FLOW IN

TRANSITION

AT THE FlyCo CREW BUILDING

Graduation Report

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The best way to predict

the future is to create it

- Abraham Lincoln

Summary

The goal of this study is to optimize the crew flow at the FlyCo crew building. The crew building is the home base for FlyCo's crew members and is being renovated. The intensity of people walking in and out of the building will increase because the new crew building will be smaller. FlyCo is in need of a solution concerning the flow (logistics) of the crew members. This transition also creates an excellent opportunity to examine how the FlyCo-crew experiences their work at the crew building. This study has not only led to a design to optimize flow, but also suggest various design proposals to improve the crew journey, today and in the future. The core deliverable of this study is the design roadmap, illustrating these design proposals.

The research question is defined as followed: How to support social interaction among crew members (1), without disturbing the flow of others (2), during and after the transition of the crew building environment (3)? The research question is split in three themes.

The first theme focuses on the emotional flow of the crew members. What moves the crew members and how can their moment of social interaction can be supported? Social interaction can be supported by providing an positive last and lasting experience of the crew journey (Kahneman, 2000). Instead of only optimizing the pains of the flow, attention should be paid to the sequence in which pleasures and pains occur. This knowledge resulted into the design for the *Hall of Fame*. The Hall of Fame is located at the new crew building. Here, people can take a group photo with their crew and share their experiences with FlyCo to create a peak end of their journey.

The second theme studies physical flow to understand how people move from A to B. The goal is to design an undisturbed flow. An undisturbed flow can be created by designing interventions (nudges) to direct the unconscious decision making of people to perform the desired behavior (Selinger and Whyte, 2011). *Blue carpet* is designed to optimize the flow during the transition phase. The main functionality of Blue carpet is the carpet, placed through the building, to guide the in and out flow of crew members. As a nudge, a furniture piece to mark the space for the goodbye moment.

The third theme combines the knowledge of the emotional and physical flow to understand in what way the transition will impact the crew flow in the future. This results into a future vision for the crew building: *In the future, all work related activities will be digitalized, but there is one thing that can't be digitalized: The heart, based on social connection.* To design a personalized crew flow in the future, we can start collecting the momentous experiences of the crew members today. In this study, we want to improve the experience of those who work for FlyCo in line with its goal.

Acknowledgement

The thesis in front of you is the final deliverable of my master program Design for Interaction at Delft University of Technology. I got the opportunity to perform my graduation project at the FlyCo crew building and I am proud to show you the results in the pages to follow.

First and foremost, I would like to thank my supervisory team for making this experience possible. Ruud, thank you for helping me to define my project and give me the confidence to perform this project in my personal way of working. Tomasz, thank you for your sharp feedback and sharing your expertise about design. Mentor1 and Mentor2, thank you for welcoming me at FlyCo and always being there for support and guidance.

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Finally, a special thanks goes to my family for making me dinner when I was busy writing these pages. Thank you for giving me the opportunity to enjoy all these years of studying and motivating me through it all. Michel, thank you for being my inspirational speaker and always believing in me. And dear friends, thank you for all your support during times of doubt and excitement!

Hopefully you will enjoy reading my thesis as much as I enjoyed writing it.

Juliette Hofstede

October, 2018

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Chapter 1
Introduction

Introduction

Introducing the project

This graduation project is performed in collaboration with FlyCo at their crew building, located at an airport. The crew building is the home base for FlyCo's crew members. Here, crew members prepare for their flight by checking-in, receiving flight information, briefing and meeting with other crew members. At the moment, the crew building is preparing for a transition. The building is being renovated. The new building will be smaller, less traditional and more modern. The transition consists of a physical change: the renovation of the building and a behavioural change: crew, dealing with less space and more efficient use of this space. In other words, the intensity of people at the crew building will increase and FlyCo is in need of a solution concerning the logistics (flow) of the crew, walking in and out of the building. This creates an excellent opportunity to examine how the FlyCo-crew experiences their work at the crew building. With this information, I will suggest various proposals to enhance their experience. These proposals will result in more attention to the needs of the FlyCo-personnel. As a consequence, FlyCo customers will be better served.

Design approach

This master thesis follows a personal design approach, less traditional than the one taught at the faculty of Industrial Engineering. Traditionally, research will be performed, resulting in several design concepts leading to a final outcome. This research focuses on facilitating an interaction instead of directing an interaction. In the process of researching and designing, multiple design interventions are performed. These designs are incomplete and unfinished in order to invite participants to contribute and co-create in the process. The designs are impermanent to show participants flexibility and allow them to recreate the design. Only the users have the knowledge to know how the environment is perceived and how their flow can be improved. The job of the designer is to facilitate designs/contexts in order to capture people's input (Hughes, 2017).

Thesis structure

The structure of this thesis is illustrated in figure 1.1. First, the background, current context and the behavior of the crew members is explored and described. This results in a research question and scope for the project. Second, during the discovery phase, research is performed consisting of a case- and literature study followed by design interventions. Third, during the define phase, a design statement and a future vision are formulated based on the research results and new knowledge and the objectives and requirements of the design are set. Fourth, during the developing phase, multiple design proposals have been developed in collaboration with FlyCo and experts in the field. Fifth, a roadmap is created to describe the design proposals and all designed are defined and elaborated in more detail. Finally, a reflection has been written about the process and personal experiences during the graduation project at FlyCo.

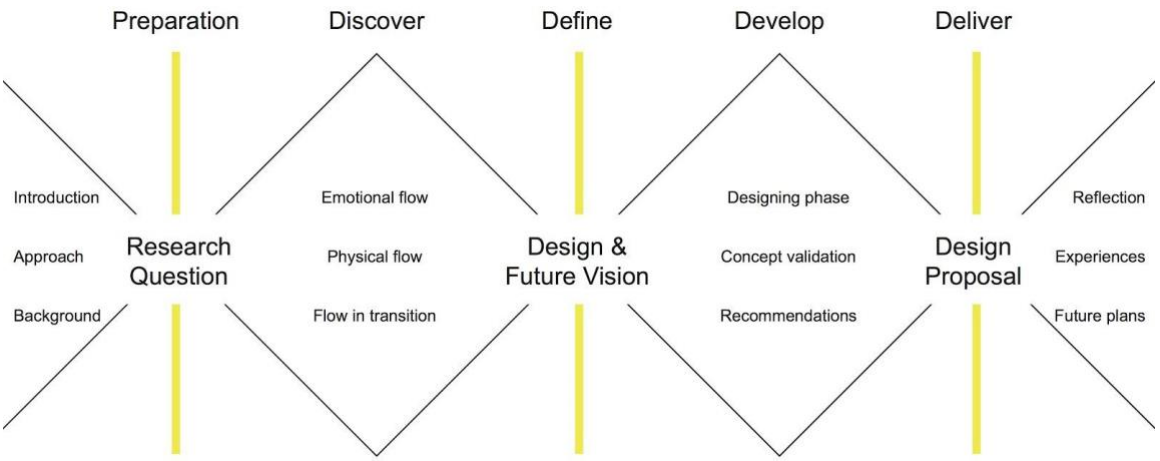


Figure 1.1: *schematic overview of the design process*

Deliverables

Table 1.1 shows a schematic overview of steps and deliverables. First, research will be performed in the context of the current Crew building. Secondly, a design will be created to improve the crew flow. Thirdly, a strategy will be developed to implement the design step by step. Finally, a future vision will be formulated to inspire FlyCo for future developments at the CC.

Context	**Deliverable/Activity**	**Goal**	**Step**
Current CC	Research	Understanding how to support social interaction (emotional flow) without disrupting the flow of others (physical flow).	1
Future CC 2032	Design Goal & Future Vision	Inspire FlyCo for the future developments at the CC. In order to keep innovating and improving crew facilities.	2
New CC	Design	Creating a product/interior design to facilitate a smooth in and outflow of crew members and to provide room for undisrupted social interactions.	3
CC from 2018 to 2032	Roadmap	Developing a strategy to implement the design step by step	4

Table 1.1: Overview of activities, deliverables and goals.

1.1 The Crew building

The first crew building was built in 19xx. This crew building was used by the crew members of all airline companies, flying to the airport. In 19xx FlyCo decided to build their own crew building which to this day functions as the home base for all the FlyCo crew members. The crew building is the place where all crew members check-in for their flight, drop their baggage and get briefed.

Every day, an average of xx crew members check-in for a flight (in-flow). All together, they bring around 800 suitcases to check-in. This means that, at least 800 crew members return to the crew building after a flight (out-flow), to pick up their suitcases. Especially during peak moments at 7:30 and 11:00 in the morning and at 13:00, 16:00 and 19:30 in the afternoon, between 150 to 200 people pass each other, flowing in and out of the building.

In addition to this, the FlyCo crew corps is increasing in size and at the same time, the crew building building will be downsized from two floors to just one floor. The intensity of people and suitcases will increase so structuring the crew flow is necessary to avoid bottlenecks and irritations.

Crew Activities

Inflow

Preparation of flight:

1. Checking in
2. Drop off baggage
3. Get personal belongings from the locker (optional)
4. Use the toilet to fresh up
5. Visit the crew service hub when there are problems with for example your iPad, uniform or suitcase

First floor (not on the map)

6. Find the purser of your flight, and take a seat
7. Start the briefing at the briefing room
8. Go through the security and enter the airport

Outflow

Closure after flight:

9. Return at the airport and walk towards the crew building
10. Pick up baggage
11. Say goodbye to the crew
12. Visit the toilet, change clothes and visit locker
13. Leave the crew building and travel home

Crew Flow

The renovation of the Crew building will start in 2018. The new floorplans are already designed in collaboration with Studio Y and approved by the management of FlyCo. However, there is a need to improve the current flow of crewmembers, visiting the crew building, when departing for (in-flow) or arriving from a flight (out-flow).
The most visible problem with the current crew flow is the bottleneck, created by the returning crews (out-flow) during their goodbye moment. Therefore, this research focuses on this moment.

The Transition

FlyCo realizes that the current crew building is outdated. Next to the outdated interior, the current layout occupies a large amount of unused square meters. Therefore, FlyCo decided to build a condensed crew building.

The Kissing Goodbye Area

The crew building has a new area for the crew goodbyes. This space is the design space of this project. The walls of this room, literally shape the boundaries of the design space. However, there are some more limitations to this area. First, this hallway functions as a exit route in case of emergencies. This means there can't be anything on the floor, like furniture or a stand alone construction. Second, lots of people will pass through this hallway with their suitcases. To avoid damage by the suitcases or unfortunate injuries, elements should not protrude or become loose.

Design requirements

*The design does **not occupy floor space** due to safety and fire regulations*

*The design does not protrude to **avoid injuries** or damage by suitcases*

*The design fits within the walls of the **Kissing goodbye area***

FlyCo background

Purpose

FlyCo aims to attract loyal customers by creating unique and personal relationships. FlyCo has created an overview that consists of different qualities, to create a joint understanding among employees of what the purpose entails. Research proved that the on-board interaction and the service of the cabin crew have the most impact on the overall passenger satisfaction (Anderson, Baggett & Widener, 2009). Therefore, the crew members play a very important role in creating momentous experiences for passengers. To provide passengers with excellent service, Heskett (1994, 1997) suggest providing employees with the most pleasant working environment. This will lead to satisfied employees, who are loyal to the organization and provide the best customer experience. FlyCo created an overview to communicate their strategy internally. This overview describes an optimal working climate to evoke the following qualities: 'I feel appreciated', 'I am empowered, 'I feel enabled', and 'I feel encouraged'. But does the current working environment at the crew building, evokes these qualities for the crew?

1.2 Research Approach

The intensity at the new FlyCo crew building will increase and FlyCo sees opportunities to improve the flow of crew at the crew building. Added value can be created by fostering interaction. Interaction happens between people, between objects, between people and objects or between people through objects. Dedicated to creating a context to facilitate interaction, the following research question is formulated:

How to **support social interaction** during the goodbye moment of FlyCo crew members, without **disturbing the flow** of others, during and after the **transition** of the crew building **environmen**t?

Defining Flow

The previously used term 'flow' is ambiguous and can be interpreted in different ways. In order to get a grip on the term 'flow', scientific examples from flow are studied. Flow is most often described in two different ways. First, Mihaly Csikszentmihalyi (2007) describes an emotional flow by "A state in which people are so involved in an **activity** that nothing else seems to matter". Secondly, flow is described in a physical form by Montello (2005), "The coordinated and goal directed movement of one's self (one body) **through the environment**". Inspired by these two meanings of the term 'flow', this research is split into two sections named: 'emotional flow' and 'physical flow'. Both sections will be studied separately and the knowledge will be combined afterwards to cover the meaning of 'crew flow' (see figure 1.9). Emotional flow focuses on the activities of crew members and the way their experience, feel and are involved in these activities. Physical flow approached flow from a different angle, namely the physical way in which people move from A to B.

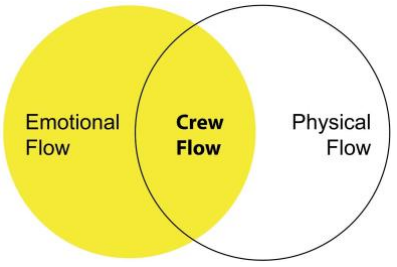


Figure 1.9: definition of crew flow

Research Questions

Based on the research question, this study is divided into three themes. The first theme looks into the emotional side of crew flow. The second theme investigates physical flow. The third theme researches the flow during the transition, in order to 'predict' how the flow will change in the new crew building and how the desired flow can be created. Table 1.2 shows a schematic overview of the three themes, each equipped with corresponding subquestions.

<table>
<tr><td colspan="2">Main Question
1) How to support social interaction among FlyCo crew (emotional flow),
2) without disturbing the flow of others (physical flow),
3) during the transition of the environment (flow in transition)?</td></tr>
<tr><td>Emotional Flow
1.1) How to design for emotional flow and the crew experience?
1.2) What kind of emotional flow does the crew experience?
1.3) Does the crew feel empowered, encouraged, appreciated and enabled?</td><td>Physical Flow
2.1) How do people perceive the environment?
2.2) What characterizes physical flow (crew with suitcases) and how to design for it?
2.3) How can people be nudged into the desired flow to avoid a bottleneck in the hallway during the goodbye moment?</td></tr>
<tr><td colspan="2">Flow in Transition
3.1) How will the transition of the environment influence the flow of crew members? (based on expectations/assumptions)
3.2) How to persuade crew members to say goodbye in the new kissing goodbye area?</td></tr>
</table>

Table 1.2: schematic overview of research questions

Research Method

Different methods and tools have been used to find the answers to the research questions. Table 1.3 gives an overview of all research methods per section. Important to mention is the fact that each session ends with a design intervention, to test the new knowledge in the real context.

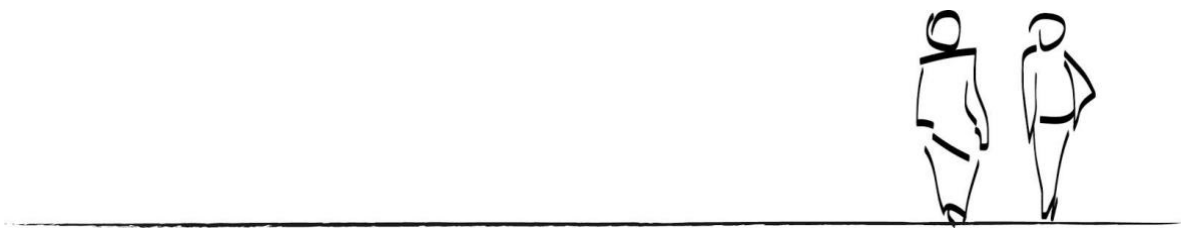
<table>
<tr><td>Emotional Flow
Literature study + case study
Design research (Observation, Interviews, Journey mapping, Persona creation, Pick a Mood)
Expert Interview
Design Intervention</td><td>Physical Flow
Literature study
Observation
Design Intervention</td></tr>
<tr><td colspan="2">Flow in Transition
Literature study
Observation
Expert Interviews
User Interviews
Design Intervention</td></tr>
</table>

Table 1.3: activities and methods per section

Chapter 2

Discover

Emotional Flow



Discover Emotional Flow

This chapter focuses on the definition of ‘emotional flow’. Psychologist and founder of the term ‘flow’ Csikszentmihalyi describes flow as “a state in which people are so involved in an activity that nothing else seems to matter.” To get a better understanding of emotional flow, an example of IKEA is given, as described by Knudsen (2017), author of the article ‘Ikea and the Peak-end Rule: How to secure that last impressions are lasting impressions’.

Knudsen describes a visit to IKEA as followed: When entering the IKEA store, shoppers are overwhelmed by the amazing decorated showrooms and of course the cantine. Cheap but good meals and coffee are offered to the customers to make sure they are in a good mood before entering the store. After several hours of strolling around the huge store, the hassle of collecting the new items starts. When paying the bill, which most of the time is higher than expected, the shoppers are exhausted. But just before they leave the store, IKEA offers them low priced hotdogs, coffee, ice cream and other Swedish delicacies. After having enjoyed some of this cheap offers, IKEA wants to send the shoppers home in a much better mood and make them forget the hassle in the warehouse and the expensive bill. Instead, they remember IKEA as a cheap place to shop, mostly because of this last cheap hotdog they bought before leaving. A positive final experience is more important than a positive experience along the journey. The ups and downs, experienced by the shoppers is referred to as the emotional flow or the experience journey.

This chapter investigates the following sub questions to get an understanding of what kind of mood and emotions people experience during their work:

1.1) How to design for emotional flow and crew experience?
Method: literature study, case studies

1.2) What kind of emotional flow does the crew experience?
Method: observation, interviews, journey mapping, pick-a-mood, expert interview

1.3) Does the crew feel empowered, encouraged, appreciated and enabled?
Method: observation, interviews, journey mapping, pick-a-mood

2.1 Literature study

How to design for emotional flow and crew experience?

Two case studies have been performed show examples on how to design for emotional flow. There are numerous ways to design for emotion and experience. Experience design is often applied in, retail, musea and entertainment parks. The first case study investigates the flow at IKEA because this is a familiar store where many people once experienced emotional flow. The second case study looks into the way Southwest airlines, a less traditional airline company, approaches crew flow.

Case study 1

The peak-end rule at IKEA

Knudsen (2017), based her study about the flow of IKEA on the theory of Kahneman (2000). Kahneman argues that there are often gaps between how a person experiences pleasure and pain and how he or she remembers them.

In the 1980s, Kahneman performed interesting behavioral studies, which resulted in what he calls the peak-end rule (figure 2.1)

- The most extreme experiences (high or low, pleasure or pain) have a disproportionate influence on people's' retrospective evaluations.
- The experiences at the 'end' have a disproportionate influence on people's retrospective evaluations.
- The duration of pleasures and pain have no or only insignificant effects on people's retrospective evaluation.

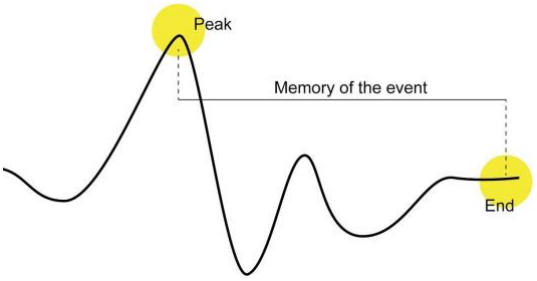


Figure 2.1: Peak-end rule (Kahneman, 2000)

What can we learn from Kahneman's peak-end rule and how can we use this knowledge for businesses and experience purposes? When looking at the IKEA case, the company sequenced the pleasures and pains in such a way that the customers remember the pleasures (cheap hot dog) and forget the pains (the payment). This way, IKEA stores a positive image of the company in people's subconscious memory, as Lewis (2017) described as "The last impression may be a lasting impression".

Not only the last impressions are important for the customer experience. The peak-end rule also shows that the duration of pleasures and pain have no significant effect on the customer experience. This implies that firms do not need to optimize all pains in order to create only positive experiences. In other words, companies should build a strategy to determine the sequence of pleasure and pain in a way to optimize customers positive memory and minimize their negative memory.

Conclusion

What can we learn from Kahneman's peak-end rule when designing for emotional flow at the FlyCo crew building? First, the duration of the pleasures and pains have no significant influence on the overall experience of people. The pain crew experiences when their flow gets disturbed could be optimized, but instead of optimizing all pains, attention should be paid to the sequence in which pleasures and pains occur. At the current moment, the last and lasting experience of crew members will be their disturbed social flow during the goodbye moment which takes place in an unattractive environment with insufficient facilities. Instead of just optimizing the problem on the surface: the bottleneck and suitcases, blocking the way for others, a positive experience should be created at the end of the crew journey. This in order to create a positive lasting experience, so crew members go home with a smile see figure 2.2

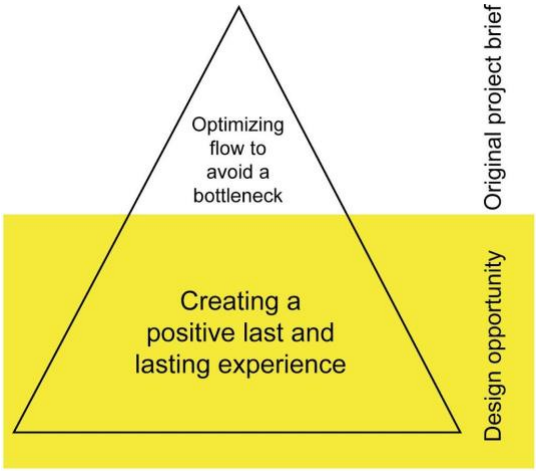


Figure 2.2: piramide illustrating the original question of FlyCo and the new opportunity

Design objective 2.1

*"Create a last and **lasting positive experience** in the emotional flow of crew, so crew goes home with a smile"*

Case study 2

Employee branding at Southwest Airlines

FlyCo is selling a service to its passengers. The crew is FlyCo's most important asset in making the passengers journey as enjoyable as possible. It is expected that the crew internalize the desired brand image and is motivated to project this image to the customers and other organizational constituents. Miles & Mangold, 2005 describe this process as employee branding.The process of employee branding enables the company to deliver the desired brand image in a consistent way, to both customers and employees. When this is done well, a clear brand image is created in the minds of customers and employees, resulting in a competitive advantage. To communicate the company's values, messages should be proactively designed and delivered frequently through all channels, in order to work effectively. Southwest Airlines, founded in 1967 by Herb Kelleher, wants to make every flight an unforgettable experience for its customers. Their mission is "Dedication to highest quality of customer service delivered with a sense of warmth, friendliness, individual pride and company spirit." The company has a similar vision as FlyCo. But what do they do differently?

Southwest Airlines has a very strong strategy when it comes to employee branding. They understand that in order to have happy customers, employees should be happy first. The message of its founder Herb Kelleher is "Our people are our single greatest strength and most enduring long-term competitive advantage." This strategy is completely opposite of what most service-oriented organizations pursue, namely 'customer is king'. Placing the employees first, enables staff to deliver high levels of customer service. Working in this environment makes the staff feel empowered to solve customer problems and are motivated to do what is best for the customers because their effort will be supported and rewarded. Appreciation is the cornerstone of the culture at Southwest Airlines. The company appreciates employees by paying attention to the special events in their (personal) lives. Events like, a marriage, kids graduation or a birthday is recognized with a small gesture like sending flowers. Research has shown: that gratitude tends to emerge in workplaces with more "perceived organizational support," where employees believe that the company values their contributions and cares about their well-being. Caring means valuing employee health and happiness for their own sake, not just as a way to achieve greater productivity and work more hours (Newman, 2017).

Conclusion

Southwest Airlines ambition is to deliver the best customer service. Instead of putting their customers first, they put their employees first because they are the ones delivering the message. FlyCo wants to create momentous experiences for their passengers. Instead of putting their passengers first, personnel should be placed first in order to become the most customer centered airline. FlyCo can focus on appreciating its employees and start improving their experiences by creating momentous experiences for it's personnel.

Design Objective 2.2

"To enhance the values, described in the FlyCo overview and make the crew members feel appreciated".

2.2 Design Research

What kind of emotional flow does the crew experience? And does the crew feel empowered, encouraged, appreciated as expressed in the FlyCo overview?

To answer these questions and to get a deeper level of understanding about the emotional flow of FlyCo crewmembers, the following research activities are performed: observation of the current situation, six interviews and a journey mapping session, a pick-a-mood questionnaire among 16 crew members, persona creation and an interview with a crew expert.

Interviews

A semi-open interview structure is used for interviewees to share their experiences, concerns and feelings (Martin, B., & Hanington, B., 2012). Six interviews are conducted with six different FlyCo crewmembers. They have the following functions: one KLC cabin attendant, one FlyCo business class cabin attendant, three FlyCo economy class cabin attendants and one first officer (cockpit). The interviews took thirty to forty five minutes each and were audio recorded.

Results

The crew goodbyes

In the past, it was mandatory to return to the crew building after a flight, to empty your personal mailbox. In September 2017, the mailboxes were removed due to the digitalisation of messages. So currently, crew is not obligated to return to the crew building anymore. There is no reason (except picking up your suitcase) to visit the crew building after a flight. This has led to the fact that some people decided not to bring a suitcase when traveling, in order to leave quickly after their flight. This has an effect on the crew goodbye process.

Some crew members say goodbye at the aircraft, gate or security and go home quickly. Instead of having one fixed moment to say goodbye, the goodbye moment is now spread out along the journey from the aircraft until the crew building, see figure 2.3.

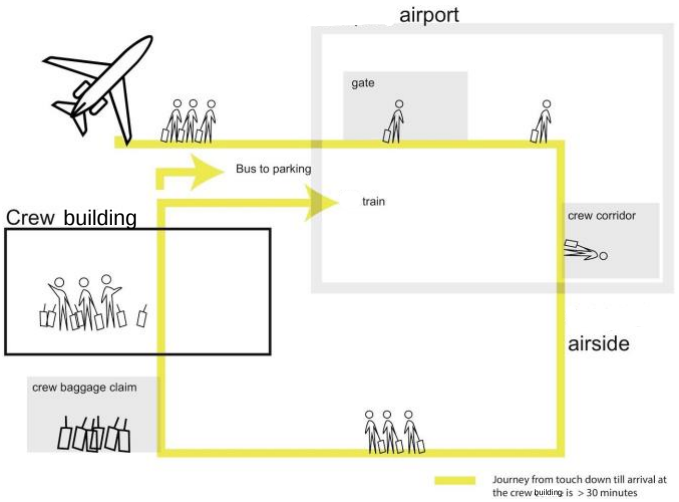


Figure 2.3: Crew flow from landing to arrival at the crew building

Changes in routine have an effect on the moment of goodbye and result into confusion among the employees. Confusion is caused by the fact that not all crew members are aware of the fact that it is now allowed to skip a visit to the crew building. However, all interviewed crew members agree with the fact that the crew goodbyes do not necessarily have to take place in the crew building. They frequently referred to the moment they had to pick up their suitcases at the passenger baggage claim, due to a previous renovation of the crew building and described this as 'ideal'.

A proper goodbye moment with the complete crew is important to me because it enhances the group feeling, but it does not necessarily have to be at the crew building
- Suzanne

Before, our luggage was delivered to baggage claim. This was ideal because we could say goodbye after the security and walk straight to the train, instead of walking all the way back to the crew building, which could take up to 30 minutes
- Jeff

The missing FlyCo values

FlyCo crew members often refer to their work environment as 'an anonymous world'. At each flight, the composition of the crew changes. The biggest amount of time at work is spent in the aircraft or at hotels. There are not a lot of touchpoint between the company and the crew members. In this case, the time spend at the crew building is the most important moment to share the FlyCo values stated in the FlyCo-overview. One of the values stated in the FlyCo-overview is 'I feel appreciated'. However, the interviewees said they don't feel valued for their work because the workload is increasing but the care and benefits for crew members are decreasing. FlyCo expects the crew to 'go further' in order to deliver the passengers a momentous experience, but the extra step from FlyCo towards the crew is missing.

FlyCo wants us to perform at 200% towards the passengers, but we only get 80% of the company to make this possible
- Lo

We used to get a birthday card in our personal mailbox, but not anymore. This makes feel very anonymous and not recognized
- Suzanne

Conclusion

The FlyCo values stated in the FlyCo-overview are not achieved in the current working climate of the crew building. The growing feeling of anonymity among the crew corps members results in a design opportunity.

Journey mapping

Different research methods result in different levels of understanding about the experiences of the user. Journey mapping is a generative technique, used to uncover concealed (tacit) or hidden (latent) knowledge, as shown at the lower part of the diagram. Therefore, a journey mapping session is performed to get a better understanding of the insight resulting from the interviews. Using a generative technique as journey mapping helps people to uncover their deeper wishes and needs, step by step. It is important to look back at the past, together with the users, before gaining insight into their wishes, dreams and fears that underlie their needs for the future (Sleeswijk Visser et al, 2005).

To support the insights of the interviews, crew is asked to map their activities and the way they feel during their activities on a timeline, see figure 2.4. The top row represents all their activities from the moment the aircraft touches the ground until they are home. The left column shows a picture, the name and job function of the interviewee. The real names of the interviewees are changed because of privacy reasons. The middle part of the table shows a timeline for each crew member. The big black dots represent the activities and the dotted line represents how they feel during these activities. When the dotted line reaches above the timeline, the crew is in a positive mood. A dotted line below the timeline illustrates a negative mood.

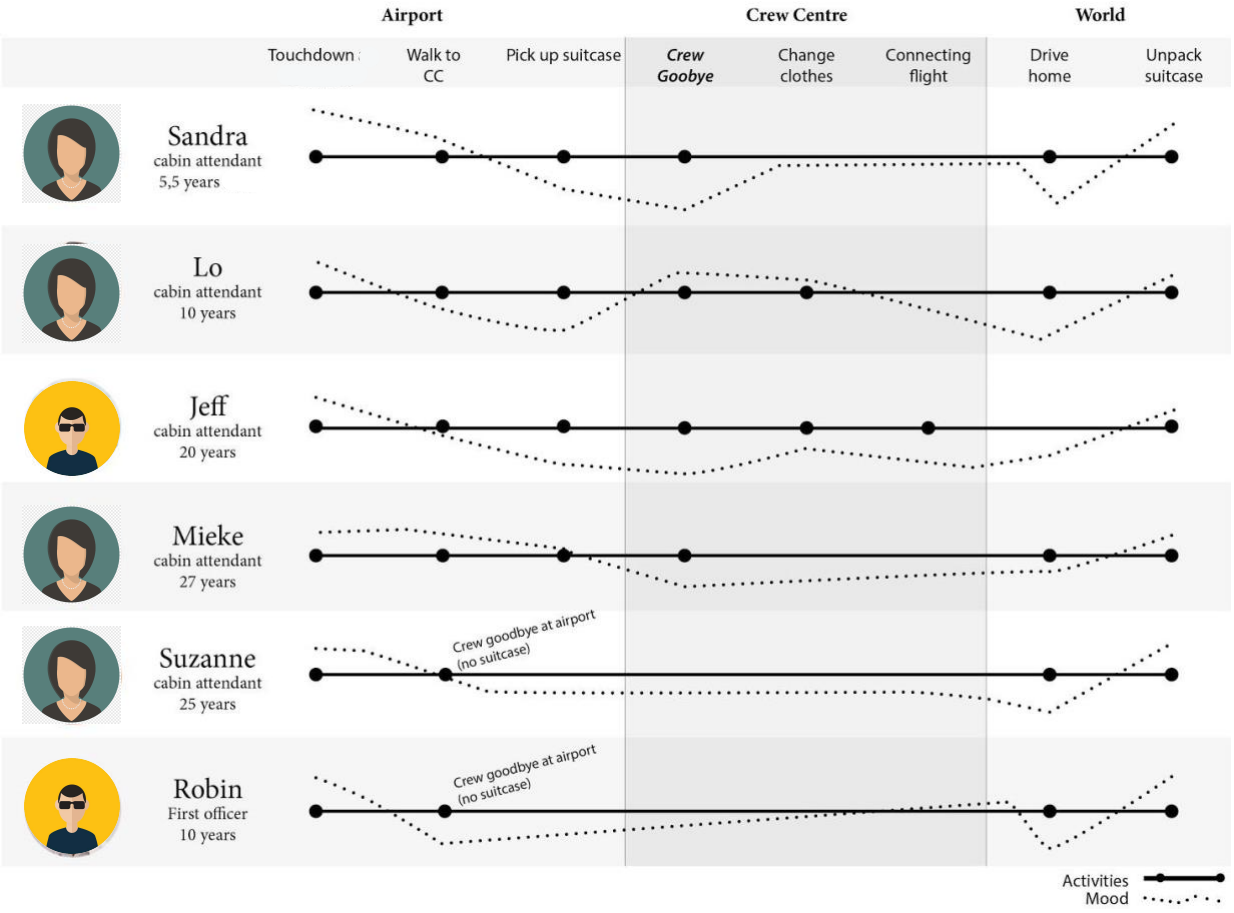


Figure 2.4: Results of the journey mapping session

Results

The two main findings from the interviews are also shown in the journey maps of the crew. To give an illustration, two of the six crew members (Suzanne and Robin), choose not to return to the crew building after a flight. They choose to be efficient, do not bringing luggage op their trip and say goodbye at the airport in order to go home quickly. Interestingly, both of the crew members leaving early, live close to the airport. This could suggest that traveling time between the airport and home has an effect on the crew journey. Another remarkable insight is that five out of the six crew members, experience their journey at the crew building as negative, after their flight. Reasons for their negative experience are:

1. The crew is extremely tired at arrival
2. The walk back to the crew building and waiting for your suitcase takes a lot of time
3. The crew building environment is outdated and doesn't provide any facilities that the crew would need like, coffee, snacks or a drink.

Conclusion

Crew members are interviewed and asked to map their journey to get an understanding of their emotional flow. Not only their emotional flow is studied, but also if the values stated in the FlyCo-overview, "I feel appreciated, empowered, enabled and encouraged" resonate with the crew members. Two main insights concerning the emotional flow of FlyCo crew members are found. First, the current flow suffers from a messy goodbye moment due to different needs per person. Some people want to leave early and choose to be time efficient. Others value the moment of goodbye and want to take time to show gratitude towards the team.

Secondly, it looks like the FlyCo values of the FlyCo-overview are not sufficiently experienced by the interviewed crew members. People feel anonymous at work, and it looks like this feeling will only increase in the coming years due to the digitalization of their work and the growing numbers of FlyCo crew. Especially the value "I feel appreciated" is important after their flight. This is the moment, crew wants to be recognized and valued for their hard work and effort. However, the results of six interviews are not sufficient enough to make this a hard statement. Although, regular conversations with different crew members and staff during this study, show the absence of the FlyCo-overview values.

Design Objective 2.3

"To facilitate a clear goodbye moment when returning to the crew building"

Personas

A rich amount of information and insights are collected about the intended users. To stay aware of and to communicate these insights throughout the project, personas are created. Personas are archetypal representations of the intended users, describing their behaviour, values and needs (Pruitt & Adlin, 2010, p. 489).

Figure 2.5 shows four persona's created based on the results of the interviews and journey mapping sessions. This study focuses on the crew journey after the flight. The horizontal axis illustrates the amount of flow versus flux. Flow is defined as moving from point A to point B. Flux is the opposite of flow, so this represents people standing or sitting still, for example, to have a chat, wait for a connecting train or to get service. The vertical axis illustrates the motivational drivers of crew. Socially driven crew members value a proper goodbye moment or a talk with a colleague. Task driven crew members, on the other hand, choose to skip a visit to the crew building to take a fast train home. They value time efficiency over social interaction.

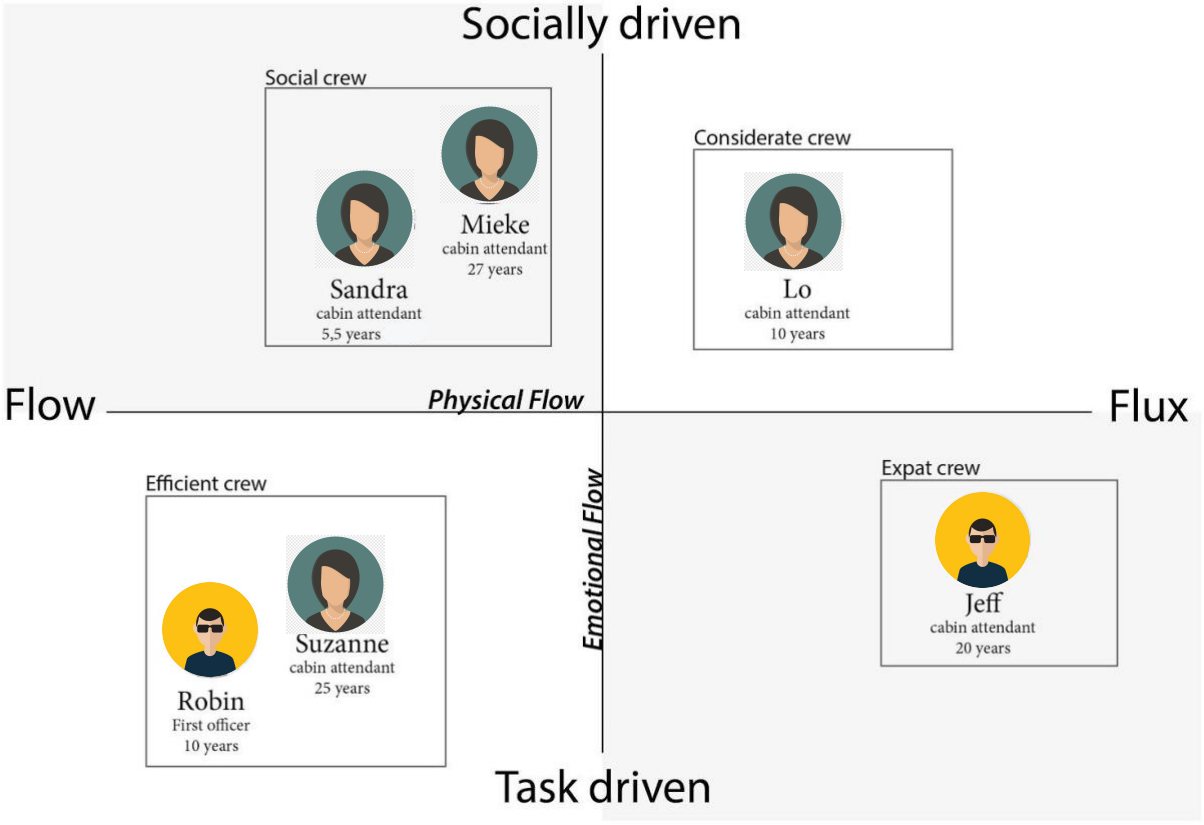


Figure 2.5: Overview of the persona's positioned in a diagram based on their flow and flux

Results

Figure 2.5 shows that two out of six personas belong to the group ‘efficient crew’. They are task driven and are therefore in flow most of the time. As result from the journey maps, these are the crew members skipping a visit to the crew building after a flight in order to be time efficient. On the other hand, the personas called ‘social crew’ visit the crew building after a flight to have a chat with colleagues. They are socially driven bus still aware of time and therefore in flow most of the time. The ‘considerate crew’ (one out of six), makes sure he/she is in good shape before commuting home by, for example, reflecting on the flight with a colleague, having a shower, changing clothes or having a drink. Therefore, this persona group belongs on the side of flux. Also the ‘expat crew’ is located as flux. These are the crew members, living abroad, and having to wait for a connecting flight or other types of transport. Expat crew is therefore not socially driven but has to stay at the crew building for a longer period of time.

Conclusion

The emotional flow of crew members, after their flight, has a big effect on the flow at the crew building. Persona creation resulted in discovering different types of flow (and flux) based on the individual drivers of people. On one hand this can be task driven but on the other hand socially driven. Given the above, a flow should be designed to fit the crew’s personal needs, taking into account flow and flux.

Design Objective 2.4

“To relocate social crew (flux) so the efficient crew (flow) can pass by”

Pick-a-Mood

In addition to the interviews and journey maps, a pick-a-mood questionnaire is performed among 18 crew members. Pick-a-Mood (PAM), is a tool based on cartoons to report and express moods (Desmet, et al., 2012). This study is performed to find out if and how the moods of the crew are different before and after a flight. The PAM tool is used because it requires little time and effort for the participants, making it suitable to perform in the context of crew flow in which crew is busy with work-related activities.

Method

In total, 18 crew members participated in this study, of which 9 before their flight and 9 after their flight. The tool uses cartoons (see figure 2.6) which enables people to unambiguously and visually express their mood. In total, eight different moods are expressed represented in four main categories: energized-pleasant (excited and cheerful), energized-unpleasant (irritated and tense), calm-pleasant (relaxed and calm), and calm-unpleasant (bored and sad).

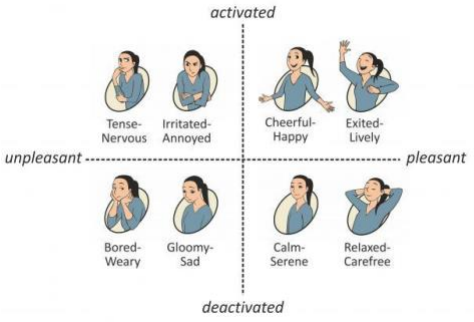


Figure 2.6: Pick-a-Mood tool uses cartoons for people to express their mood (Desmet, et al., 2012)

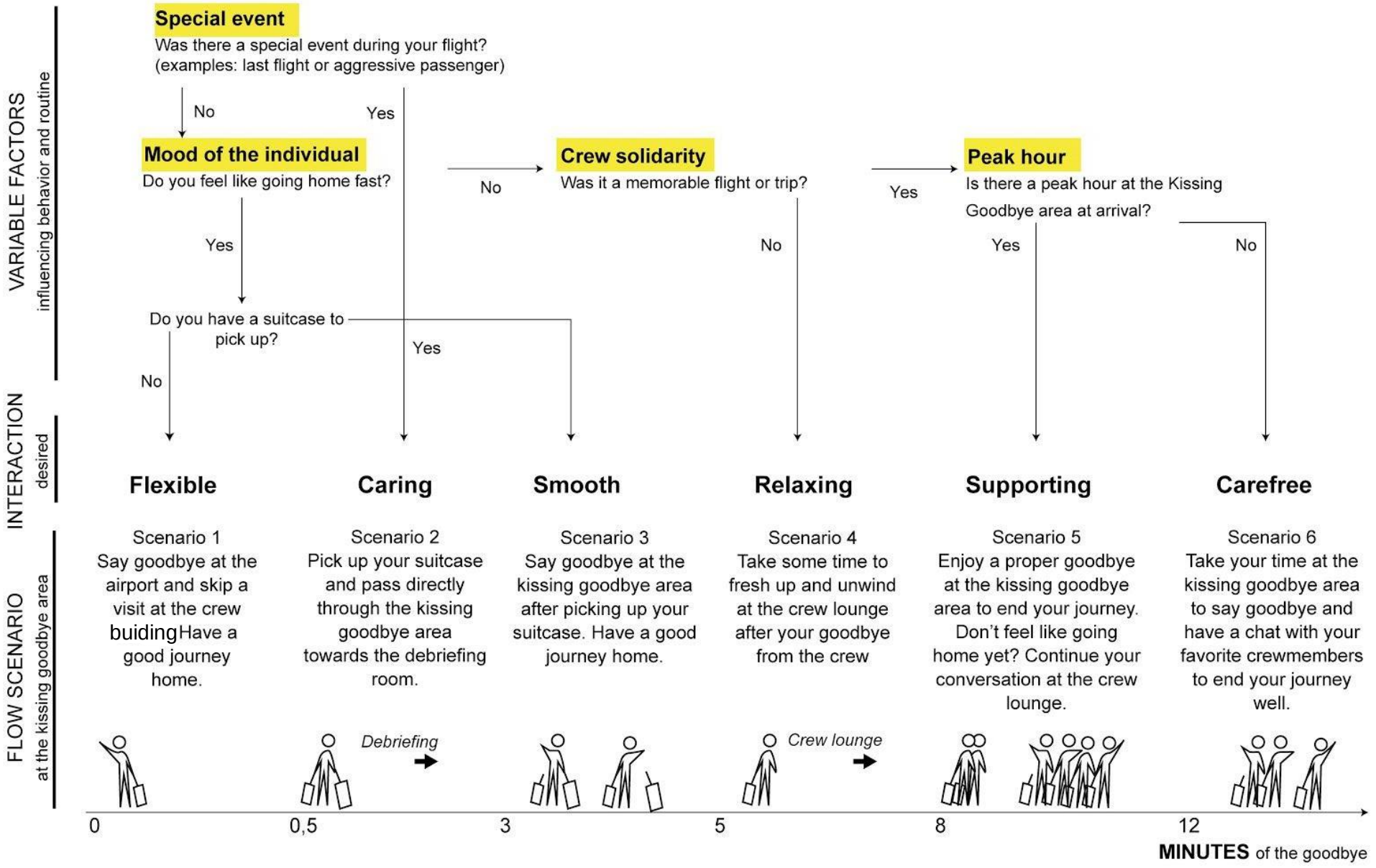
Conclusion

The mood of the crew before and after the flight is in both cases reported as positive. However, there is a difference in mood between crew with a managerial job like pilot or purser (calm) in comparison to an executive job like a stewardess (energized). Feeling fit to fly and the destination of the flight is the main reasons crew experiences a positive mood before the flight. Meeting nice colleagues and a solidary crew is the main reason for a positive mood after a flight. Also, special events during the flight and after work activities have an influence on the mood of the crew when returning to the crew building after a flight. The main difference before and after the flight is not the mood of the crew but the fatigue crew members experiences after a flight.

The decision tree in on the next page is created to capture all the results of the design research. Variable factors like, special events, mood, solidarity determine the flow of crew and how much time they will spend at the crew building after their flight. The decision tree leads to six different scenarios of crew flow.

Discussion

During this study, the fatigue of the crew is found to be the most influential factor to influence mood. Fatigue is not a mood in itself and was therefore missing in the pick-a-mood tool. It is therefore questionable whether this tool was subordinate to the goal. Perhaps, the pick-a-mood tool was not the most suitable tool in this case, but it uncovers another important variable which was not considered before: fatigue.


VARIABLE FACTORS
influencing behavior and routine
INTERACTION
desired
FLOW SCENARIO
at the kissing goodbye area
Special event
Was there a special event during your flight?
(examples: last flight or aggressive passenger)
No
Yes
Mood of the individual
Do you feel like going home fast?
No
Crew solidarity
Was it a memorable flight or trip?
Yes
Peak hour
Is there a peak hour at the Kissing Goodbye area at arrival?
Yes
No
Yes
Do you have a suitcase to pick up?
No
Yes
Flexible
Caring
Smooth
Relaxing
Supporting
Carefree
Scenario 1
Say goodbye at the airport and skip a visit at the crew buidingHave a good journey home.
Scenario 2
Pick up your suitcase and pass directly through the kissing goodbye area towards the debriefing room.
Scenario 3
Say goodbye at the kissing goodbye area after picking up your suitcase. Have a good journey home.
Scenario 4
Take some time to fresh up and unwind at the crew lounge after your goodbye from the crew
Scenario 5
Enjoy a proper goodbye at the kissing goodbye area to end your journey. Don't feel like going home yet? Continue your conversation at the crew lounge.
Scenario 6
Take your time at the kissing goodbye area to say goodbye and have a chat with your favorite crewmembers to end your journey well.
Debriefing
Crew lounge
0
0,5
3
5
8
12
MINUTES of the goodbye

Variable	Effect on flow
1) Special events like...	
… First or last flight of crew member	Need for celebration at the crew building
… Aggressive or drunk passenger	Need for de-briefing at the crew building
2) Individual mood depending on …	
… the time of arrival	Early morning arrival might want to go home fast to sleep Afternoon arrivals might postpone sleeping to get in their normal rhythm again and spend more time at the crew building
… the travel time to home	People who live close to the airport might leave fast because they are almost home. People who have a longer travel distance to home might stay longer to unwind before driving home.
3) Crew solidarity depending on…	
… Destination	At a destination like Cape Town, crews take part in more group trips like a safari or hike. At a destination like New York, crews are more likely to do activities individually like shopping or visiting friends.
… the time of stay	Crews who stay at their destination for 3 days will have more time to bound compared to crew who stay for 24 hours.
4) Peak hours	Arriving at a peak hour makes it unattractive to stay at the crew building due to the busy environment When arriving in an off-peak hour, crew are more likely to stay for a chat

Table 1.1: Variable factors influencing the flow of the crew

Design Objective 2.5

"Taking into account the emotional flow of crew depending on: special events, the solidarity of the crew, the mood of the individual and the peak hours at the crew building"

2.3 Design Intervention 1

Throughout the study of the emotional flow of the FlyCo crew members, design objectives are formulated. In order to test these objectives at an early stage, an interactive prototype is built and evaluated. Interaction prototyping is a method to simulate and test how people will experience the future interaction and facilitates quick learning cycles by doing.

What

In collaboration with the FlyCo crew, a photo frame has been designed in order to capture the crews 'Momentous experience'. Figure 2.7 shows the location of the photo frame in the flow. Observations and video recordings have been performed to evaluate the behavior of the returning crews, passing by the photo frame.

Design objectives

- 2.1 Creating a last positive experience before going home
- 2.2 Make the crew feel appreciated
- 2.3 Facilitate a clear goodbye moment
- 2.4 Relocate the social crew (flux) for others (flow) to pass by
- 2.5 Capture the momentous experiences to enhance crew solidarity and mood

Why

A photo frame is built to separate the 'social crew' (flux) members and their suitcases from the 'efficient crew' (flow) in order to let them pass by. The goal of the interactive prototype is to answer the first part of the research question: How to support social interaction between FlyCo crew members during their goodbye moment?

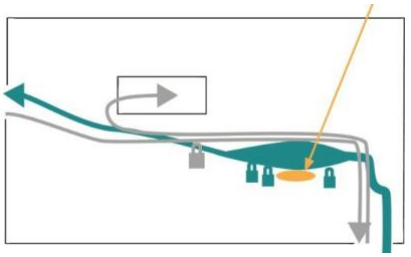


Figure 2.7 Location of the prototype at the crew building

Results

In total, 15 crews passed by the photo frame during the 4 hours of observation. Only 1 crew used the photo frame on their own initiative. Interestingly, this particular crew was celebrating the last flight before the retirement from one of the pilots. Family and friends were waiting in the hallway for the crew to arrive and started taking pictures. The other 14 crews didn't interact with the prototype on their own, but when the researcher specifically offered to take a picture for them, 3 out of 5 wanted to participate.

+ The intervention created a smile on the face of the crew members who passed by.
+ The commands of the crew members were positive and they said they felt more appreciated, now that they provided something extra for crew only.
+ The photo frame is used to celebrate special events.

- Not each flight is a momentous experience. Crew didn't feel the need to take a photo when the solidarity between the crew members was low.
- Taking a picture themselves took to much effort. Also, it is a change in their routine. Some people wanted to take a picture but didn't like to ask fellow crew members to take the picture for them.
- When asked why the crew didn't want to go on a picture, they said that they didn't look good enough for a photo due to the long flight and hard work.

Conclusion

The crews didn't use the photo frame on their own initiative. However, the fact that something was designed especially for them in order to communicate the values of FlyCo to the crew made them feel appreciated. The purpose to relocate the social crew (flux) in order for others to pass by (flow) was not optimal because just not enough people used the photo frame and the ones who did use the photo booth blocked the path instead of clearing it.

Design Objectives

✓ Creating a last positive experience before going home

X To mark a clear goodbye moment

✓ Make the crew feel appreciated

X To relocate the social crew (flux) for others (flow) to pass by

✓ To capture the momentous experiences to enhance crew solidarity and mood

2.4 Conclusion Emotional Flow

This chapter started with three questions. First, how to design emotional flow? Two case studies have been performed to understand how other companies design for emotional flow in order to get inspired. As a result of the IKEA case study, knowledge has been gained to understand the importance of creating a positive lasting experience. It's not just the flow of crew that is the problem, it is much more than that. Instead of just designing crew flow, a strategy should be designed to create the right sequence of experiences in order to minimize pain and maximize pleasure. Furthermore, an example of Southwest airlines showed the value of putting employees first in order to become the most customer centric airline.

Secondly, what does the emotional flow of crew looks like? This question is answered by the goodbye scenarios. Studying the emotional flow of FlyCo crew members result in six scenarios affecting their flow or flux at the crew building. The emotional flow depends on multiple variable factors: crew solidarity, flow and flux, the mood of the crew and the peak hours at the crew building.

Thirdly, does the current flow at the crew building meet the FlyCo values stated in the FlyCo-overview: I feel, appreciated, empowered, enabled and engaged? Results from design research show that there are opportunities for improvement to meet the FlyCo values. These opportunities should be created for each crew member and are described as the following goals:

1. create a peak-end
2. facilitate a moment for goodbyes
3. make the crew feel appreciated after a flight
4. design flow based on their personal needs for flow and flux

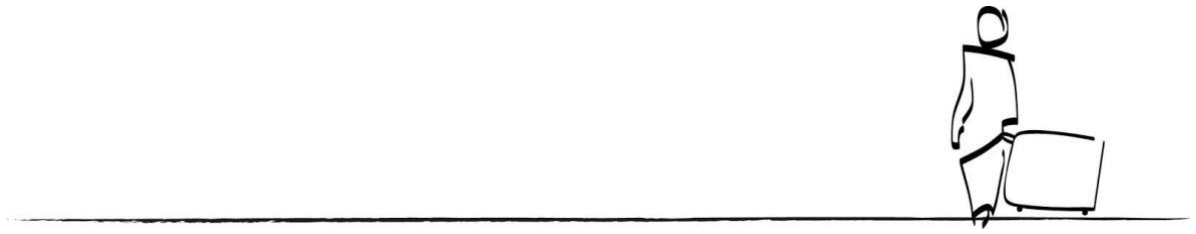
The fixed variables are used as the ingredients for the following design goal.

> **Design Goal**
>
> *The goal of the design is to start improving the experience of the FlyCo crew members by creating a positive last experience of their journey, to make them feel appreciated, so they go home with a smile*

Chapter 3

Discover

Physical Flow



Discover Physical Flow

Introduction

This chapter approaches flow from a different angle named ‘physical flow’. Montello (2005) describes flow as “the coordinated and goal-directed movement of one’s self (one body) through the environment.”

Physical flow is moving from point to point. This is not the same as wayfinding, because crew members visit the facility often and know their way at the crew building. The challenge, when designing for flow, is to design an intuitive flow based on visual and physical clues so people to move through a space without the need of signage. To provide visual and physical clues, it is important to understand how people perceive the environment.

Main question: How to facilitate an undisturbed flow of?
Sub questions:

2.1) How do people perceive the environment?

Method: Literature study

2.2) What characterizes physical flow and how to design for it?

Method: Literature study

3.2) How can people be nudged into the desired flow to avoid a bottleneck in the hallway during the goodbye moment?

Method: Design Intervention

3.1 Literature Study

How do people perceive the environment?

People perceive the environment holistically (Bitner, 1992). The perception of the environment is influenced by three factors: ambient conditions; spatial layout and functionality. Through interaction between people and one or more of these factors, perception can be influenced.
Figure 2.1 shows an example of an environment. First, ambient conditions have an effect on the human senses (1). They are characterized by color, temperature, lighting, sound en scent. In the example, spots in the ceiling, different shades of grey and wooden details create a professional atmosphere. Second, functional design can be used to facilitate behavior (2). In the example, furniture is placed to sit on and facilitates a spot to make a phone call. However, spatial layout (3) suggest this environment is a hallway and motivates people to walk through. Signage can play an important part in communicating firm image. Quality of materials used in construction, artwork, presence of certificates and photographs on walls, floor coverings, and personal object displayed in the environment can all communicate symbolic meaning and create an overall aesthetic impression.

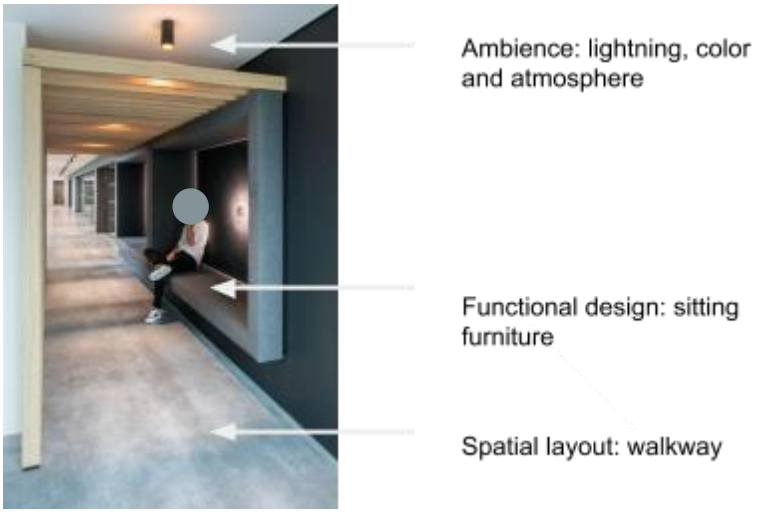


Figure 2.1: Picture showing the different layers through which people perceive the environment

Conclusion

The environment is perceived holistically and influenced by three factors: ambient conditions, spatial layout and functionality. To change the way people perceive the environment, one or more of these layers can be (re)designed.

Design Objective 3.1

"The experience of the environment is designed in multiple layers: ambient conditions, spatial layout and functionality"

Designing physical flow

What characterizes physical flow and how to design for it?

When moving from point to point, people need to orientate themselves in the environment. Lynch (1964) describes ways to create orientation in an environment, building or city are: paths (lines), landmarks, borders, crossings and shape.

Paths are roads on which people move. These paths can be streets, canals, bike lanes, railways, etc. At the crew building, walkways are used to move from A to B. People will experience the CC environment from these walkways. Based on the location and direction of the walkways and the interior and artifacts surrounding the walkways, the movement of people walking the paths will be influenced.

Landmarks are recognizable objects, used to orientate. An example of a big landmark is the statue of liberty in New York. Also smaller landmarks, placed indoors like, (shop) windows, door handles, statues, plants or other recognizable details can function as a landmark.

Borders are paths or lines are used to show a separation of areas. Think about coastlines and railway tracks. Also, indoor environments have borders like, walls, leveled floors or counters. Borders are important to show boundaries between different areas.

Crossings are the moments in the flow, where the user needs to make a decision. Do I turn left, right or do I go straight ahead? At a crossing, the environment often changes. For example, when you turn right to walk into a room or left to enter a lounge area.
The shape of an environment affects the visual orientation of people. For example, corners of a square area can be more easily be seen as separate areas. Where, on the other hand, around space will more easily be interpreted as one big environment.

Finally, the size of an environment determines how people interact with each other. A large environment offers the opportunity for people to distance themselves from each other. While, a limited space, a bar for example, provides an environment to interact with each other.

Design Objective 3.2

"Create orientation into the environment by creating paths, landmarks, borders, shape and size"

Nudging into the desired flow

How can people be nudged into the desired flow to avoid a bottleneck in the hallway during the goodbye moment?

To alter behavior through the environment, the concept of nudging, described by Thaler and Sunstein (1999), can be applied. This chapter will provide the theory about nudging within the field of environmental behavior.

Through the material shaping of objects and the environment, people can be reminded of what they rationally know, but don't act upon (WODC, 2014). This is also called 'nudging'. Thaler and Sunstein, define the term nudge as "any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be cheap and easy to avoid. Nudges are not mandates (Thaler and Sunstein, 2008). This approach differs from traditional attempts of behavior change, because nudging doesn't direct a certain behavior. A nudge, always provides a choice and can be avoided. Furthermore, a nudge should not only be effective, but also enjoyable (Johnson et al, 2012).

When people have to make fast decisions, they often rely on automatic thinking. Interventions (nudges) can be designed to direct these unconscious mental processes for people to perform the choices that are right for them. (Selinger and Whyte, 2011). There are 2 types of nudges to be applied. Type 1 nudges effect automatic thinking and don't require reflective thinking. An example is, smaller plate sizes in self-service restaurants to increase portion size. In this case, people are unaware of the intervention, but it will still influence their decision making behavior. Type 2 nudges are just to stimulate reflective thinking. For example, the 'fly in the urinal' to encourage keeping the bathroom clean or the 'piano stairs' which motivates people to walk the stairs by playing music. People are more likely to perform the intended behavior because the intervention requires their attention. (Hansen and Jespersen, 2013).

Design Objective 3.3

"Optimize flow during the peak hours by applying a nudge"

3.2 Design Intervention 2

Throughout the study on physical flow of the FlyCo crew, design objectives have been formulated. In order to test these objectives at an early stage, an interactive prototype is built and evaluated.

What

To facilitate an undisturbed flow, returning crews are asked to park their suitcases on the side of the walkway. A special parking space is marked on the floor. The lines on the floor function as a boundary between the walkway and the parking space for suitcases. Signage is used to catch the attention of the crew and tell them what to do. Goal: To facilitate an undisturbed crew flow at the goodbye moment and avoid suitcases blocking the hallway

Why

The goal of this prototype is to change the behavior of the crew. In the current environment, people park their suitcase anywhere in the hallway, during their goodbye moment. Other crew members have to pass by and are highly irritated because of this chaos. The purpose of the prototype is to change the parking behavior of the crew and to make them aware of the fact that this problem could easily be solved if they park their suitcase in a different way.

Design objectives

- □ 3.1) Influence the experience of the environment by designing different layers: spatial layout and functionality
- □ 3.2) Create orientation into the environment by creating paths, borders and signage
- □ 3.3) Optimize flow during the peak hours by applying nudging

Situation 1
The first person entering the crew building made the comment ‘this parking spot is childish’. By this comment, the social norm was set so the rest of the crew also thought it was childish. As result, the complete crew stood in the middle of the hallway blocking the path for everyone. (the pink line shows the suitcase parking spot)

Situation 2
The second crew did interpret the parking spot and sign in a positive way. All suitcases are parked in the marked area, except the trolleys. The crew is holding their trolley in their hand during the goodbye.

Conclusion test 1: Suitcase parking without nudging

The first person entering the environment decides the ‘social norm’. If he or she resist parking at the assigned location, the rest of the crew members who follow will copy that behavior. Furthermore, the crew doesn’t like to park their suitcase elsewhere. They prefer to keep their luggage close to them because others might take the wrong suitcase home. Also, safety regulations contribute to the routine of keeping luggage close to you because they can’t be left unattended.

Situation 3
Fake suitcases are placed to pretend if someone already parked their suitcase at the parking spot. This sets the social norm for the crews to follow. And with success, this time all crew members parked their suitcase at the assigned spot. Not only did they park their suitcase in the right spot, also people are stand within the boundaries.

Situation 4
When performing the targeted behavior, the path was clear for others to pass by. Also, the crew started to become aware that this approach worked beneficial for both parties. The returning crew has a centralized spot to say goodbye and the departing crews have enough room to walk by.

Conclusion test 2: With nudging
In the second test, a nudge is applied. Knowing that the first person entering the environment will set the social norm for the rest of the crew, this first person should be nudged into the targeted behavior. The target behavior is to park the suitcase within the marked area. To set this social norm, 'fake' suitcase have been placed at the assigned parking spot. The purpose of the empty suitcases is to make the crew suspect that other people already fulfilled the targeted behavior.

Numbers and dimensions

During the observations of the physical crew flow, the dimensions of the people, suitcases and groups are studied and measured. Although the dimensions of a group of people, moving around each other and their suitcases, is difficult to define. This depends on different factors like the number and size of the suitcases, the relationships between the people (friends stand closer to each other) and the amount of space available (less space is more compact groups). However, it is still necessary to estimate how much space they need in order to design flow. Figure 3.3 shows the measurements of the people and their suitcases and the estimates of the space they need for their goodbyes. Studying the peak hours at the crew building, shows that the estimated number of people saying goodbye at the same time is 36, which is equivalent to 3 BIG (Intercontinental) crews. Each consisting out of 13 people. To conclude, these numbers are not truths but estimates and result from a one day observation.

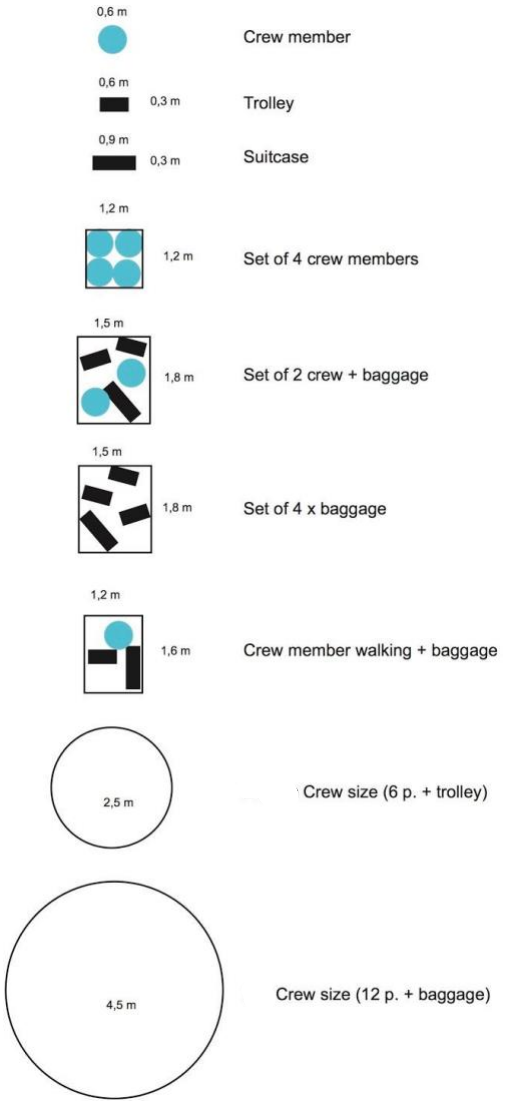


Figure 3.3: average dimensions of people, suitcases and crew compositions

3.3 Conclusion Physical Flow

The goal of the design intervention is to facilitate an undisturbed crew flow by implementing the following design objectives based on literature:

1. The experience of an environment can be influenced by the following design layers: ambient conditions; spatial layout and functionality

The prototype included a change in the spatial layout by using borders (lines) on the floor. Also, a new functionality was added by providing signage.

2. To create orientation in the environment by using: paths (lines), landmarks, borders, crossings and shape.

Borders are used to mark the assigned parking spot.

3. Optimize flow during the peak hours by applying nudges

Fake suitcases are used as a non-conscious nudge to set the social norm.

The design intervention showed the importance of the first person entering the environment. He or she will set the social norm for the rest of the group. This means, if the first person is performing the desired behavior, by standing at the assigned location, the rest is more likely to follow and to the same. Therefore, the main design objective added to the objective resulting from literature is:

Design Objectives

✓The experience of an environment is influenced by the following design layers: ambient conditions; spatial layout and functionality

✓Create orientation into the environment by creating paths, borders and signage

✓Optimize flow during the peak hours by applying a nudge

New The design attracts the attention of the first person walking into the environment, to set the desired social norm

Design Requirements

1. The pathway of one crew member including suitcases (1x trolley and 1 large suitcase) should be at least 1,2 meter wide.
2. The surface for one BIG crew (13 people) should have a minimal decimeter of 4,5 meter.
3. The design should facilitate space for at least 36 people at the same time (3x BIG crew).

Chapter 4

Discover

Flow in Transition

Discover Flow in Transition

In this chapter, we shift from focussing on the current context onto the new context. The knowledge about physical and emotional flow is applied to study the transition of the flow. The transition is a period of change. How will the transition (the changing context) influence the crew flow? What effect will the new context have on the crew flow and how can design be used to optimize flow to avoid bottlenecks, created by suitcases in the future?

3.1) How will the transition of the environment influence the flow of crew members? (based on expectations/assumptions)
Method: Literature study, design intervention

3.2) How to persuade crew members to say goodbye in the new kissing goodbye area?
Method: Literature study, design intervention, expert interview

4.1 Literature Study

How will the transition of the environment influence the flow of crew members? (based on expectations/assumptions)

Designing an intuitive flow

To predict what the flow may look like at the newly designed crew building, literature about intuitive wayfinding is studied. A way to design an intuitive flow is to make peoples **destination visible**. This destination doesn't necessarily need to be the final destination but it can be the next point which guides them to where people need to go

An example of this is to place a statue (something to look at) at the end of a hall. When people arrive at the statue to look at it, the other paths through the building are shown. Therefore, people are intuitively encouraged to move forward into the building.
Understanding **human nature** is key in designing an intuitive flow. For example, people have the tendency to walk or stand on the widest and most finished (smooth, improved) path, see figure 4.1.

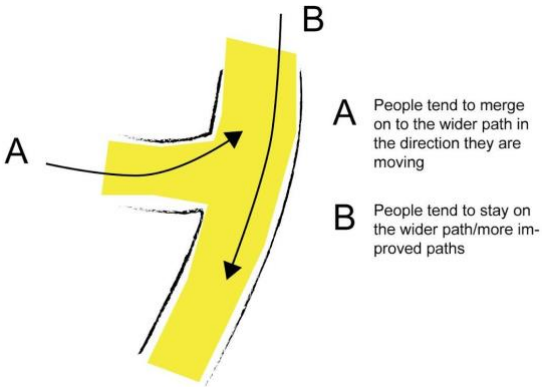


Figure 4.1: Crab Claw configuration showing how people tend to stay on the widest path

Likewise, lighting can be used to create and intuitive flow. People are more comfortable in areas with good lighting. As a result, they will typically prefer to enter a lightroom instead of one with dimmed lights.

Finally, signage plays a role in creating and directing flow. In order to avoid interruption of the flow, and allowing people to move through a space in a relaxed way, using factors to direct people in an intuitive way is prefered.

Predicting the new flow

A special area is designed for the crew goodbyes called: the Kissing goodbye zone. This way, the inflow and outflow is separated. This means, returning crew (out-flow) will not block the path for others during their goodbye moment. Others, the crews who are departing for their flight, are expected to have an undisturbed flow when dropping off their baggage. However, will the returning crew actually stay within the boundaries of the kissing goodbye zone?
During the peak hours, around 150 people are expected to enter the kissing goodbye zone within 30 minutes. Not only people will enter this area. Crew will also bring a trolley and a large suitcase into the environment. Currently, suitcases cause chaos because they are randomly parked throughout the whole building. This problem is expected to continue in the new kissing goodbye zone. Important to mention here is the fact that this is an assumption and can not be said with certainty, because the new context does not yet exist. However, the intensity of people and suitcases will increase so structuring the crew flow is necessary to avoid bottlenecks and irritations.

Conclusion

When applying the knowledge about physical flow to the newly designed kissing goodbye area, some problems arise. Expected is that crew will not intuitively say goodbye at the designed area because:

1. The Kissing goodbye zone is designed as a hallway and motivates people to walk instead of standing still
2. People intuitively stand still on the widest path which is in the kissing goodbye area
3. Facilities like the toilets, coffee and chairs are located elsewhere in the building
4. Their destination (the exit door) is not insight

Based on this knowledge it is assumed that crew will say goodbye in the pathways instead of the design kissing goodbye area. To avoid this, crew members need to be persuaded to say goodbye at the kissing goodbye zone.

Design Objective 4.1

"To make it easy and intuitive to say goodbye at the new kissing goodbye area"

Persuasive Design Literature

How to persuade crew members to say goodbye in the new kissing goodbye area?

Design for behavior change is also called persuasive design. It is important to understand which factors can lead to behavior change, in order to design for it. In this chapter, behavior change will be explained according to the Fogg Behavior Model (FBM) described by BJ Fogg, 2009. This model provides a systematic way to think about the factors underlying behavior change and is used by researchers and designers.

The Fogg Behavior Model

The three principal factors in the FBM are *motivation*, *ability* and *triggers (see figure 4.3)*. In short, people must have sufficient motivation and ability, in combination with an effective trigger to achieve a target behavior.

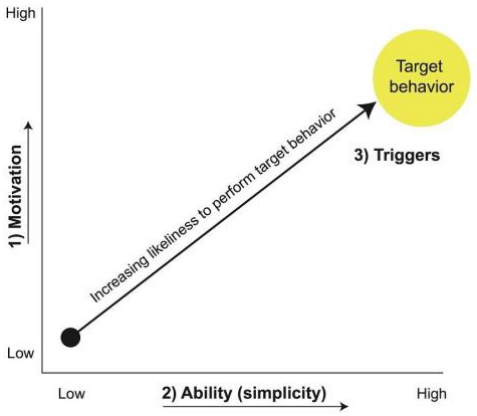


Figure 4.3 Fogg Behavior Model

Conclusion

In the current situation, crew has low motivation to park their suitcases on the side of the walkway due to *social acceptance*. Remarkable is the fact that almost every crew member is irritated by the people and suitcases blocking the path, but still everyone participates in this behavior when returning from a flight. Blocking the path is socially accepted by the bigger group (the returning crews) and therefore the irritation of the individuals passing by are ignored.

Not only the motivation is low, also the ability to perform the behavior is low. This is mainly due to *the routine*. For years, this is the place and the way to say goodbye. People have done it many times and are used to it. Deviating from a routine is difficult, especially when crew is very tired after a flight. What's more, is the fact that changing the spot of the goodbye or asking others to park their suitcase elsewhere would go against the norm of the group. *Social deviance* makes the behavior no longer simple. Moreover, the current environment doesn't apply any form of trigger to increase motivation or ability. There are no signs, reminders or sparks around to encourage a different behavior.

Design Objective 4.2

"Design a trigger to motivate people to perform the targeted behavior"

4.2 Design Intervention 3

The target behavior needs to be made simple. Therefore, a suitcase parking spot is designed. Suitcase parking is facilitated by an interactive wall. This interactive wall is represented as a world map. Underneath the world map, suitcase silhouettes are illustrated on the wall, like people already parked their suitcases there.

What

The interactive world map is prototyped by using a beamer. Ten crew members are asked to test the prototype. Crew needs to be motivated to park their suitcase in the assigned spot. When crew parks their suitcase at the assigned location, a blue light in the world map turns on as a trigger. The more blue lights light up, the better the crew parked their suitcase. Not only a blue light starts burning for each correctly parked suitcase. Also, each parking spot is linked to a city on the world map. The city name lights up, so crew can easily remember where they parked their suitcase. For example, a pilot can park his suitcase at Cape Town in order to remember which suitcase belongs to him.

Participants filled in a short enquête, to document the results. Four questions are asked:

1. Is the goal of the design clear? (is the behavior easy?)
2. Does the activity of parking your suitcase feel intuitive? (is the behavior easy?)
3. Does it feel safe to park your suitcase here? (is the behavior easy)
4. Does this design make you enthusiastic? (does it trigger motivation?)

Why

The goal of the prototype is to create the targeted behavior described as ‘Crew members will park their suitcases on the side of the walkway, when entering the new kissing goodbye zone’.

Design Objectives

- □ 4.1) To facilitate a parking spot to make suitcase parking easy and intuitive
- □ 4.2) Design a trigger to motivate the crew to perform the targeted behavior

4.3 Conclusion flow in transition

The goal of the suitcase parking is easy to understand because the suitcase silhouettes, illustrated on the wall, made the activity intuitive. It made crew aware of the fact that parking their suitcase out the side of the hallway, would benefit the flow for everyone (see figure 3.8). However, the prototype did not attract enough attention when crews are tired after a flight. Therefore, this solution is too subtle and it will not motivate the crew members enough to change their routine behavior. Furthermore, crew had to park their suitcase somewhere at the assigned spot, on their own initiative. This behavior differs from their routine and therefore costs too much effort. People do not like to get separated from their suitcases because they are too afraid to lose their luggage. This design intervention showed that suitcase parking will not be the solution to improve the crew flow.

Design Objectives

✓To facilitate a parking spot to make suitcase parking easy and intuitive

✓To relocate suitcases to a strategic spot, by providing recognizable parking space where crew feel safe to park their suitcase

X Design a trigger to motivate the crew to perform the targeted behavior

Design Principles

Taking the initiative to park a suitcase asks for too much effort from the tired crew members. Crews need to be invited to stand and park at an assigned spot in order to avoid chaos during the goodbye moment. People do not like to get separated from their suitcases. Therefore, people and suitcases need to stay together and the flow can be optimized by inviting the total crew, including suitcases, to an assigned goodbye spot. This results in the opportunity to design ‘goodbye stations’ per crew within the kissing goodbye zone. In the current design, the kissing goodbye is an empty space/ hallway where people can decide for themselves where they can stand. It is assumed, this behavior will again result in a chaotic flow, as it is experienced at this moment. To avoid chaos and to guide people in their flow, the interior of the kissing goodbye should be designed to invite crews to stand and say goodbye at an assigned location without blocking the path for others.

Research insight

“It feels very unnatural for the crew members to be separated from their suitcases, therefore a flow needs to be designed for the whole crew including their suitcases”

Chapter 5

Define

Define

5.1 Objectives and requirements

This research studied flow from two different perspectives, emotional flow and physical flow. Furthermore, the different contexts in which flow occurs have been studied. Each phase of the transition (during and after) results into different objectives and requirements and together they form the foundation for the design and the roadmap. This list of objectives and requirements is created to function as a checklist to assess whether the final design(s) is (are) sufficient.

“

Research Question

How to support social interaction during the goodbye moment of FlyCo crew members (emotional flow), without disturbing the flow of others (physical flow), during and after the transformation of the crew building (changing context)?

“

Design Goal

The goal of the design is to start improving the experience of the FlyCo crew members by creating a positive last experience of their journey, to make them feel appreciated, so they go home with a smile

Context	During the transition	After the transition
Research question	**How to design an undisturbed flow?**	**How to support social interaction?**
 **Design Objectives**	❑ Optimize Create an intuitive orientation in the environment. (Orientation in the environment by Lynch, 1964) ❑ Nudge Optimizing the flow by applying a nudge to attract the first person, entering the environment, to an assigned goodbye spot so the rest will follow. (Nudging by Selinger and Whyte, 2011) ❑ Trigger Apply a trigger to invite crews, including their suitcase, to an assigned goodbye spot and motivate the targeted behavior (Fogg's Behavior Model by BJ Fogg, 2009)	❑ Emotional Flow Create a peak-ending of the crew journey (Peak-end rule by Kahneman, 2000 and IKEA experience by Knudsen, 2017) Make the crew feel appreciated after a flight ((Employee branding by Miles & Mangold, 2005) ❑ Physical Flow Design a flow based on people's personal needs for flow and flux (Journey mapping by Sleeswijk Visser et al, 2005) Taking into account the variables which influence flow: mood of the individual, special events during the flight, the crew solidarity (Pick-a-mood by Desmet, et al., 2012)
 **Design Requirements**	❑ The design for the transition phase should be implementable within two months from September 2018 ❑ The life span of the design during the transition is 1 year ❑ The flow during the transition should be adaptable to the construction work and therefore be a stand alone construction ❑ Construction is be movable during the transition by max. 2 people, without equipment	❑ The design fits within the walls of the Kissing goodbye area ❑ The design does not occupy floor space due to safety and fire regulations ❑ The design does not protrude to avoid injuries or damage by suitcases (page 13)
General requirements	❑ The pathway of one crew member, including suitcases should be at least 1,2 meter wide (physical flow) ❑ The design should facilitate space for at least 36 people at the same time which is 3 big crews ❑ The space for one big crew should at least have a diameter of 4,5 meter (page 45)	

5.2 Design Statement

Throughout the research phase, three different designs have been prototyped and tested. Insights from design research show that it is not just about flow as in moving from point to point. The problem with flow and the irritations due to the bottleneck, created by crew and suitcases, is just the tip of the iceberg. At the current moment, the last and lasting experience of crew members will be their disturbed social flow during the goodbye moment in an unattractive environment with insufficient facilities. Instead of just optimizing the superficial problems relating to flow (the bottleneck and suitcases, blocking the way for others), a **positive experience should be created at the end of the crew journey**, in order to create a positive lasting experience so crew members go home with a smile.

In order to design for flow, a more strategic point of view needs to be taken. One that involves design thinking to change the way we look at crew flow. According to the Vision in Product Design method (VIP) from Hekkert and Van Dijk (2011), designing always involves taking a position. A designer invests a lot his or her own of values, beliefs, morals and views in the design process. It is important to make those beliefs explicit and how this affects the design. This position is expressed in a statement. This statement should also be in line with the mission statement of the company. The statement taken by the designer is as followed:

> *I want to improve the experience of the FlyCo crew members*

Project metaphor

Throughout the project, a personal vision of the problem is developed. Studying crew flows showed that there is not just one flow of crew. Each individual has his or her own needs and wishes, resulting in a whole spectrum of different flows. It's like a beam of white light, hitting a prism, see figure 5.1.

The prism refracts the light in different directions and colors. At the start of the project, crew flow was considered as one beam of white light, but flow is not just a beam of white light. Each crew member has his or her own color of flow which moves in a different direction. This graduation project functions as a prism to uncover the different colors of crew flow. As a result, there is not one particular solution to solve the problem concerning crew flow.

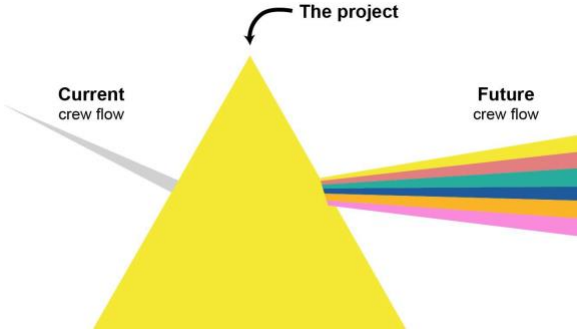


Figure 5.1: project metaphor showing the different colors of crew flows

5.3 Future Vision

Why is improving crew experience so important and why should FlyCo put more effort in appreciating it's crew members? The current crew building is build in 19xx. In that year, the total corps consisted of xx crew members. This crew building consists of two floors. Today, twenty years later, the corps consist of xx crew members. This means, there are twice as many crew members compared to twenty years ago, but the current crew building will be downsized with ¼ of the current surface. A smaller crew building is possible due to digitalization. Crew uses their iPad to check their mail or schedule. Digitalization makes process more efficient. The downside of digitalization is the growing feeling of anonymity among the crew members. Expected is that the aviation industry will grow with 4,5% per year. As a result, the FlyCo corps will have to grow and so will the anonymity. A future vision is formulated based on these facts:

❝

In 2032, there will be no more crew building. Instead, employees can meet each other at the FlyCo café. Here, crew members and employees from all departments can meet each other as one big 'family'.

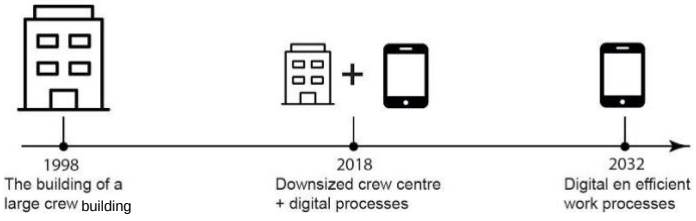


Figure 4.2: Timeline of past and future developments

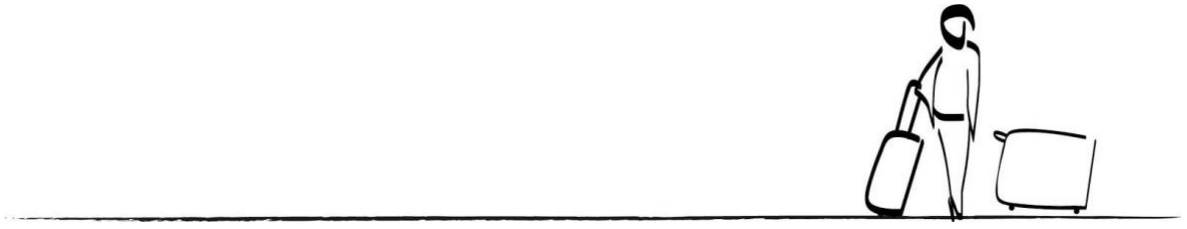
Conclusion

To conclude this chapter, I suggest to change of the role of the crew building, in the future. Instead of the crew building as a *facilitating* building with enough briefing rooms, chairs and tables it can shift to a building which takes care of crew members and supports the group feeling. The following statements show how this shift can be made and function as the design objectives for the design roadmap:

Crew building 2018	Crew building 2032
To prepare the flight **To facilitate** the briefing **To participate** in a team **To execute** the processes	❑ **To care** for people ❑ **To appreciate** their work ❑ **To celebrate** special moments ❑ **To co-create** a better service

Chapter 6

Develop



Develop

In this chapter ideation sessions with three experts have been performed to translate the idea of a ‘goodbye station’ into a feasible concept. The first expert is xx Architects, they work on the development of the crew building and will deliver the final floor plans. The second expert is Reframing Studio. Reframing Studio has been working on developing the concept of the new crew building since 2014 and has a lot of experience in designing for this context. The third expert is a data scientist, working on improving FlyCo’s passenger experience. Furthermore, future developments around digitalization are studied to get a basic understanding of what is happening in this field

6.1 Design Phase

People perceive the environment holistically (Bitner, 1992). The perception of the environment is influenced by three factors: ambient conditions; spatial layout and functionality. A design framework is created, based on this knowledge. Each session with the experts focusses on one or two of these layers in order to get there expertise on this topic.

	Architecture **xx Architects**	Product/Service design **Reframing Studio**	Technology **FlyCo Data Science**
Spatial layout			
Functional design			
Ambience			

Table 6.1: The design framework

Design dashboard

During the development of the project, it became clear that the opinions and interests of FlyCo's stakeholders, and myself had to be aligned. In order to discuss these differences and to reach an agreement, a design dashboard is created (figure 6.1).

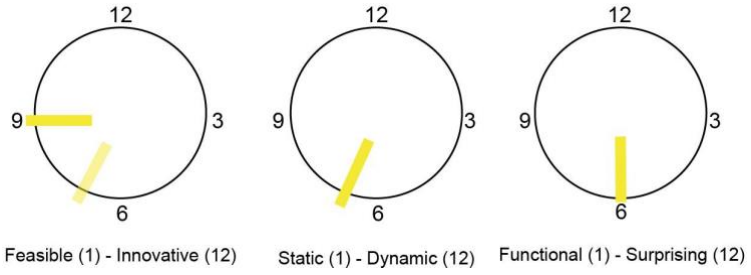


Figure 6.1: The design dashboard

The dashboard shows three volume buttons. Each volume button represents a subject, important for the project. To conclude the discussion about these topics, each volume button needs to be set. The volumes go from 1 to 12. Together with the stakeholders, we agreed on the following topics:

- Innovative - Feasible

Should the design be easy to implement, with low cost and low effort? Or should the solution be more innovative and include new technologies resulting in a higher cost for development?

- Static - Dynamic

Should the design focus on improving crew flow in general or should it focus on creating a dynamic solution to manage the peak moments?

- Surprising - Functional

Should the design create a surprising and new experience for crew to make them happy, or should it be just functional in order to avoid a bottleneck?

Conclusion

Innovation is more important than the feasibility of the idea. The other two topics, stayed a bit in the middle, so a score around 6 or 7. The next time, when a dashboard is created, the designer should push towards a more clear outcome instead of placing all the volumes around the 6. However, the dashboard let to a good discussion.

6.2 Designing Physical Flow

The first design session is carried out in collaboration with xx design+projects. The goal of the collaboration is to share the results of the research about crews emotional and physical flow, in order to get professional input from the architects. The challenges to tackle are:

- How to separate flow (walking) from flux (standing still)?
- How to make sure crew stays within the kissing goodbye area for their goodbyes?

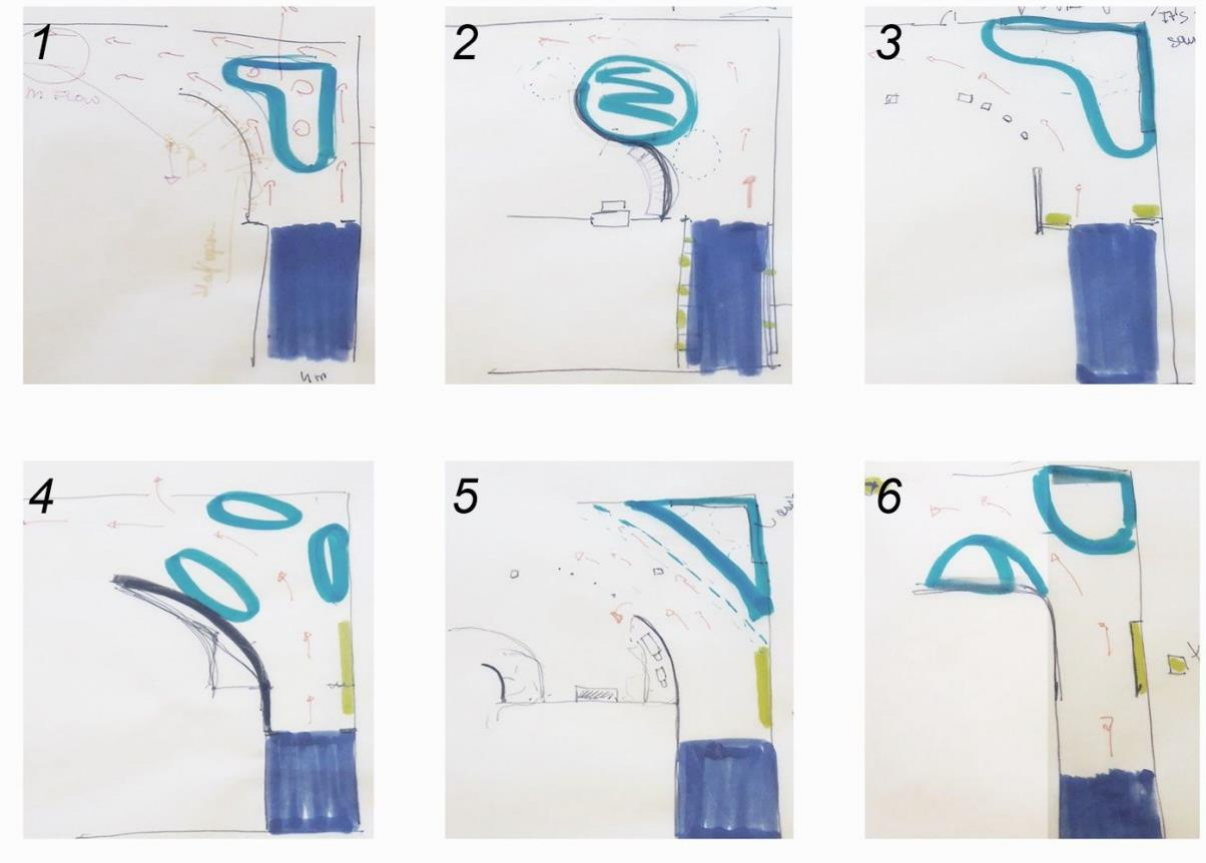


Figure 6.2: Designing flow and flux through spatial layout (the floorplan)

A design session together with the architects is performed. In this session, multiple flows for the goodbye area are designed. Also, the pros and cons of every flow are evaluated. Figure 6.2 shows the sketches made during the session. The blue areas represent the space for crew to stand still during their goodbyes. The red arrows are the walk paths. The information displays are yellow. Finally, all the sketches were discussed with the project manager and senior architect to develop a final concept for the flow.

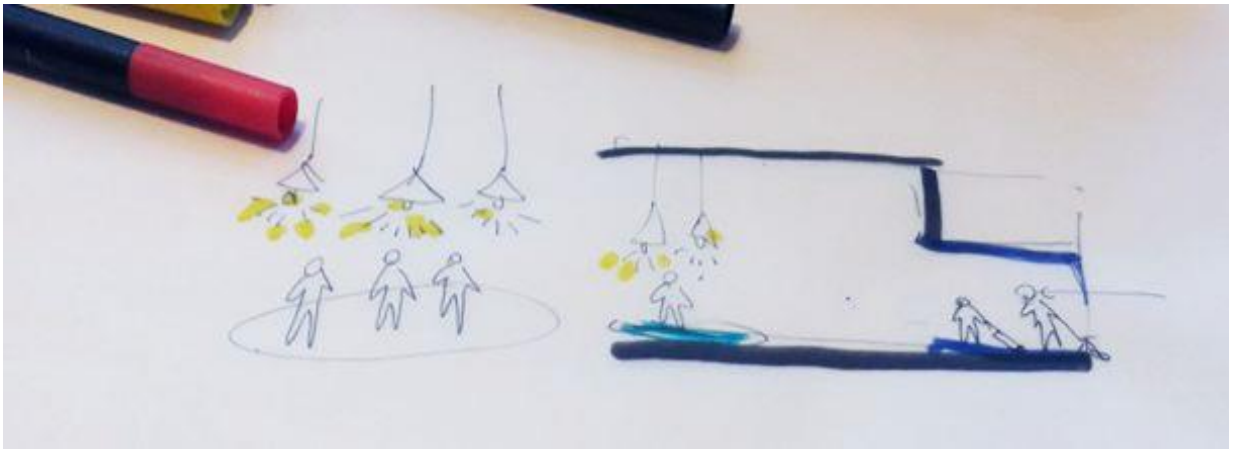


Figure 6.4: Designing flow and flux through ambience (lighting and ceiling)

Conclusion

The chosen sketch to develop further is number 5 because it felt the most intuitive. Most crew members park their suitcase on the right side of the hallway so a space for (1) flux (standing still) is created on the right side of the room. The left side of the space is reserved for (2) flow (people walking). This creates a fast lane for crew member to pass by. Two different (3) materials are applied to create a border to separate the two spaces. Attention has been paid to the ambience of the space (see figure 6.4). The ceiling has been raised to give the impression and feeling of an open room instead of a hallway. This motivated people to standstill instead of keep walking through.

6.3 Designing Emotional Flow

The second design session is carried out by the designer. The feedback of ReframingStudio is used to improve and reflect on the ideas. The challenges to tackle are:

- How to create a positive last experience for crew members, taking in account their different needs (social driven vs. task driven crew)?
- How to incorporate the FlyCo values from the FlyCo-overview: “I feel appreciated, engaged, empowered and enabled”?

To create a positive last experience for crew, a photo booth will be integrated into the new kissing goodbye area, because a photobooth has the right balance between innovation and feasibility. It is innovative because it is new to the FlyCo and the crew. So far, the new crew building is designed for functionality. A photo booth will be a good first step to implement activities to enhance the group feeling among crew members and make them feel appreciated by the company.

Interaction Vision

To incorporate the FlyCo values into the design, an interaction vision has been created. This interaction vision as a metaphor to clarify and communicate the feeling and effect of the design.

> “
>
> It should feel like walking into your clubhouse after winning a hockey match

The qualities from the FlyCo-overview are reflected in this interaction vision to give and idea of how they can be used in the new crew building design.

I feel appreciated: pictures and trophies on the wall. Feeling part of the bigger whole.
I feel enabled: couches to relax after the match or tables to reflect with the team a bar to have a drink.
I feel encouraged: tribune for supporters to cheer on the teams.
I feel empowered: offers a place to share ideas, input or feedback about the sport or club.

Figure 6.6: Feeling part of the bigger whole

Ideation Sketches

A photo booth can be implemented in the crew flow in many different ways. Evaluating these sketches with both stakeholders and Reframing Studio has resulted into elaborating 2 ideas “the goodbye stations” and “the hall of fame”.

Goodbye stations Each crew has its own goodbye station at the kissing goodbye area. Here, the crew is taken through the goodbye process by a virtual host. This host is presented on the screen and takes the crew through the following steps:

1. The crew is welcomed by one of the screens and walks towards it
2. The crew has the option to take a final group picture
3. The picture is sent automatically to the FlyCo accounts from each member
4. The screen wishes the crew a good journey home

Hall of Fame The photobooth is incorporated into the flow of the crew members and has been made optional:

1. The crews walk into the kissing goodbye room and are welcomed
2. The crew sees the photobooth and has a chance to take a final group photo
3. After taking the picture, the photo is shown in one of the digital photo frames, which motivates the crew to continue and make room in front of the camera for the next crew

	Goodbye Station	Hall of Fame
+	• Own goodbye spot • Controlled goodbye time	• Photo moment is optional • Roller coaster construction nudges crew to continue flow • Subtract ‘social crew’ from the crowd and nudges them closer to the wall
−	• Not enough space to provide a goodbye station for every crew • Big crews stand in front of the station screen of the other crew • Taking part in the goodbye process has become obligatory • Attention to the screen interrupts the social interaction	• Crew is less easy to control, people might stand in front of the camera when others want to take a picture • The photo wall may cause a bottleneck when people stay in front of it

-

Conclusion

After evaluating both of the design ideas, the ‘Hall of Fame’ is chosen to be further developed. The main reason for this decision is based on the idea that screens should not interrupt the goodbye moment of the crews. The goodbye experience should not depend on a set of good screens, it should be designed as a good experience flow (Krishna, 2015).

6.4 Designing a Dialogue

The third session is performed with the data science department of FlyCo. To prepare for the future, data can be used, collected and linked, to personalize the crew flow. At this moment, a lot of crew data is available but not used yet. The challenges to tackle are:

- How can data be used to improve crew flow?
- What can the crew building do at this moment, to prepare for the future?

Incorporating data

There is a lot of data already exciting but not used. The airport knows at what time an airplane lands, at what gate the crew arrives and if a flight is delayed. Based on this data, the expected arrival time of the crew at the crew building can be calculated. Also, if a flight is delayed, or an event occurred during the flight, the crew can be taken care of on arrival at the crew building.
New data can be collected to gain more knowledge about the behavior of crew members. Data to be measured can be: the mood of people after their flight, the amount of solidarity among crews or their activities after a flight.
The new data can be linked to existing data and patterns can occur. For example, the mood of the crew can be linked to the arrival time at the crew building. If the mood of crew decreases when a flight is delayed, FlyCo can design an action to boost this negative mood, by for example sending the crew a compliment. This is one example of how data can be used to personalize crew flow.

2019 **Existing data**	+	**2022** **New data**	=	**2032** **Personal Flow**
- Destination		- Mood after flight		- Traveling home quickly
- Arrival time		- Crew solidarity		- Staying for a chat
- Delay		- Activities after flight		- Fresh up before going home
- Events during flight		- Experiences during flight		- In need of personal support
- Number of flight hours		- Experiences at out station		- Ready to celebrate

Privacy
When working with data, privacy should be top priority. To secure the privacy of the users, the company needs to be very specific about the kind of data, needed to create impact. This is also called the minimal viable data (Spyer, 2013). Another way to assure people from their privacy is expiring connections (Krishna, 2018). This means that the user can give permission to use its personal data for a certain amount of time, let's say for 1 year. After one year, the permission of the user expires and the data collection will stop. This helps to prevent people from being unaware of the data collected from them. Finally, settings need to be explained in clear language, understandable to the user. Also, the user should have easy access to the settings and be able to change them at any time.

Design requirement

The design should protect the privacy of the users by using the minimal viable data, communicate the setting clearly and have an expiring connection.

6.5 Conclusion

The ideation phase has been performed in collaboration with three experts. First, physical flow is designed in collaboration with xx architects. The outcome of this design session is the floorplan of the new kissing goodbye zone, containing a fast lane (for flow) and a slow lane (for flux). Second, emotional flow is designed and afterwards discussed with Reframing Studio. This resulted into integrating a photobooth at the kissing goodbye zone. This photo moment is designed to capture the momentous experiences of FlyCo crew members, to give them a positive last experience at the end of their journey. Finally, the knowledge of data science has been used to design a dialogue between the crew members and the company. One way to communicate with crew members is to start using existing data to welcome them and to anticipate during the peak moments. On the other hand, new data is collected from the crew to give them an option for input about their experiences. In the future, existing data can be linked to the new data and patterns can be recognized. FlyCo can start personalizing their digitalization process by using these patterns to predict the crew flow and start anticipating on events. Finally, a final validation is performed with four users.

Chapter 7

Deliver

Deliver

The goal of the design is to improve the experience of the FlyCo crew members by creating a positive last experience of their journey, so they go home with a smile. This peak-end is created during the goodbye moment, when crews return at the crew building. During this moment, the crew has the option to take a group picture to enhance the group feeling and capture their momentous moments. A dialogue is designed to guide the crew flow during the peak hours and to learn from their experiences in order to develop a personalized flow in the future.

7.1 The Design Roadmap

To communicate the complete design concept, a roadmap is created (next page). This map is used to navigate the reader from the present to the future, step by step. Simonse (2018), define a roadmap as a visual portray of design innovation elements plotted on a timeline. These elements include user values, new products and services, technology and touchpoints. This roadmap is created to inspire and enable FlyCo and it's stakeholders to devise creative responses to future strategic challenges. In other words, this roadmap offers a tactical plan on design innovations to turn the future vision into reality.

The roadmap is divided in three horizons. The horizons are represented by strategic life cycles shown (illustrated from left to right). The first horizon concentrates on the near future: optimizing the crew flow during the transition en renovation of the building. The second horizon focuses on introducing new user value in the new context that follows into the third horizon, which illustrates the envisioned new crew flow in the future. Illustrated from top to bottom are the innovation elements; the goal, interaction, product/service and technology.

Horizon 1 - optimize flow

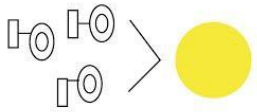
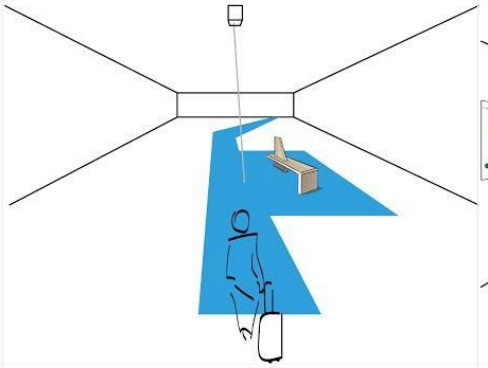
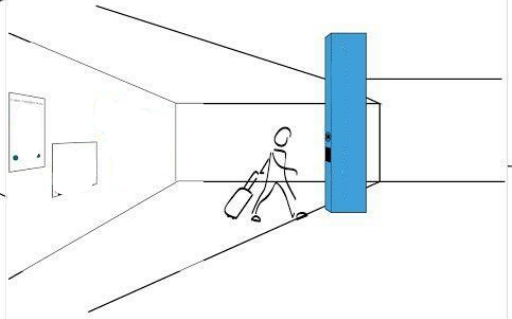
The first horizon concentrates on improving the current flow during the transition period. The goal of this life cycle is to support and facilitate the goodbye moment of the crew members. The interaction qualities for this cycle are described as *intuitively, enabled and encouraged*. Crew should be guided in an intuitive way through the environment. Thereby they should feel enabled and encouraged to take their time for a proper goodbye moment with their fellow crew members. The design space for this horizon is focused on guiding the crew towards a new routine. The solution to reach this intuitive flow is implementing the design called 'The Blue Carpet'.

Horizon 2 - energize flow

The second horizon focuses on energizing the returning crews, to create a peak end of their journey. The interaction qualities for this horizon are described as *surprised, appreciated and empowered*. The design space for this interaction focuses on strengthening the bond between the team members in a new and interactive way. The product/service system designed to energize the flow is called 'Hall of Fame'.

Horizon 3 - personalize flow

The third horizon shows how the crew flow can be personalized in the future. The design space will shift from focusing on the group to the individual. Interaction qualities to describe the future situation are *appreciated, encouraged and empowered* and are expressed in the design called 'Crew Dialogue'. All three designs are described in more detail in the next paragraphs.

	2019 Optimize Flow *during the transition*	2020 Energize Flow *at the new crew centre*	2032 Personalize Flow *in the future*
Goal	*"to support & facilitate the goodbye moment"*	*"to create a peak end experience"*	*"To improve the experience of FlyCo crew members"*
Interaction	*Design space* *Crew member with suitcase*  intuative, enabled and encouraged	 surprised, appreciated and empowerd	 appreciated, encouraged, empowered
Product / Service	**Blue Carpet** 	**Hall of Fame** 	**Crew Dialogue** 
Technology	Data input: *Camera sensor* Process: *Observe* Data output: *Digital signage*	*Human input* *Learn* *Crew promotor score*	*Human input + sensors* *React* *Pop-up messages*

7.2 Blue Carpet

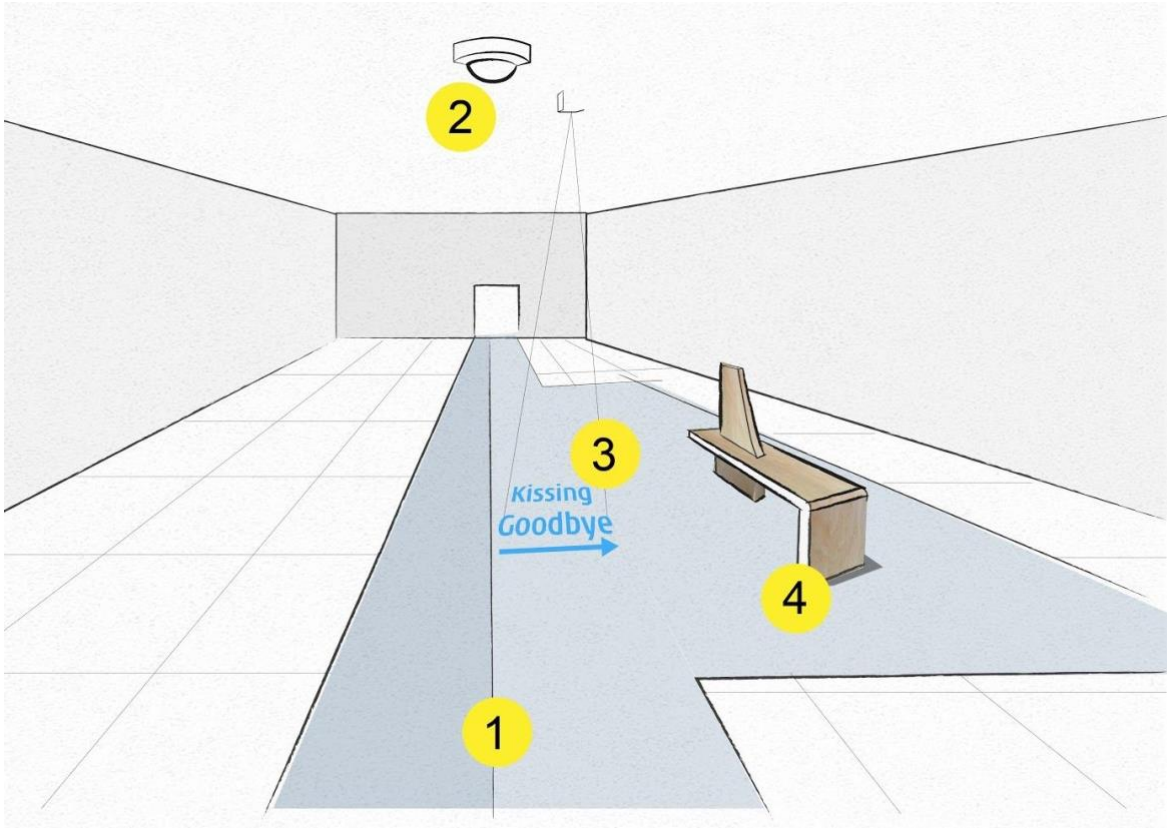


Figure 7.1: Blue carpet design including the three elements 1) carpet 2) camera 3) landmark 4) trigger

Blue Carpet is designed to support and facilitate the goodbye moment for the crew members during the transition period. Blue Carpet is a simple but effective way to create an intuitive crew flow. Due to the construction work, crew will be forced to change their routines. Walking from A to B will change to walking from A to C to B to D. The flow will depend on the construction work of that day and can be changed any moment. Therefore, the path of the carpet is adaptable at any time.

1 The blue carpet (facilitating behavior)

This carpet is placed from the entrance, all the way through the building, to the exit. Guiding the crew from beginning to the end is important to make the flow intuitive because it makes their path recognizable. The two shades of blue separate the in and out flowing crews. Next to the path, there is a space reserved for the crew goodbyes. This space is also market by the carpet. The carpet is easy to implement with low cost and is adaptable to any situation.

2 - Camera sensor (measuring behavior)

The number of people entering the room is measured by a camera sensor. These measurements are made for two reasons. First, to measure when the peak-moments takes place in order to provide a trigger (the projection). Second, to measure the number of crew members returning to the crew building, in order to find patterns and trends. Will the amount of people, returning to the crew building, stay the same during the transition? If it decreases, why is that? This measurement is used to check assumptions. We assume that crew needs a place for a goodbye, but maybe they start saying goodbye at the airport more often. If this is true, we should adjust the crew flow according to those needs.

3 - A trigger (motivating behavior)
As described in the theory of Fogg (2009), a trigger is designed to motivate the targeted behavior. In this case, the targeted behavior is: ‘saying goodbye at the assigned goodbye zone’. Crew members should become aware of the fact that from now on, there will be an assigned goodbye zone.

4 - Landmark (motivating behavior)
The furniture piece is designed as a nudge to attract the first person entering the room. These people will are tired and will have to wait for the others. Facilitating a place to sit down will attract them to the right location for their goodbyes. This furniture piece funditions as the landmark for the goodbye spot. When this spot will change location, due to the construction work, it is still easy to be recognized by the crew due to the landmark. This second option is designed to show the stakeholders what the the possibilities are and the effect on the investment cost.

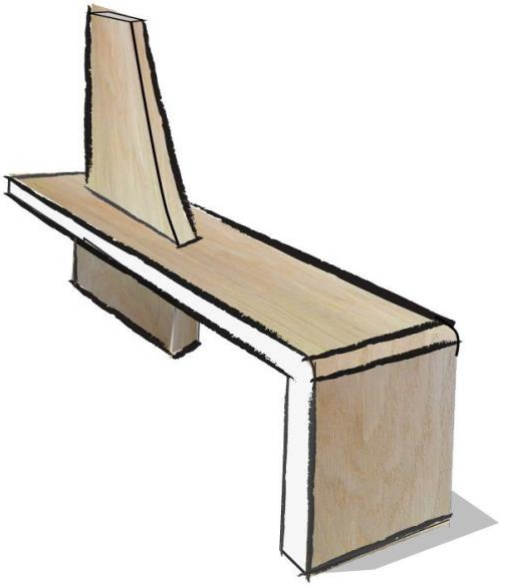


Figure 7.2: A furniture piece, inspired by the tail shape of an airplane

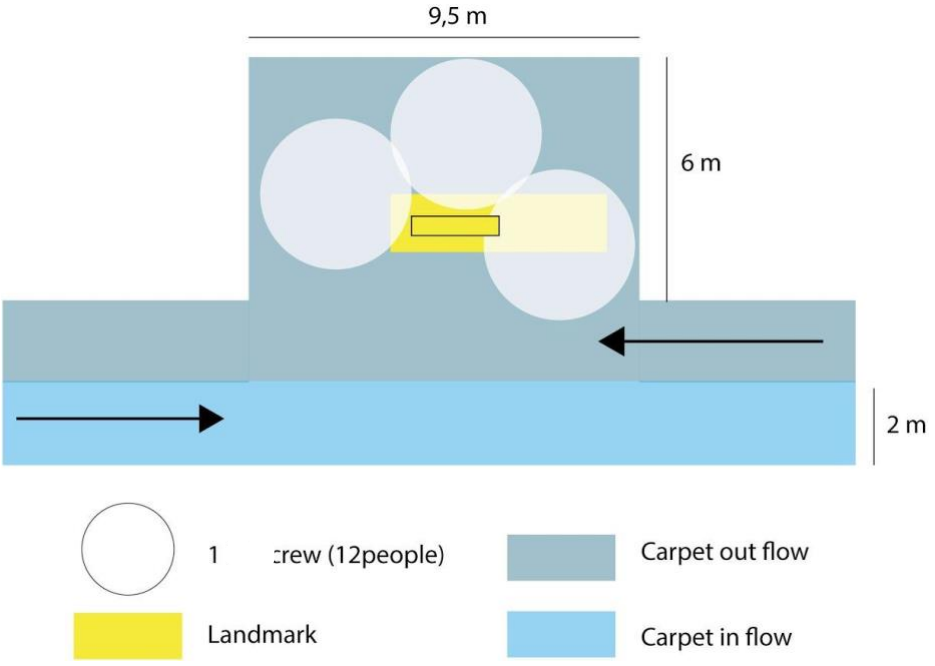
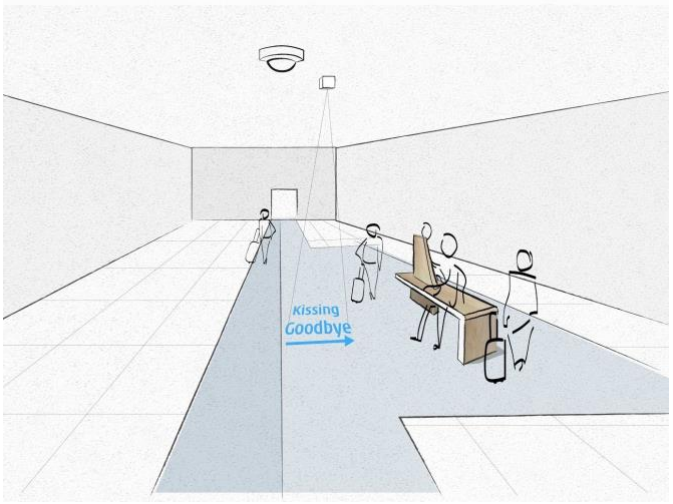
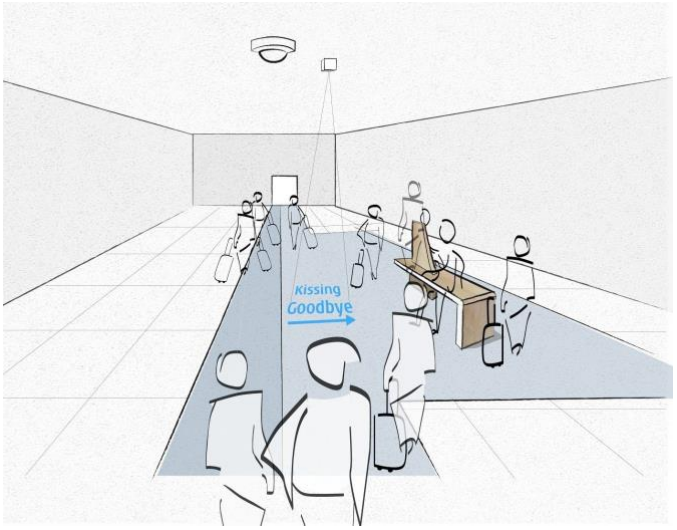


Figure 7.3 Top view of the blue carpet and it’s dimensions



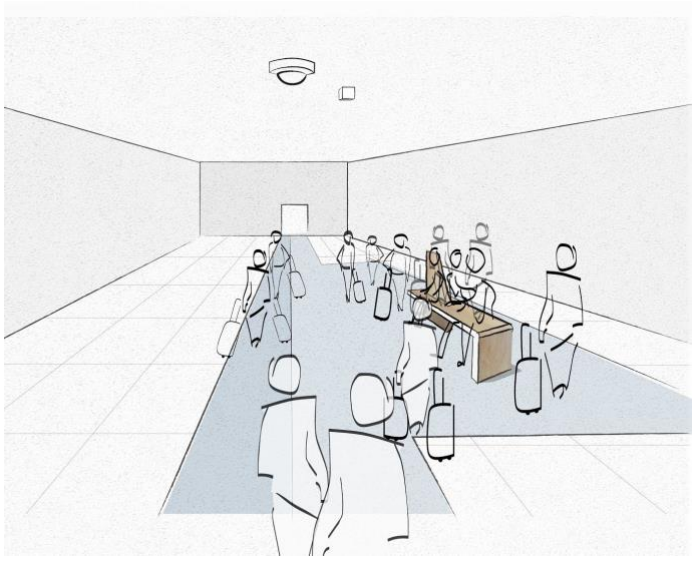
Nudging 1 - 3 people

The first people return at the crew building and walk on the blue carpet. The projection shows them clearly where the goodbye moment will take place. The furniture piece offers them a place to sit an wait for the others.



Nudging 3 - 15 people

After the first people arrive, it will quickly become more crowded at the goodbye zone. The following crew members will gather around the furniture spiece, with the people already waiting. This attracts them to the goodbye zone and avoids people form standing in groups at other locations in the building, creating a bottleneck for others. The projection to show the path is still lighted to give clear directions.



Nudging 15 - 35 people

During the peak moment, many people will be entering and standing in the environment. The people entering last will automatically stand with the rest of their crew. Therefore, the projecting will be switched off.

7.3 Hall of Fame

The Hall of Fame is located at the new Kissing Goodbye zone. The goal is to create a positive end experience for the crew, so they go home with a smile.

1 Photo booth
The photobooth is build-in to protect it from falling over or getting damaged. This way, it also leaves more space for crew members and suitcases to move around. Also, the message ‘Capturing Momentous Experiences’ makes clear that this is the way to incorporate the values from the FlyCo-overview into interactive actions.

2) Photo display
The photos are displayed, in a digital photo frame, nudging people towards the wall. Here, they can easily scan the QR code on the photo to download and save it on their phone. When the photo is downloaded on their phone, crew will receive the question: ‘what made this moment momentous?’

3) Crew promoter score
FlyCo recently introduced the Employee Promoter Score, to monitor the satisfaction of the employees. In this design, I propose to introduce the Crew promoter Score.

I feel encouraged

When entering the kissing goodbye zone, the first thing the crew will see is the ‘welcome home sign’. This sign marks the end of their journey and encourages them to say goodbye. Again, the camera sensor will measure the number of people entering the room. During the off peak hour, the projection ‘Kissing goodbye will be displayed to motivate the crew members into the goodbye area. When a peak moment is measured, the projection will sign ‘see you soon’ to trigger the people into going home.

I feel appreciated and empowered

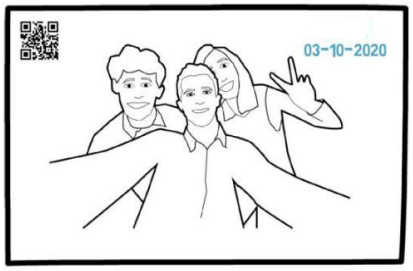
When entering the goodbye zone, the photo booth camera (built into the column) gives the people the opportunity to take a group picture if they experienced a good flight. Additionally, the crew is triggered towards the wall, where they can view their photo and download it to their phone. At the other two displays they can give input and view the outcome of the crew promoter score.

I feel enabled

Finally, when the crew is enabled to have a proper closure of the flight, they pass through the gate and the ‘goodbye’ sign motivates the people to go home. This is necessary because crews, leaving this area and saying goodbye somewhere else in the building should be avoided.

Data Input

Data is collected by asking the crew members to describe and rate their momentous moment. With this information, FlyCo can build a crew database of momentous experiences to design a personal flow in the future.



Robin can download his crew picture by scanning the QR code with his camera.

After downloading the picture, Robin receives a message from FlyCo, asking him to describe his momentous experience.

Robin describes what made this flight special to him: His first flight.

Privacy

All photos will be removed after 24 hours and only the data, received from the crew members is stored if the user gives permission to do so. To save Robins's momentous experience as a personal event, FlyCo asks for his permission. With this message is clearly communicated what the purpose of saving his data is and what FlyCo will use it for in the future. Only if Robin gives his permission, the data will be saved as personal. In the future, when Robin has another first flight, FlyCo can use this knowledge to send him (and the other crew) a reminder. If Robin decides not to give permission, his momentous experience will be saved anonymously. This is still valuable data, because FlyCo can learn what kind of experiences are most important to their crew members.

Data output: This screen shows the Crew Promoter Score (this score is already generated by FlyCo) including the most momentous experiences of the crew. This way, the crew members will have direct output from their input and knows what there input is used for.

Dynamic signage

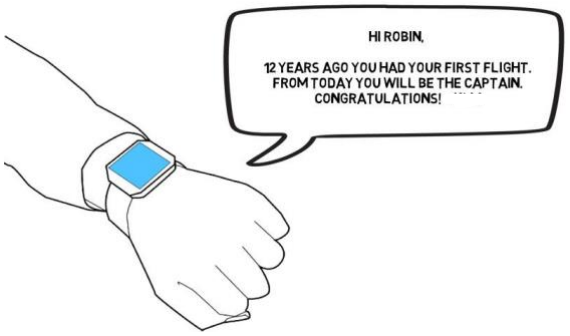
Off-peak moment nudge
The sensor measures the number of people entering the room. When the camera measures an off peak moment (<18 people) the projector shows the ‘Kissing Goodbye sign’ to encourage the people to enter the flux area and take time for their goodbye and the photo.

Peak moment nudge
During the off peak hours (>18 people) projector changes the sign to ‘See you soon’ to encourage the people to take the fast lane (flow) and don’t stick around for too long in order to avoid a bottleneck.

7.4 Crew Dialogue

A future vision is created as a dot on the horizon, to work towards. The dot on the horizon is described as: *In 2032, there will be no more crew building. Instead, employees can meet each other at the FlyCo cafe. Here, crew members and employees from all departments can meet each other as one big 'family'.* The role of the crew building will change from *facilitating work activities* into *appreciating the employees*. The crew building is an important meeting point between both the company and the crew members themselves. Therefore, I propose to design a personalized flow, made possible by the use of data. To create a system that adapts to individuals, FlyCo can provide crew members with personal actions to make the individual employee feel appreciated. This personal dialogue is illustrated by the storyboard bellow. A momentous experiences is different for everybody. For a driven crew member, this can be promoting from co-pilot to captain. For a social driven crew member, this means celebrating his/her birthday on board. There are many relationships between crew members so celebrate a wedding anniversary would be a momentous experience as well.

Robins first flight as momentous experience in 2020



On the day of his first flight as a captain, Robin receives a message from FlyCo to contradulate him with his milestone.

Not only FlyCo is aware of his special day. Also the crew on his flight has been informed through the flight app. Together as a team, they make this flight one to remember.

Figure 7.6 storyboard showing how the data collected today can improve the experience of crew, in the future.

Technology

To create a system that adapts to the individual, data is collected. This data is collected in two ways. First, in 2020, data is collected by user input. In other words, the users are asked to describe their experience in by filling in a form field. Furthermore they are asked to rate their experience to see how special this moment felt to them. Radio buttons are used to rate their experience.
In the future, the data collected from user input is combined with machine input. FlyCo already started projects to collect the GPS of crew. Also, tests are performed with beacons and facial recognition. Linking this data can be used to design actions at the right moment. For example, the moment a crew member enters the airport (GPS data) he/she receives a message with a birthday wish (user input).

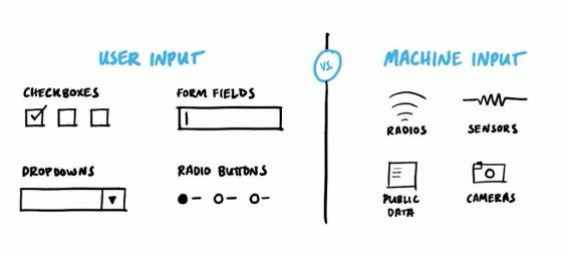
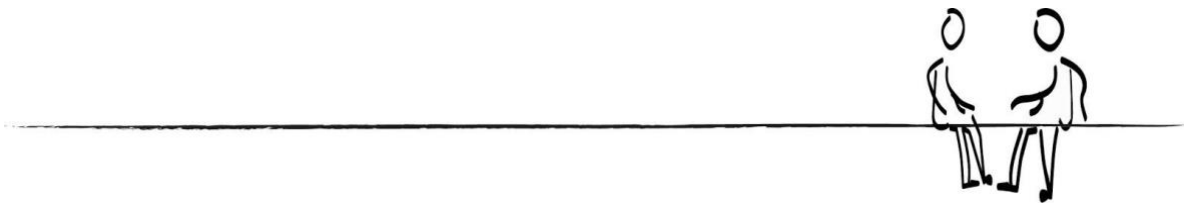


Figure 7.9: Tools to collect user and machine input (Krishna, 2018)

To conclude, when check-in and briefing can be done through mobile devices, the role of the crew building will change. The one thing that can't be digitalized is the heart. A space for crew members to meet will exist, and the crew building can change in a crew café. People will go to the crew café when they want to celebrate a special event or meet with colleagues. This space will also be the touchpoint with the company. They can meet with people form the office (inflight services) of FlyCo to discuss what can be improvement on board of the aircraft. Co-creation workshops can be organized to combine the expertise of the crew with the developments within the company. Crew members can receive extra care, receive help with the newest apps or just meet for a coffee with an old friend.

Chapter 8

Conclusion



Conclusion

The goal of this study is to optimize crew flow. The transition of the crew building also creates an excellent opportunity to examine how the FlyCo-crew experiences their work. Various proposals are described to improve the crew journey to *start improving the experience of the FlyCo Crew members.*

8.1 Conclusion

This study started of with the following question: How to support the social interaction among crew members, without disturbing the flow of others, during and after the transition? The answer to this question is described and visualized in a design roadmap for FlyCo. The roadmap is created according to the design objectives and requirements of the research.

Blue Carpet

Blue Carpet is designed to optimize flow, during the renovation of the crew building. Blue carpet is a design proposal based on the following requirements:

Optimize

Blue carpet creates an intuitive orientation in the environment for both the inflow and outflow of crew members. Each flow follows a different color of carpet. The carpet guides the flow from the beginning (entering the building) to end (exit the building).

Nudge

The furniture piece functions as a landmark to nudge the people, entering the room first, into the right spot for the goodbye moment. They are tired and will have to wait for the others. Facilitating a place to sit down will attract them to the right location. When this goodbye spot will change location, due to the construction work, the goodbye spot is still easy to recognize by the crew.

Trigger

Projected signage with the text ‘Kissing Goodbye’, will trigger the people during the peak moment. Also this dynamic signage directs the first people entering the room to the right location. The rest will follow.

Implementation

To optimize the crew flow, it is important that the design is clear. People will have to change their routines and therefore clear directions should guide them the way. The design should be easy and fast to implement because the renovation is planned to start in 2019. The carpet and the projection can be implemented in a couple of weeks. Only the furniture piece will need around 2 months to be developed and build. Finally, all the elements are standalone constructions and can be adjusted to the construction works at any moment.

Hall of Fame

After the transition, the Hall of Fame is designed, to support social interaction and boost the crew flow. Design objectives and requirements are stated as followed:

Emotional Flow

Photo booth: The crew members have the ability to take a group photo after their flight, to create a peak-ending of their journey. This supports their social interaction during the goodbye moment.
Crew promoter score: To enhance the feeling of appreciation, FlyCo asks what made their picture moment momentous. This way, the crew can share their experiences with the company, making them feel part of the bigger whole.

Physical flow

Flow & Flux: Flux (people standing still to say goodbye) is separated from flow (people walking). Bamboo material is used to create a separate space within the environment for flux. A fast lane, market by stone floor, is designed for flow to pass by.
Signage: The welcome home sign marks the end of the crew journey and is the nudge for people to start saying goodbye. The goodbye sign nudges people to continue their journey home and discourages to stay hanging around in the building.
Dynamic signage: Flow is guided during the peak hours by using projected signage as trigger. During the off-peak hour, a projection will guide crew towards the kissing goodbye (flux) area for a proper goodbye. During the peak-hour, the projection will change into ‘goodbye’ to guide the people into the fastlane in order to leave the building.

To conclude, all elements are integrated into the environment of the Kissing Goodbye zone. The photo booth is build-in to avoid it from falling over or getting damages by suitcases. The floor is kept free, to be suitable as a fire exit during emergencies.

Crew Dialogue

Finally a future flow is designed based on the current events. Today's trends show that digitalization and efficiency have a big influence on the work of the FlyCo crew members. A result is the downsizing of the current crew building, while the aviation industry and the number of crew members is increasing. A future vision is created as a dot on the horizon, to work towards. The role of the crew building will change from *facilitating work activities* into *appreciating the employees*. The crew building is an important meeting point between both the company and the crew members themselves. Therefore, I propose to design a personalized flow, made possible by the use of data. There will be no more crew building but a crew cafe. In this cafe, people can meet to celebrate and work together. Also, people from other departments of FlyCo can decide to work at the crew cafe to be close to their users.

	Flow uring the transition	Flow after the transition	Future in the flow
Research question	**How to design an undisturbed flow?**	**How to support social interaction?**	**What is the role of the future crew building?**
Design Objec-tives	✓**Optimize** Create an intuitive orientation in the environment ✓**Nudge** Optimizing the flow by nudging the first person, entering the environment, to an assigned goodbye spot so the rest will follow. ✓**Trigger** To invite crews, including their suitcase, to an assigned goodbye spot and motivate the targeted behavior	✓**Emotional flow** Create a peak-ending of the crew journey Make the crew feel appreciated after a flight ✓**Physical flow** Design a flow based on personal needs for flow and flux Taking into account the variables which influence flow: mood, special events, solidarity, peak hours	✓Care for employees ✓Appreciate their work and effort ✓Celebrate special moments ✓Co-create a better service
Design Require-ments	✓The design for the transition phase is implementable within two months from October 2018 ✓The life span of the design during the transition is 1 year ✓The flow during the transition is adaptable to the construction work and therefore be a stand alone construction ❑ The construction is movable by maximum 2 people, without equipment (not tested yet)	✓The design fits within the walls of the Kissing goodbye area ✓The design does not occupy floor space due to safety and fire regulations ✓The design does not protrude to avoid injuries or damage by suitcases ✓The design protects the privacy of the users	
General requirem ents	✓The pathway of one crew member, including suitcases is at least 1,2 meter wide ✓The design facilitates space for at least 36 people at the same time ✓The space for one BIG crew is has a diameter of 4,5 meter		

8.2 Limitations

This project offers a new way of looking at crew flow. Suggested is to take a dot on the horizon, and work towards this ambition instead of solving the problem of today. However, it is acknowledged that there are limitations to this research.

Research

This study consists mostly of qualitative research. An attempt has been made to reach a diverse audience. Crew members from all different functions have been interviewed. To avoid biased interpretations, all insights are evaluated with experts afterwards. Experts are; the community managers, experts from the crew service hub and inflight services, as well as the designers from Reframing Studio and the architects for xx . However, quantitative research is needed to support and validate the insights of this research.

Privacy

Suggestions to deal with privacy and data are described in the report. However, an elaborate study on this topic is not performed. A large influencer in this field are the unions of the FlyCo crew. They determine what data can and can't be collected or used. Future study is necessary to involve the unions and find out how crew data can be collected with respect to the privacy of the employees.

Development

The core of this thesis is performing design research and uncovering the layers behind the problem with the crew flow. Within the time limit of this project, it was not possible to fully detail and develop all three of the concepts. Parts of the concepts need further development and designing. Suggested is where the signage needs to be located and what it should communicate. Materialisation and esthetics of the signage needs further developed. This also depends on the final decisions of FlyCo. This means, some areas of the crew building will be 'common use'. This means, crews of other airlines are using these areas as well. If FlyCo decides that the Kissing Goodbye area is for common use, the aesthetics of the signage should be designed in a neutral style and not according to the FlyCo corporate identity. Furthermore, the interfaces of the screens depend on this decision as well. Details like the usability of the interface is not covered in this project.

Co-creation

To develop a crew database, the crew building needs the expertise of data scientists. Co-creation between the crew building, the crew members themselves and data specialist could give a better insight in the minimal viable data, needed to personalize the crew flow in the future.

8.3 Recommendations

To conclude this report, insights that are found during the research, but where out of the scope of the project, are described.

First, there is a lot of confusement among the crew members whether to return to the crew building after a flight or not. There are some unwritten rules about this situation. Some people think it is out of solidarity to return as a group and expect others to do so as well. Others think it is more practical to leave early. It should be clear to everyone that it is not obligatory to return to the crew building. Recommended is to communicate clearly, what crew is supposed to do after a flight. An example, the purser of the flight could have the task to set a fixed goodbye moment. This can be at the aircraft, airport or crew building. This way, everyone know what is expected and the crew will have a moment of closure.

Second, design interventions are performed to facilitate suitcase parking. The result show that suitcase parking is not going to solve the flow problem. However, it can help to structure the moments of flux (people standing still). Moments of flux are, the toilets/changing rooms, the crew lounge and the crew service hub. It is recommended to integrate some form of recognizable suitcase parking spots in the interior to prevent suitcases from standing in the way.

Finally, the transition is going to have a lot of impact on people routines. Some people have been performing for many years. To guide them through the change, it is important to communicate clearly what will be different and how this will effect them. This study has shown that crew members are very empathic and social people. They prefer personal contact, instead of digital communication. Therefore it is recommended to guide them through the change in a personal way. A way to do this is to have transition agents located in the building. These people represent the transition and will guide the crew members into a new routine.

8.4 Reflection

What better way to end my graduation thesis with a personal reflection of my time at FlyCo. Although it feels like my project is still not finished, my graduation day is approaching and I am very excited and proud to present my project to my supervisors, family and friends.

The advantage of working at a large company is that there is so much knowledge within reach. And yes, I did take advantage of this knowledge. I took the opportunity to visit as many different departments within FlyCo, to get to know more about the company. I got to talk and brainstorm with experts about future scenarios, user centred design, the x-way of working and data science. This also inspired me to find out, what kind of job I want to search for after I graduate. Maybe a job at FlyCo, who knows?

I also experienced the difficulties when working with multiple stakeholders. I found it hard to find the balance between innovation and feasibility. I noticed that the crew building is a very operational department within FlyCo. Therefore, it was important to make the project feasible. I am glad I had the chance to do more than optimize the crew flow. Hopefully, I can inspire the crew building with a new way of thinking. So, the future is not just about optimization and efficiency, but also about implementing FlyCo's values for its employees in a physical and active way.

I enjoyed working with the crew members. It is true, the heart is inevitable. The people are incredibly heartwarming and they continually cheered me on from the side lines. I couldn't ask for a better target group. They were always there to answer my questions or to participate in my tests.

Finally, the thing I enjoyed most, is the hands on approach I could perform to test my insights. It was also quite challenging to go out there and just to it and try new things. This gave me a lot if confidence to continue performing this style of hands on design research in the future.

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