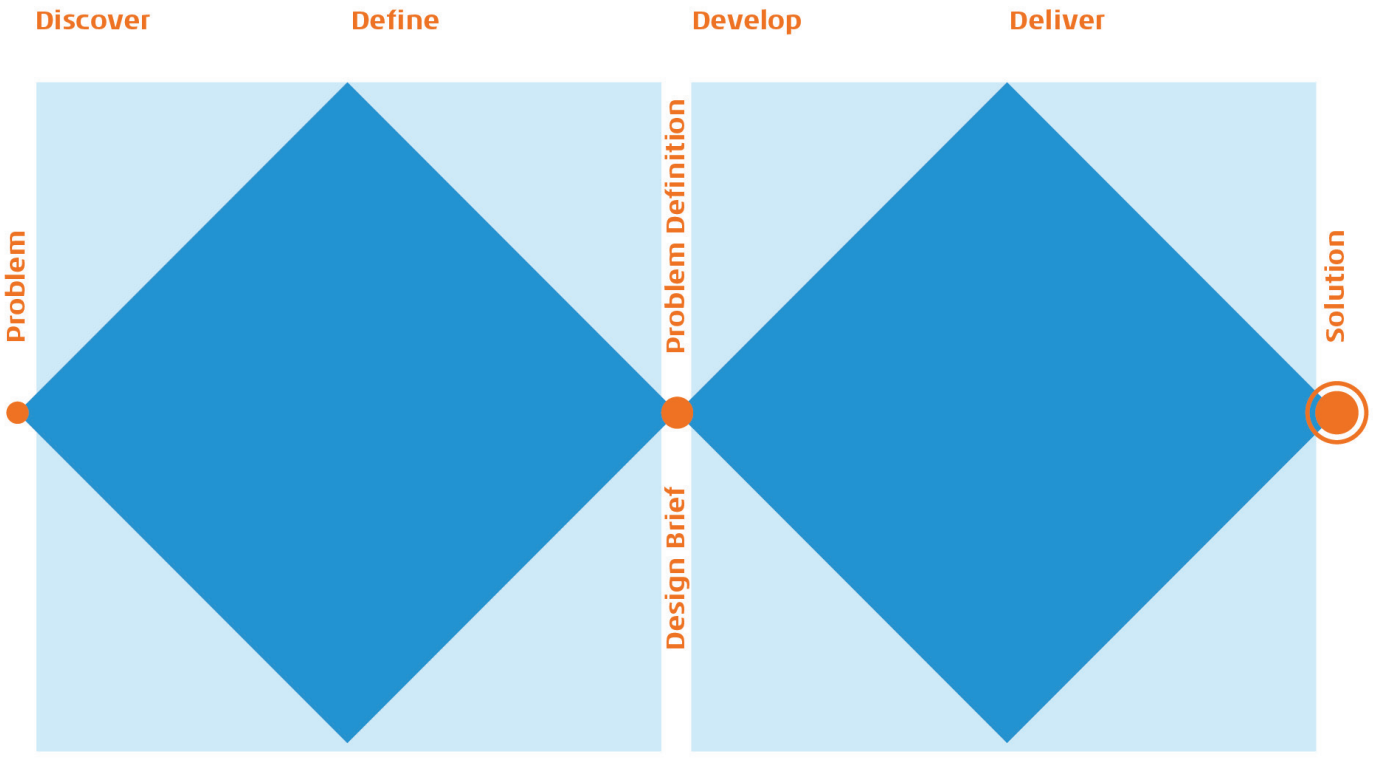


Figure 16. The Double Diamond design process, as described by Design Council, 2005.

However, in practice my process didn't look like the traditional double diamond shown in the figure. Instead, due to the complexity of the project, and the constant discovery of new factors, my process included instances where I learned something new that changed what I thought about the problem and the potential solution. So I had to go back a step and start again, and ideate once more. Then I would run a test or make a presentation to stakeholders that would again change the proposal and ideas. So in the end my process was rather messy, many times because the complexity of the company didn't allow for things to happen at the right time within the diamonds. Nonetheless, this new approach allowed me to deepen my exploration and react to the circumstances and new information more organically. In the end I still passed through the phases described by the Double Diamond, just not in a linear fashion (Figure .).

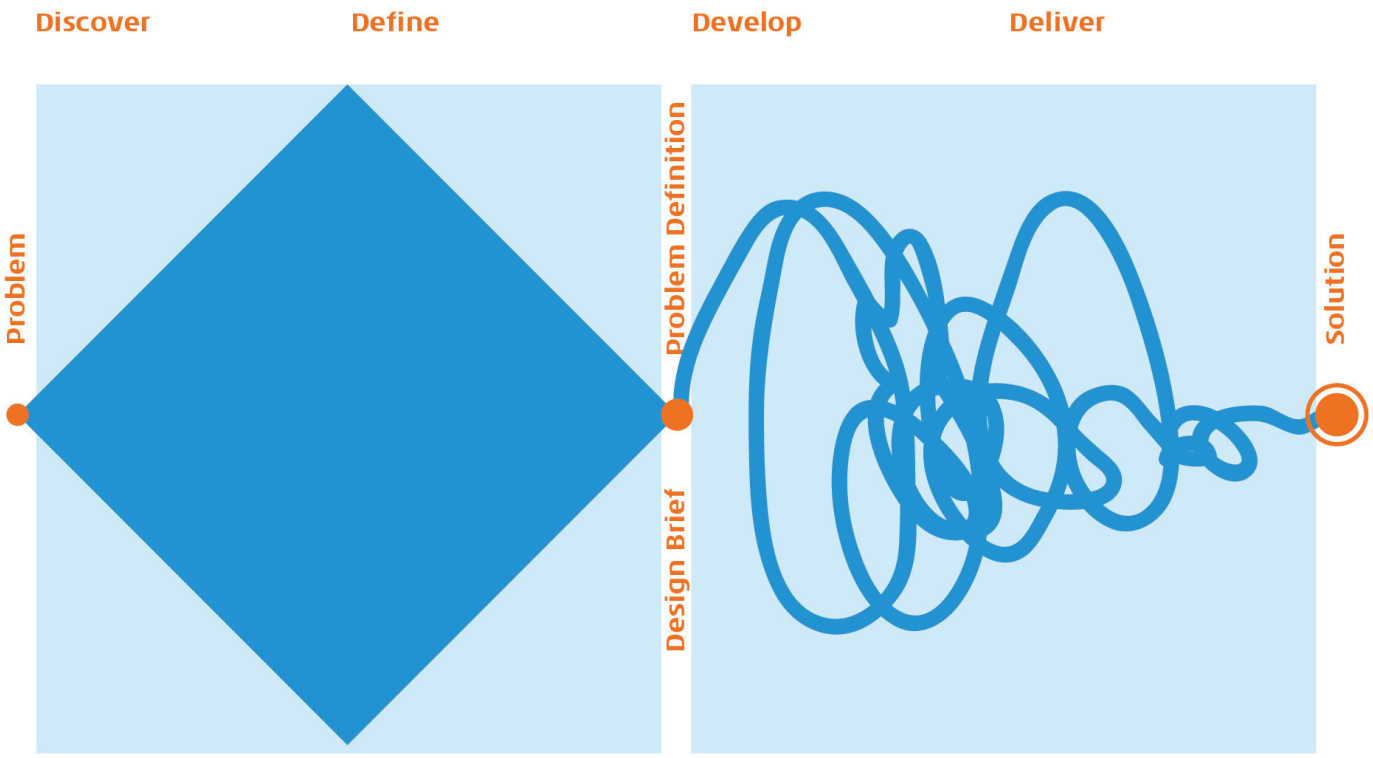


Figure . My design process adapted itself to better suit the complexity of the project.

Methodology

As the first step in the project, on-site research was carried out. The goal was to find out exactly what challenges were present in the current innovation process within Digital. Additionally, literature research helped contextualize findings and justify decisions and proposals.
As described before, the initial goal for the project was rather broad, so in order to get insights on the problem, and eventually narrow down the focus, I performed a total of 32 interviews with the people involved, including one interview with PhD candidate Niya Stoimenova, the researcher behind the Lighthouse Model. That particular interview was different in the sense that it was focused on discussing the model and the theory behind it, plus the complexities she's seen and experienced around Organizational Culture and Organization Design.
The rest of the people were from both IT and Business, and covered a range of positions from team members to managers and heads of divisions.
The breakdown of the interviewees, roughly organized (some levels are fuzzy to distinguish rank) in ascending order within the hierarchy, is:

8	Developers
1	Designer
2	Architects
5	Scrum Masters
3	Product Owners
4	Group Managers
1	Portfolio Lead
1	Release Train Engineer
1	Plane Manager
1	Head of Post-Sales
1	VP of Digital
1	Head of IT Development
1	Head of Digital (Business)
1	Head of Digital (IT)

Roughly half of the interviews were recorded, and all of them documented by taking notes on a notebook.
It was really important to understand the challenges these people face, and how they were perceived across the different levels in the organization. This is because, as stated before, it is the intention of this project to offer a proposal that benefits the different groups involved and covers relevant issues.
The interviews themselves were semi-structured, because even though they did not follow a rigid structure, they did touch on the same topics, which were relevant to the project's scope (Figure 17.). These included: their assessment on innovation at KLM Digital, their thoughts on current innovation activities (i.e. Innovation Sprint; to be better explained in a later section), challenges faced when innovating, their reflections on the current development process and workflows, and long-term goals for the division.

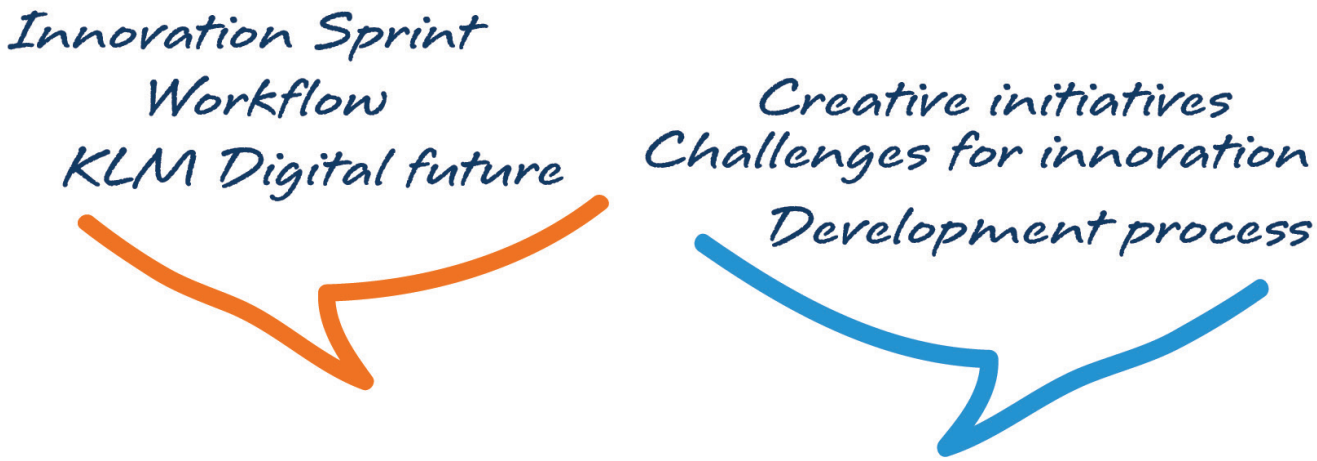


Figure 17. The different topics covered in the interviews. The topics covered relevant ground for the project, starting with a general understanding of the company and going to more specific issues.

These topics framed the discussions and facilitated the discovery of issues and challenges that could be tackled by this project.
Additionally, the interviews helped to understand the company's structure and organization, as well as the Agile framework they use to develop projects, the SAFe framework, which is explained in a later section.
As mentioned before, the diversity of the participants allowed to cover more ground on the research, and helped balancing the points of view and priorities of the individuals. For example, the interviews with managers dug deeper into high-level issues, such as vision, goals and assessment; whereas team members gave more insight into the day-to-day operations and challenges.
At the same time, observations were carried out by joining different teams for a day, and attending joint activities. This allowed me to see first-hand the different processes and workflows in action, and therefore make notes on the issues I could identify and how they related to what was said in the interviews.
The academic research meanwhile, offered an academic background on the topics, which helped to better understand the findings, identify attractive opportunities and reflect on previous work done by others.

Afterwards, the findings, which consisted of quotes, notes made during the interviews and observations, were grouped in categories, based on the topics they covered. This helped to summarize the information, draw conclusions and facilitate having to explain and present them to people.
In the end, 5 of these categories were created (Figure 18.), with Mindset and Culture being selected to be the focus of the project moving forward. This process is elaborated further in a later section.

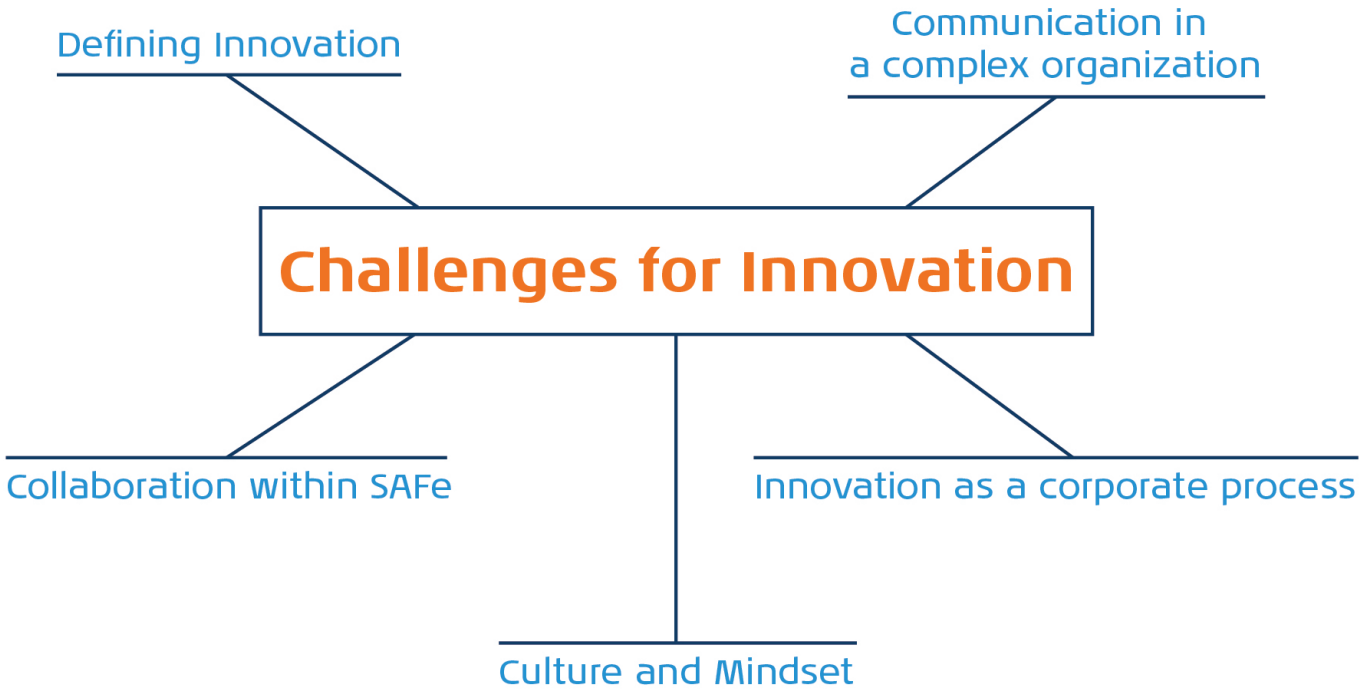


Figure 18. The different categories made with the results of the research.

From there, a new strategy was designed for KLM Digital, taking into account the insights gathered from the research, plus new discussions and creative sessions with members of Digital. The result is a proposal for KLM Digital's future and the steps towards reaching the goal of fostering a lasting innovation culture.

CURRENT ORGANIZATION AND PROCESS

Product development process at KLM Digital

KLM Digital teams currently work following the Scaled Agile Framework (SAFe), which aims to implement Agile methodologies in big organizations. KLM made the change from traditional waterfall processes some years ago, with the intention of accelerating the production across the company. In Digital's case, speeding up the implementation of new technologies and features within the various apps and digital solutions they produce.

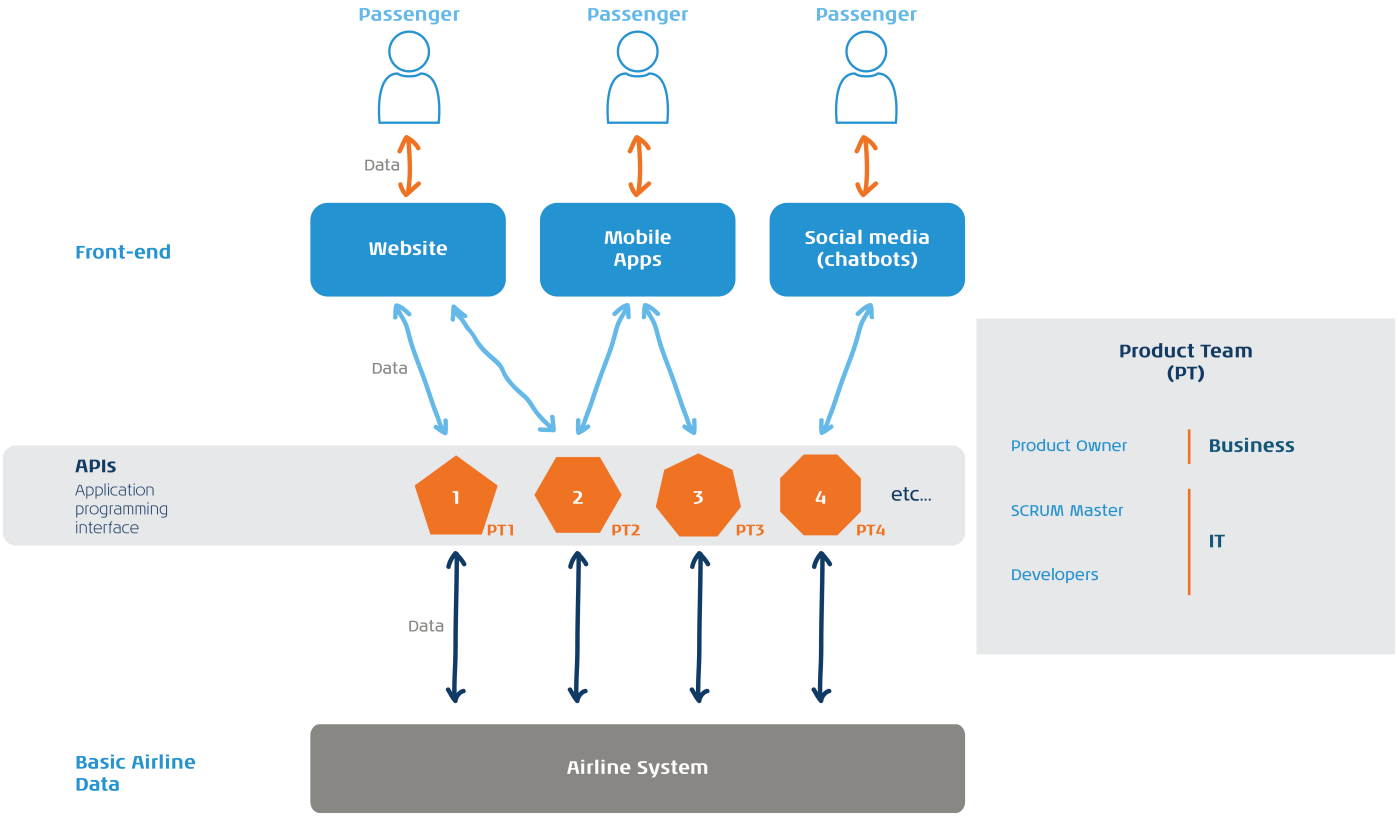


Figure 19. The general flow of Data during the process. Product Teams create APIs that are used by the different front-end applications such as websites, and ultimately reach Passengers.

Digital is divided in Divisions, and this project will work with the E-commerce division because the company supervisor belongs there. E-commerce is itself divided into Groups, each one focusing on one topic (Figure 20.). For example the group "Order & Offer" works on the systems used by the users when browsing, selecting and paying flight tickets; while the group "Mobile" uses those systems in the mobile apps that KLM offers.

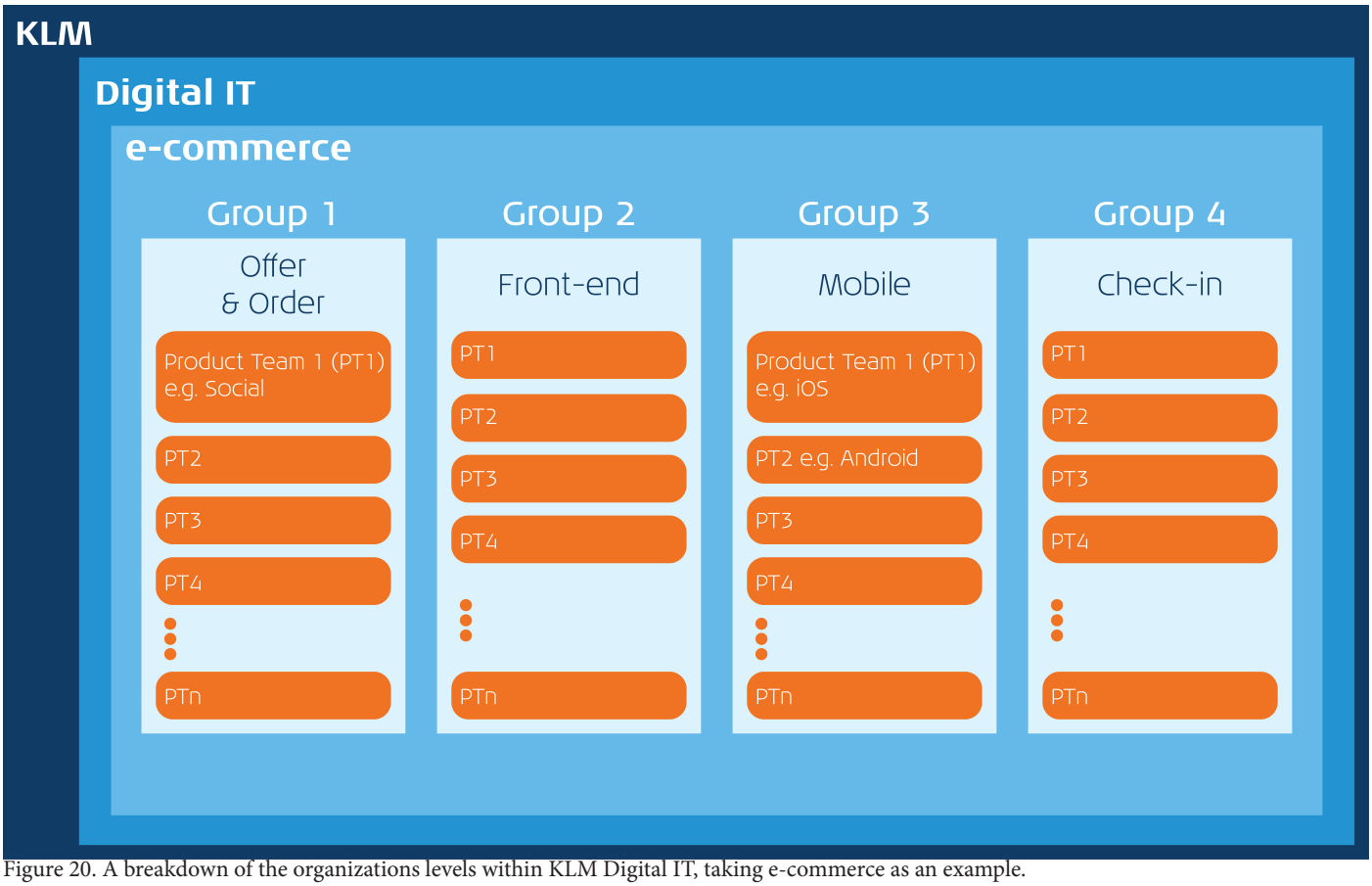


Figure 20. A breakdown of the organizations levels within KLM Digital IT, taking e-commerce as an example.

Each Group is comprised of different Product Teams, which in turn focus on specific parts or pieces of the topics. For example, "Order & Offer" has a "Social" Product Team that works on the social media channels, using technologies such as chatbots, while the "Android" Product Team at "Mobile" develops the KLM app for that specific operating system.

Another level of organization is called a "Plane" (changed by KLM from the original "Train" from the SAFe methodology, Figure 21.) which is a bigger team comprised of Product Teams from both Digital and Business. Those Teams can come from any of the Divisions and Groups. Each Plane has a purpose and sets up a number of goals and tasks to be worked on. For example, the "Preparation & Ancillaries" Plane works on the steps from the Customer Journey that come before booking a ticket, until the purchase of it plus any extra purchase the customer wants, such as extra leg room or a special meal.

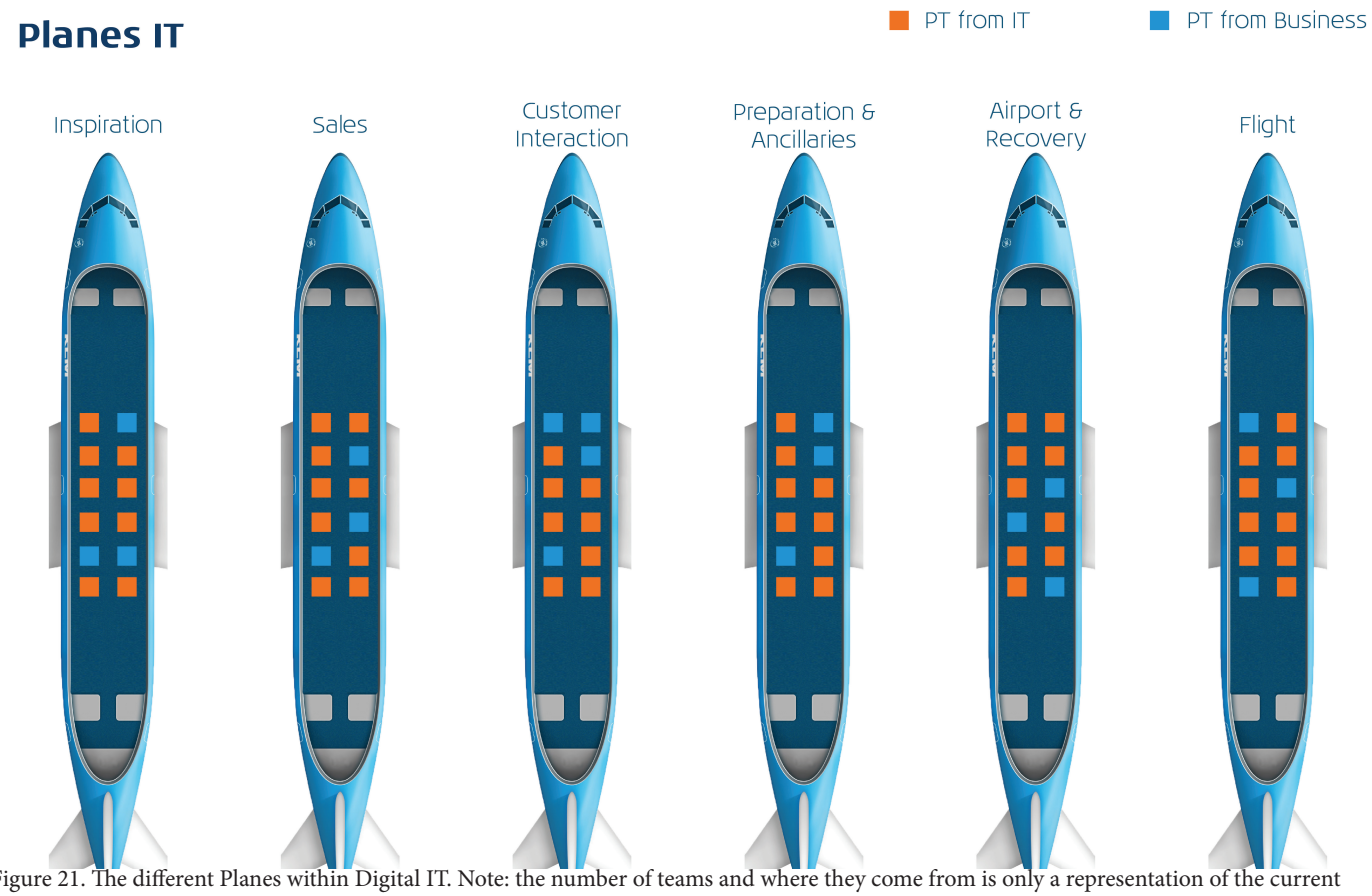


Figure 21. The different Planes within Digital IT. Note: the number of teams and where they come from is only a representation of the current situation.

The Planes organize themselves independently, prioritizing and assigning the tasks to be done among the Product Teams. The projects are worked on in 2-week-long periods called Sprints (Figure 22.). Each Sprint has a number of tasks to be done by each team member, depending on the planning. After 6 Sprints (3 months) the members of each Plane get together again to evaluate what was achieved, and together they set up the next 3-month period. That planning event is called Program Increment (PI) Planning. During the event, the team members from the Plane gather and discuss what features and projects need to be developed in the coming period. They discuss together the logistics of each item, going through duration, people responsible, priorities, etc. and then put the items on the final, agreed on, planning board.

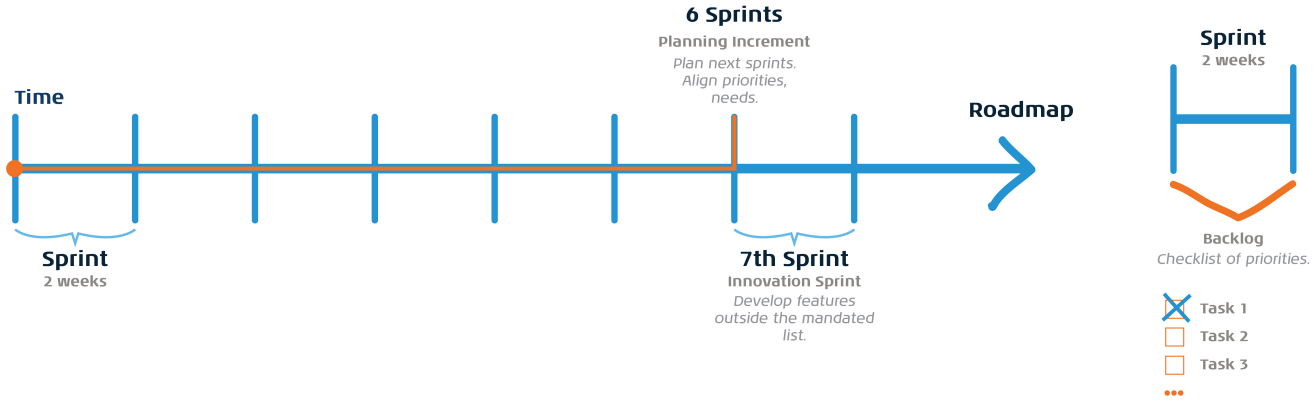


Figure 22. The setup for the Sprints, including the planning sessions called Planning Increment and the Innovation Sprint.

So, taking the example of the special meal, let's say it's a *vegan* option, from the Preparation & Ancillaries Plane, this is what would happen:
The idea comes most of the time from Business, who develops the concept and creates a business case from it, evaluating its value for the company. This process is explained more in-depth later on. They then assign it a priority level and start dividing tasks to make it a reality. This would include of course the production of food, storage and distribution among other things; but as stated before, this will only focus on the IT systems facing the consumer.
Later, the Business team explains the feature to the rest of the Plane and together they assign the different tasks to Product Teams, giving priority to them. It is then within each Product Team to assign the tasks to individuals and plan for them, agreeing on how long it will take to finish them (Figure 23.). Some tasks might require longer than a Sprint, for example. Given that some tasks require work from other teams, it's also important to discuss that in the planning phase.

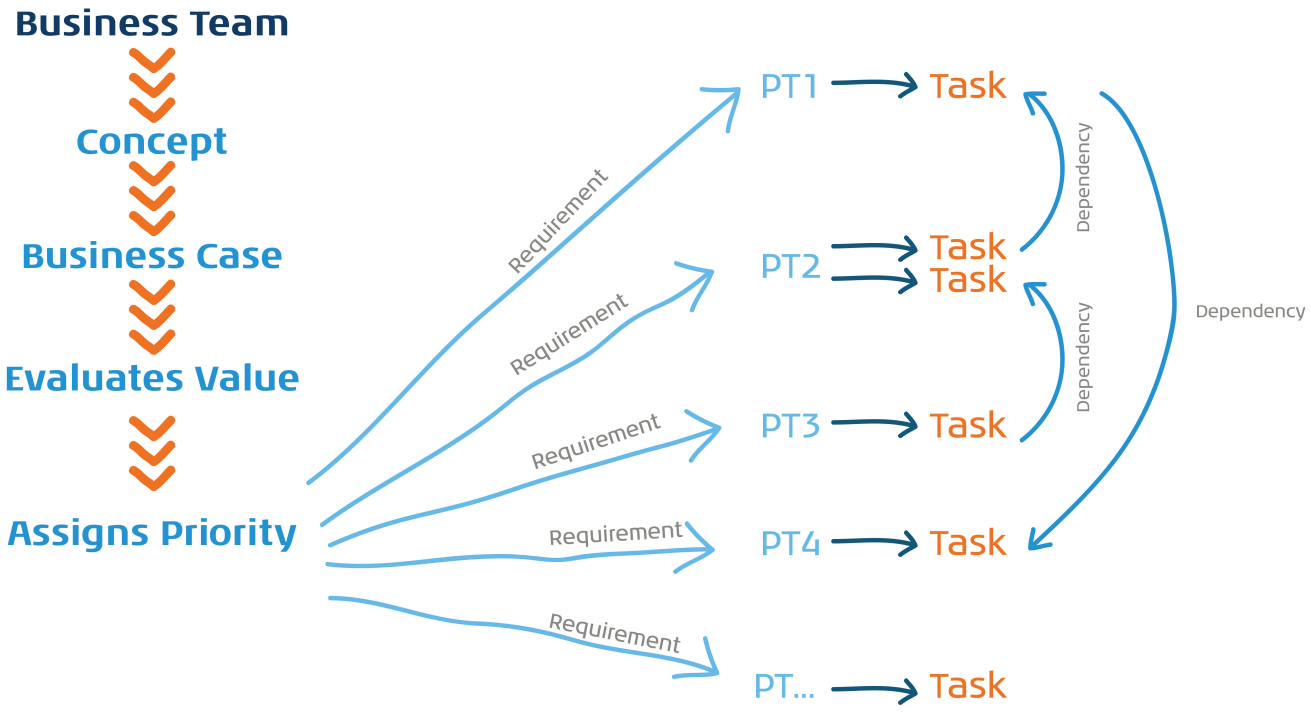


Figure 23. The flow of how projects get developed.

Therefore, for the vegan meal, a team from Order & Offer has to make it an option within KLM's systems, so that it becomes available to the customer. This would be a back-end solution that later on would be used by other teams, such as Mobile, who need it implemented so that they can make it appear on the different apps. At the same time, the payments need to be processed by a different team, and so is any change the customer decides to make after the purchase. That way, a feature can involve the work of different Product Teams from the Plane if it is complex, while simpler ones can be solved by a single one.
Each Team can work on a number of different features from the Plane at the same time, depending on the capacity of the team members, and the priorities assigned to each task.

KLM AND INNOVATION

The company sees Innovation as a main driver for its performance and sustainable growth. This can be seen, for example, in the Annual Report, where KLM summarizes its strategy and short-term initiatives into five pillars: Customer & Product, Network & Fleet, Operational Excellence, People & Organisation and Innovation.
In the 2018 Annual Report, for instance, highlights the different projects and experiments carried out by KLM's Digital Studio. Due to the attention it gets, that team is explored in a later section, given that it served as an example and guide for current efforts carried out in KLM. Additionally, it's worth mentioning that the different divisions within the company have innovation efforts. Each one carries out experiments and projects to help KLM "push the boundaries of what is possible" (KLM Annual Report, 2018). Furthermore, President & CEO Pieter Elbers writes in the 2018 Annual Report that "In 2019, we will continue to engage in sustainable innovation, continue to further digitise our products and processes for customers and employees[...]"(KLM Annual Report, 2018), pointing out just how important the work of KLM Digital is for the overall efforts and goals of the company, including innovation. From the interviews done, it was noted that the collaboration with TU Delft and other organizations play an important role in those efforts, as they're seen as an incubator for projects, and a valuable input of fresh ideas.
Internally, KLM refers to two types of innovations (Figure 24.):

- Step change: an incremental improvement of a current process
- Radical innovation: creates new opportunities to enable future growth

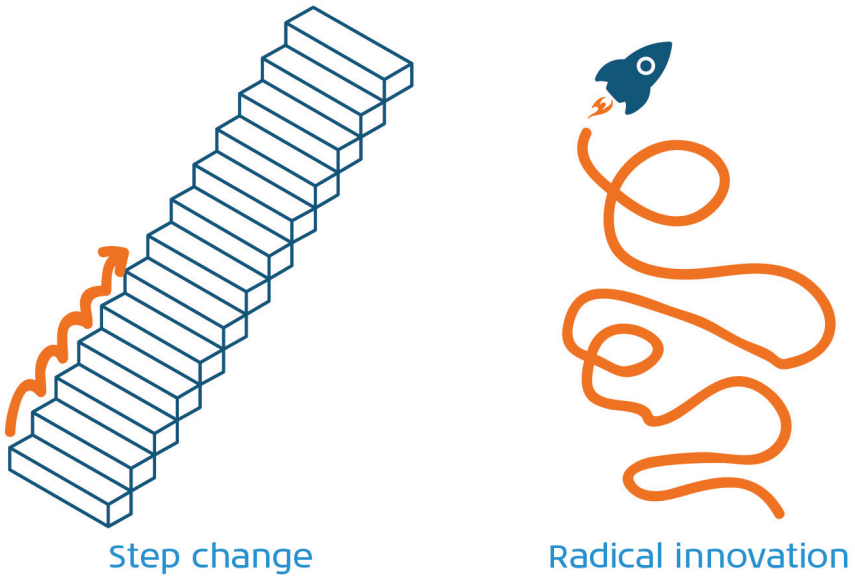


Figure 24. The different types of innovation KLM considers.

These categories can be organized within the theory of Organizational Ambidexterity, as explained previously. Step changes would be part of Exploitation, and Radical innovations come from Exploration.

BUSINESS + IT= THE DIGITAL FACTORY

As explained before, the development of KLM's consumer digital products is done within the Digital division. The sum of the Business and IT subdivisions create what is unofficially known as The Digital Factory (Figure 25.). That name is used by the people of Digital, and it presents the perfect metaphor for their operation. In the following sections, I'll go back to that comparison to a factory, or an assembly line, to explain more easily the processes.
This definition also relates to how people described many of the challenges they face and the pain points they experience daily. Team members, particularly in IT, often referred to the Factory as a negative thing, saying things like how they just do what they're told, as in a Factory; or how the Factory organization is uninspiring. As an example, one young Developer said "Right now it's all deliver, deliver, deliver. We're Code Monkeys". (Code Monkey is an insulting term for programmers that aren't involved in the concept development, and instead writes code following given specifications. [Wikipedia, 2019]). In addition to high-level managers expressing frustration about how innovation isn't happening at the desired pace, and suggesting it was because of the mentality of the team members, with one saying "it's like they're robots. They just put things together…"
The following information was collected through interviews, talks and observations with different people from KLM Digital, both from the Business and IT subdivisions.

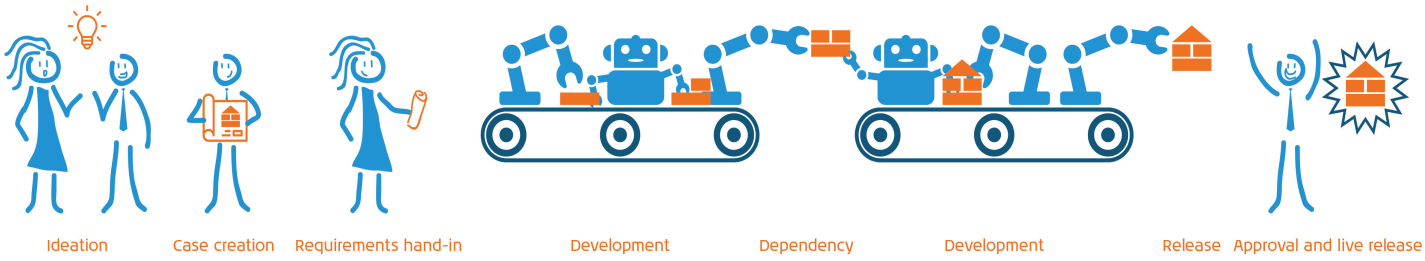


Figure 25. The phases a project goes through within The Digital Factory

Receiving requirements from Business

As explained before, IT is divided into Groups and then into Product Teams. When a PI event occurs, Business shares the different projects with the IT teams, and then it's up to them to organize their time and assign individuals to each task. It is also during the PI event that initial questions are solved, as well as making an initial assessment of how to best tackle the projects. The way that goes during the event is that they review the cases they got from Business, understanding the requirements for the feature to be developed. They then discuss as a team how they're going to proceed, while being open to suggestions and questions. The members share ideas on how to solve the tasks, as well as trying to identify likely issues and how to avoid them. This is also the time for determining the Dependencies between teams and groups.

Dependencies

A Dependency is when a team requires some work done by another team in order to advance in the development (Figure 26.). That way, the development of those features takes us to the assembly line: where the project can't be finished until all the pieces are produced -on time- and put into place. That way, each team or team member build upon the previous stop and delivers it to the next in line, until the project is done and can be put into the live versions of the apps.

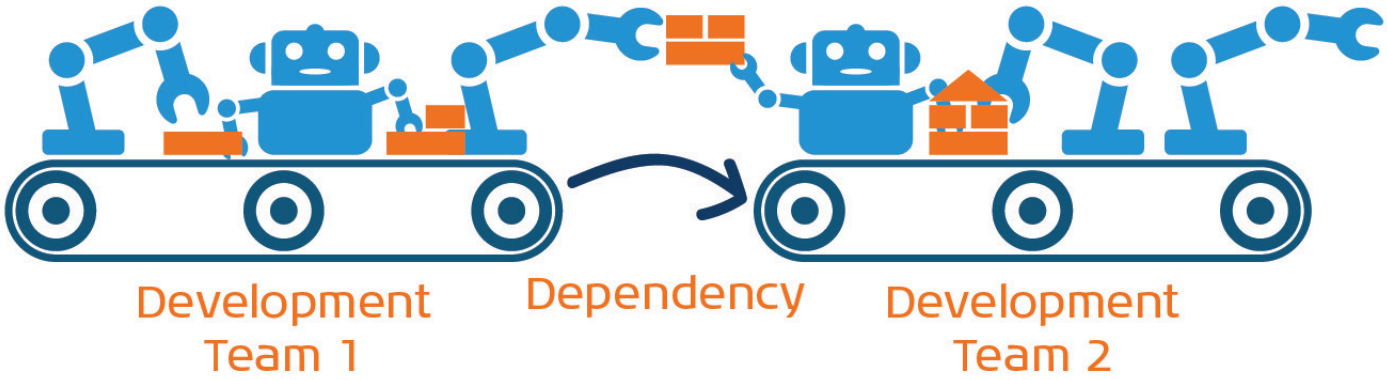


Figure 26. A dependency happens when a team requires a piece of the project from a different team

The factory floor

Once all that's agreed on, the tasks enter IT. Each developer takes control and responsibility of whatever tasks were assigned to them. They begin working on them with the business case and user stories as guides, making sure they're actually solving the problem stated in them. Then each team member starts developing the feature, writing the necessary code. If there is any Dependency involved, then the developer needs to keep track of it, asking for support to the Product Owners and Scrum Masters. During the development process, each team member has to update the rest of the team on the progress. This is done in a couple of ways, which are explained in the following section.

Updating team members

The first one can be a daily meeting, called a Stand Up, where the team members discuss what they did the day before and explain what they're going to work on the present day. If there are any simple doubts, they can be solved then, but because the Stand Ups are supposed to be short, any deeper discussion is arranged for a separate meeting.
The second way of updating the teams is using the Jira and Confluence web applications (Figure 27.). Jira is a tool to manage agile teams, where they have boards that display the to-do tasks for each sprint and the developers responsible for each, while Confluence serves as a shared workplace, where groups and teams share information about themselves and also short summaries of past and present projects. These apps aim to help inform about the work being done, the general progress during sprints and share information among teams and groups.
The team members are responsible for updating their status, and write the summaries after a project is finished. Because of this, the quality and usefulness of the summaries varies from one to the other. Plus, not every project gets a report, instead the team members decide which ones deserve one based on whether they found the projects interesting or not. Furthermore, team members do not get full access to the information, meaning that some pages are locked behind passwords or are available to only specific people.

A third update option consists of all the informal meetings and talks that happen among the team members. It's very common to see the members discussing informally what they're currently working on, and it was mentioned in interviews that this is also the preferred way of sharing across teams and groups.

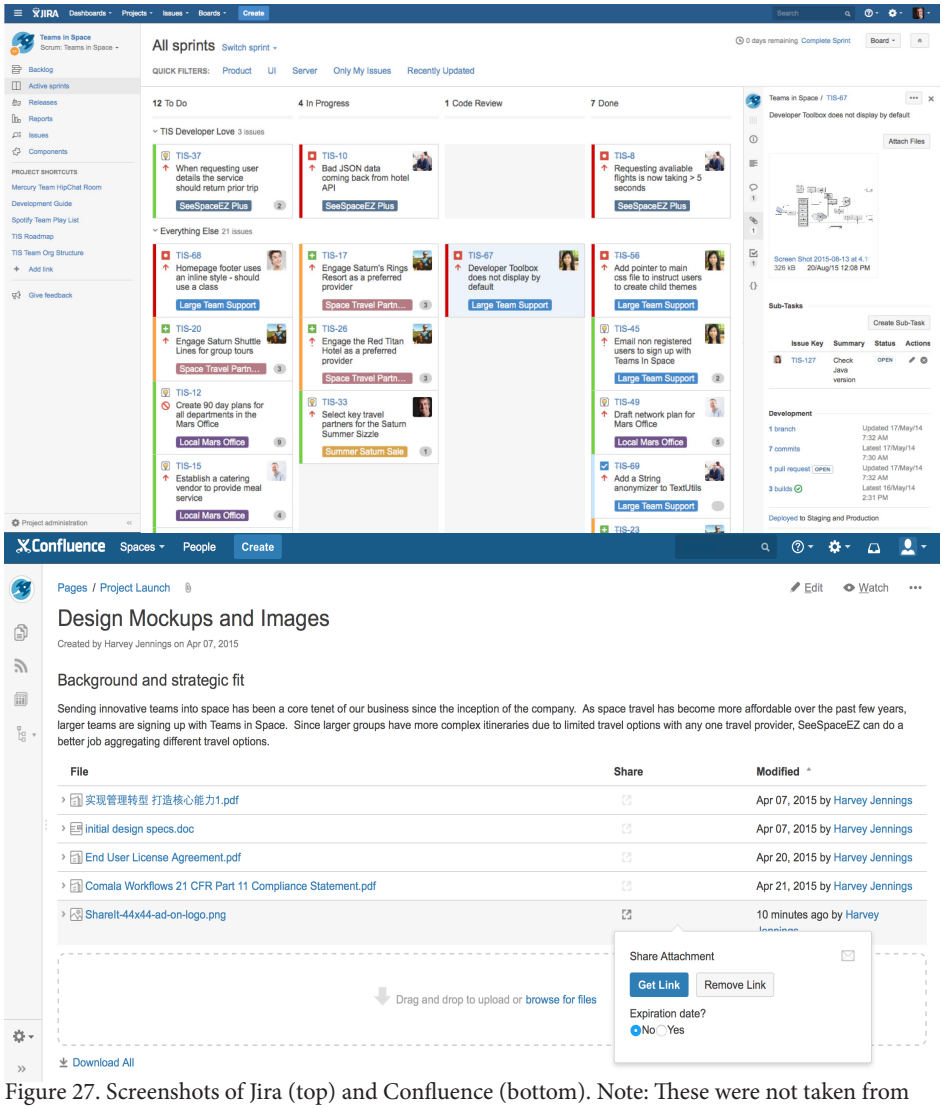


Figure 27. Screenshots of Jira (top) and Confluence (bottom). Note: These were not taken from KLM Digital.

Testing and implementation

After a feature is developed, it is tested by the team within a safe test environment, which is not connected to the final, live versions of the user applications. A simple feature, such as a fix to a bug or error doesn't get the same level of testing as a new feature, which goes through a more thorough and longer process.
If the results are satisfactory, the project can go through the final approval by the Product Owners. Again, depending on the complexity and how different it is, the approval process varies. Business won't be as involved, for example, in an incremental update or bug fix as it would a new feature that's launching. If there's no approval, the developer retakes the project and corrects whatever didn't meet everyone's expectations. This doesn't happen often though, as the testing process and update meetings help identify issues earlier than the final stage.
Once the feature has the approvals, the team "burns" the task off the to-do board and integrates it to the live versions of the apps or, in case there's a dependency, shares the result to the next developing team.

Ideation at IT

Team members from IT are now used to receiving the defined requirements from Business. This means that most of the times there's no collaboration between the two at the first stages, and instead IT's creativity is put into the later steps, when they need to come up with the best way to finish the tasks given to them. However, team members expressed that that doesn't happen all the time, since a lot of the requirements are regular maintenance work or are so specific that become "mechanical" and don't need ideation.
When ideation is necessary, it was observed that some team members prefer to do that individually, maybe discussing details with a colleague informally, while others brought the topic up during team meetings to start a discussion. When asked about this, team members said it mainly depended on how well the teams collaborate together. Some teams are closer and prefer to find solutions together, whereas some others don't really have that level of teamwork.
With all this considered, I could say that Ideation at IT takes place in the later stages of the projects because most of the times the formulation of the problems to be solved occurs in Business. That way, people of IT use their creativity to solve those problems in the most efficient way and using the technologies available to them. Furthermore, it was observed that there was no set process or activity to ideate within IT, with individuals doing it how they wanted it whenever it was necessary. These insights informed the type of activities and direction of the proposal, with the proposal trying to fill those gaps and provide a formal process for the teams.

IT's new player: Design Team

Very recently IT started its own Design Team by hiring their first internal designer. This move marks a growing interest in Digital IT to adopt Design Thinking, become user-centered and push for innovative and creative processes. However, this is considered a pilot and management wants to evaluate results before thinking of expanding the team. So far, the idea is to put the designer to work on organizational challenges at IT, to apply the design processes and propose new solutions. Of course, those solutions would be developed following the design process, so one ambition is to introduce the people at IT to different design methodologies that could be used by other teams, and thus help improve the current situation of innovation in the Factory, which is described in the following section. In fact, there's already been some team members participating in different creative sessions organized by the Design Team, so the familiarization to the design techniques has already started.
Unfortunately, there is no clear goals or vision for the Design Team, but it was interesting to see the intention of building it and trying a new approach. This also helped inform my proposal, as it considers this team and the role it can play in a new way of working.

Figure 28. A session carried out by the Design Team.

BUSINESS

Given the name, it is easy to think the members of this division as business people, however, they have different backgrounds, like marketing or design. This serves the purpose of giving the teams a more varied perspective when formulating the upcoming features.
As stated before, Business comes up with the new features most of the time. These features (or requirements) vary on their level of innovation, given that a lot of them are related to the maintenance of the existing systems and products, while a few are completely new ideas that showed potential in their analysis phase. This means that the projects coming out of them can be either Exploitative or Explorative in nature. This affects how long a project takes to be developed and implemented, and also how long it needs to be discussed and analysed, with radical innovations taking longer.

Generating ideas

To guide the ideation process, the Head of Digital and his team releases a number of Pillars (Figure 29.) that reflect what management sees as the upcoming disruptors and trends that should guide KLM's digital development. The Head of Digital expressed in an interview that a big challenge for him when defining these Pillars, and then later judge initiatives, is to evaluate opportunities for KLM to be either the Front-Runners or the Smart Followers, speaking of the risk assessment that runs under every decision. This is an important element that points out, for example, which technology needs to be pushed forward internally, so that KLM is seen as a pioneer and can take advantage of that. This would result in a bigger number of proposals and projects related to that one technology, compared to others.
Inspiration for the projects themselves comes from different places, but the teams frame everything from the point of view of the customer journey. This marks an ongoing change for KLM where they are focusing on the users and not the products.
A lot of the times, inspiration comes from looking outside KLM and reflecting on what the company can do within the scope and description of the Pillars. This means that the teams take a close look at advances and trends both within and outside the airline industry, and then start ideating on how the company can take that and develop something around it.

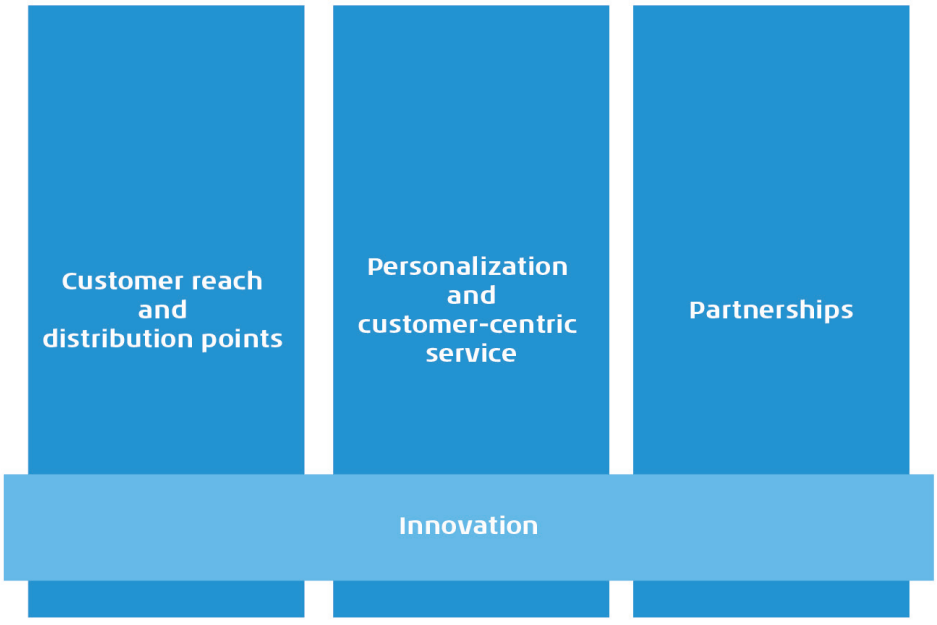


Figure 29. The Pillars that guide project creation, and how it's expected that there's innovation in all of them.

Collaboration with allied companies

One constant source of ideas is the companies that work closely with KLM. Sometimes, they can even start collaborating together, in order to speed up the development of a project.
For example, when Apple announced the implementation of Augmented Reality (AR) features in a recent update to the mobile operating system iOS, KLM began the development of a feature that enabled users to measure their luggage using the technology. In this case, there was no close collaboration between the companies, it was an idea that came to be once KLM saw the announcement of the new feature and asked themselves "what can we do with this?". Instead, the collaboration could be described as an exchange of information and support. The team that developed it acknowledges that the feature isn't used by customers very often, but the developers appreciated the opportunity to learn a new technology, and the people from Business valued the media attention KLM got for that.
On the other end, Google Netherlands contacted KLM when they were about to launch their different smart speakers in the country, so that KLM could be one of the first companies to offer help to customers via voice commands. KLM then accepted the offer and started collaborating with Google in order to bring the feature to the platform as soon as possible. In this case, the project was done with the involvement of both companies, which had a close working relationship that helped finish it successfully.

Figure 30. Collaboration with other companies can vary in depth.

Competitor analysis

Other source of inspiration is looking at competitors and their implementations of new technologies and features. Business constantly analyzes what other airlines are doing and evaluate if KLM could do better. An example of this could be what the company did regarding the on-board internet access and the interactive screens in the seats. KLM knew they had to offer internet access to the passengers, just as many of its competitors, and so they now offer Wi-Fi in many of its planes from 2 different suppliers. However, KLM saw the opportunity to create a closed on-board system under the company's control. That's why they developed the software that the interactive screens run, instead of using the one offered by the suppliers. This opens the opportunity to connect passengers and crew to the same environment and offer an individualized experience. The on-board connectivity team is currently working on many features that take advantage of this, from travel updates to streaming content from a passenger's phone to the screens.
This example represents a radical innovation for KLM, however, analyzing the competition can also lead to step changes on existing products or services.

Figure 31. Oftentimes KLM generates ideas by looking into the competition.

Collaboration with universities and other organizations

Another source of ideas is the collaboration with universities and start-ups. They see those collaborations as the perfect origin of really “wild”, exploratory ideas. For example, concepts that go beyond the regular airline business, and start wondering what else the company could do.
In the case of TU Delft and the Faculty of Industrial Design, there’s academic courses, internships, workshops, lectures and graduation projects that are done in collaboration. And they are carried out throughout the entire company, not just Digital. From personal experience, plus talks with colleagues, I know that the projects range from broad ideation to the very specific, with the company pushing the students to propose exciting and creative ideas.
Recently, the collaboration with Delft grew bigger and more public, with the announcement that KLM would contribute to the Faculty of Aerospace Engineering’s research and design of a new airplane (Figure 32.).
However, Business admits that the collaboration process needs improvement, given that a lot of the concepts aren’t developed further after the initial ideation phase.

Figure 32. The Flying-V concept airplane being developed by TU Delft with financing from KLM.

Self-organized creative events

Other sources of inspiration include workshops and events, such as hackathons and conferences (Figure 33.). There, team members can learn about different technologies and tools and then ideate on valuable applications for the company.
These events, however, rely on individuals' willingness to both organize and attend them. This issue will be explored more in a later section, but it is important to note here that when they happen, these events help people to open up to new information and technologies. The events themselves are almost always open to people from both Business and IT, and invites are sent to multiple team members and announced in common areas with posters or other materials.

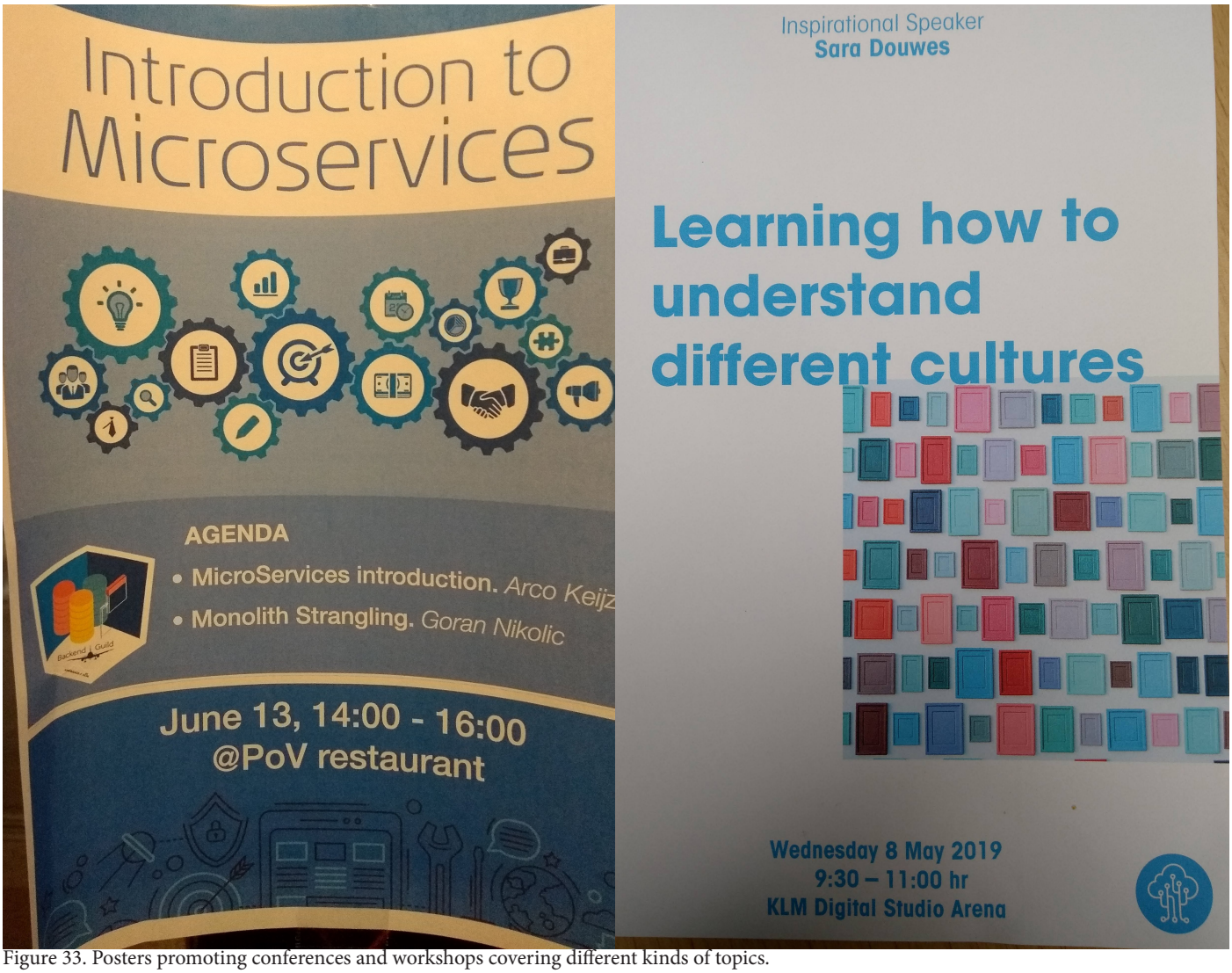


Figure 33. Posters promoting conferences and workshops covering different kinds of topics.

Business case development and request to IT

After a team defines a concept or idea they are interested in, they start developing it a bit further (Figure 34.). Research is done on the impact for the company and its value as a business opportunity. In this stage, the mixture of backgrounds and the different skills is very important to build business cases around the ideas.
The cases are used to communicate why the idea is valuable for the company, the requirements needed to make it possible, as well as the value for the users. Another tool used is the User Stories, where the projects are presented as narratives from the user's point of view. That way, the features are portrayed in a way that makes it easier to relate to, stating things like pain points and needs from the users. They are developed using the feedback gathered from real users across different communication channels, such as social media or surveys.
Once the Business Cases are done, they are evaluated using Weighted Shortest Job First (WSJF), which is a formula that makes prioritizing the different projects easier.

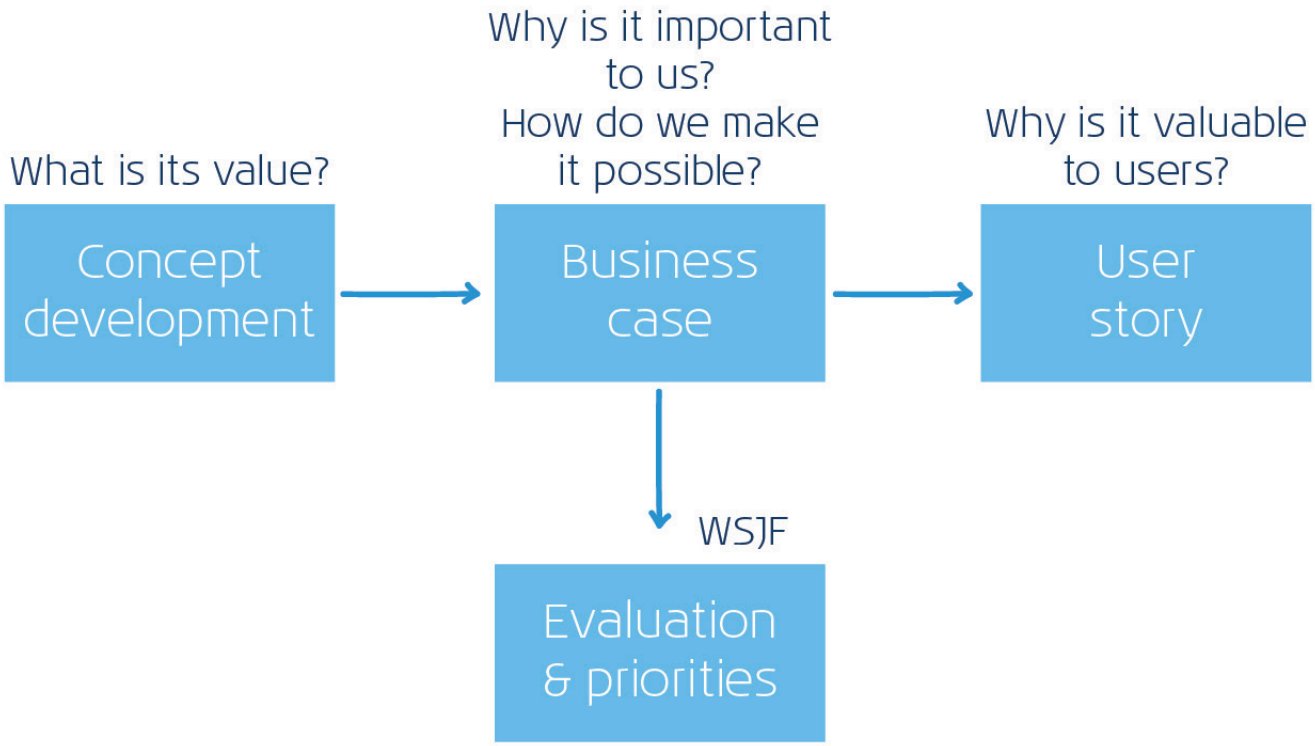


Figure 34. The Business case development process.

Business case development and request to IT (Cont)

WSJF basically takes into account user and business value, time factors, risk, opportunity and effort. The result is a numerical value that is used to compare the different cases and assign priorities to them.
They then pass the projects along to IT, to be developed and implemented in the live versions of the apps. This handing-over takes place in the PI events, where Business and IT plan for the next period of Sprints and make agreements on important dates and tasks.
During development, Business and IT communicate to solve doubts and discuss suggestions and ideas. This is mostly done by the Product Owners, a role within the SAFe framework that, among other responsibilities, makes sure the development team understands what's required. So they serve as representatives of the teams and a sort of messengers. They also serve as a final quality control checkpoint, and therefore they're the ones that have the capability of classifying a task as finished.
So, using the metaphor of the factory, we could say Business represents most of the time the management. They figure out what needs to be done and then send the projects to the assembly line, so that people there can think on how it can be done and how soon. Business then keeps an eye on the projects, checking if they're ready on time and answering any doubts that might arise.

INNOVATION IN THE DIGITAL FACTORY

Introduction to Innovation Sprint

The SAFe framework has been adapted by Digital so that there's a "free" Sprint to let team members experiment outside the regular day-to-day work, called Innovation Sprint. The objective for those sprints is to have designated time where people can work on their own ideas.
The Innovation Sprint takes place after 6 regular sprints, meaning more or less every 3 months (Figure 35.).

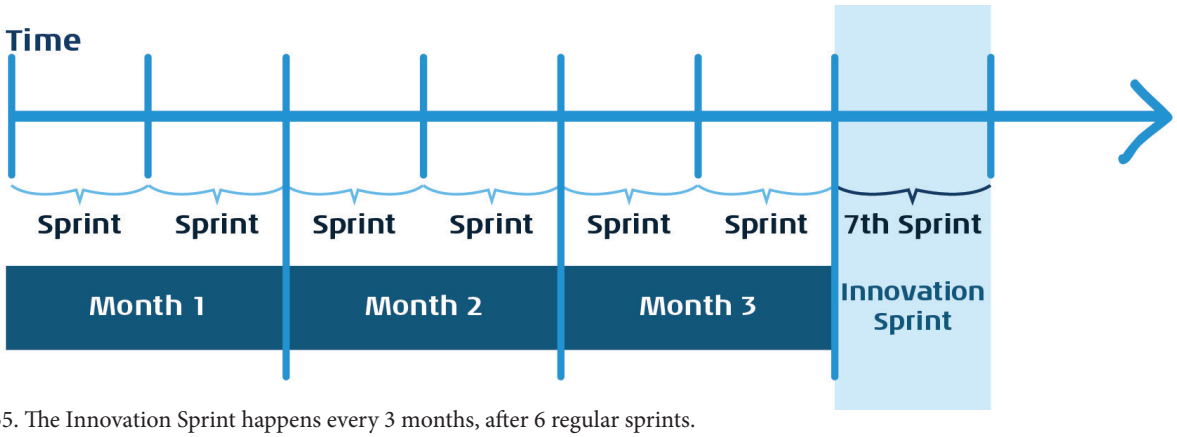


Figure 35. The Innovation Sprint happens every 3 months, after 6 regular sprints.

Organization of the Innovation Sprints

The Innovation Sprints are seen as the main opportunity to experiment and propose new projects. It is also the only creative activity that has an appointed time within the development process. However, management holds every team responsible for organizing and carrying them out. That means that there isn't a general directive of how to do an Innovation Sprint or even what it should consist of. Additionally, this also means that there's no one making sure that the teams make use of that time correctly. This translates into a big number of teams that do not execute Innovation Sprints, especially in IT. What usually happens there is that the teams commit to develop a high number of features during the PI events, and then they can't finish them during the regular sprints so they use the Innovation Sprint as a buffer to finish up their backlogs. This was shared by different people during the interviews, who explained that many teams do not take into account the Innovation Sprints when planning for a period, so they take a position of "if we have time for it, we'll do it".

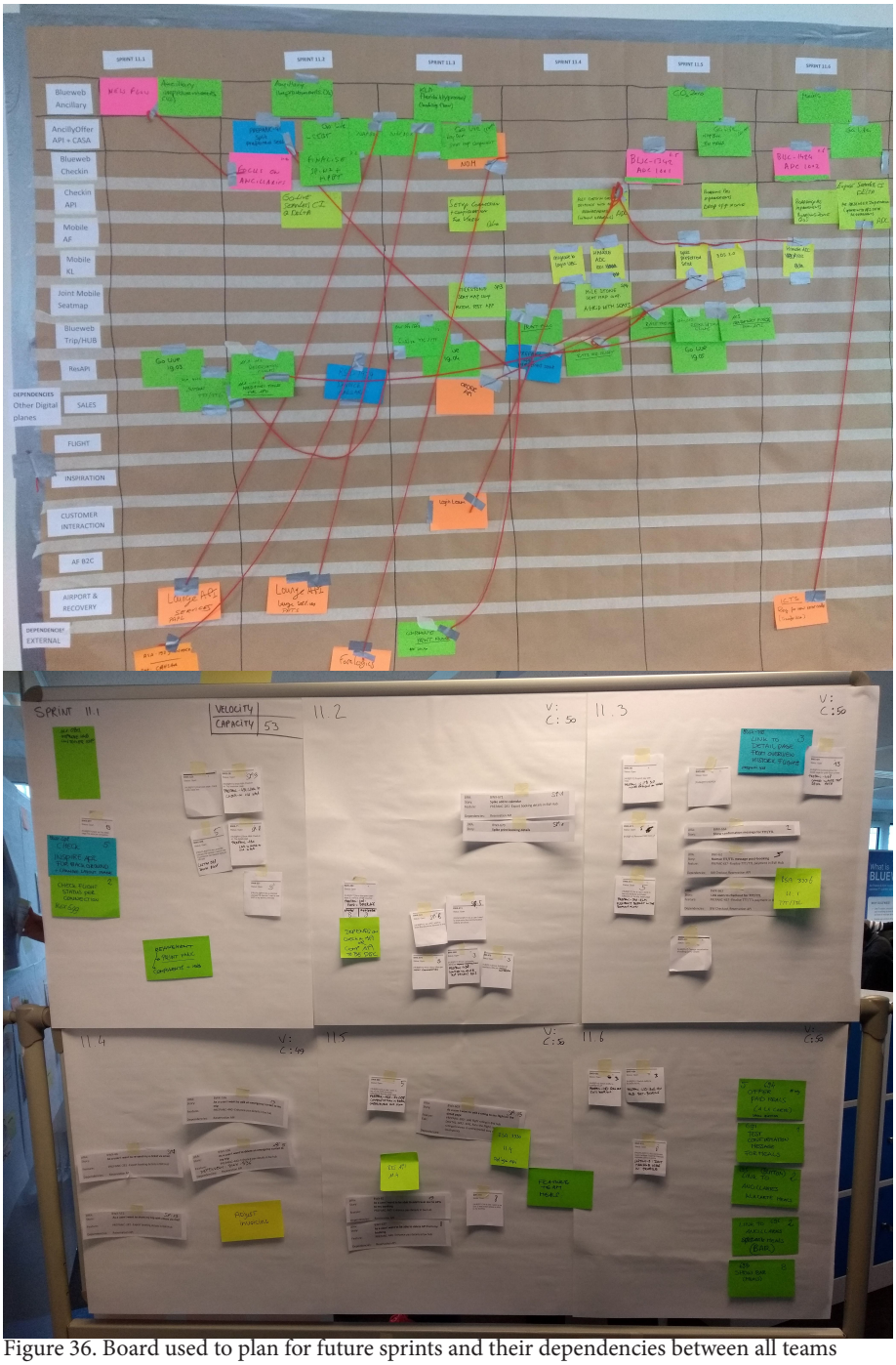


Figure 36. Board used to plan for future sprints and their dependencies between all teams (Top) and a single team's organization (Bottom).

Activities during Innovation Sprints

There is a notion from management that says that the ideas or projects that are developed by the members should always have value for the company. However, some teams do not follow this, and instead decide on their own what activities can be done. For example, a team is very open in that regard, and they described how they were free to do whatever activity they wanted. They said the sprint was supposed to be a time to decompress from the day-to-day work, and try something new that interests them. For example, some of them learned about new technologies, some went to conferences and some had artistic projects. The manager of those teams said that she saw the Innovation Sprints as a way to keep her team members fresh and motivated. She thinks that because the sprints are too short and not frequent, it's very difficult to develop a brand-new feature or project that can bring value to the company, so she would rather have that time used for inspiration and relaxation activities.

This speaks to the fact that there is no formal organization of the Innovation Sprints. With each team held responsible for their own organization of an Innovation Sprint, while at the same time not really incentivized to do so, the Sprints are rarely carried out. And when they are, it's done without a structure. I recognized this as an opportunity for my project, where I could make use of the Innovation Sprints (Figure 37.), given that they are the main (and recognized by management) tool or activity where teams can go out their regular work and experiment and share. So, for my proposal I made use of the Innovation Sprints, embedding creative activities that are available to the team members. With this, I expect to raise interest in the Sprints, because they would now have clear activities, each one with its own goals.

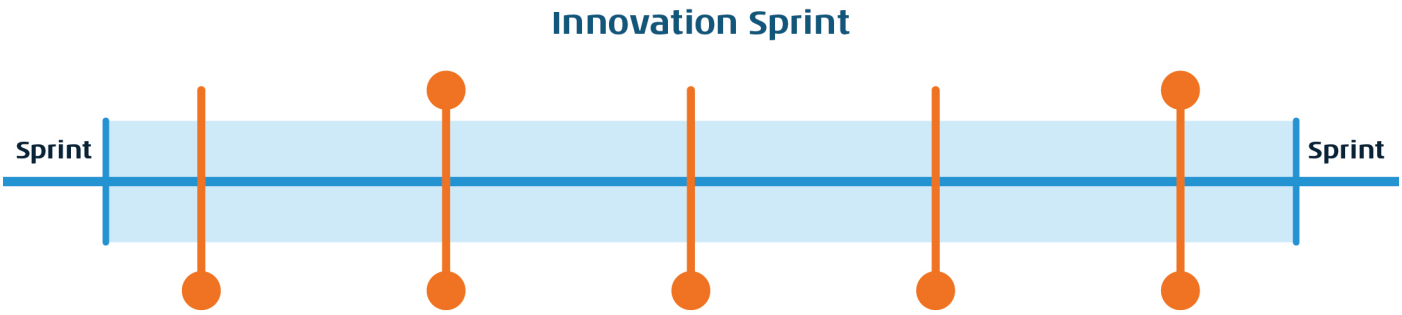


Figure 37. Innovation Sprints are fixed opportunities for team members to attend different activities, shown here as orange circles, that happen along the duration of the sprint.

CURRENT CREATIVE INITIATIVES

Introduction

In addition to the Innovation Sprints, there are other creative activities currently being pushed within Digital. What they all have in common is that they are independently organized by individuals that want to improve the current situation and offer interesting activities to the rest of the team members.
Because of that, the initiatives are not formal and rely completely on the availability of those people to be set up and carried out. Furthermore, there's a lack of communication between the organizers of the different initiatives and thus there's no shared vision or objective for them, beyond doing something outside the regular work.
Talking to team members, they expressed how they valued these activities, and felt sorry that sometimes it can be months or even years between events. The initiatives are valued because they represent an escape from the day-to-day work, assistants can learn new things and experiment, they are opportunities to interact with people you would normally not meet and they allow people to relax and recharge.

Conferences and Presentations

Many team members complained about the lack of communication between teams and individuals, and said the tools available to them (the web applications mentioned before) often left them disappointed. Because of this, some people are organizing meetings and presentations where the different teams can update the others on their work, and start a discussion. Right now the organizers are trying to make them a recurrent activity, as a way to share knowledge among colleagues and get to know each other. They're inviting other teams to join the initiative and present an update as well.
They're also exploring the possibility of having short conferences or presentations where individuals can talk about a topic that makes them passionate. The way they describe it is TED-like presentations, and they want them to be a way of knowing the co-workers and get inspired by them.
I had the opportunity to attend the first pilot for the conference initiative. The Social Product Team at IT organized a presentation and demo for their recent work (Figure 38.), plus what they did on the last Innovation Sprint. This way, they wanted to show the other teams the new technologies they had been working on (voice commands), and teach them what they had learned from that. Additionally, they wanted to highlight the result of their Innovation Sprint so that other teams would be inspired and hopefully carry out their own, instead of using it to finish the regular work.
People from both Business and IT were invited, and in the end a bit more than 20 people showed up, with a few more watching the presentation online.
I was invited to give a short introduction presentation, as an energizer for the public. I decided to talk about the Design Process, and made an emphasis on taking the users needs as the starting point for product development, as I had observed that was missing in their process.
Putting the annoying, ironically IT-related issues aside, the pilot was considered a good first experience. There was a good Q&A section, and the participants seemed interested throughout the talk and demo. The organizers ended the session by challenging the other teams to organize a similar event for their work. Unfortunately, there hasn't been another of these events yet.

Figure 38. Presentation organized during this project.

Hackathons

A Hackathon is a sprint-like event where software developers collaborate together to create working software or hardware around a challenge (Wikipedia, 2019). There's a group of people in Digital that used to organize this type of events for the team members. I got the chance to interview one of them, and the information following comes from that interview.
He said the initiative started years ago, when he and a couple of coworkers realized there were no shared activities for the team members outside the regular work meetings. As they knew nothing would come from management soon, they came to this bottom-up solution. At first they were targeted to people in IT, due to a lack of interest from Business.
The Hackathons usually were 2 days long, and the organizer explained that sometimes they put a specific challenge for the participants, and some others the goal was left open. He told me that the events themselves were good, but failed to grow to what he originally wanted. He explained that it was hard to motivate people to join, and in the end the same team members ended up going to the events.
The organizer shared that the biggest problem for setting them up was the fact that there wasn't support from management. There was no budget assigned to these kinds of activities, so coming up with the resources was very difficult. In addition, this also meant that he had to make some time from his work schedule to make the arrangements. When he got very busy, the events were less and less frequent and now it's been more than a year since the last one.

Internships

Both in Business and IT, there are multiple students working on projects as either interns or graduation candidates. Most of the times the projects represent big challenges that the company is interested in looking at from a fresh perspective. The students are usually encouraged to propose radical ideas, and test them with real end-users. However, the big issue with this initiative is that oftentimes the proposals are not supported after the internship ends. During the interviews, many people talked about how KLM Digital, and the whole company, has an archive of unused ideas that came from students or other 3rd parties (Figure 39.). They described how there's no follow-up to the projects, due to no one taking responsibility for them, and the lack of support from management.

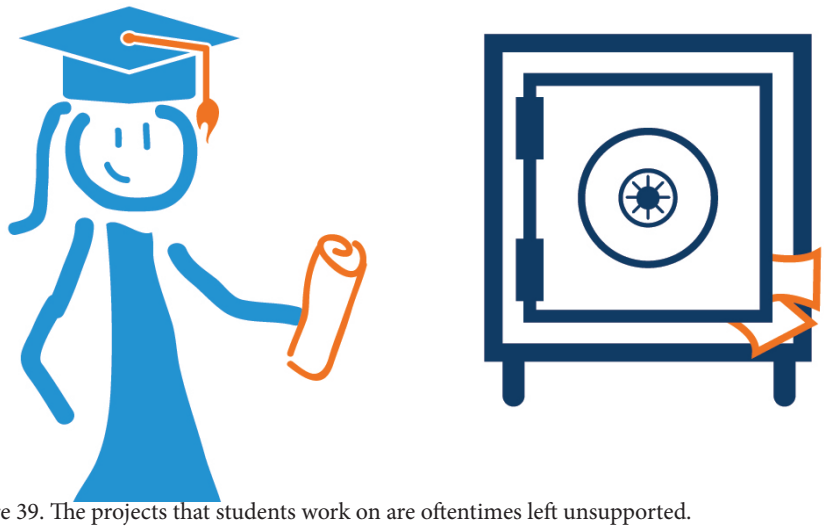


Figure 39. The projects that students work on are oftentimes left unsupported.

Design Sprints

As mentioned before, IT has started its own Design Team, and already there are some interesting initiatives coming out of it. The designer has carried out a number of short Design Sprints to develop her initial project. It's too early to see how this affected the participants, but this has helped to familiarize people with the design process and hopefully inspire them to do things differently in the future, and to try new approaches.
I think it's very valuable that the Design Team is showing people with different profiles the design process, and invite them to collaborate in finding solutions to issues that affect the whole IT division. It's only been a few sprints so far, but the reaction has been positive, with most participants engaging in the discussions and collaborating with each other and the designer. After the sessions, when the designer asked for feedback, participants expressed that they appreciated being asked to help solve problems that affect them, and liked the sessions as a tool.

Figure 40. Pictures of two different design sessions organized during this project.

CHAPTER CONCLUSIONS

The on-site research allowed me to experience the KLM Digital processes first-hand, as well as talk to the team members about their work and how they get it done. This phase resulted in a few key conclusions that were of importance when carrying out further research and eventually developing the final proposal.

Firstly, the Innovation Sprint is supposed to be the official, supported ritual where people can put aside the regular day-to-day work and try out new things that interest the team members. This shows how Digital has approached Innovation and its implementation during the day-to-day workflow. It was planned as the opportunity to explore radical ideas that would create value for the company. However, as described before, most teams do not carry out the Innovation Sprints. They use the "spare" time to finish their commitments, and there's no push to change this from management. Moreover, people have realized that the Sprints are not well suited for long, radical projects, since people could only work on those ideas every 3 months, for a week-long period. So, those teams that do execute the Sprints, prefer to keep the projects small or use the time to work on individual preferences and inspiration activities.

Secondly, there's a number of people in Digital that see the current Factory and have the drive to try to change things. One very important tool to do so is organizing creative activities that lets them go outside the assembly line and experiment with new things, meet new people and start collaborating. These initiatives are valued by the team members but are very inconsistent due to their reliance on the organizers' schedule and availability. In addition, the initiatives do not share a common vision or goal and, what's more, many times the organizers do not know each other.

Furthermore, there's no budget assigned to them, and their scale can only accommodate a small amount of people.

The proposal needed to take all these shortcomings into account, so that they're part of a formal process and way of working. All this considering one common end goal and purpose.

SIDE NOTE ON DIGITAL STUDIO

Introduction

As part of the company's Digital Transformation initiative, which seeks to update the company's processes and infrastructure for the digital era, the Digital Studio was formed some years ago. Today it is comprised of 15 product teams, making a total of around 110 people. Its goal is to improve the work of KLM's employees by using the latest technologies. As mentioned before, it is seen as one of the main innovation hubs within the company. Until recently, it worked as a separate unit, but now it is in the process of becoming a part of the bigger Digital workflow. Given that it's considered the Innovation Hub of KLM, and it's mentioned as an example of achieving goals and moving the company forward in the KLM Annual Report (2018), I thought it would be interesting to see what I could learn from their implementation of innovation activities and their culture. So a visit was arranged, and as I did with Digital, I carried out interviews with different people and spent the day talking to the teams and making observations on a notebook (See Appendix A.).
The interviews were again semi structured and touched on the same topics as the ones carried out at Digital, plus what they thought made them unique and valuable. I thought it was important to see how the Studio worked, what kind of activities and processes they had, and how they differed from Digital.
To read about their setup and my observations, pleaser refer to the Appendix.

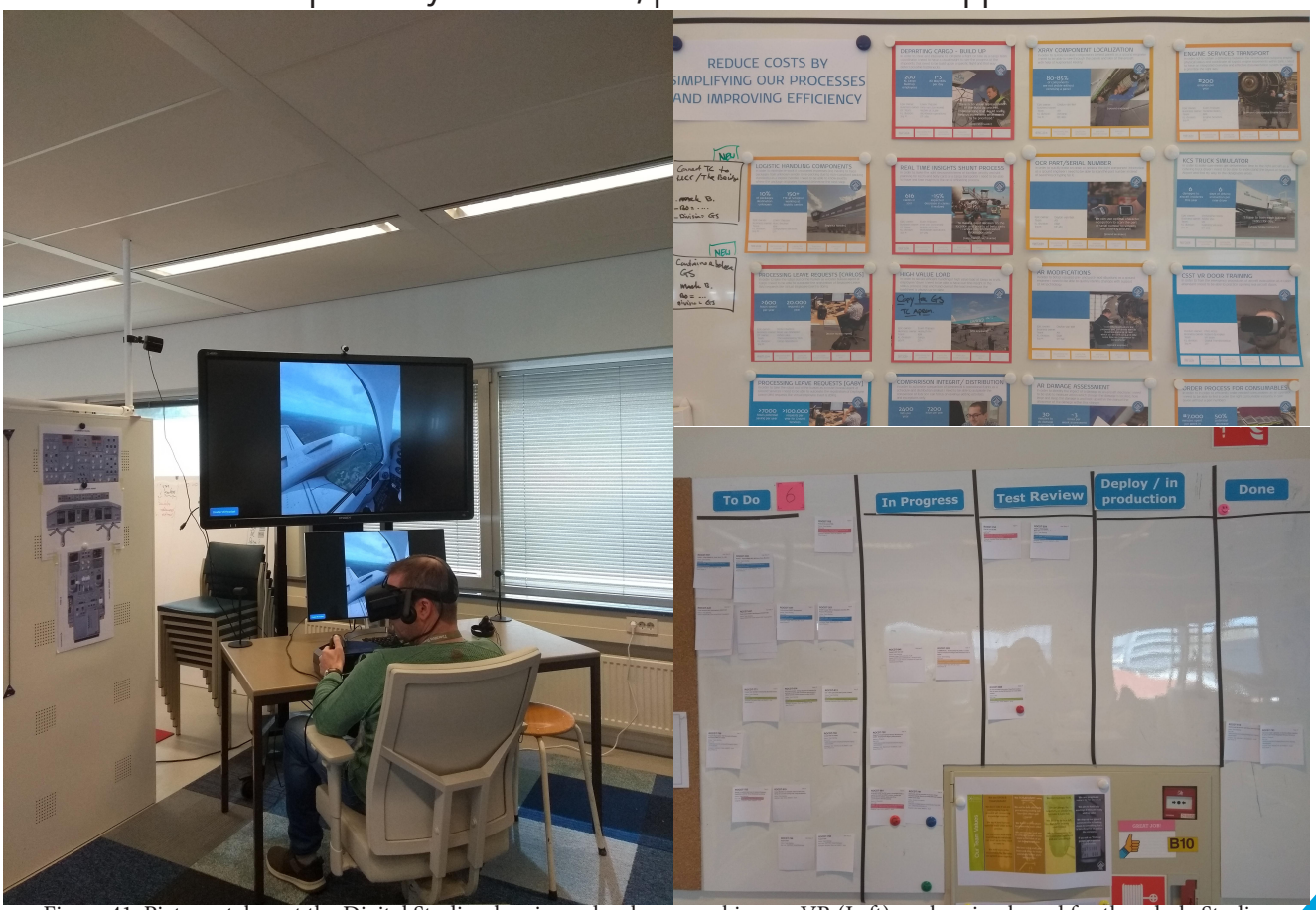


Figure 41. Pictures taken at the Digital Studio, showing a developer working on VR (Left), a planning board for the whole Studio (Top Right) and a planning board for a team (Bottom Right).

Conclusion and takeaways

The Digital Studio serves as an interesting comparison point, as it develops similar products under a similar framework. However, with a few key differences the Studio is positioned as the most important innovation hub for KLM. These differences come from the design-led methodology, as it completely changes how the products are developed, with collaboration, co-creation and experimentation at the front. This way of working also has the advantage that it was planned like that from the start, so the different activities and tools have the support from the top, and people make sure that they happen. This also helps construct a shared culture within the members, who appreciate and value the degree of freedom they have and the opportunity to experiment and learn by failing.

It's not perfect of course, and people there also had some concerns, but it was observed that the work culture in the Digital Studio differed greatly from Digital, especially IT. Team members didn't see the Studio as an assembly line, instead they thought of it as a laboratory, where collaboration was key, both between the people at the Studio and with the users of the products.

With this, the Studio served as an example that already exists in KLM that involves design processes and activities in the regular workflow. So I considered my learnings from my time there and applied them to my proposal, helping me shape my recommendations and assisting me on picturing what the activities could look like.

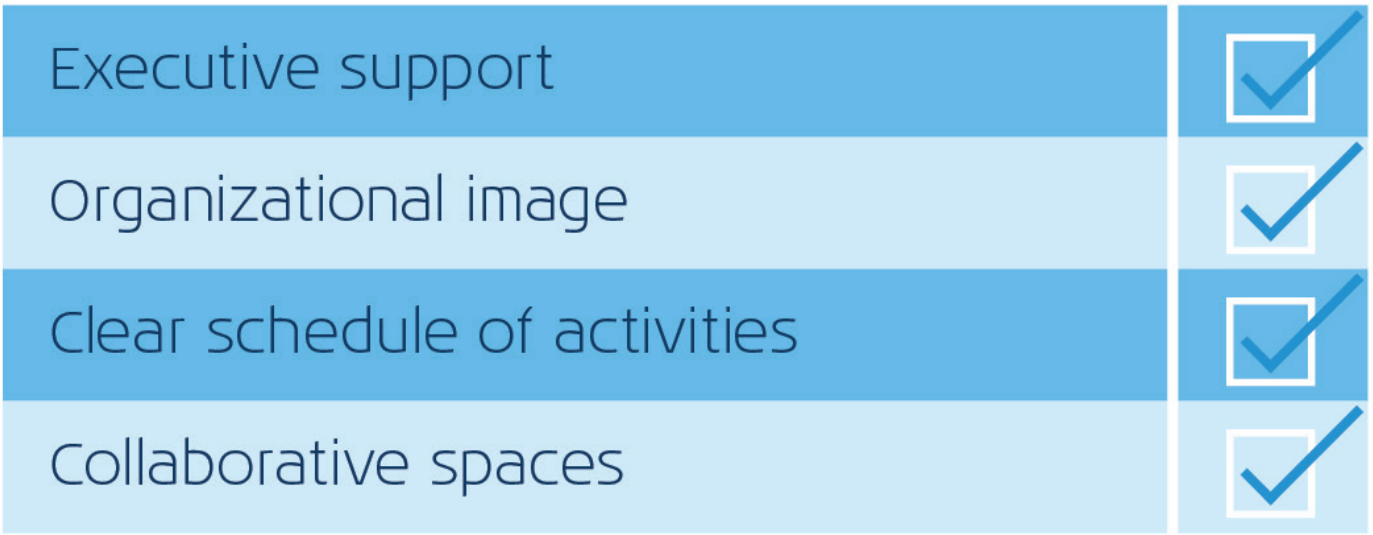
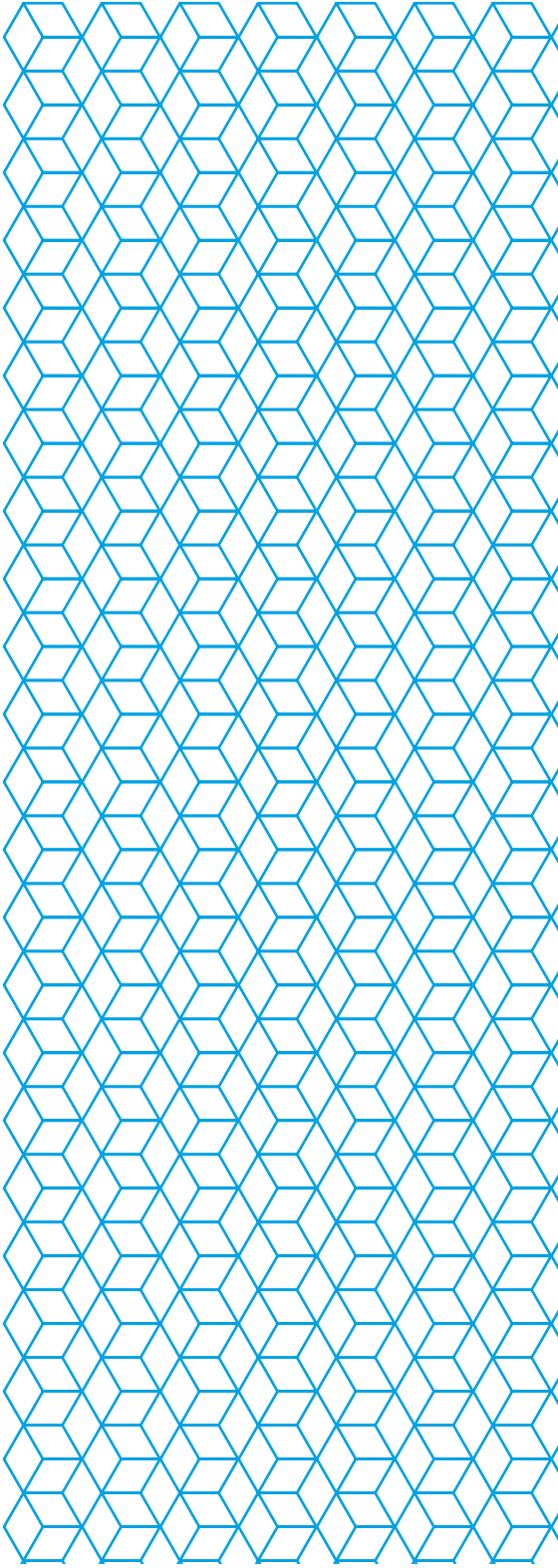


Figure 42. The main takeaways from the visit at the Digital Studio, which were considered when developing the proposal.

CHAPTER 4.



I know the pieces fit 'cause I
watched them tumble down
No fault, none to blame
It doesn't mean I don't desire to
Point the finger, blame the other,
watch the temple topple over
To bring the pieces back together,
rediscover communication

Schism
by TOOL

FRAME CREATION

CONCLUSIONS FROM PREVIOUS PHASES

Challenges for innovation within the Digital Factory

After I had gathered the conclusions from both the academic and on-site research, it was time to converge the different insights and figure out next steps.
I was able to analyze the insights and group them in clusters. Here in this step the models discussed in the academic research helped me identify the main issues and how they impacted the culture and mindset. For example, using the model by Johnson (1992) I could create the clusters and categorize them based on the factors that create Organizational Culture. Furthermore, the Kotter (1996) steps came at play, serving as a guide to my actions, making me think about how I could indirectly tackle the challenges through changing processes and activities, and how those could, in the long term, change the culture at Digital.
The interviewees described pretty much the same challenges, which means they are spread on all of Digital, and are visible from the different levels of the organization. What changed was the focus people had when telling me about those challenges, for example, team members from IT framed everything around the Factory environment, whereas managers kept the discussion broader, referencing the big picture and overall goals for Digital, within the bigger scope set for KLM as a whole.
It is important to note though, that some challenges were left out of the groups and project overall. This was because they were either too specific, like one individual complaining about a certain development software, or outside the scope of the project, like many developers saying that the ongoing effort to merge AirFrance and KLM's IT infrastructure took too much time that could be spent elsewhere.
In the end, five groups were formed. For each one I formulated the key question that describes what each group represents:

Figure 43. The main findings of the research, in the form of groups.

Next, there's a quick explanation of each of the challenges.

Defining Innovation

The very first challenge when dealing with the topic of innovation within Digital, and KLM as a whole, is the definition for innovation. During the interviews, most subjects from mid- and higher-levels asked themselves the question "what is innovation?" in some way. Most times it would happen at the beginning of the interviews when I explained my project and the purpose of the interviews; the participants would say something to the effect of "well, the first thing to do is define what innovation is", and so it was clear that there is no shared view on the matter within Digital management.
For example, some subjects were doubtful if only complex and exploratory projects counted as innovations for example, whereas others stated that they worked on innovations all the time, because they'd change something in the process or product each time. This was reflected in the answers from lower levels, where people were also divided between what kind of innovation mattered.
This situation then affects many things for the people involved. For example, without a clear definition it becomes impossible for people to evaluate how good they're doing on the "Be innovative" goal of the company. What do we consider innovative?, how should we evaluate innovations?, what does an innovative team, or team member, need to have?, who and when should we work on innovations?, and many other related questions have no clear answers across the people of Digital.

Figure 44. There is no formal definition of what innovation is, which makes it very difficult to evaluate the situation.

Communication in a complex organization

The next big challenge is how people can communicate with each other inside such a big and complex organization. It was observed how communication deficiencies were present on all levels, and affecting the product development process, regardless of the degree of innovation. Starting from the top, it was observed that there is no clear roadmap or overview of what Digital should be and work on. There's a lack of agreement on goals and benchmarks for their activities and innovation efforts at the management level. Furthermore, the roadmaps that exist don't really go far into the future. In one interview the VP for Digital said that 1 or 2 years was his focus horizon to create product strategies and goals. Anything beyond that, he said he couldn't put much attention to. All this of course trickles down until it reaches team members, who get confused from mixed, unclear messages. This can be explained with the assembly line metaphor. If we see Digital as a car assembly line, it can be observed that generally individuals know what piece they're working on and how it fits with the rest, however, they often don't know why they're working on that. Meaning each team member is able to say "I'm working on the engine, which connects to the transmission", but they can't explain what the final car aims to achieve. There's no understanding of the long game and the end goals for a project, as well as the reason for a project to exist.

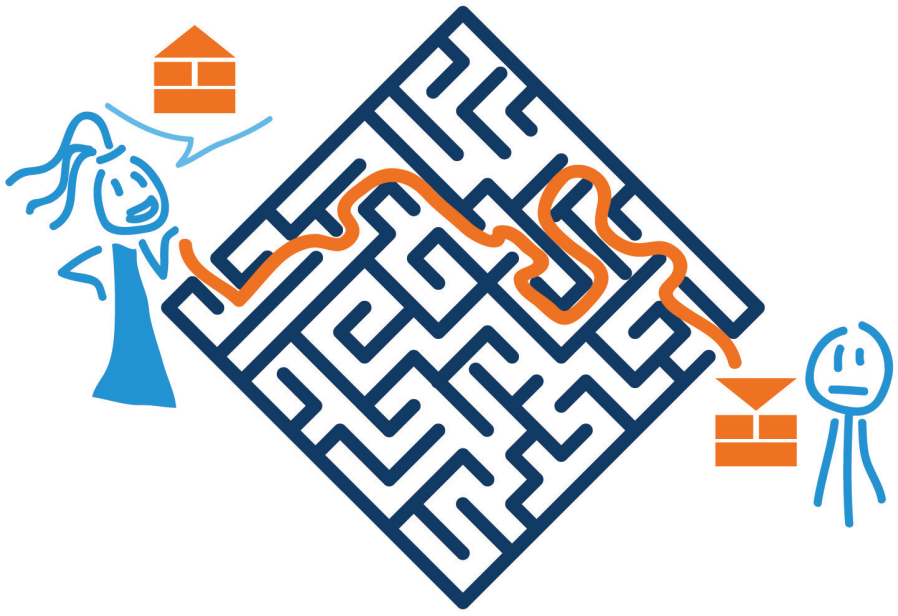


Figure 45. The complexity of the organization makes it difficult to communicate effectively. It can even transform the original message sometimes.

Collaboration within SAFe framework

One major challenge for innovation is the lack of collaboration within Digital.
For starters, the SAFe framework has turned Business into the concept and project creator. IT members have become used to getting all the ideas and requirements from Business, and so their role is just to be the assembly line. As mentioned before, it is rare for IT to question or reject projects proposed by Business. Once they receive a requirement, IT developers focus on getting it done and deliver. That way, the ideation and creative phases are mostly one-sided, and unfortunately, Business doesn't carry out an appropriate research process for those.
The current framework has definitely sped up the development process, but has also meant that Digital is firmly set in the present. This means that Business and IT mostly react to conditions, instead of looking to prevent or propose new explorations into the future.
Both team members and managers said in interviews that it is a shame that a closer collaboration between Business and IT doesn't exist. Some even said it was a huge mistake and illogical to separate the groups like that. They should be working together to identify opportunities and define use cases. As pointed out by a manager, a mixed team would also mean a better understanding of each other's work and each other's workload, while also facilitating decision making.

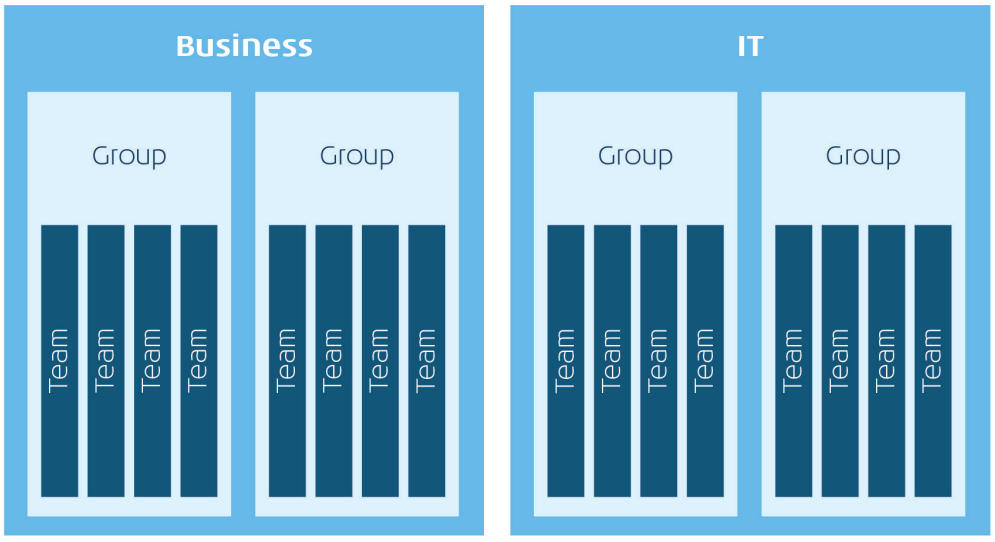


Figure 46. The framework tends to put the different groups into silos, thus making collaboration a difficult task.

Innovation as a corporate process

Another big challenge is how to make Innovation a part of the corporate workflow. Many people said that the Innovation Sprints, for example, are not a real, effective way of tackling innovation. They pointed out that having a short period of time at the end of a tedious development process can't possibly create valuable propositions. It would be fine if the goal was to just unwind a bit and play, but of course the company is interested in lasting, meaningful projects. Bear in mind that as mentioned before, truly consequential innovations can take years to develop, and so working on them for a week every 3 months is not realistic.
In response to this, the same people were aware that innovation and creativity should be embedded into the regular workflow, rather than being separate activities that happen sometimes.

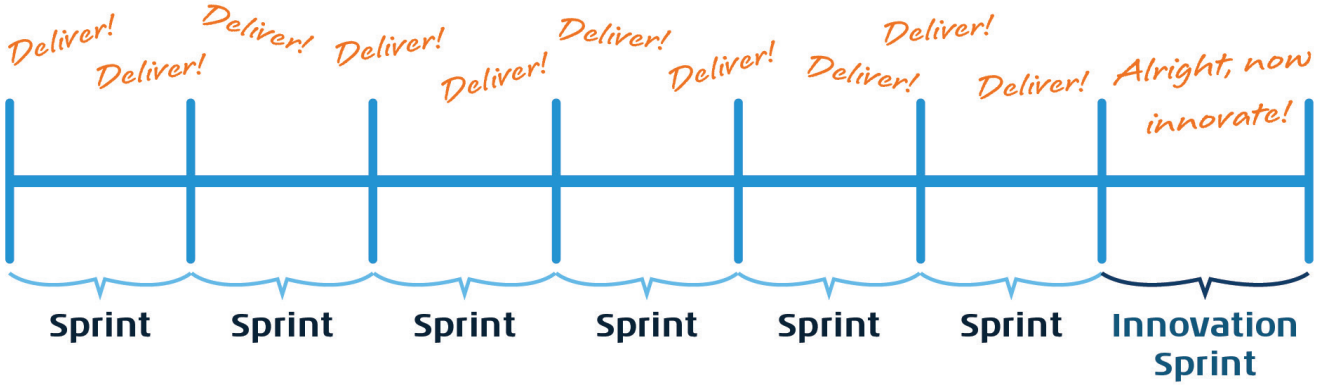


Figure 47. Team members are expected to fully focus on delivering their tasks during regular sprints and then suddenly switch gears for the Innovation Sprint, where they are suppose to come up with new projects that bring value to the company.

Mindset and culture of innovation

Finally, the last challenge is how the people of Digital see innovation and how they act on it. This builds from the company's culture and its views on creativity and innovation.
The Digital Factory, the assembly line where each individual and team creates a piece of a project and then passes that to the next, is facilitated by the SAFe framework, which creates fast software development lines by dividing tasks among specialized individuals and teams. However, one downside to this is the effect on people's mindset and morale.
During many interviews, team members mentioned how the factory never stops. They are always producing or doing maintenance work, which results in little or no time at all to ideate and work on other projects, with very few teams actually carrying out the Innovation Sprints being one serious consequence. A number of interviewed managers, including the Head and the VP of Digital, stated that each team is responsible for handling their workload and organize themselves in a manner that lets them carry out innovation activities like attending conferences and the aforementioned Innovation Sprints. This makes sense from a management perspective, which aims to create independent units that can operate without much safekeeping, however, this lack of supervision and push from management to carry out innovation activities leaves the teams to sort themselves out on their own, and unfortunately it was observed that those activities were often cut out of their planning and workflow.
All this combine to form the general Digital culture and mindset, which as mentioned before, has pushed some team members to leave the company, or at least Digital IT, and makes it harder to attract younger talent.

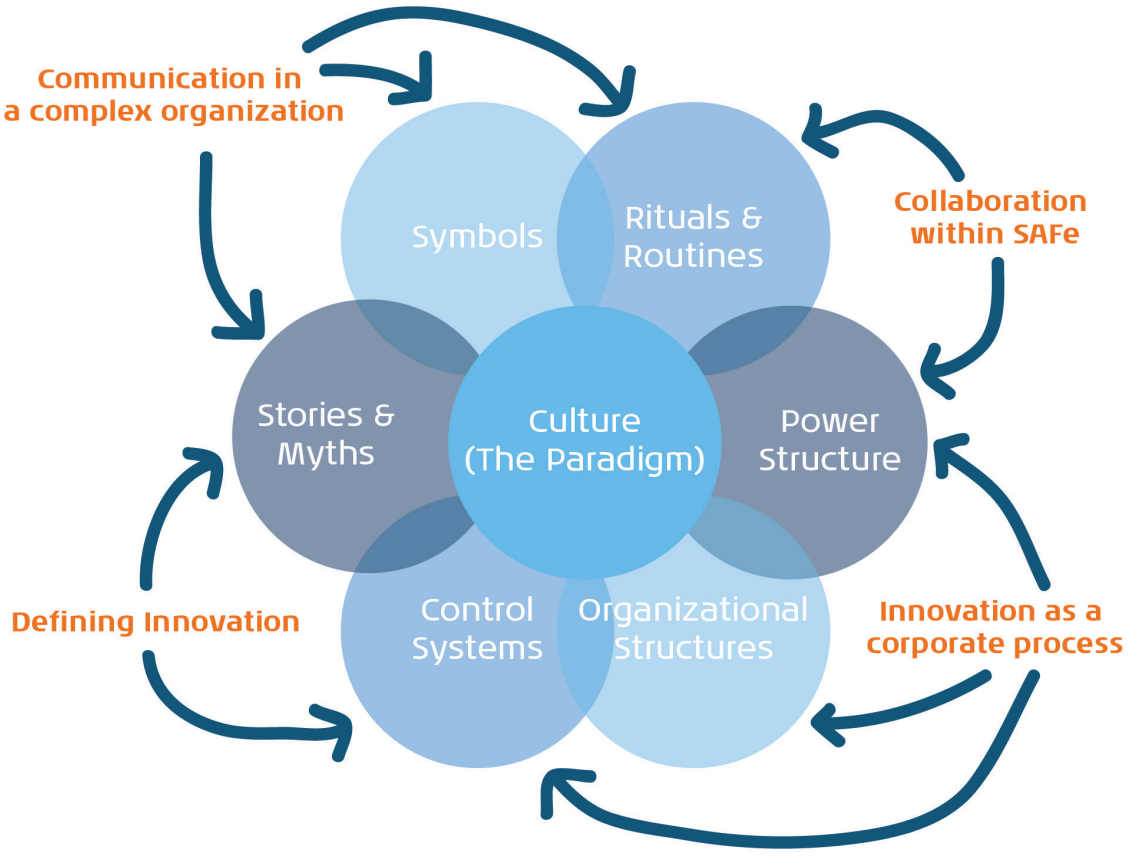


Figure 48. The main challenges found, and how they relate to Culture as per Johnson's model (1992) .

FOCUS

The main challenges for innovation in KLM Digital are well known to its people, which, to be fair, doesn't make them true. However, the fact that they were mentioned in some capacity by most participants (who came from different levels and groups) made me confident to assume that they were, indeed, real.
This is helpful in a way, because the analysis of the information sped up, and these results can be used to quickly convey the main issues to top management, people who might not be in touch as much with the current situation.
It was important to get the insights from the different levels of the organization. Even if the challenges are recognized by everyone, each person lives them differently, and prioritizes them in a different way. I think the proposal came out better precisely because of that variety, which allowed me to cover more bases with my design.
Each challenge is important, however, for this project the focus became Culture and Mindset. The reason why was that the findings from the on-site research showed that the challenges related to each other, and had an effect on the culture (As seen in the previous figure). This was supported by the Company Supervisor, who had recognized before the general behavior of the team members. From there, the focus shifted to changing the culture through interventions aiming smaller areas, just as Johnson's model (1992) showed. The intention is to kick-start cultural change at KLM Digital by making changes to the structures and processes that guide the day-to-day work.
Currently, there are some initiatives within KLM Digital that aspire to vary the daily workflow and alter general mindset of the people of Digital. However, those initiatives are separated to each other, lack a shared goal and direction, and rely almost entirely on individuals making an extra effort to organize them. This project makes use of those initiatives, in addition to proposing new ones, and connects them and puts them on a plan with clear goals. The project treats the initiatives as "official" activities, avoiding reliance on individual drive and instead putting them as part of the workflow with management support. That way, this project and proposal can be used by KLM Digital to kick-start the transformation of its culture and workflow.
To continue gathering information, now with the goal of learning about the culture at KLM Digital and how to better plan for a change effort, I switched to a type of research that was more hands-on and involved trying things out with the relevant parties. The reason why this happened is that the challenge of changing Organizational Culture, especially in such a complex organization as Digital, is a wicked problem. The logic behind this classification and why this new approach was appropriate is explained next.

CHAPTER 5.

I hope the sun shows the way
Don't crush my spirit today
Reveal your precious stones
So I can help myself

Precious Stones
by Mastodon

DESIGN RESEARCH

INTRODUCTION - WICKED PROBLEMS

As explained before in the Background for the project and Scope Refining, the initial topic and goal were broad, and required exploration and research on site at KLM Digital to narrow down the focus. The goal was presented as "to improve KLM's current digital innovation processes", and it was part of the bigger topic of "Industrialization of Innovation".
As the research advanced, the true complexity of the project became evident. Not only the topics themselves were difficult to understand and work for, but also the organization structure and workflow were complex (Figure 49.).
As a designer, I recognized this as a wicked problem, given that designers are used to tackle such issues (Norman & Stappers, 2016).

Initial Goal: To improve KLM's current digital innovation processes

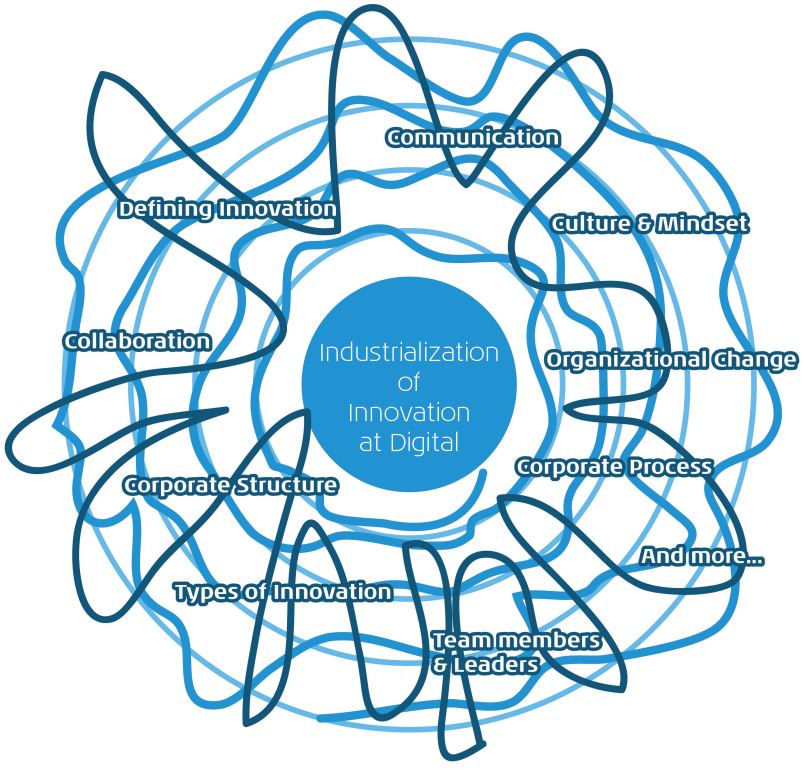


Figure 49. The complexity of the original topic, with the many variables and challenges.

A wicked problem can't be solved in a traditional linear fashion, because the understanding and the definition of the problem evolves as new possible solutions are considered and/or implemented. Wicked problems happen within a social context, with the "wickedness" of the problem being a consequence of the diversity of the stakeholders (Rittel & Webber, 1974). Some of the characteristics of wicked problems, according to Rittel & Webber (1974), are:

- You don't understand the problem until you have developed a solution: since there is no definitive description of "the problem".
- Wicked problems have no stopping rule: no definitive "the problem" leads to no definitive "solution". The problem solving process ends when resources run out.
- Solutions to wicked problems are not right or wrong: simply "better," "worse," "good enough," or "not good enough."
- Every wicked problem is essentially unique and novel: with so many factors at play, and within a specific social context, no 2 wicked problems are the same, and the solutions are always designed and fitted specifically for them.
- Every attempt at a solution has consequences: one can't learn about the problem without trying solutions, but every try requires resources and are prone to having lasting effects and creating new wicked problems.
- Wicked problems have no given alternative solutions: there may even be no solutions at all, and there might be a group of potential solutions ideated but not tested, or potential solutions that simply are never thought of.

As I progressed in my research I could tell with certainty that the project was indeed a wicked problem, given the complexity involved and that it kept evolving as I researched, with no definitive statement of what "the problem" was. Instead there were a few elements that comprised the bigger problem, like symptoms.

Then, the characteristics of a wicked problem, applied to the context of KLM Digital and innovation look like this:

- You don't understand the problem until you have developed a solution: there was no definitive statement of what the problem was, just general descriptions of issues, reflected on the original goal "to improve KLM's current digital innovation processes" and bigger topic "Industrialization of Innovation".
- Wicked problems have no stopping rule: there was a limited amount of time available for this particular project, and so the proposal was developed following this, among other resources-related, constraint.
- Solutions to wicked problems are not right or wrong: as subsequent discussions with people within KLM Digital showed, the proposal couldn't be seen as a "right", but as an improvement of the current situation that could hopefully lead to a change.
- Every wicked problem is essentially unique and novel: the current situation at KLM Digital regarding innovation and culture was a result of the context and its factors; the specific way of working, history and people involved, among others. The proposal made use of theoretical models that can be applied to different problems, but was ultimately designed for KLM Digital.
- Every attempt at a solution has consequences: the different tests and pilots, as well as other activities had and impact on how people saw the problem. However, each one was a decision that left out another possible options and made use of resources.
- Wicked problems have no given alternative solutions: the proposal was the result of the specific factors that came to play during the project, including the research carried out, my personal skills as a designer, the participants and their input during creative sessions, among others. But that doesn't mean that the proposal is the only potential solution to the problem, in fact other ideas that differed from the final proposal were simply not given a follow-up to be tested, plus any other ideas that were not thought of during the project.

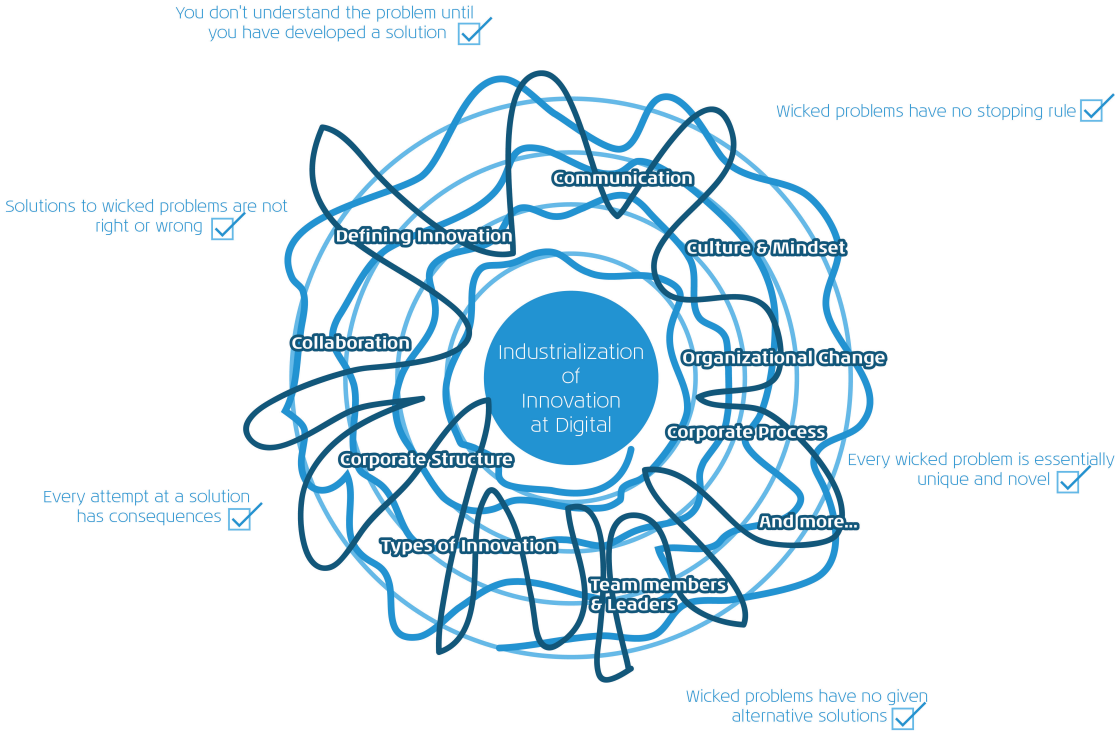


Figure 50. The context and challenge of KLM Digital qualifies as a wicked problem.

After I refined the scope for the project, I could focus on one of the challenges for the rest of the project: the Culture at KLM Digital. This challenge is also a wicked problem, but it is one that could be explored more easily, given its more limited scope, and it could be developed with the available resources, including time.
This way, I focused on only one element of the "parent" wicked problem, while keeping in mind that my proposal would only be the start of the change effort, and would not completely solve the problem, but instead start a process of learning and experimenting that would lead to a change.

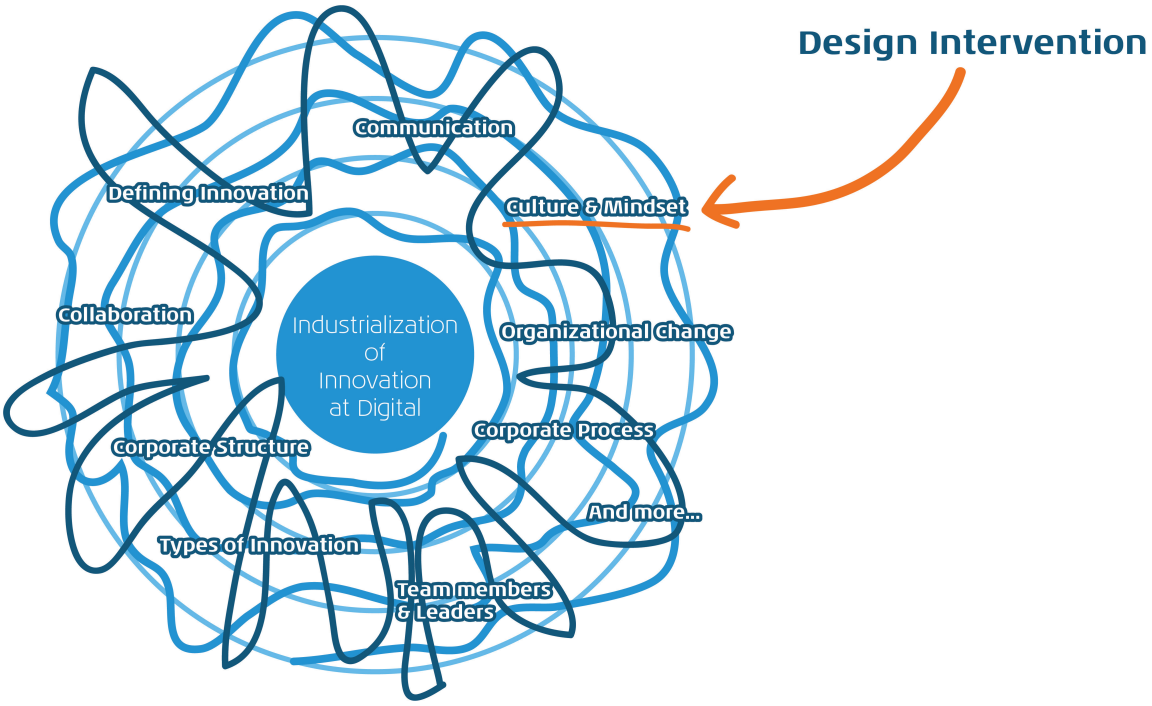


Figure 51. While Culture & Mindset still involves aspects of the other challenges, the project would focus on it and trying to kick-start a change effort.

DESIGN RESEARCH

Why carry out Design Research

Design is characterized for gaining a deep understanding of a given context (people, processes, environment, needs, etc.) in order to solve framed problems (Davidse, 2019).
To get that understanding, designers often engage and co-create with different stakeholders, learning from their points of view (Stickdorn & Schneider, 2010).
A key activity of design is to simplify all the information without losing its importance, and then communicate it in a way that is more understandable and relatable to the stakeholders (Coughlan et al., 2007). This process facilitates the handling of the problem and development of a solution, given that design helps connect the different perspectives and related issues that could first appear as isolated (Dorst, 2015).
As explained before, designers are used to dealing with wicked and ill-defined problems, which involves handling uncertainty and managing complexity (Dorst, 2015). Because of this, once this project was identified as a wicked problem I switched to a more involved type of research. As shown in the Design Approach section, this made me move away from the traditional Double Diamond design methodology, which I justify because of the complexity of the culture change issue and the need to deepen my understanding of it within the context of KLM Digital.
So, the research that followed relied on a variety of activities that involved the people at KLM Digital, and allowed me to ask them for input and comments, while also observing their reactions to my ideas. This way, I was part of some activities that can be taken as tests or prototypes, and also organized sessions where the people of Digital could participate in the shaping of the proposal.
This reflects the design practice of abduction, which means designers aim to develop solutions starting from consequences (e.g. an unfulfilled need, or potential value), then going back to the causes (e.g. systems, objects) and working principles (e.g. processes, ways of working) (Dorst, 2015). This practice requires constant iteration and evolution of both problem and solution, and shows how design is a non-linear process, especially when tackling complex challenges.
In the following section I present summaries of the types of activities I carried out in this phases, explaining the setup of each one and describing their main learnings. I go deeper in a couple of them due to their importance and how I think of them as the most interesting ones.

Ideation session with designers

After the initial research phase, I realized that up until that point I was having the same kind of discussions with the same people at Digital and my academic team. So I thought it was worth it to ask other designers, colleagues of mine, who were new to the project to participate in an ideation session with me, so that I could get new perspectives and comments that were outside the familiar feedback loop. The goal was to generate new ideas on how to change the current situation at Digital, and validate in a way the concepts I had developed by then on how to tackle the challenge of cultural change. It also made me restructure the story of the project, and think about how to better explain it to outsiders of the project, which was very useful for the subsequent presentations I made.
The discussion that resulted benefited from the fresh, different points of view of the participants, and reached similar conclusions as the ones I had, while providing new ideas and raising some interesting questions that I would later ask at Digital, such as the nature of the collaboration between Business and IT, and the involvement of higher management in innovation efforts.

The key learning from this session was actually a validation that the approach of having multiple activities tackling the issue made sense, but needed to be communicated effectively to all team members. The designers reasoned that the change effort indeed needed a group of people taking leadership, but also had to be shared clearly to all levels of the organization from the start or otherwise the interest wouldn't be enough to actually have a lasting impact.

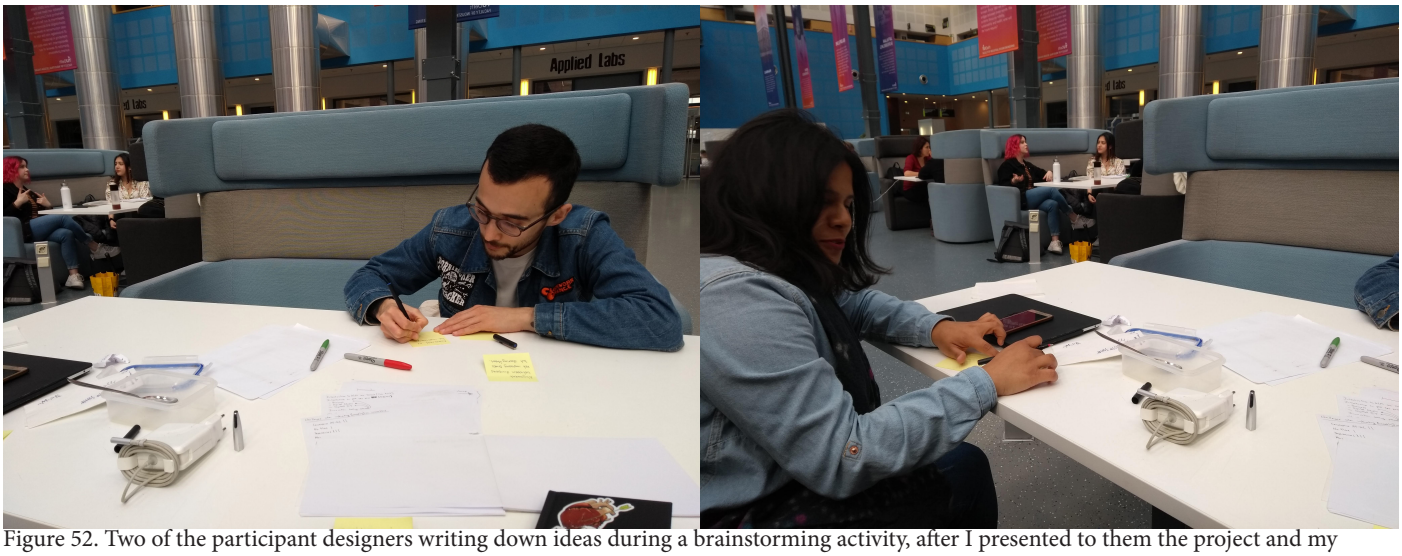


Figure 52. Two of the participant designers writing down ideas during a brainstorming activity, after I presented to them the project and my findings.

Presentations to team members

After the first research phase, once I had gathered the insights and decided to focus on Organizational Culture, I had the opportunity to present my progress on the project and my initial ideas. The presentations were supposed to update people from different levels at Digital on the project, explaining the main conclusions from the research and the following steps (See Appendix B.). One presentation in particular took place with managers from the different groups. There I could basically pitch my ideas and show the reasoning behind them. The discussion between the managers that resulted, served me to shape my proposal and my recommendations for the future.

The key learning from this presentation was that there was a resistance against my initial idea for Organizational Ambidexterity, but because some of the participants thought it was meant to be an immediate change. This made me adjust the proposal in a way that emphasized the fact that the change effort would be a long process, consisting of small steps and experimentation, and that because of the constant evolution of problem-solution, the final destination would almost certainly look different from what was initially described. Furthermore, I observed a high level of skepticism about the idea of uniting Business and IT. This made me prepare the proposal in a way that it started with smaller-scale pilots and prototypes, involving the people that were already pro-change. This way I hoped to create positive reactions and support in the short-term, so that hesitant people could be convinced it was worth trying it out.

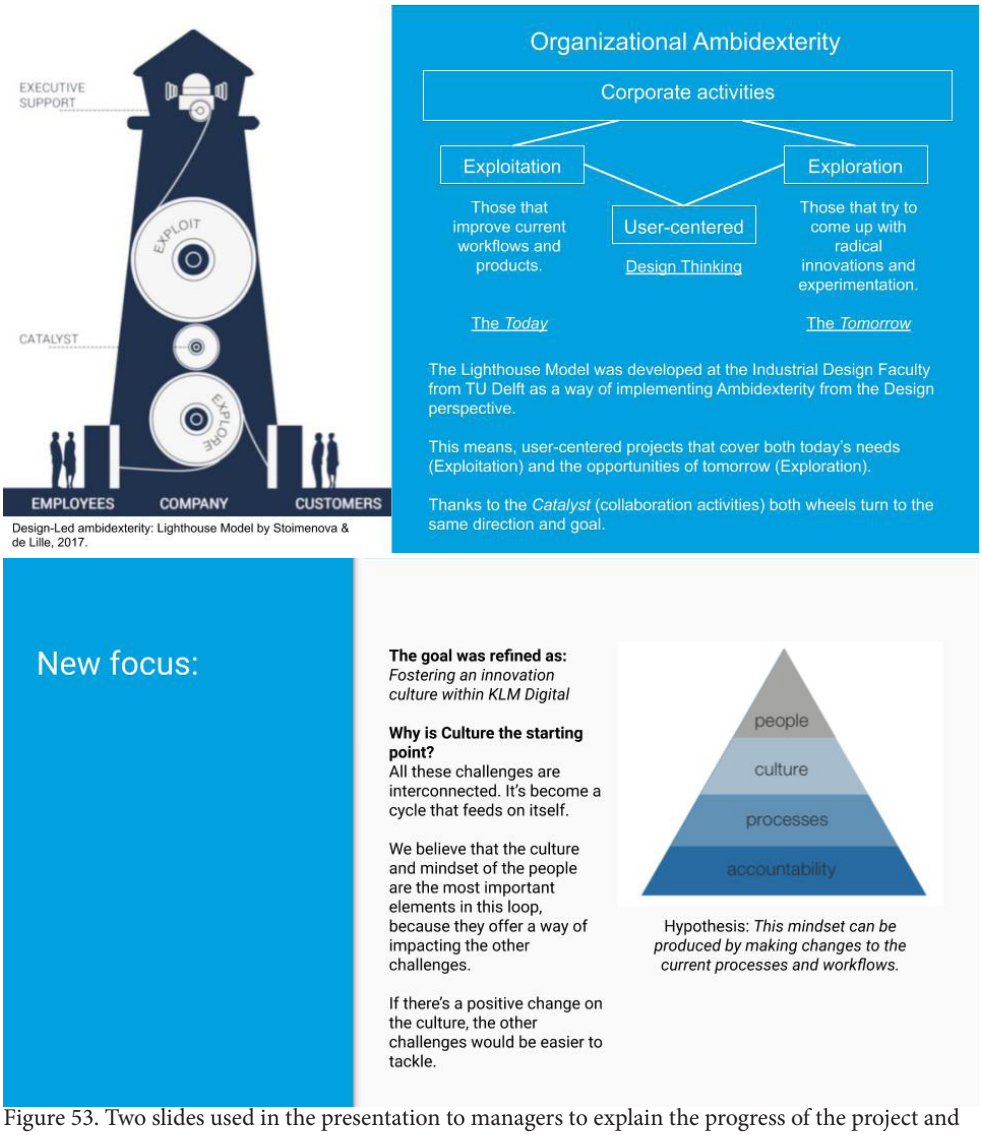


Figure 53. Two slides used in the presentation to managers to explain the progress of the project and its ideas.

Team-organized presentation and demo

This session served as a prototype for one of the activities in the proposal. One of the teams within the Offer & Order organized an update presentation and demo for their recent work, with people from IT invited to attend or watch the livestream online.
The idea was to share what that particular team had worked on in the previous months, given that they were dealing with new technologies, such as voice commands and digital assistants, which could be useful and exciting to other teams. A secondary goal for the session was to increase the interest in the Innovation Sprint by sharing what the team did in the previous one using Augmented Reality. The team had the notion that other teams were not carrying out the Innovation Sprints, a worry that was proven true by my research, and so the organizers wanted to inspire others to make the effort of setting up an Innovation Sprint, by showing off the results of one.
I was invited to present as a short introduction to the event. I talked about the design process and how design practices lead to innovation. Again, the idea was to inspire the audience and make them interested in this sort of activities.
Then the organizing team explained their projects, starting with a presentation and then moving to a short tutorial-like experience, ending with a live demo where the audience could approach devices and interact with the applications.
The response from the audience was positive, with some asking questions and then engaging with the demos, which I took as indicative that people were interested in having this kind of activity taking place. They appreciated the opportunity to share information and learn something new. However, there were also some things that were not as positive, and I took them as key learnings.

Figure 54. The demo section of the event, with audience members interacting with the devices and discussing with team members.

First of all, only a small number of invited people showed up. It was mentioned that part of the reason why was that team members found it very difficult to make time for this kind of activity, outside the regular day-to-day workflow. Also, the people joining online faced a lot of technical issues like no sound or bad quality image, which made me think that perhaps the organizers had been too ambitious for the first try. This reinforced the need of starting the change effort in a small scale, slowly trying things and making adjustments to following iterations. This way the interest among the people would grow naturally, instead of expecting them all to be onboard right away.
Another takeaway that came with this was the fact that the proposal would need set times and places where the different activities could take place. That way, the team members could attend to them without affecting their regular work.
As an additional note, at the end of the event, the organizers invited and challenged the other teams to organize their own presentations so that every team knows what others are working on, and there's an exchange of knowledge. However, up until this writing there has been no other team organizing another one. This made me shape the proposal in a way that made these sessions and other activities part of the regular workflow, instead of depending on the willingness of teams or individuals to plan and organize.

To consider...

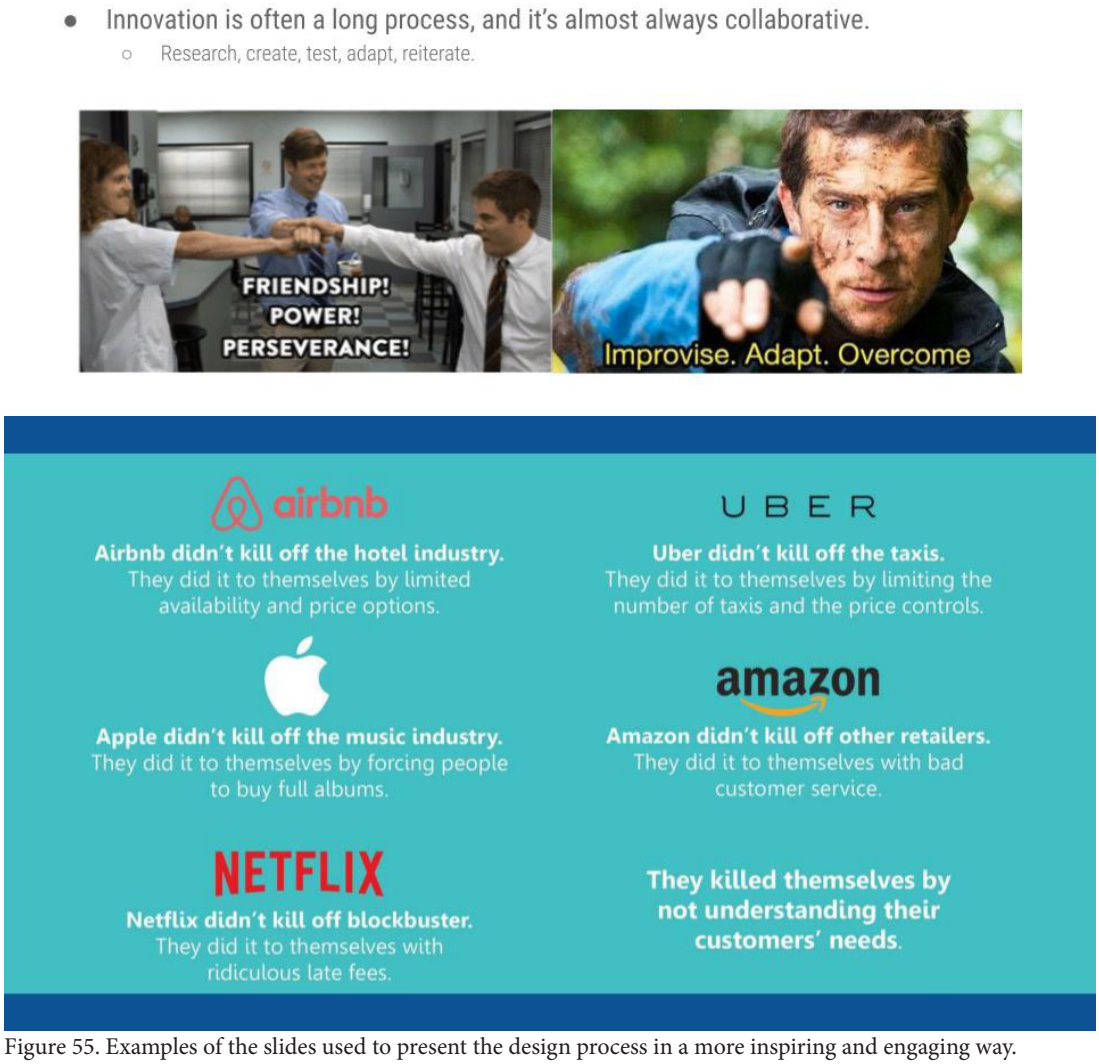


Figure 55. Examples of the slides used to present the design process in a more inspiring and engaging way.

Co-creation session

Another session I arranged consisted of a co-creation workshop with participants from both Business and IT, and from all levels of the hierarchy at KLM Digital. The way I decided who was going to be invited was based on previous interactions with them, especially during the interviews. During those I made notes on who I found to be more interested in the project and willing to help me out during my process. I also wanted to include people that were not so positive about the project, and have them as a counterweight, but they declined the invitation.
I divided the session in two sections. The first half was devoted to, first of all, update the participants on the progress of the project, and its insights and conclusions; and then work on a roadmap for KLM Digital, taking into account what the participants considered was of importance and desired by the organization, guiding what they wanted to become in the future. The goal was to come up with a final (ideal) scenario that reflected the long-term goals and ambitions they considered necessary in order to change Digital's culture.
The second half of the session would then take that final scenario and work backwards from there. In other words, I would ask the participants "how do we get there?", and then ask them to ideate on activities and other concepts that would help the change effort achieve the ideal scenario.
So, first I presented the main conclusions from the research and explained the new direction and focus to the participants. Next, I asked them to work as a group and think of desired characteristics of Digital in the future.

Figure 56. The participants working together and discussing (Top). Examples of the generated ideas (Bottom).

Here I got one key learning, which was that the participants pointed out that there was a bigger issue than just agreeing on what kind of features they wanted to have, it was also a matter of agreeing on the values that were needed, and the why they were desired. They described how Digital lacked a vision and long-term targets that could guide the team members and bring them together. Because of that, this section of the session was adjusted to work on a higher level, and ideate on these things instead. In the end, we got a final scenario that consisted of different values and beliefs that would later be translated into a vision.

The second half of the session started as planned, with the final scenario as the starting point for a roadmap that would explore how to get to that ideal. I handed the participants cards with the descriptions of existing activities, such as hackathons and conferences, as an inspiration of the kind of activities that promote creativity and collaboration. Then I formed pairs with the participants and asked them to ideate on other activities that they thought could be interesting and valuable for the change effort. In the end, we had a group discussion on the concepts that were created and we voted on the ones that were more promising. That discussion was very interesting, given the diversity of the participants, and the fact that they could now relate the concepts with the values and beliefs they had previously defined. We then talked about when in the roadmap those activities could take place and how they could be kick-started as smaller-scale pilots.

Figure 57. Discussing with the participants about the roadmap.

The key learning from this section was that the participants were really skeptical about having high management supporting the activities and the closer collaboration between Business and IT. They concluded that having early evidence of their impact, as well as having a person or group responsible for communicating the vision and guiding its implementation was of great importance to convince the higher levels of supporting the changes.

Informal discussions with team members

Finally, I kept having some talks with different team members in a more informal manner. I didn't have any prepared questions or topics to be covered, instead I just started to discuss with team members about the things that I had concluded so far and I proceeded to ask them how they managed them. Additionally, I also ask them to explain from their point of view what were the challenges they faced everyday and what kind of ideas or proposals they might have related to my project. The more relaxed setup for these meetings meant I didn't have to fulfill certain tasks or achieve specific goals, instead I was just interested in getting new perspectives and involving people that weren't included in the project until that point.

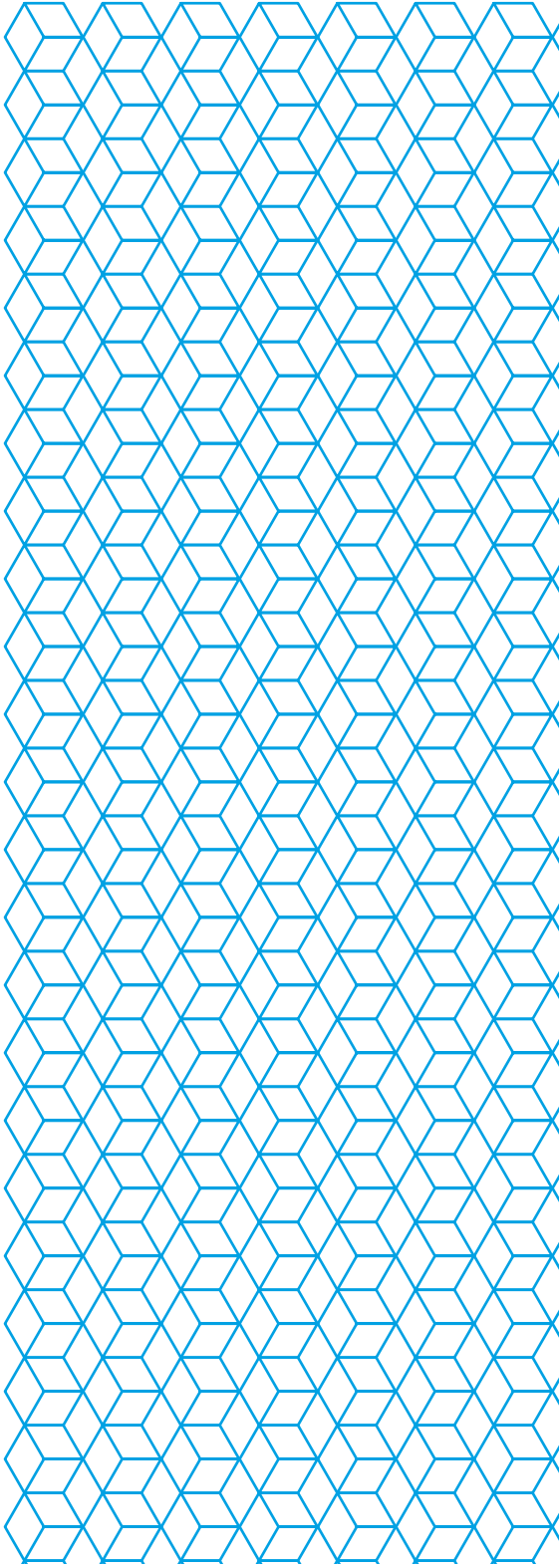
Figure 58. A more informal discussion about the project.

The key learning was a confirmation that the challenges I identified during the on-site research were the most important ones, given that they kept coming up in these discussions, with the team members sharing similar remarks and struggles.

CHAPTER 6.

♫ *We barely remember who or*
what came before
this precious moment
We are choosing to be here,
right now ♫

Parabola
by TOOL



DESIGN PROPOSAL

INTRODUCTION

Overview

My design proposal consists of a future vision representing a scenario where KLM Digital achieves the changes team members wanted to see. Those changes relate to challenges that were identified during the research phases, and the structure of the proposed organization reflects the desired cultural change. As part of this scenario, a new Organizational Identity was created. This new Identity aims to bring the team members together under a shared beliefs and values system, working towards Digital's Vision. It also functions as a communicator of the change effort, highlighting the interventions that will take place and guide the transformation.
I call the previous elements the Final Destination, a future horizon that shows a changed way of working and new goals. If that's the Final Destination, there has to be a Runway that guides the landing. In this case, the Runway is the collection of actions that Digital can take in the short-term to kick start the change process. More specifically, the Runway includes a number of activities that promote collaboration, creativity and communication among the people of Digital. Those activities make use of the Innovation Sprint, giving it a more clear purpose and allowing the activities to happen without disrupting the development of the regular work.
Both parts of the proposal were created taking into account the learnings and insights gathered during the research phases. Those conclusions were taken as potential characteristics the proposal had to have in order to better suit the context of KLM Digital.

FINAL DESTINATION

The Final Destination builds from the conclusions drawn from the research phases, and proposes elements that show the desired cultural change. As stated before, the Final Destination comprises two big elements: a future scenario, which changes the organization, and an Organizational Identity, which reflects the values and beliefs of the new organization.

Organizational Identity: Digital Generator

Let's start with the proposed Organizational Identity: Digital Generator. Given that the current self-image of Digital Factory is now associated with negatives, especially in IT, and is used to describe the struggles people have while working there (going back to the developer's comment about being Code Monkeys for instance) I concluded that a new identity that reflects the hopes and ideals from the team members would be beneficial.
It offers the opportunity to bring together the people of Digital under a shared system of values and beliefs, while at the same time giving the change effort more presence and formality.
The values and beliefs that Digital Generator represents are: collaboration, experimentation, communication, user-centeredness and learning through iterating. Those concepts were defined following the conclusions of the research phases, and were later translated into a series of statements that reflect the vision for the organization:

Figure 59. The statements created by adapting values, aspirations and beliefs.

The name Digital Generator represents a positive metaphor for the work done by the team members. In contrast to a Factory, or at least the interpretation it now gets from the people at Digital, a Generator creates things, not only puts them together. A normal generator transforms mechanical energy into power to be used in an external application. Likewise, Digital Generator creates powerful applications from the efforts of the team members that are going to benefit the end users.
The proposed identity sits alongside the identities of other divisions within KLM, for example Digital Transformation (Digital Studio), giving Digital Generator a recognizable presence for others (Figure 60.).

Figure 60. The visual identity of Digital Generator alongside KLM's and the Digital Studio.

Future Scenario

So, how do the values and beliefs translate to the organization? The scenario shows how the structures and processes of the organization foster an innovative culture within Digital Generator.
Given the current lack of radical innovation, which means Digital is firmly set in the present, the new organization takes elements of Organizational Ambidexterity. That way, the output of Digital Generator would cover both Explorative and Exploitative projects.

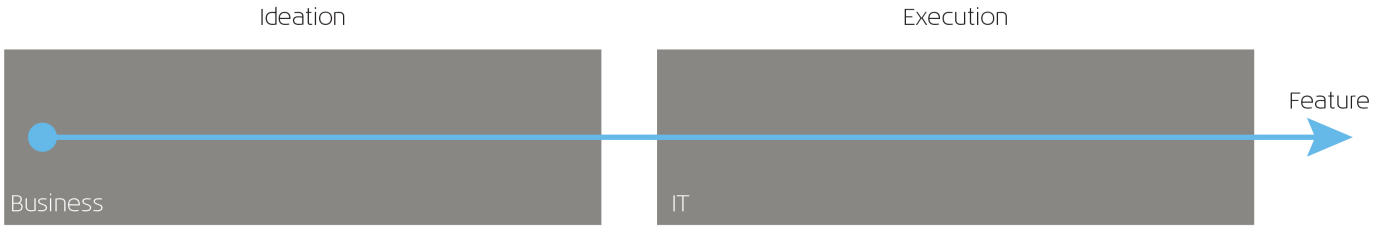


Figure 61. The current setup of the Digital Factory, where Business and IT are separate, and each one is in charge of a part of the work.

Thus, Digital Generator considers two big Units, with one focused to Exploration and one to Exploitation (Figure 62.). Those Units are formed with both Business and IT people collaborating in teams, putting an end to the current division between the two disciplines. The two Units would be separated, each working on their own projects, however, they would come together and collaborate at certain points along the development process. That way, the teams can learn from each other and feed each other's products. Those collaboration points take the form of creative activities that are organized by the Design Team, and then carried out with different goals in mind. For example, some emphasize communication while others do experimentation. A description of those activities, and the Design team is shown later on.

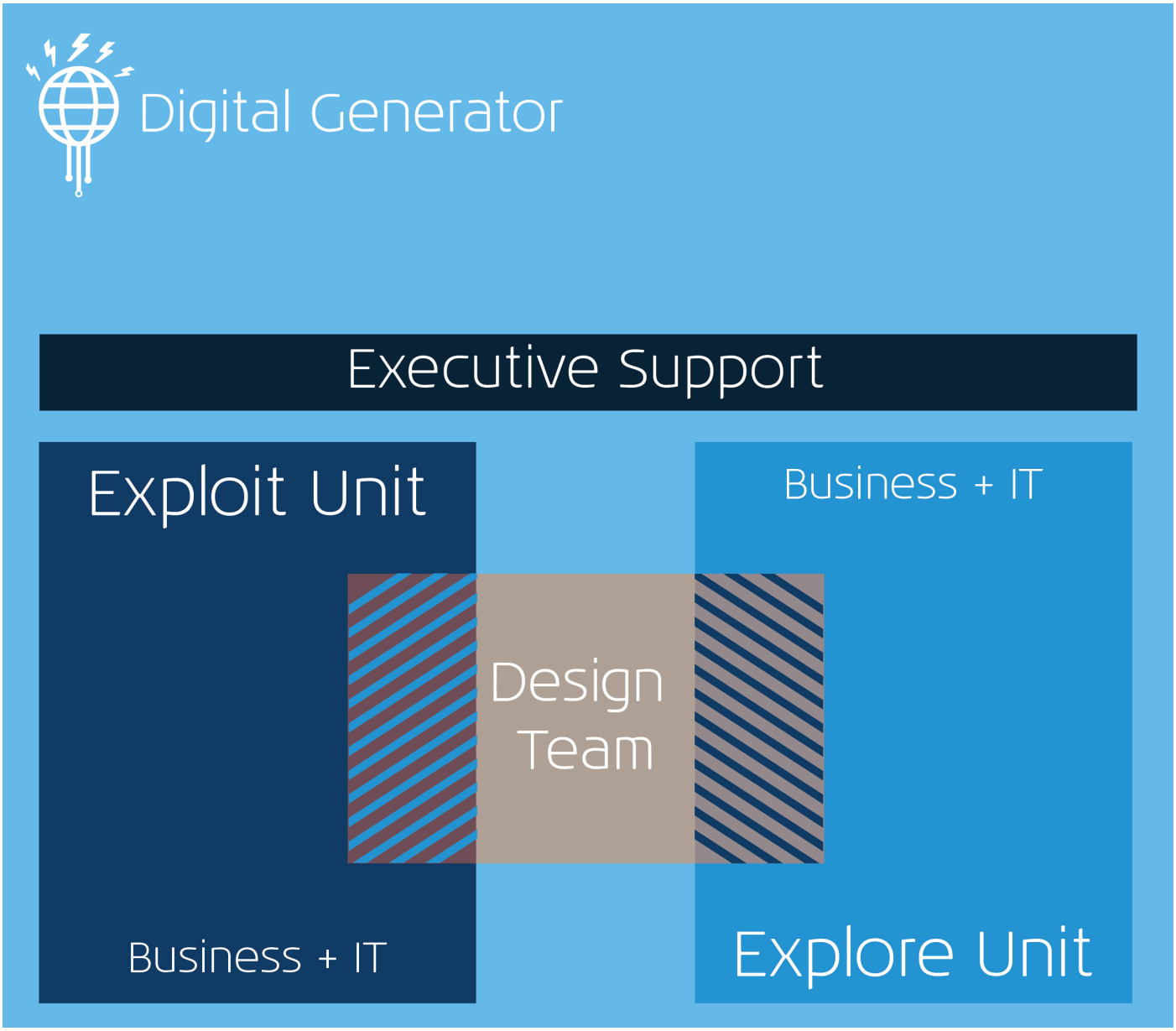


Figure 62. The setup for Digital Generator. Two big Units, one dedicated to Exploration projects and the other to Exploitation projects. Each Unit has team members from both Business & IT working together in teams. During the development process of each unit, collaborative activities take place, where the Units combine and work together.

Learning from the academic research, I propose a team of people that would be responsible for organizing the activities and making sure the groups are in contact with each other and working towards the shared goals. That team is the Design Team, a group of designers that would serve as a Catalyst, as per the Lighthouse Model for Organizational Ambidexterity (Figure 63.). The designers are used to deal with problems of varied complexity, taking input from multiple stakeholders and guiding towards a goal, which makes them a good option to form the supervisory team.
This also aims to finish the silos that are present in the current setup, since the teams and groups would contact each other and work together often, so that despite having separate responsibilities, they could approach one another easily and be aware of what everyone's working on.

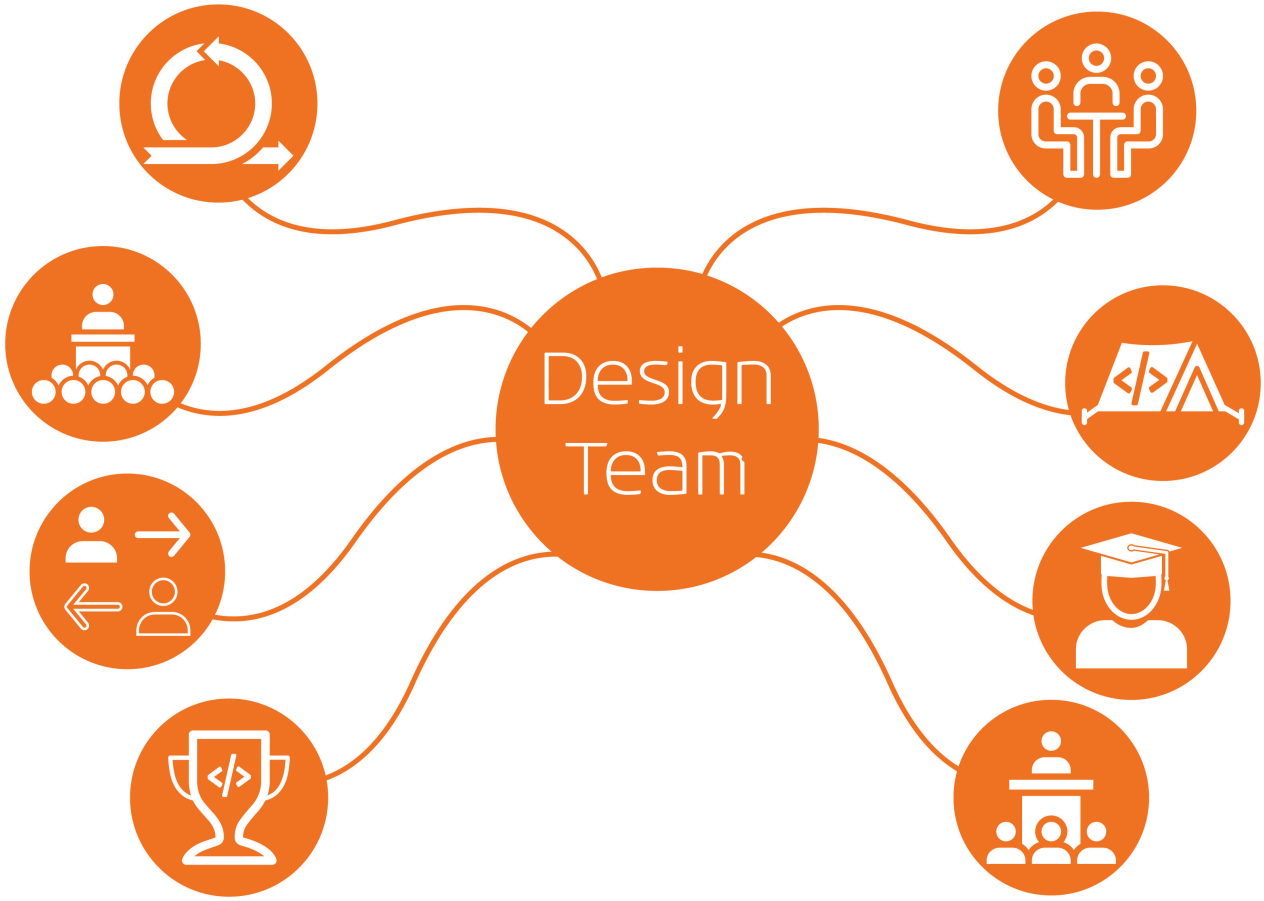


Figure 63. The Design Team is in charge of synchronizing the Units of Digital Generator, and make them collaborate and learn with each other. This is done by carrying out a diverse selection of activities.

However, it's important to make the remark that this Future Scenario is uncertain. Cultural change is a long process, and to achieve it in such a big scale you need to make small actions and learn from their outcome. Given that iterative nature, the Final Destination would transform and adapt to the changing context. Despite this, the Scenario offers a vision that can guide the change efforts, since it takes the aspirations of the team members and incorporates them into the new organization.
Now that the Final Destination offers a long-term goal (Figure 64.), the question is how do we get there? For that, the Runway enables a kick-start to the change efforts.

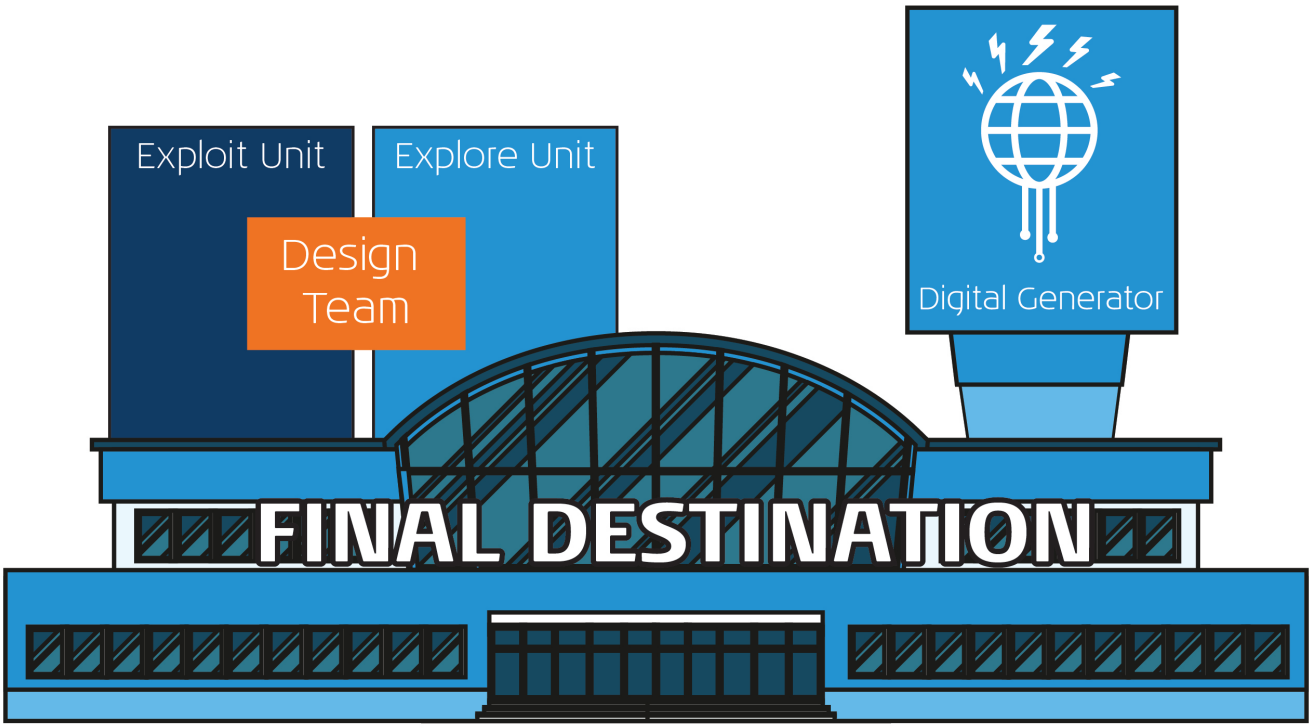


Figure 64. The Final Destination, showing the two elements: the Future Scenario and the Organizational Identity

THE RUNWAY

Making use of the Innovation Sprint

As stated before, the change effort is a long process and it requires small, incremental steps, from which adaptations and improvements can be done. With that in mind, the Runway towards the Final Destination collects activities that can kick-start the change and inspire the team members to take part in it.
As a starting point for this concept, I took the creative activities that are occasionally carried out at KLM Digital. However, I made them part of the regular development process, instead of having them happen whenever key individuals can organize them. The part of the process in which the activities can happen at first, is the Innovation Sprint. (Figure 65.).
At present, the Innovation Sprint lacks a clear objective, other than work on projects that wouldn't usually happen during the regular sprints. This leads to many teams skipping the Innovation Sprint altogether or, for the ones that do carry them out, leaving each team member decide on what to spend that time without a shared purpose. However, the Innovation Sprint represents the only official and supported time on which teams can experiment outside their regular work. I believe that by offering the creative activities during the Innovation Sprint, and make them accessible to the team members, KLM Digital can start the cultural change.

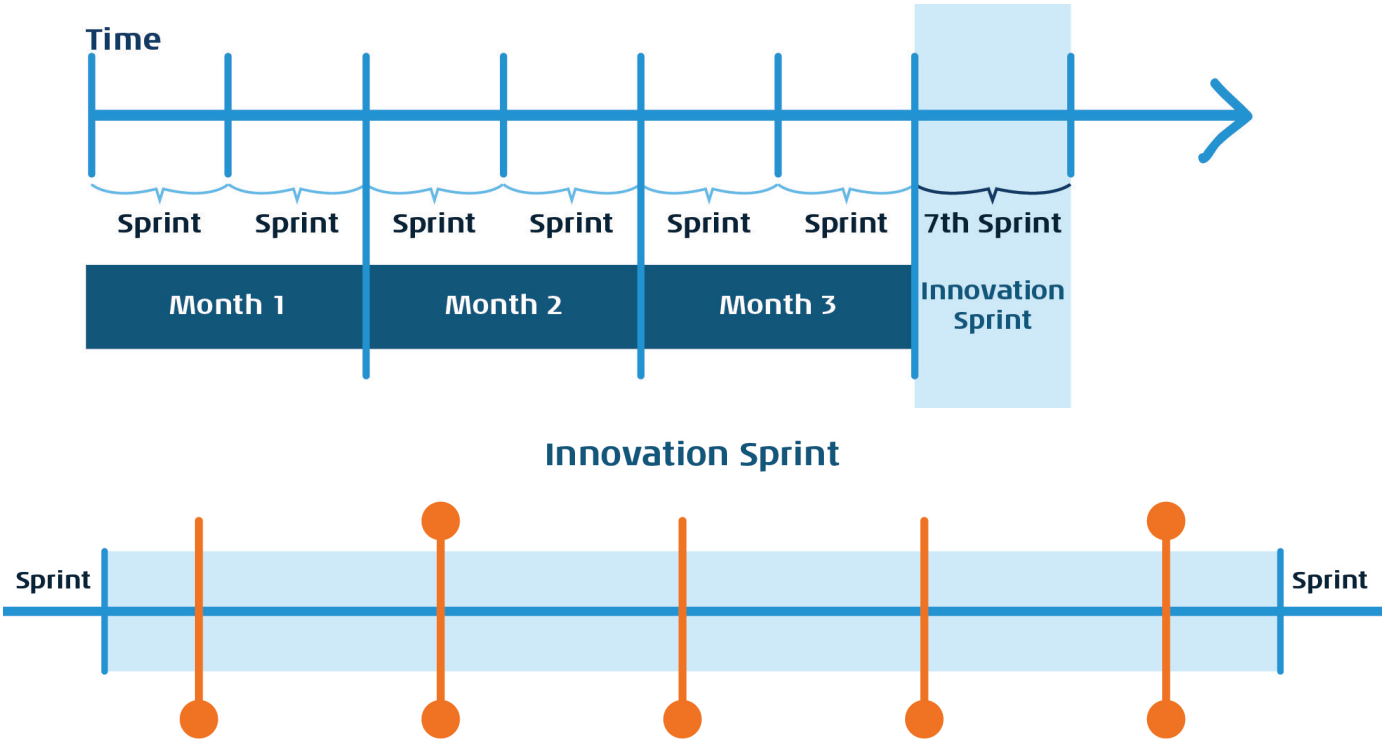


Figure 65. The frequency of the Innovation Sprint (Top) and how it can be given purpose by carrying out activities, shown as orange circles, that promote collaboration (Bottom).

The activities should be announced, and clearly explained, prior to an Innovation Sprint. It then would take team leaders to push for their members to take part in them, so that the teams can plan ahead and make the time to participate. At first, the frequency of the Innovation Sprints (every 3 months) can help gather the feedback for the activities and make changes to the next ones, involving the participants and co-creating the next sessions, thus starting the long process of cultural change.
The idea is that the activities would grow each iteration, and eventually take place outside the Innovation Sprints as well, making them a constant part of the workflow, just as it happens in the future scenario of the Final Destination. This would be facilitated by showing the results and learnings for each iteration, and thereby gaining interest and support of the team members and management.
Here, the Organizational Identity of the Digital Generator would also be of importance. Just as the activities would evolve with the outcome of each iteration, the Identity can also be adapted and molded to fit the changing context. By allowing the team members to shape their shared values and beliefs systems, and their self-image the result would be more coherent with the rest of the change effort and congruent with the long-term vision. It also helps communicate to the team members that these activities are part of a bigger change for KLM Digital, and that actions are being taken to constantly improve the way of working.
Right now, the existing Design Team is very small and thus not really prepared to organize the change process. So at first, that responsibility would fall upon the individuals that have already shown interest in carrying out this kind of activities, and promoting a cultural change. This includes this project's Company Supervisor and a few others. Just as it happened during my project, they should keep organizing smaller-scale events and activities and take them as pilots to gain quick feedback and insights. As the change effort gains traction, the organizing team would gain the support and help of other individuals and thus increase the size and ambitions, little by little.

Creative activities

Next, here's a general description of the proposed Creative Activities, then looking at one of them in more detail.

Design Sprint

General description: workshop sessions that tackle challenges through design thinking and business strategies. Following widely used guidelines, such as the ones developed by Google. Used to ideate and co-create possible solutions to relevant challenges at the time.

People involved: a team of people from different backgrounds and with diverse points of view. They can come from both Business, IT and even other divisions within KLM. The inclusion of end-users would help develop user-centered proposals, and the diversity of the team provides insights and knowledge of value.

How it can be started: as it is already happening, a shorter version of the sprint (hours-long, instead of days) can help familiarize team members with the tool, and communicate its value for day-to-day projects. It also showcases its usefulness for finding solutions to complex challenges and it encourages people to propose new, more radical ideas.

Internships

General description: students from different universities come to work on challenges that Digital thinks need a new point of view and fresh talent. The network of students provides proposals that help Digital move towards its vision. This can eventually also include people coming from other companies to work at KLM, and vice versa.

People involved: students from different universities and specialties collaborating with established teams, creating proposals that can be implemented later.

How it can be started: there are interns already working at Digital. However, a closer collaboration between the students and also with the teams can help create proposals that can be picked up in the future and further developed.

Social Meetups

General description: social meetings where team members can get to know each other in a relaxed environment, free of work-related pressure. This strengths the sense of community and lets people know each other on a different level.

People involved: team members from different groups.

How it can be started: smaller events can be organized for a single group, before arranging broader events for a large amount of people.

Conferences

General description: lectures given by experts from both within and outside KLM. People from universities, other companies and organizations are invited to share inspiring talks with the team members. It partly works as a window to the outside world, where team members can update their knowledge on diverse topics relevant for them.

People involved: experts in diverse topics, coming from different organizations, with the events open to anyone at KLM that is interested in the topics.

How it can be started: universities and companies that already have a relationship with KLM can be approached to organize a smaller event, covering topics that are valuable for Digital and its goals.

Exchanges

General description: individuals from different teams work in a different company or start-up for a period of time. This helps discover different ways of working and approaching challenges. It can be seen as internships for team members.

People involved: experts and specialists that can take advantage from being exposed to different methodologies and work culture.

How it can be started: companies that already have a relationship with KLM can be approached to organize a pilot, where a Digital team member can experience their way of working and approach. Additionally, it might be valuable to also have exchanges within KLM. Involving different teams, groups and the Digital Studio for example.

Hackathons

General description: participants form work teams to tackle current challenges during an event focused on experimentation and prototype development. The teams are given a challenge that is affecting KLM and work together to create innovative solutions that can be showcased by the end of the event.

People involved: team members from Business and IT are invited, and they form teams with people they wouldn't normally work with.

How it can be started: hackathons have already taken place. They need to be supported and organized more regularly, with a focus on involving people with different skills and backgrounds.

Digital Camp

General description: an event organized by Digital where students and young professionals can visit KLM for a few days and participate in workshops and other activities alongside current team members. Presentations are given by experts from KLM and challenges are given to the participants.

People involved: top students and young professionals that apply to participate. Current team members from Digital that give presentations on relevant topics and coach the participants during the workshops.

How it can be started: KLM can approach universities that already collaborate with them to organize a shorter event, in which the students can go to KLM for conferences and then team-up to work on a challenge.

QuickSight (Presentations)

Presentations

General description: an opportunity for individuals to share their knowledge on a variety of topics, not restricted to only technical or work-related. Entire teams can update on their recent work on a regular basis, as well as showcasing projects and giving advice to other teams.

People involved: people from both Business and IT would be invited to assist and also present.

How it can be started: a shorter, more informal setup can be used to introduce the format and facilitate interactions between team members. That consists of 5 to 10 minutes long talks on a broad selection of topics.
The team update presentation has already been tried out, with future events involving teams from both Business and IT showcasing their projects.

The Presentations offer a quick, inexpensive option for sharing knowledge and improve the communication among team members. It serves the statements of "Our work is done by Business and IT collaborating together" and "We are available to each other, and we learn from each other" from the future scenario.
It's a great starting point for introducing the team members to the new ambition and changes that are desired. With that in mind, a pilot for them was planned just as this project was about to end.
This opened the opportunity to develop this concept a bit further, by designing its own visual identity (Figure 66.) and creating graphic materials to promote it (Figures 67. & 68.).

Figure 66. A distinct visual identity was created for the Presentations activity, so that it would become more recognizable to the team members.

The name QuickSight is meant to communicate that the presentations are fast, and show only an introduction to the topics. The name also avoids terms that might give the idea that the topics to be covered are from the same discipline. Instead, the neutral name communicates the variety of the topics. The visual identity as a whole is meant to make the activity easily recognizable, and if every activity gets the same treatment the result would help strengthen the Organizational Identity of Digital Generator.

The activity itself is meant to inspire the audience to continue their research on the topics, to open a dialogue with the presenters and to motivate other people to present in future iterations.
The fact that the activity is short makes it possible to organize it outside the Innovation Sprint, which gives the opportunity to get feedback quickly and adapt future iterations easily, as well as improving the planning for other pilots. Assuming that this particular pilot goes well, it could be taken as an early win that can be shared and promoted to raise the interest and support for future iterations.

Figure 67. A poster created to explain the concept of the QuickSight activity.

Figure 68. A poster to promote the first pilot of QuickSight.

CONCLUSIONS

The current organization of KLM Digital, using the SAFe framework of Agile Development, is very efficient and facilitates the quick development of digital products, creating the Digital Factory. However, the setup for that workflow divides KLM Digital into Business and IT, and puts the teams inside separate silos. This has impacted the levels of communication and collaboration, reducing them significantly. It has also meant that innovation doesn't happen at the desired level set by management, especially radical innovation. The Digital Factory keeps a very efficient pace, but one that is set in the present, reacting to conditions and building small increments of existing products. The lack of exploration and experimentation translates into a lack of radical innovation for the future.

People on all levels of the organization recognize the challenges when trying to create innovations. It was analyzed how those challenges relate to one another and are enabled by the processes and workflow, creating an organizational culture set in The Today, and oftentimes with negative consequences for the Digital Factory. Recognizing this, the project started with a broad topic of how to make innovation part of the regular workflow.

The challenge of "Industrialization of Innovation" is a very complex one. It offers a lot of opportunities worthy of being explored. However, the duration of this project called for an intervention that could be tackled with the available resources. It was concluded that kick-starting cultural change would be the best proposal for this project.

Organizational Culture, and cultural change, is also a complex, wicked problem. But by applying design methodologies, the project could find key opportunities and needs for starting the change effort.

By creating a future scenario and showing a new organization that reflects the kind of values and aspirations that team members have, the change effort can be guided towards a shared goal, and make adjustments to the effort as it advances. Additionally, the organizational identity unites the people under the same values and beliefs system and helps communicate to the team members the direction that the organization is taking.

A change process that starts with small steps and learns from iteration is the best way to get to the desired cultural change. It is necessary to gain support and interest from the team members. One thing that can help achieve that is making use of, and give purpose to the Innovation Sprint. The Innovation Sprint is the only formal and supported opportunity for teams to experiment beyond their regular work, but is not carried out due to its lack of clear objectives. By organizing the creative activities during the Innovation Sprint, teams would have a good reason to be part of them.

Organizational Culture change is a long and complicated process. However, making changes to the way people work and involving the team members in the process gives the best chance to make it happen. It's going to take a lot of experimentation and learning to achieve the goal, but once it's done it would greatly strengthen KLM Digital, and prepare it for the challenges the future holds.

Moreover, KLM Digital currently has the passionate people needed to make this change happen, and in fact, they have already started. Hopefully this project helps them guide those efforts.

CHAPTER 7.

We can learn from the past
But those days are gone
We can hope for the future
But there may not be one

A Change of Seasons
by Dream Theater

GENERAL DISCUSSION

DISCUSSION

The proposals reflect the insights gathered through three types of research (Academic, On-Site, Design).
The first element, the Final Destination, comprises two elements: the Future Scenario and the Organizational Identity. Starting with the latter, the research showed that there was no clear Identity in place, at least not one officially supported. This is proved by the lack of symbols unique to Digital, but that other divisions have, such as Digital Transformation (Digital Studio) or Cargo. Instead, the people from Digital created, perhaps unconsciously, their identity around the name Digital Factory, but that Identity was full of negative connotations. Since Identity is a very important element of Culture, given that it allows the members to feel part of the achievements and unites them under a shared values and beliefs system (Alvesson & Sveningsson, 2008; Idowu, 2017). One of the research questions for the project was "What is the impact of Organizational Identity in changing culture?". I took that opportunity to develop a new Identity that could help the cultural change efforts, by communicating the ideals that are pursued and bringing the team members closer. The duration of the project didn't allow to measure exactly the impact the identity might have in the long-term, however, I would argue that just the fact of creating a new identity that shows the bold new direction of Digital is better than the current situation where there's no formal presence of Digital. By rejecting the negative connotations of the current Digital Factory, and proposing an alternative, one that was created from the context and is open to the team members for adjustments, Digital Generator offers a starting point from which to build upon. Furthermore, the idea of creating identity as a way to change culture expanded to the proposed creative activities. That way, the QuickSight presentations become an event unique to Digital that offer an exciting opportunity to share knowledge and get to know the team members better.
Another research question was "How is Organizational Culture changed?", which was explored throughout the duration of the project. The academic research offered a theoretical foundation for this, while the On-Site and Design Research allowed me to place that information in the context of KLM Digital.

The proposals look to tackle cultural change from many different angles, just as advised by the academic authors (Alvesson & Sveningsson, 2008; Davidse, 2019; Johnson, 1992; Kotter, 1996;). This includes:

- From Johnson (1992): Proposing changes to the Symbols (New identities), Rituals & Routines (Creative Activities), Organizational Structures (Design Team), Stories & Myths (Having the Final Destination as guide) and Power structure (Iterative process where all team members can shape the next steps).
- From Kotter (1996): I checked as many as possible items from the model within my proposals. Starting by pointing out the opportunities in promoting collaboration within Business and IT, proposing a Design Team to be the organizers and in the meantime using the individuals that have already shown drive to make changes, developing a vision and strategy to reach the Final Destination, communicating the changes by doing presentations to various team members and creating visual materials and generating short-term wins by trying out a few pilots for the activities.
- Likewise, the proposals include many of the actions proposed by Davidse (2019), like forming a guiding coalition, approaching the challenge from many angles, talking about the future ambitions and taking one step at a time.

With this, I aimed at having a better chance of achieving cultural change within KLM Digital. However, the time wasn't enough to measure the success of these actions, or to test every one. For this project I could only carry out a few, with the rest being only described to KLM Digital, with the intention that they can do them themselves in the future.

The next research question was "How can strategic design help change Organizational Culture in order to achieve Organizational Ambidexterity?". This one was tackled by following my design methodology. By carrying out different types of research and experimenting within the organization, I could explore the opportunities there were to take design-led actions. Once more, the time wasn't enough to assess whether my design interventions really have an impact on cultural change and eventually Organizational Ambidexterity, but since they involve learnings from three different types of research, I am hopeful that given enough time and iterations my proposals can change culture. So for the time being, I can answer that strategic design helps by learning from various stakeholders, taking an empathetic attitude towards the involved, experimenting with the people involved and working together to give clarity to complex problems and eventually proposing probable solutions.

One key element that is needed for the proposals is Executive Support. It is needed to secure the resources that would be required to carry out the different activities and also to make sure that management is committed to the change effort. Otherwise, there's the risk that it would be abandoned before achieving a lasting effect. The proposal takes this into account and works through it by starting in a small scale, with inexpensive pilots that can create wins in the short-term that can later be shown to the higher-ups.

FURTHER RESEARCH

Given the complexity of the topics covered in this project, and its uncertain, evolutionary nature, there are still a lot of unknown things that should be tackled by further projects and research.

Starting with how to evaluate the progress of the change effort. What kinds of variables are there that can measure whether cultural change is happening or not? The answers to this can help guide the process and making adaptations to future implementations.

On that same note, there's a need for a clear classification and evaluation of innovations within Digital. This would give an opportunity to assess the situation more formally, and it would help communicate the kind of projects that are desired at a given time.

Closer to my own project, there's an opportunity to plan and test the different Creative Activities. I think it would be very useful to have another designer working on the activities, running pilots for them and then improve the formulas for the following iteration. It would also allow the development of identities for each one, making the activities a more formal and unique part of the workflow. Here lies also an opportunity to work on the setup of Innovation Sprints. The strategy and logistics behind a fully developed Innovation Sprint can be a really interesting and have a lasting impact.

It would also be important to research about the different profiles of people within KLM Digital and their willingness of participating in events and activities that are outside their regular workflow. What kind of people should participate? What to do with the ones that are not interested in them? Who should work on each type of projects? This relates to another unknown, which is the implementation of ambidexterity at Digital, which is how to organize the Exploration and Exploitation teams. Define how to select the people that are going to be working in each, and what kind of workflows they're going to follow. Exploration and Exploitation have different rhythms and so they normally follow different workflows. Is SAFe, and Agile, still the best methodology? Should it be attempted for Exploration projects as well? These, I think, are the most pressing questions that should be explored soon after this project is wrapped up, in order to improve the implementation of its ideas.

RECOMMENDATIONS

I would also like to put forth some recommendations for KLM Digital when dealing with this type of project:

- First, it would be very beneficial to all parties involved if the project descriptions are better developed from the beginning. It took a long time for this project to find its focus and target, which increased the stress levels afterward.
- A broad description is helpful to students to find their take on the challenge. However, when the project deals with complex problems, and there's a time limitation, it would be better if the focus is narrowed down, and to at least have some clue of what the end result should be.
- Having the chance to meet (and talk to) people from all levels of the organization was one of the best things for me as a student. This should be kept for any further student project at Digital, since it really helps define the problems and gives the student the notion that what they're working on is important and appreciated.
- It would be very useful for students to have regular feedback sessions with the supervisors at Digital and team members. That way the expectations can be aligned and the project would have a better guidance.
- Keep including designers in all types of projects, and different teams. There's a good opportunity there to explore how design thinking can help improve Digital's workflow and output.

CHAPTER 8.

Porque sabemos agradecer
a pesar de lo vivido
Porque de todo comienza a ser
ya mucho tiempo
Porque quien encontró el amor
no lo buscaba tanto
Porque las cosas cambian

Porque las cosas cambian
by Enrique Bunbury

PERSONAL REFLECTION

This project has been incredibly difficult for me. Not just because of its complexity, but because of the mental and emotional state I was in.
I made a lot of mistakes along the way, but I know that I got a learning from every single one. Even if I'm not able to properly articulate each one right now.
This was the first time I worked on something like this by myself, (with the help of a support team, of course, but more on that later) and to have my first experience be this particular project was a very challenging ride -or rather, flight- to say the least.

It started with the take-off. Always an exciting experience, filled with hopes and possibilities. And this time, I was in a KLM flight! How amazing, what a great opportunity. And I had the support of a great crew. Surely, I would get to my destination safe and sound.
As the plane got to altitude and started cruising I was very happy. I looked out every window, discovering the great sky out there, figuring out the shapes of the clouds outside, taking notes and making sense of what I was looking at. This went on, and on, and I enjoyed it all.
But then, suddenly, black clouds began to form. The storm made the plane shake, a little at first but eventually so badly that I admit I took a nervous look at the emergency exits a couple of times.
But thanks to my crew (family, friends, team) I endured and kept going. The storm never stopped, but it did calm down just enough to let me work. And work I did, as hard as I could. My notes gave birth to ideas, and I got the chance to try out a few of them. Then, a worrying thought came to me "Wait, this has been a long time. When are we landing? In fact, where are we landing?". Oh yeah, I forgot to mention, when I got on the plane, no one knew where it was headed. But it was time, the plane had to land. And I was handed the controls. I took a long look to my ideas and my notes. I knew where I was headed. I got the thumbs up from my crew. Let's do this.
First time landing a plane by myself. "Can I make it?". This question brought turbulence to the plane and my head. The descent began. Plane shaking, but staying together. First touchdown on the ground. Nope, didn't quite work. Had to ascend a little again, make adjustments. Second touchdown. The plane bounced off again. "Can I make it?". "Yes", my crew told me. I believed them. Eyes open wide, expectations showing. Tired to the bones, but adamant on finishing this.
The plane landed. Not in the prettiest of ways, but in the best way I could. We were there, our destination. Was it what everyone was expecting? Probably not. Still, was it worth it? I think so, but you tell me. You just read through it.

Forgive my dramatic account, but I thought it was the best way to tell the story. The fact is, I learned a lot about me as a designer and a person. And I learned a lot about the topics this project covered, from Organizational Ambidexterity, Organizational Culture, Innovation and so on. Many of which were completely new to me.

The decisions I made shaped the project and its outcome, just as the learnings will no doubt shape me in the years to come. Here's a list of a few of those learnings:

- Every design project goes through adjustments along the way. Through the iterative process of experimentation and research. However, I do need to improve the way I manage this. Always considering the time available.
- Again, taking into account the time available, I need to improve how I focus the projects and how I define their reach. I need to work on how I manage the expectations of the people involved, and the end deliverables.
- I need to learn to let things go. I tend to become attached to my projects, so every little struggle or failure becomes a personal thing, which only worsens my mental and emotional state and thus the projects.
- I want to please everybody, and take into account their insights. This is impossible to do, and it only increases the workload and therefore the stress. I need to also take myself into account, and let people know what I can and can't do.
- The thing I enjoy the most is the exploration and hands-on research. However I need to improve on how I define I have enough information to work with. Otherwise, I just keep going and learning, which I like so much that it blinds me to the rest of the responsibilities.

And so many more. Again, this was definitely the most difficult and stressful thing I have ever done, but I'm proud of my work and I stand by the results. However the outcomes might be judged, I can honestly say that I tried my best and that I think they can be used by KLM to start their long journey towards change. I hope some of my ideas make it to their workflow and that the people of KLM Digital see one day the improvements they desire.

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