Stakeholder involvement facilitation

Reframe towards the common good

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Executive summary

Amsterdam Airport Schiphol is facing a time at which radical change is required to keep up with passenger growth. Due to various limitations, it is no longer possible to expand the facilities physically. Therefore an increase in airport efficiency is also required.

A 'common use' strategy has been chosen to create this more efficient departure hall. However, the implementation of the common use principle proves to be challenging as it involves significant changes and the involvement of many stakeholders is required. The research aimed to design an approach to support Process Developers at Schiphol Group to effectively incorporate their stakeholders within their projects. Where the researcher should answer two research questions. (1) How to effectively incorporate stakeholders within a Process Development project? (2) How to align the interest of stakeholders and Process Developers?

This thesis reflects on the implementation of a method named 'Frame Innovation' by Kees Dorst. This method defines nine steps in which a problem is dismantled, analysed, restructured and recombined to find solutions for open, complex, dynamic and networked organisations. The method is characterised by exploring the common ground between stakeholders instead of trying to solve the differences. In this case, the method is applied to the Drop&Go department as a showcase for Process Development. The progress of this Frame Creation exploration with Drop&Go is documented within an autoethnography per process step. The outcome of this research will result in two strategies. (1) How to implement Frame Innovation within the Process Development department. (2) How to achieve common use within Amsterdam Airport Schiphol via Frame Innovation.

Process Developers should work to integrate the airlines' interest within the developments within and around the terminal of Amsterdam Airport Schiphol. However, airlines have a slightly cynical approach when the airlines are asked to respond to the plans of Schiphol Group. "I actually cannot remember the last collaboration with KLM that went smoothly"- Drop&Go program manager Schiphol. All those negative experiences make Process Developers not fond of involving stakeholders within their projects.

Six paradoxes are defined that form an obstacle when it comes to the implementation of a common use principle. Since innovation is not Schiphol's primary goal, the circumstances for implementing new principles to existing infrastructure are not ideal. It is therefore that most of the paradoxes are the result of Schiphol's current project approach.

The four predefined inner stakeholders; Schiphol, passengers, airlines and handlers have to find common ground to make a successful implementation of common use possible. Schiphol Group wants to enlarge the airport capacity by improving its efficiency. To monitor efficiency improvements Schiphol Group introduced an extra 160 KPI's (Jerkovic, 2017). These quantitative results are used to convince stakeholders to become common use. Airlines are not actively against common use. However, airlines desire the ability to distinguish themselves from other airlines in the departure hall. Although all passengers have different needs, common use self-service machines are overall in line with the desire of becoming in control. Handlers do not have any interest in common use self-service since it will require them to change in business model. With the current project structure, in which Schiphol take a clear lead and only updates stakeholders on developments, other stakeholders feel unheard. Although their interests appear to line up on most parts, a strong distrust between different parties stands in the way of a smooth collaboration.

Three themes were determined that describe the factors that underlie the needs of all stakeholder. The passenger wants to experience freedom by not to be bounded to dedicated luggage drop off desks. On the other hand, airlines and Schiphol Group wish to maintain control, which resulted in guarded freedom. Both handlers, airlines and Schiphol Group need quantitative data for decision making, which lead to quantified now. All passengers have different needs, Airlines have a desire to distinguish, and handlers

are each other biggest competitors. Therefore all stakeholders are in need of a sense of identity.

The development of frames is considered to be a helpful tool when it comes to opening up the discussion about change. A Frame is a situation with similar characteristics as the current context. The problem solving used in Frames can be used as inspiration to reach the desired condition. As a result, frame creation simplifies the debate on change since it establishes a distance between the problem and the organisation.

Both peak shaving as creating a unified terminal was considered while creating future scenarios. The frame peak shaving resulted in a future where Schiphol was able to create dedicated check-in slots according to the needs of a passenger. The app 'Schiphol buddy' acquired all the data, to create a personalised travel journey for an on-time arrival at Amsterdam Airport Schiphol. All stakeholder would benefit from a more conscious passenger flow.

The frame unified terminal resulted in a future where the passengers experience at every passenger process step the same common use principle. Currently, security, customs, restaurants and economy lounges, are all common use. The departure hall will be common use by creating a Schiphol experience, all similar machines and regular Schiphol ground handling appearance. The passenger should experience the departure hall as a Schiphol and not dedicated to an airline. By taking more responsibility and thereby risk, Schiphol Group will become in control of its facilities. The results were tested in a Frame Innovation workshop with all inner stakeholder represented, where all stakeholder saw potential in the unified terminal future. Further legal and business options need to be researched before the potential implementation of this new common use situation.

While exploring the Frame Innovation method within the introduction of common use, autoethnographic reflections were made. These reflections served a base for the advice on how to implement Frame Innovation within Process Development, as Frame Innovation proved its potential during the research within Drop&Go.

The frame Innovation method contributes to the creative exploration of future scenarios. It sets aside the differences between stakeholders and focuses on the common ground, which supports collaborative thinking among all stakeholders. The Frame Innovation method is adjusted to the needs of Process Developers, which resulted in a more dynamic framework. Finally, a Frame Innovation tool as created for Process Developers to start their exploration of Frame Innovation within their projects.

To conclude, the Frame Innovation is an excellent method to incorporate stakeholders within a Process Development project effectively. Especially, if the project contains conflicting goals between stakeholders, where stakeholders will need the change their current business models drastically, and there is no obvious solution available. Lastly, the Process Developer is open to trying a new method to find alternative solutions.

Preface

It is time to present you my thesis! Actually, it feels like ages ago that I started exploring the potential of common use in the departure hall of Schiphol. Besides facilitating my research, Schiphol Group had a lot more to offer and I enjoyed every minute of it! From an Amsterdam canal tour with colleagues to the terrifying moments of participating in an audit of Schiphol security.

The project itself has been challenging, who could have guessed that I would dedicate my whole graduation to a single method? Nevertheless, the orange 'Frame Innovation' book deserves a prominent place on the bookshelf now, after a daily inspiration for almost half a year.

My thesis would not have been what it is today, without the help of several people. I would like to take a moment to express my gratitude.

Sicco, thank you for asking critical and inspiring questions during our meetings, this helped me to redefine my scope and get me back on track.
Sander, thank you for your all your enthusiasm and criticism about Frame Innovation, the aviation sector and my work. Also, thank you for challenging me to work academically and providing the ability to have a chat whenever I needed it.
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The *Drop&Go team*, thank you for all the insides into the world of Schiphol Group.
Special thanks to *Jeanine* for your unlimited enthusiasm, all the help and off course bringing me to Frankfurt!
Special thanks to *Olaf* for helping me understand the handling agencies and representing them in all my workshops.
Tiemen, *Arthur* and *Marit*, thank you for showing interest in my progress and helping me when needed.
Thanks to all other *process developers*, for all your feedback and support.

Esther, thank you for helping me create the Frame Innovation workshop.
Jelmer, thank you for the countless moments of simplistic reflection.
Special thanks to *Jesse*, for your patience, support and reading my entire thesis.

Thanks to all my *friends and family*, for listening to my endless Frame Innovation stories. Now it is time to change the subject!

Enjoy the read!
Evelien Habing

Table of content

Executive summary 6
Preface 8
Table of content 10
Glossary and abbreviations 13
Introduction 16
The project 20
Context: Departure hall 20
Company: Schiphol Group 21
Department: Process Development 22
Organisational structure 22
Use case: Common Use implementation 23
Research aim 24
Problem statement 24
Relevance 24
Frame Innovation, the method 28
Project approach 32
Frame Innovation 32
Drop&Go 32
Analytical autoethnography 32
Hypothesis Autoethnography 34
Archaeology 38
History of Schiphol Group 38
History of Common Use 40
Why and how did we arrive at this moment in time? 41
What is happening today? 42
Autoethnography of archaeology 46
Paradox 48
Autoethnography of paradox 54
Context 56
Schiphol Group 56
Passengers 58
Airlines 60

Handlers 62
Autoethnography of context 64
Field 66
Autoethnography of field 68
Themes 70
Autoethnography of themes 71
Frames 72
Autoethnography of frames 75
Futures 76
Passenger experience 76
Peak shaving 77
Creating a unified terminal 78
Autoethnography of futures 81
Transformation 82
Autoethnography of transformation 83
Integration 84
Autoethnography of integration 84
Framework for Process Development 90
Frame Innovation Workshop 91
Autoethnography of workshop 92
Workshop insights 94
Tool 94
Conclusion 100
Contribution 101
Limitations 102
Recommendations 103
References 106
Interviews and conversations 108

What are the biggest barriers to change for airlines?

> “The complexity of this industry is a huge barrier. There is a complex web of government regulation, security issues, airport congestion and air traffic control issues that airlines have to manage through.

Nawal Taneja

Glossary and abbreviations

Abbreviation	Meaning
AAS	*Amsterdam Airport Schiphol*
CU	*Common Use*
CUSS	*Common Use Self Service*
CUSSCI	*Common Use Self Service Check In*
CUSSDOP	*Common Use Self Service Drop Off Point*
DDO	*Day to Day Operations*
HBS2020	*Rearrangement Bagage Systems before 2020*
HT1	*Rearrangement Terminal 1*
KLM	*Royal Dutch Airlines*
OPS	*Operations*
PDC	*Process Development & Capacity management*
SRA	*Support and Resource Allocation*
SSDOP	*Self Service Drop Off Point*
SST	*Self Service Technologies*


Baggage lockers
Hotel reservations
Telephone
Change

Introduction

Introduction

Design is interpreted differently by anyone. One will say it is about making beautiful things, the other will say it is about creating valuable experiences that matter to people. It is evident that design has changed throughout the past decades, the industry went from developing products to increase everyday comfort towards solving complex matters today. In today's world where seemingly futuristic products such as autonomous driving vehicles and automated facial recognition are becoming reality, the urge to design for the future is ever increasing. How do we implement those technologies in such a way that all stakeholders benefit?

At Amsterdam Airport Schiphol, better known as Schiphol, technology is also on the rise. Biometrics and self-service machines are being developed right now. The industry is mostly known for incremental changes, like new security machines and self-service bag drop off. Although the aviation industry is a dynamic industry, the organisations within the sector are somewhat static. Since the beginning of aviation, the industry has not changed much. The passenger journey (see figure 1) is quite familiar to anyone who ones travelled by plane. Passengers pack their bags at home, bring them to the airport, check-in their luggage at a desk manned by a ground attendant, go through security and after a lot of waiting they spent some time in the lounge waiting for their plane to depart. During the flight, passengers can enjoy the on flight meals and beverages while sitting in a slightly uncomfortable chair. Upon arrival, passengers hope for their luggage to arrive at the carousel and then are off to their desired destination.

As a result of the somewhat static situation in the aviation industry, both the passenger and luggage handling process do no longer meet the current demand for fast and easy traveling. This deficiency is further increased by capacity limitations, forcing Schiphol to increase efficiency over the whole logistic chain.

As a response to the demand for efficiency, the aviation industry is on the brink of a more radical change; further developing the common use principle at multiple parts of the airport. This principle is implemented as self-service drop-off points (CUSSDOP) in the departure hall, as well as common use handling equipment at the aircraft stand. In case of the common use self-service drop-off points, it means passengers have the ability to drop off their luggage at any drop off point, independent of airline or destination. This innovation will result in a more efficient use of the facilities at Schiphol and a better

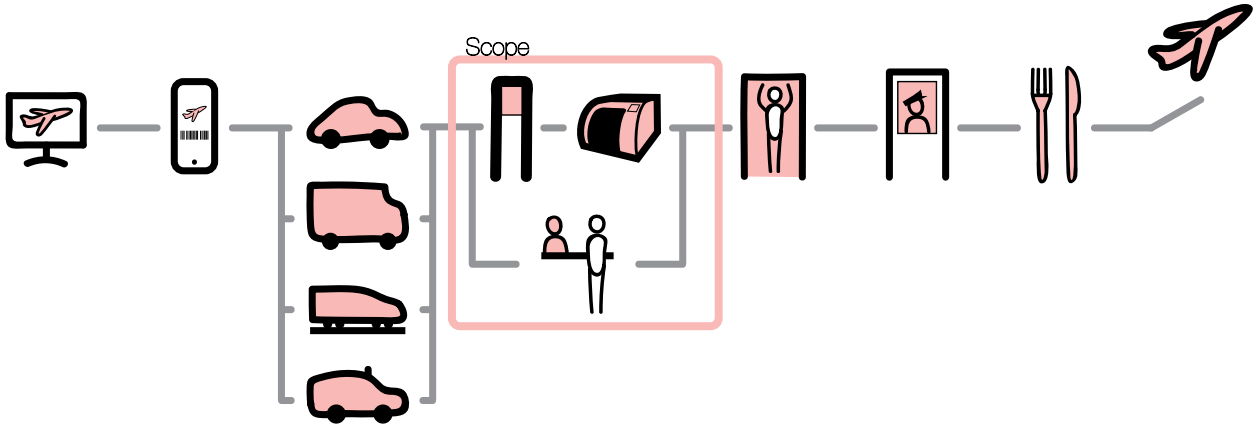


figure 1 - Departing passenger process

customer experience. Although the results of current common use integrations like the security filter are positive, the introduction of a common use principle is not easily implemented in the departure hall. This is due to the many different stakeholders, a.o. airlines, handlers and passengers that are affected by the implementation. So, to succeed with a common use departure hall, all stakeholders need to be involved in the development of the common use principle.

Since stakeholders in the aviation industry are strongly intertwined, changes often affect multiple stakeholders. As parties with different interests are involved, stakeholders tend to be critical towards change that directly affects their day-to-day operations. With the introduction of common use both the airlines and handlers need to change their current way of operation. Since both parties are unfamiliar with common use practices, both tend to have a negative attitude towards implementation. Schiphol Group, the company behind Amsterdam Airport Schiphol, set course towards a brand new common use departure hall in 2023 (figure 2) . To overcome the stakeholder uncertainties and to discover the common use potential, operational management of Schiphol Group decided to start on a small scale common use departure hall in the terminal currently known as 'departure hall 1'. The process development department has the obligation of solving all stakeholder issues to make the common use departure hall work.

The primary research aim for this graduation project is to design an approach to support process developers at Schiphol Group to understand their stakeholders and to facilitate a quick response to stakeholder interests. The introduction of a common use luggage drop off at Schiphol's departure hall 1 forms the use case of this research. This case consists of a multi-stakeholder issue, which requires all stakeholders' co-operation in order to succeed.

To explore potential solutions for this multi-stakeholder issue the innovation method 'Frame Innovation' by Kees Dorst is used as a guideline. This method involves a nine-step process that specially designed for open, complex, dynamic and networked organisations (Dorst, 2005, p.1, 9-12), like Schiphol Group. Therefore 'Frame Innovation' could inspire Process Developers at Schiphol to actively involve stakeholders in their projects. The method explains both how and when to incorporate stakeholders in the Frame Innovation process. Within Frame Innovation it is essential to integrate stakeholders while creating value. When co-creating, or as Dorst puts it co-evoluting, adds value for all stakeholders, stakeholders are most likely to agree and help with the execution of the project (Prahalad & Ramaswamy, 2004).

The presented design research has a two-way approach. Every chapter consists of both an exploration of the method, and an autoethnographic part to evaluate the process and its potential for Schiphol Group. Finally, the exploration results in various ideas for the introduction of the common use principle and an approach for Process Developers to successfully involve stakeholders during a project.

figure 2 — Design of terminal A (Kaan, 2017)

The project

The project

Context: Departure hall

The terminal consists of four main areas; (1) Plaza, an openly accessible shopping area with the train station. (2) The four departure halls, departures 1, departures 2, departures 3 and temporary departures 1A. (3) The four lounges, waiting areas with shops and restaurants. (4) Eight piers with corresponding gates. Also illustrated in figure 4

In 2020, departures 1A will close and make space for the construction of a new terminal (figure 2), consisting of an additional departure hall, lounge, reclaim hall and arrival hall.

The terminals consist of two parts, Schengen and non-Schengen. The Schengen agreement represents the free movement of people and goods between designated European countries and was signed by France, Germany, Belgium, Luxembourg and the Netherlands in 1985. As of 1995, the Dutch government demanded Schiphol to operate conform Schengen agreement. Since visa and document checks were no longer obligatory for Schengen countries, it resulted in a physical separation of Schengen and non-Schengen passengers (Wanders, 1994).

As of today, terminal one is a Schengen terminal, where flights depart towards the countries marked as 'Schengen', see figure 3. Additionally, Pier M connected to Lounge four also hosts low-cost Schengen flights. Terminal two and three host non-Schengen flights.

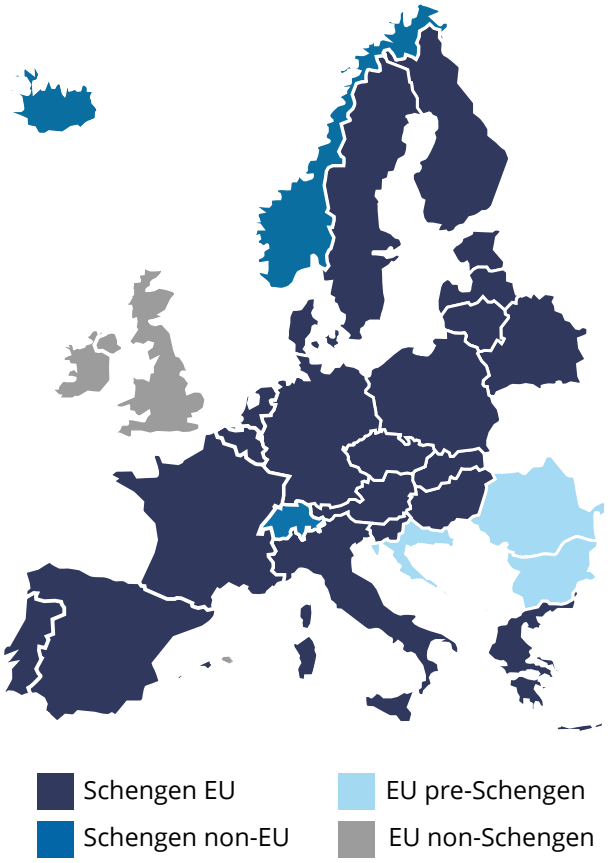


figure 3 - Map EU (European Parliament, 2018)

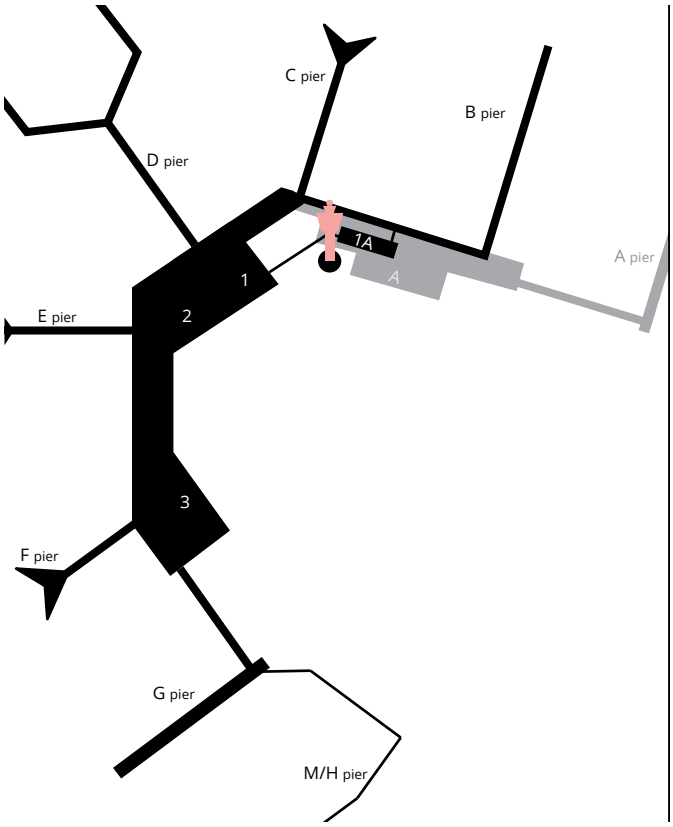


figure 4 - Map departures Schiphol

Company: Schiphol Group

This research revolves around Schiphol Group, the organisation behind all facilitations at Amsterdam Airport Schiphol. With 326 direct destinations, a total of 496.748 air transport movements and 68,5 million passengers of which 36,9% are transfer passengers (Schiphol Group, 2016a), Schiphol is by far the main airport of the Netherlands. Thereby Schiphol has one ambition, becoming Europe´s preferred airport (Schiphol Group, 2018). To achieve this mission, Schiphol has developed a strategy with five focus points, see figure 5. Although their primary task is to operate Amsterdam Airport Schiphol. Schiphol Group is also responsible for (parts of) other airports in the Netherlands and abroad.

Passenger volumes in the aviation industry are growing continuously and expected to doubled in the next twenty years (IATA, 2016), forcing Schiphol to grow in capacity as well. This expansion of the airport is part of the strategy 'top connectivity'. In the end, the focus for Schiphol is to not only to expand but also to improve its service as part of the 'excellent visit value' strategy (Schiphol Group, 2018). Thereby Schiphol aims to take the needs and demands of its clients -the airlines- more into account. For the passengers, the user experience will improve in and around the terminal.

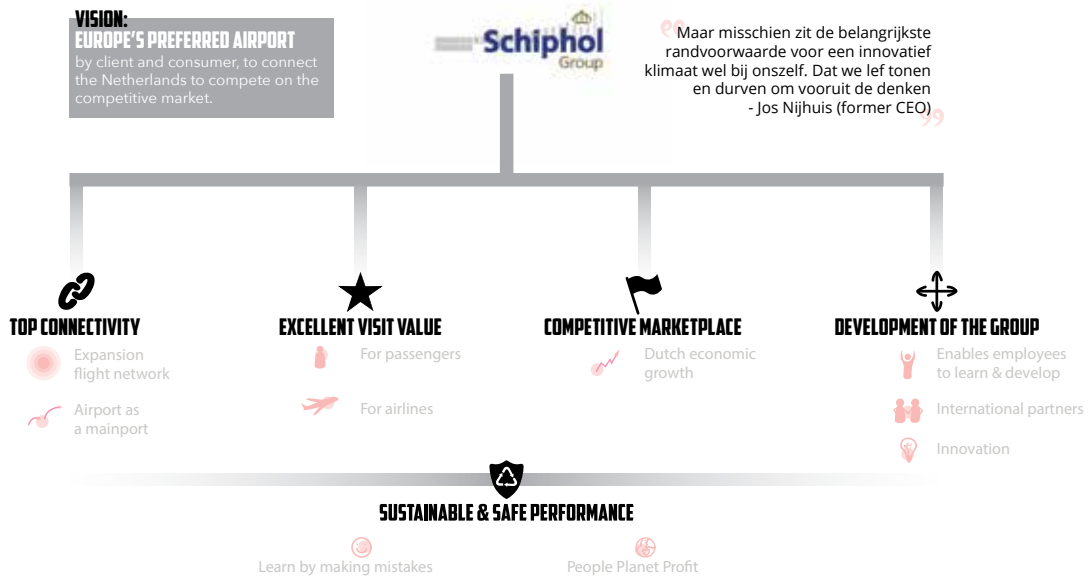


figure 5 - Representation of Schiphol's strategy

Department: Process Development

At Schiphol Group, this research is executed within the process development department. Process Development (PD) is part of operations (OPS), which makes sure to research and prepare for future airport developments.

To prepare for the future, OPS strives towards operational excellence (figure 7). In their vision an excellent operational processes lead to the passenger experience becoming better as well. Within OPS, around forty process developers are responsible for improving the processes at Schiphol for 0-5 years in advance. These processes fit into four main process groups, airside, landside, passenger and luggage (figure 6).

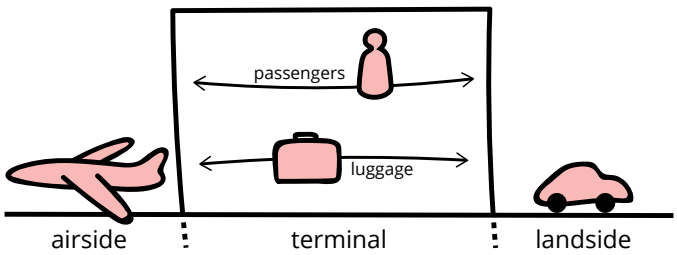


figure 6 - Operational processes

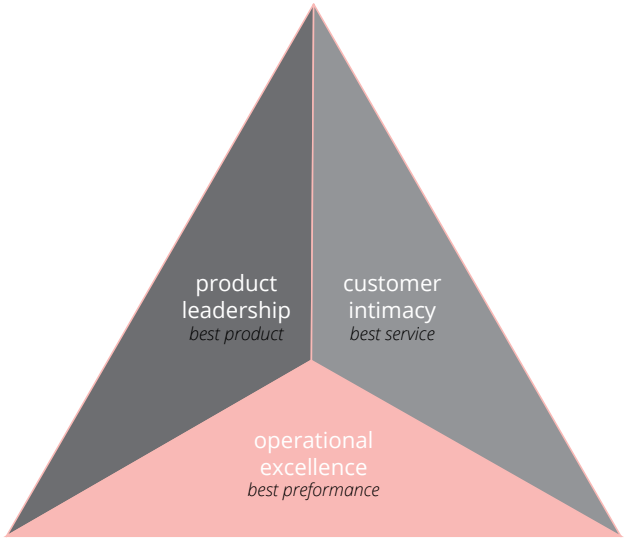


figure 7 - The 3 value disciplines

Organisational structure

As illustrated by figure 8, Process Development is part of operations (OPS). After the reorganisation 'One smart OPS' in 2016, OPS consists of three main departments: Process Development and Capacity management (PDC), Support and Resource Allocation (SRA) and Day2Day Operations (DDO). Together they work on one smart operations with a mutual vision 'Every aircraft departs safely and on time with happy passengers and belonging luggage' (Schiphol Group, 2016).

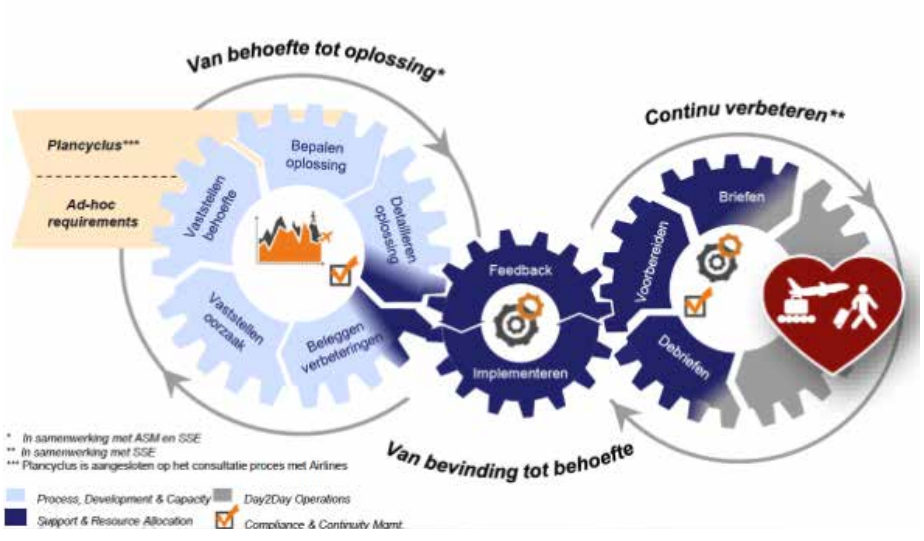


figure 8 - Representation of OPS reorganisation

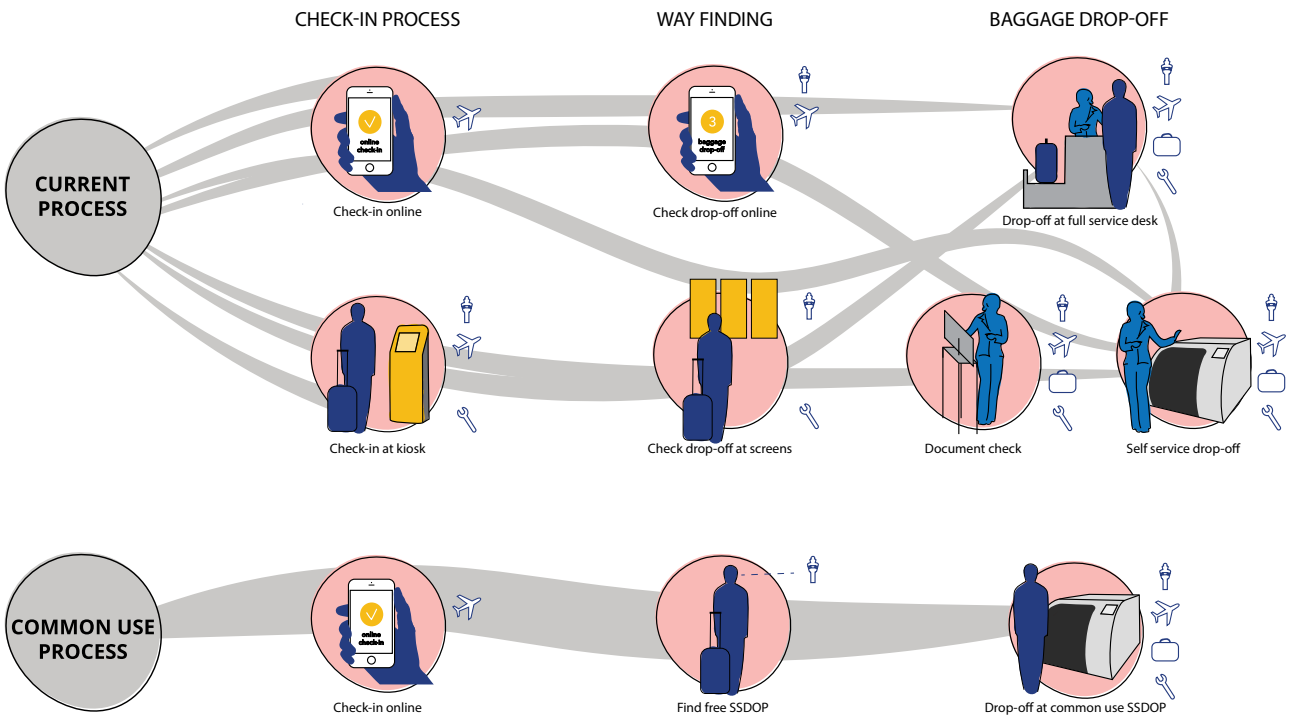


figure 9 - Representation of check-in kiosk and luggage drop-off process

Use case: Common Use implementation

The implementation of common use check-in in the departure hall is one of the current projects of the Process Development department and forms the main focus of this research. The Process Development department started this project in order to open a fully common use departure hall in the new Terminal A, which plans to open in 2023.

Common use means 'can be used by anyone' and is often used to the describe the seamless exchange of facilities among airlines, e.g. a desk can be customised to and occupied by a number of specific airlines. Although most airports have common use projects, the execution is mostly different from the plans at Amsterdam Airport Schiphol. At Schiphol common use means 'can be used by any passenger no matter their destination or airline'. In this case common use is approached from a passenger rather than an airline point of view and therefore aims to provide complete passenger freedom and control. Together with the CUSSDOP machines, the passenger itself can choose where to check-in and drop off their luggage.

By giving this freedom to passengers, Schiphol aims for a seamless flow (Schiphol, 2015b) with a less complicated check-in process and more capacity (see figure 9).

Other airports, like Toronto and Las Vegas are working on the implementation of common use from an airline point of view, whereby airlines can function at every DOP / full-service desk available. Meaning that for example desk row 3-4 can be occupied by American Airlines on Monday and by Cathay Pacific on Tuesday. As Samuel Ingalls (McCarran Las Vegas Airport) said, 'What you're trying at Schiphol, is still our big dream.'

Despite all benefits, introducing this innovation at Schiphol will be a big challenge, as it will affect the way they do business for all stakeholders involved. Cooperation of all stakeholders is required to make this work.

Problem statement

The implementation of the common use principle at the Schiphol departure hall requires the flexibility of all stakeholders. However, within Schiphol Group stakeholder involvement is experienced as obligatory and inefficient. Process Development represents the interests of all airlines involved in a project. Formally the interest of PD and airline are aligned, however, practice shows the opposite.

Therefore it is hard for Process Developers to experience the collaboration as an opportunity to create common goals. To create an equal and open discussion, reframing of the problem is required to develop new solutions and to escape the endless spiral of problem solving.

Research aim

Design an approach to support process developers at Schiphol Group to effectively incorporate their stakeholders within their projects.

Q1: How to effectively incorporate stakeholders within a Process Development project?

Q2: How to align the interest of stakeholders and process developers?

Relevance

This research contributes to both the design as the aviation industry on multiple levels.

1. Process development: Get insights and a workable result in how to effectively deal with stakeholders.

2. Schiphol Group: Inspiration for how to innovate within Schiphol Group, since there is no standard process yet on how to innovate within Schiphol Group.

This design research contributes to the Schiphol strategy of excellent visit value on two levels. Firstly the common use research will be beneficial to the passenger experience, and the airline be more involved within Schiphol projects. Secondly, it supports the development of the group, as it provides a structure to innovate. Schiphol Group lacks such a structure at the moment.

“There is no prescribed process on how to innovate within Schiphol. First horizon innovation is something departments should be capable of doing themselves. Second horizon innovation is something we do [within Next], to prepare Schiphol for its potential” - Christiaan Hen, Manager Innovation Next

3. Aviation sector: A successful integration of the common use principle will drag attention from multiple organisations around the world.

4. Design research: Theory of Frame Innovation put into commercial practice with documented reflections.

Project approach

Frame Innovation, the method

This chapter introduces the Frame Innovation method, designed by Kees Dorst. This nine step process forms the fundament for this projects approach. Each step within this process will be executed, analysed and reflected in pursuit of answers to the research questions mentioned in previous chapter.

Kees Dorst, Professor of Design Innovation at the University of Technology Sydney, Australia, has many years of experience in design practice and design research. Throughout the years, Dorst gained interest in truly understanding designers and their way of working. As a culmination of many years of expertise, Dorst created the Frame Innovation method. A method specially designed for more open, complex, dynamic and networked problems (figure 10), types of problems we experience more and more today (Dorst, 2015, p.9-11).These types of problems typically have a clear goal. However, the process of change is mostly unknown.

Dorst explains this theory in four different ways of problem-solving, deduction, induction, normal abduction and design abduction (figure 11) (Dorst, 2015, p.45-50). The common use issue is an example of design abduction, since there is a clear desired value (outcome). What elements are required to create this desired outcome and how those elements need to interact is not determined.

The following scenario is considered an example of design abduction. *You want to go home after work (outcome), you can do that by bike (how) and then there are multiple bikes to choose from in the store (what). However, you could also walk, which requires comfortable shoes or working at home. In that case home need to be a good working environment.*

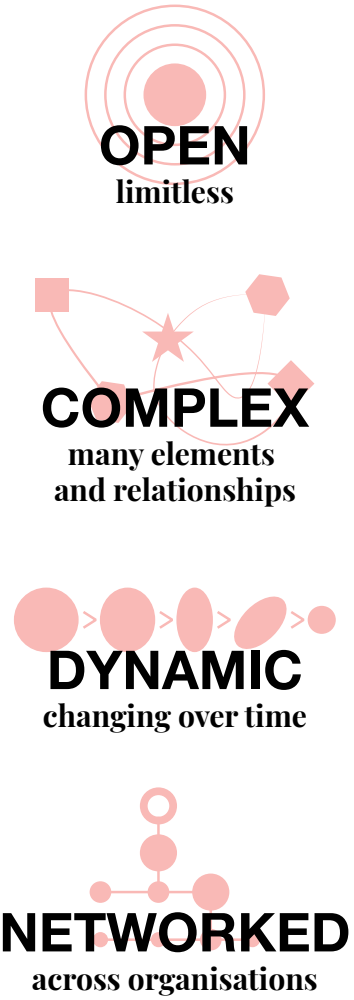


figure 10 - Problem definition by Dorst (2015, p.9-11)

To discover the what, the how and the desired outcome, Dorst created a nine-step method which has the intention to reframe the current situation towards a relatable situation. To understand the effect of the process, Dorst uses the following example; Kings Cross, an entertainment district in the city centre of Sydney, faced many problems. Most of those problems included public intoxication, fight, pickpocketing and minor drug dealing. The conventional solution would be to invest in more security measures in the form of cameras and police. However, the Design Out Crime centre took a different approach to this assignment. After thorough research, they reframed the situation as 'what if the Kings Cross area would be a festival area?'. In this way, the assessment switched from a negative approach towards a positive approach, where the focus was to create an enjoyable evening. The results were phenomenal, by reducing the amount of imposing security men and replacing them with visible young guides, people felt less threatened (Dorst, 2015, p.31-34).

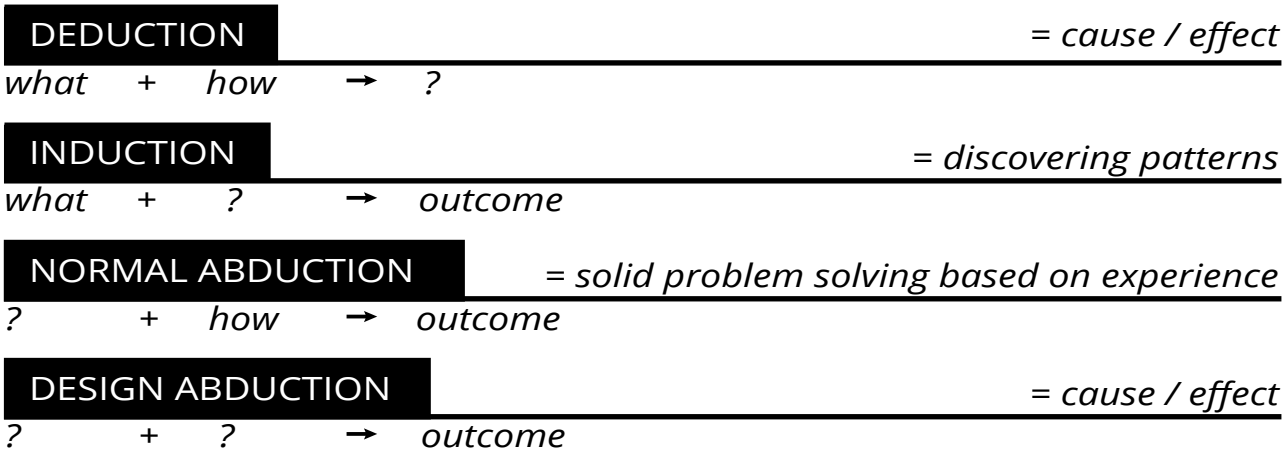
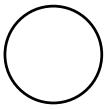


figure 11 - Different kinds of problem solving by Dorst (2015, p.45-50)

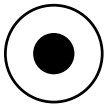
The Frame Innovation method steps

The following steps form a brief introduction to the Frame Innovation Method. All nine steps are named and defined in this manner by Kees Dorst.



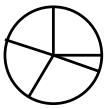
1. Archaeology

Archaeology is quite literally the search through ancient human history based on material remains. In the context of the framework it is about the search for the actual problem and its owners' role. Furthermore it is also about the functioning of the organisation itself. The result is a deep understanding of the situation (Dorst, 2015, p.80-81).



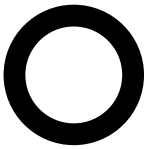
2. Paradox

Within all current problems, what is the core issue? The paradox is about what makes it hard to come from the current state to the desired situation (Dorst, 2015, p.81-82).



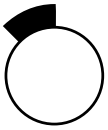
3. Context

Put the paradox statements aside until much later in the process. Start looking at the practices of the inner circle of key stakeholders, what are the key influencers on the behaviour of those stakeholders? (Dorst, 2015, p.82)



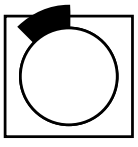
4. Field

The field is a space where assets (cultural, economic, social, and symbolic) are the 'currency' that is exchanged between players. This includes anyone who might be connected to the problem or the solution at some point in time (Bourdieu and Accordo, 1999) (Dorst, 2015, p.82-83).



5. Themes

Themes are deeper factors that underlie the needs, motivation, and experiences of all stakeholders in the wider field (Dorst, 2015, p.83-84).



6. Frames

If themes are the foundation for frames, it is most likely that it will be attractive to all stakeholders. Framing is a tool to create a new direction of thinking. It is a metaphor which shows the relationships between elements for the creative exploration. It provokes a different way of thinking and thereby makes it possible to come up with different ideas (Dorst, 2015, p.84-85).

7. Futures

Futures stand for the development of ideas within the creative exploration. It is the result of simple design abduction with the use of frames. The short-term and long-term effects of the particular frame will be tested with stakeholders to understand the effectiveness of the frame itself (Dorst, 2015, p.85-86).

8. Transformation

To achieve the short-term and long-term benefit of a future, a business plan will be created with a positive gain for all stakeholders. A strategy on how to reach these results is created as well (Dorst, 2015, p.86).

9. Intergration

The new developments need to meet the values of the organisations, so the transformation is required to fit within the broader context of all stakeholders involved (Dorst, 2015, p.86-87).

Project approach

The Frame Innovation method will form the foundation in approaching the problems that are present in the implementation a common use principle. In order to make the process specific to Process Development and their stakeholders, a structured approach is maintained throughout the whole process. This results in a step-by-step executing of each step within the Frame Innovation method, a reflection on the usability within Schiphol Group and a personal reflection in the form of an autoethnography.

Frame Innovation

Frame Innovation could be the innovation process Schiphol Group needs since it is a process that specially designed for open, complex, dynamic, networked organisations (Dorst, 2015, p.1). Schiphol Group has to deal with this type of problems all the time. Problems within the Schiphol group are open since Schiphol has difficulties in describing what is in scope and what is not. Schiphol is undoubtedly complex, due to its many departments and cross-linked project teams. Furthermore, Schiphol is dynamic, since every day is different with other passengers and other situations. Finally, the common use introduction is an excellent example of a networked issue across multiple organisations.

Therefore 'Frame Innovation' could inspire Process Developers at Schiphol to actively involve stakeholders in their projects. The method explains both how and when to incorporate stakeholders in the Frame Innovation process. Within Frame Innovation it is essential to integrate stakeholders while creating value. When co-creating, or as Dorst puts it 'co-evoluting', adds value for all stakeholders, stakeholders are most likely to agree and help with the execution of the project (Prahalad & Ramaswamy, 2004).

Drop&Go

Within this graduation project, the 9-steps of this method are explored in the context of the current innovation project at Schiphol; Drop&Go. The project strives for integration of the common use principle within departure hall 1, to increase its capacity. Furthermore, Drop&Go serves as a playground for understanding the actions it takes to get a common use departure hall operational. It is necessary to understand the opportunities and issues of a common use departure hall while designing the new terminal.

Analytical autoethnography

Analytical autoethnography will support me, the researcher of this thesis, in evaluating the Frame Innovation method. Autoethnography is a form of highly personalised text, drawing upon personal experiences, is a qualitative method that offers a way of giving a voice to a personal experience (Schön, 1987).In fact, it is a story of what happened backstage of doing research, giving the reader a glimpse into the author's world (Ellis and Bochner, 2000).

Autoethnography literally means switching focus from the research process (graphy), to culture (ethnos) and the author (auto). Since this graduation report is a one person job, assumptions and conclusions are subjective. By alternating those personal findings with literature, the experience may be or may not be captured by literature. Where literature could either take away a bit of subjectivity or the results are just based upon my experiences.

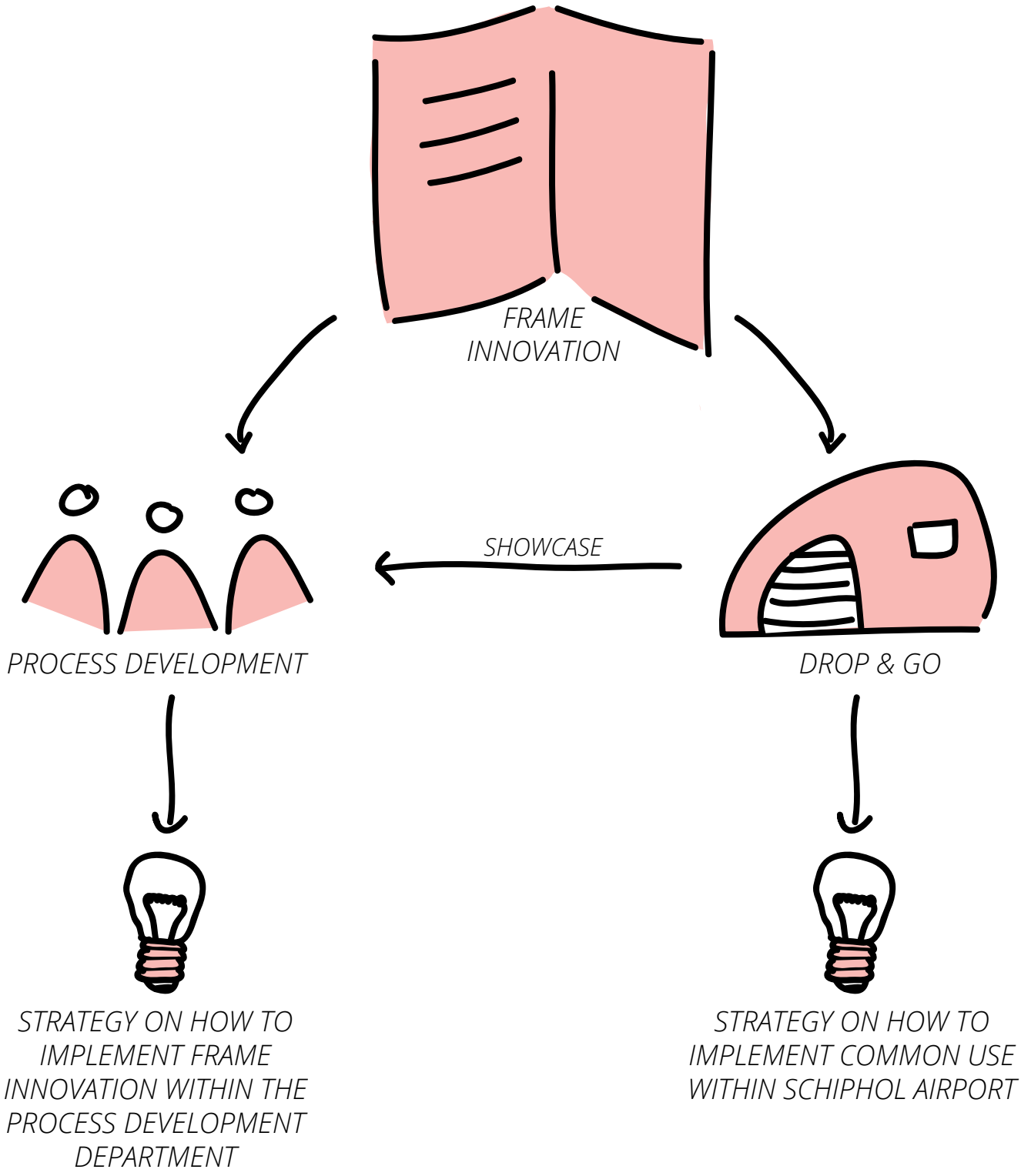


figure 12 - Project approach and deliverables

Summary and conclusions

This graduation report consists of three parts (also see figure 12):

1. An explanation of the findings during the process of understanding the Frame Innovation process, by executing the frame innovation process in the Drop&Go project of introducing the common use principle at Schiphol.

2. A documented autoethnography of the frame innovation process on its effectiveness and its fit within the process development department.

3. The exploration within Drop&Go and the analysis of the autoethnography create inside in what parts of the Frame Innovation method are most applicable for Process Development and how it is best implemented.

Hypothesis Autoethnography

As is described in multiple papers, writing a proper autoethnography can be somewhat tricky; “Oh, it is amazingly difficult! It’s certainly not something most people can do well” (Ellis and Bochner, 2000). Well that is supporting, isn’t it? Despite that I believe it will be good to reflect on multiple levels, like the method itself, how this is working out at Schiphol, how I am discovering the method and how I execute the method during my graduation project. When mentioning the last part, I need to be honest with you. It is July now, and therefore I am writing my hypothesis halfway through my graduation. Not the perfect student example, but I have learned from it and will do differently from now on. So the first four chapters I write my reflection afterwards, and for the last five chapters, I will write the hypothesis before I start with the process step.

At first, I was unsure about following a method strictly. I was not a method-person and was more used to just winging it with the help of tools. Then Sander, my graduation mentor, told me with complete enthusiasm about methods and methodologies. And there I was, a none method-person following the Frame Innovation method by Kees Dorst. Reading the book and experiencing the company, it became clear that Frame Innovation could be an addition to Schiphol. Since Schiphol is in need of a bit more creativity, to move beyond the endless talking and actually do something. Set aside the difficulties and start thinking about possibilities.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Exploring Frame Innovation

Archaeology

In order to facilitate a common use check-in process in the departure hall and solving multiple problems. Dorst insists to start with the history, to understand how the problem owner arrived to this point in time. The history of Schiphol Group and common use self service machines could inspire or inform about issues happening today. More so the current context is researched to get a complete understanding of the problem situation. This step of the process is required to see the problem behind the problem, by asking many people 'why?'.

History of Schiphol Group

This paragraph is based on 100 years of history (Schiphol, n.d.)

On September 19th 1916, the first aircraft landed on Schiphol soil. The location was perfect for sole military purpose due to the strategic position in the reclaimed Haarlemmermeer. The military airport started on a 12-hectare plot of land, bought off a farmer for an equivalent of €450.509 in today's value. After the First World War, the first Dutch civil aviation corporation KLM started to offer flights for civilians. Having no paved runways and being four meters below sea level, made Schiphol known as 'Schiphol Mudport'. The Olympic Games hosted in Amsterdam in 1928 together with the supervision of Jan Dellaert, resulted in the construction of a passenger building and traffic control tower. Paved landing runways were introduced in 1938, due to the increased weight of airplanes.

During the Second World War, Germany bombed Schiphol for being a strategic site. After the war, Schiphol was rebuilt quickly. Jan Dellaert created plans for this new and modern airport, representing the future of air travel (figure 13). The innovative

figure 13 - Jan Dellaert, founder, designer and first director of Amsterdam Airport Schiphol. (Schiphol, n.d)

tangential 4-lane runway systems made it easier for aircrafts to land as they could always land with the wind in the back. The design of Dellaert represented 'de wederopbouw' and therefore received a government funding of 95 million Guilders.
The new airport turned out to be the perfect location for commercial shops, Frans Kappé opened the first salon at Stationsplein. Nowadays, Kappé BV is responsible for all 'see buy fly' shops with an annual turnover of around 400 million euros. Since aeroplanes developed fast during the war, Schiphol accommodated this modern technology with a runway of 3300 meters length.

As passenger amounts grew the construction for the modern station building, now known as terminal 1, together with a traffic control tower started in 1967. Already in 1975, the terminal doubled in size with the construction of terminal 2. Afterwards, expansion stagnated due to noise pollution protests. In the eighties, Schiphol got competition from airports nearby. Schiphol partners with KLM to start functioning as a hub, a transfer airport for KLM. A successful decision, since Schiphol had became one of Europe's major hubs at the end of this decade. From that moment the Dutch Government made Schiphol a mainport, a driver of the Dutch economy, and therefore was allowed to build the current terminal 3. The success of the hub position, became a driver for changes that are still visible in the terminal today. The passengers spent more time on the terminal and together with the rise of the experience economy (Pine & Gilmore, 1999), passenger experience became important. As a result, Schiphol shifted from a temporary waiting area for departing passengers to a residence for transfer passengers. In such a residence people want to be entertained to avoid boredom (Pine & Gilmore, 1999). So after security Schiphol became a "shopping mall" with lots of shops and restaurants.

In the nineties, a more advanced traffic control tower opened, and the Schengen agreement was signed. After the separation of Schengen and non-Schengen passengers, the entrance hall 'Plaza' opened. As growth continues, the need for an extra runway arised. This runway is now known as the polderbaan and has a dedicated traffic control tower. To stimulate further growth Schiphol created the H-pier to attract budget airlines in 2005.

During the recession Schiphol was hit, for the first time since the second world war, the passenger amount dropped with 10% in January 2009 (Haighton, 2009). Passengers experienced Schiphol as expensive, due to the high taxes for both passengers and airlines. Low-cost airlines like EasyJet, were moving to cheaper airports and so did the passengers, flying from Dusseldorf or Brussels became more of a rule than an exception. As a result, substantial investments were postponed by the Schiphol Group. After two years the economy strengthens, and passengers numbers started to grow rapidly. Since the investment accounts of Schiphol were frozen, the airport was unable to quickly adapt to this growth and so a quick response action plan was required. To cope with the passenger growth, Schiphol planned on an increase in efficiency using existing facilities. Additionally the development of plan for a new pier and terminal started.

In order to become more efficient, Schiphol operations management, which consists of Birgit Otto (Vice president/Chief Operations Officer), Mirjam Hoekstra-van der Deen (Director Airport Operations) and Patricia Vitalis (Manager Process Development and Capacity management), decided on a upgrade of all airport facilities. This included the terminal, landside and airside, as well as the construction of a new pier and a new terminal.

History of Common Use

The implementation of self-service is by itself not a new concept. In fact, Barclays Bank opened their first Automated Teller Machine (ATM) in London in 1967 (Abdelaziz, Hegazy and Elabbassy, 2010). With the help of the emerging internet connectivity, ATMs were spread all over the country. Due to its increase in efficiency and reduced costs and labour (Drennen, 2011), the ATMs gain interest from other industries and countries. Nowadays, self-service has emerged anywhere, from self-service bike rental such as O-bike to self-service payment in supermarkets at the Albert Heijn. A combination of 'common use' and 'self-service' is considered to be the next step in self-service drop-off.

At airports, self-service was first introduced for buying parking and train tickets. More recently self-service kiosks were introduced. These self-service kiosks function as an 'on airport check-in' and offers essential functions like printing a boarding pass, changing seat number and collecting vouchers in case of an disruptions. At the more advanced kiosk one can also pay for overweight luggage or print luggage tag labels. Schiphol has two different kiosks, a blue one dedicated to KLM/Skyteam and a yellow kiosk for common use and thus available for all airlines (figure 14). The yellow kiosk has the advantage of being available to all passengers, which results in a positive feeling of being in control (Abdelaziz et al., 2010). As the blue kiosk is solely available for KLM/Skyteam passengers, this machine can be confusing to non-KLM/Skyteam passengers.

To create a fully self-service departure hall, not only the kiosk needs to be self-service, also the luggage should be dropped in a self-service manner. Therefore a self-service drop off point (SSDOP) was designed and manufactured by, among others, SITA, Scarabee and Vanderlande. In 2008, Schiphol Group and KLM started a pilot with the self-service luggage drop off points, developed by Scarabee, in departure hall two (Luchtvaartnieuws, 2008). After a successful first implementation, KLM transformed more conventional (manned) desks into self-service machines. In 2012, the first airline piloted with SSDOP in the departure hall 3, at this moment Schiphol hosted seventeen SSDOP in total (Schiphol Group, 2012). At the time of writing, more airlines such as Turkish Airlines and Easyjet are making the switch towards self-service drop-off.

Besides people getting used to self service machines, common use develops quickly as well. Recently the Dutch banking industry has decided to stop making ATMs bank and brand specific. Since 2015, customers made more transactions by card than with cash, leading to fewer cash withdrawals and therefore a diminishing need to withdraw cash money (Haegens, 2017). In order to compensate for the reduced occupancy for each ATM, Dutch banks started a collaboration to offer common use ATMs. This collaboration has a financial benefit since the number of machines can be lowered by 25 percent without significant loss in coverage (Haegens, 2017). The transactions made by the common use ATMs go via the account of a collaborative company of ABN Amro, ING and Rabobank, which is called Cash Service Netherlands (GSN in Dutch). Apart from a different appearance the new ATM delivers the same level of customer service. As customers simply want to withdraw cash from the closest ATM, the new system is embraced seamlessly.

figure 14 - Two types of self-service machines

Why and how did we arrive at this moment in time?

Most airlines are working with self-service check-in. This means that passengers can check-in online beforehand or check-in last minute at the yellow or blue check-in kiosk at Amsterdam Airport Schiphol. Most airlines are still using the traditional way of dropping off luggage and at full service desks. This conventional desk is a counter with a ground handling agent and a luggage drop off system. The ground handling agents welcomes passengers at Schiphol, checks their documents and checks in their luggage for them.

figure 15 - Switching handlers

Departures 3, is considered a 'non-Schengen other carriers terminal', meaning that intercontinental flights are executed by a large variety of airlines other than KLM/Skyteam. Since those airlines do not fly that frequently as KLM, it could be that a certain desk is used by Turkish Airlines in the morning and by American Airlines in the afternoon. The desk itself stays the same, only an airline specific departure control system (DCS) is loaded on the computers and the logo behind the desk is change manually by the agent (figure 15). It takes time to switch between airlines (in Dutch it is called 'snijverlies') and can therefore result in large lines of passengers waiting to drop off their luggage. As Liesbeth Leurdijk-Kool (service owner check-in Schiphol) said "If drop off starts with a passenger row for check-in, the handlers can work as hard as they can, but the waiting line will be there until the end of a shift".

Furthermore, there is a scheduling issue. The amount of desks airlines get assigned for luggage drop off depends on the number of passengers on that flight. This is due to a right airlines have according to the airlines-Schiphol agreement. However, this does not necessarily mean airlines will use all drop off desks as there are no consequences for not using the assigned desks. This often results in unused desks, even though according to the Schiphol administration all desks are occupied (figure 16). Together with the switching time,

figure 16 - One desk not in use, the other one with a long row of people waiting

figure 17 - Self Service Drop-Off Point (SSDOP)

this is a rather inefficient method of implementing shared desks and results in a closed desk for thirty percent of the time according to Tiemen de Lange.

In current departures 2, KLM/Skyteam is operating with self-service drop off points. This drop off process may still not be ideal, however the total efficiency loss is minimised to five per cent, according to Tiemen de Lange. In current departures 3, several airlines started a pilot to find out the potential of SSDOP (figure 17). However, in this case the results are not as promising as with KLM. At the time of writing a trained ground handler is a lot quicker than a passenger interacting with a drop-off machine is. This is especially the case when passengers use the device for the first time, it requires some time to adapt to the new system. Now personnel is still required to support the passengers with this transition. As the machine have a known learning curve, personnel is instructed to let passengers first explore the SSDOP machine by themselves.

What is happening today?

Common use departure hall

As described in the history of the Schiphol Group, growth has been significant for Schiphol. To cope with the ongoing passenger growth, Schiphol opened a temporary departure hall 1A at the beginning of 2018. However, the departure hall 1A is located at the same place as where the new terminal A is planned. Therefor 1A needs to make space for the construction of terminal 1 in 2020. To still facilitate check-in space for KLM, LOT, Air Malta and Lufthansa Group, who currently operate in terminal 1A, a rearrangement of departure hall 1 will take place. This rearrangement towards a common use departure hall will result in more luggage drop off space and security facilities. Furthermore, the facilities will be used more efficiently due to the fact that 15 airlines can now operate in a space similar to that of three conventional desk rows (Flierman, 2018). By allowing every passenger at every desk, efficiency losses by switching between different handlers are eliminated.

Stakeholders at Schiphol

A successful implementation of various projects at Schiphol's process development department relies on the flexibility and adaptability of a variety of stakeholders. Besides passengers and airlines, Schiphol works together with technology providers, luggage handlers, the government, catering services, Koninklijke marechaussee, border patrol and many more.

The context in which the process developers need to operate is one based on hard facts and figures: building a new departure hall takes place in a world

full of complicated logistics, strict planning, complex flow diagrams, and severe time constraints. Any delay will translate to higher costs for the project, the airlines and the passengers.
Besides smooth collaboration with external stakeholders a smooth internal cooperation is crucial within an organisation such as Schiphol. However, this smooth and sustainable collaboration does not come naturally. Many different departments are working together on different parts of the operation.

Drop & go team

Within operations, a program team is created to fulfil the task of developing a full common use check-in departure hall. This team consists of Peter Flierman (Program manager), Jeanine Aarts-Draijer (Sr. Process developer Drop&go), Janny Postma (Mr. Process developer rearrangement terminal 1), Cardo van der Lee (Process owner baggage), Marjan Rijs (Process owner-passenger), Jillis Dissel (project leader IT), Elise de Kok (Jr. Process developer Terminal A) and temporary Evelien Habing (Graduate Intern Process Development). In general, everyone in the program team has its own responsibilities, often being about checking the connection with other developments like the (security) upgrade of departure hall 1 or the full upgrade of the luggage systems.

Within the drop&go developments, once every month a stakeholder meet-up takes place to update the 15 airlines and the two handlers on the progress. Stakeholders are grouped in teams of which some are represented by a Schiphol representative. Examples of suchs teams are those responsible for hand luggage size, IT connectivity and priority check-in. Those are the teams that face the difficult task of making common use work. The monthly meetings function as an updates, where Schiphol explains and stakeholders share their concerns.

Passenger centric

With the rise of the experience economy, Schiphol could not stay behind to improve their competitive position. Schiphol still facilitates all types of experiences as Pine & Gilmore has defined in 1999 (figure 18). Many hops for passive entertainment, art pieces for esthetic experience, a small rijksmuseum for educational experience and massage chairs for

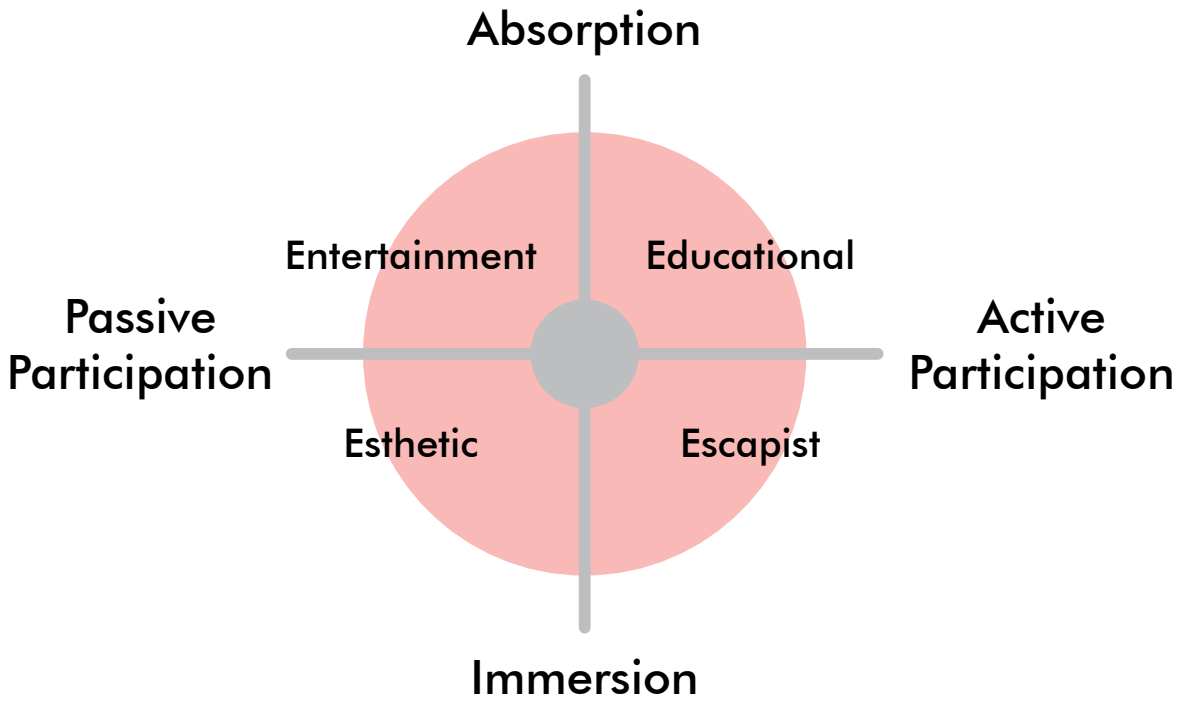


figure 18 - Airport ambitions Schiphol

the escapist experience. How passengers experience different parts of the passenger journey is closely monitored by the customer experience department 'Customer Insights' within Schiphol Group (figure 19). In the quality monitor of 2017 can been seen that the experience rating for the departure hall has decreased in comparison to 2016. Furthermore Schiphol performs on most part of the journey below the Airport Council International (ASI) quality measures. However compared to other airports, Amsterdam Airport Schiphol ranked seventh of the world in airport service quality, based on an passenger satisfaction survey of the ASI (van Diemen, Smit-Banting & van den Bos, 2018).

Summary and conclusions

Schiphol Group has a rich history of expanding to facilitate passenger growth. Even though growth in number of flights is put to a hold due to noise concerns by the local residents, the number of passengers are still growing. Airlines bring larger airplanes to host more passengers than they used to do. To prepare for future growth, Schiphol needs to further expand. To do so a new terminal will open in 2023. Besides physical expansion, facilities also need to be upgraded in order to increase process efficiency.

During these upgrades, in theory, Schiphol Process developers represent the airlines' interest during their developments within and around the terminal of Amsterdam Airport Schiphol. However, in reality airlines fight for their influence on the development projects. Airlines are critical on all suggestions made by Schiphol, "I actually cannot remind the last collaboration with KLM that went smoothly" (Peter Flierman). So instead of creating processes together, Schiphol sets the course and fixes obstacles along the way.

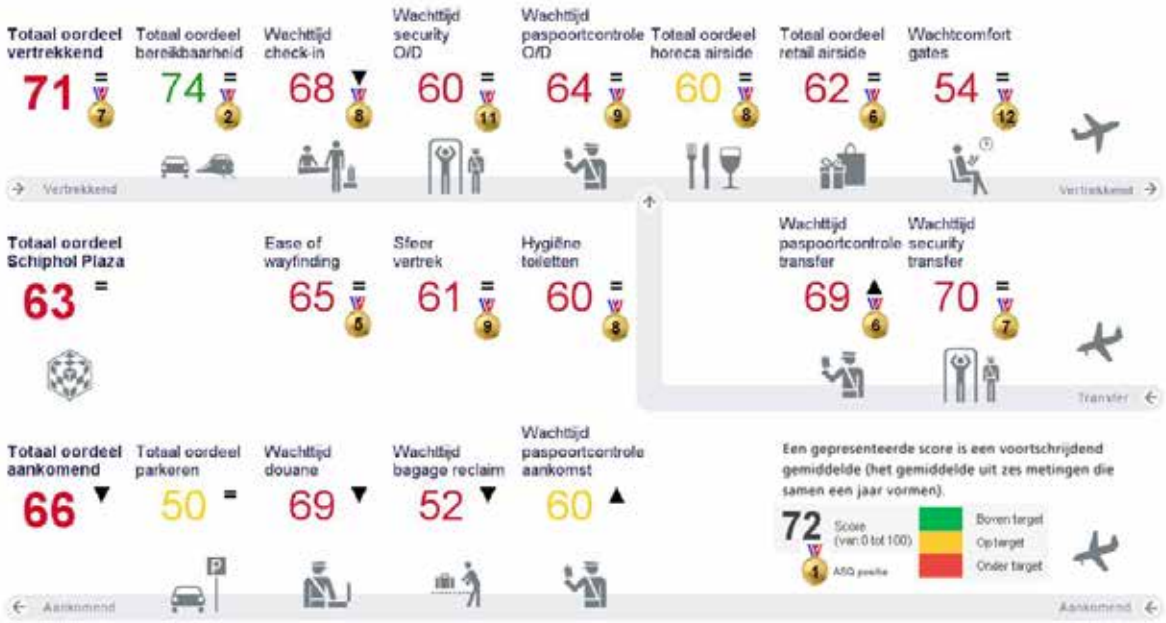


figure 19 - Quality monitor passenger experience of Schiphol

Autoethnography of archaeology

To understand the current situation, I became part of the drop & go team. I joined in meetings, went on an explorative trip to Fraport Frankfurt Airport with Lufthansa Group and I arranged calls with multiple common use project leaders from other airports around the world. I jumped into the world of common use integration, where I tried to understand all the problems Schiphol is facing with the implementation of common use. It was great for creating an issue list, but not ideal for seeing the bigger picture. On one moment I was rereading some pages of Frame Innovation about the problem owner, and then I realised I had two problems owners, one is Schiphol Group, my client for which stakeholders are more of an obstacle than an asset. But the other one is me, how to create that approach to get more out of stakeholder collaboration. In that sense, I realised Schiphol is not only a problem owner, but Schiphol is stakeholder itself.

The role of Schiphol Group

It is clear that Schiphol facilitates and hosts very complex logistical processes and many different organisations, from airlines to cleaners. Among the many stakeholders, there is KLM. KLM is a significant partner in daily life, but at the same time also decision-making competition. Since KLM wants to influence their home airport facilities, they want to be present in every decision. Sometimes the interest of KLM also affects all other airlines or Schiphol in general. I believe that this relationship with KLM affects the relationship between Schiphol and other stakeholders, and therefore Schiphol employees are not fond of involving their stakeholders in the process.
On the other hand, in my experience, other airports/ airlines were willing to share much information. Most of the addressed issues are seen all over the world. Issues like capacity problems are global problems since passenger growth goes beyond the Dutch borders. Although all airports are different, having a call is an easy way of inspiring each other.

The role of Process Developers

Process developers can address many problems within the current situation and the desired situation. Since process developers are excellent firefighters, dealing with problem-solving and putting out future fires is their daily job. That is how they work, to makes things work. Which makes sense in a dynamic organisation like Schiphol, employees need to deal with dynamic decision-making on a daily basis (Brehmer, 1990). To get to a decision requires a two-way strategy. First an operational goal is chosen, and secondly a set of corrections along the process of actions steers towards the decided direction (Brehmer, 1990). This two-way strategy is precisely the process of implementing the drop & go program, operational management puts the dot on the horizon, and process development will does their job to make it work. To make the Frame Innovation process work for Schiphol, employees need to be open for alternatives. Alternatives could vary from a more hands-on approach, by testing while developing, to experiencing different research methods. Although the current strategy might work for Schiphol, there are always other ways to solve the problem (Dorst, 2018).

Process developers should not only "know" what airlines/passengers want, but they should also get into a conversation and ask the passengers instead.

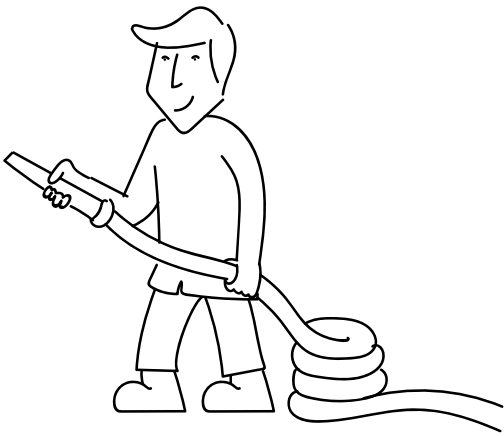
Having so many different stakeholders are operating in different parts of the organisation, who need to work alongside each other or even have to work together, is asking for trouble. Combine that with the fact that within Schiphol Airport there are many different departments who are in contact with particular stakeholders, the problem is getting more networked and complicated.

Process developers are unfamiliar with involving stakeholder in their process, they only do so when necessary.

The role of Frame Innovation

Dorst encourages you to deeply understand the problem situation, by researching the history of the company and its current functioning. Problems are interesting, but the search for the issues is endless. In organisations like Schiphol, you can always dig deeper for a better understanding, it is like being in search for the 'why?' behind the 'why?'. To decide when to end this search is hard, I needed some external guidance which made me point in the right direction. After rereading my project briefing I understood that the point of 'ending the search' was already far behind me. My eagerness for complete understanding and finding every insight, although super fascinating, did not help me find my focus.

The digging into the history made me realise that what Schiphol is doing today, is something they are doing from the beginning. The facilitation of passenger- and luggage processes in the most consistent, reliable and safe manner.



Paradox

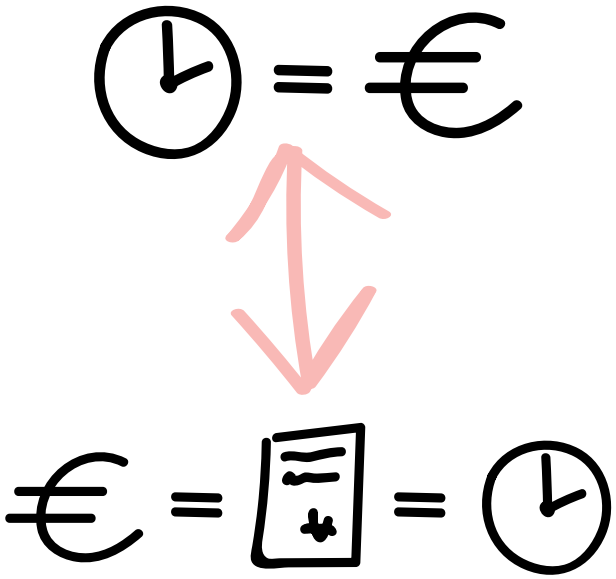
The introduction of common use self service drop off points in departures 1 is a complex process on different levels. Schiphol needs to persuade airlines to believe in the common use principle, after which the Airlines need to instruct handlers to be part of the common use check-in process. After many discussions with airlines, handlers and different departments within the Schiphol Group, it became evident that a common use departure is still a small dot on the horizon. This step of the process shows why it is hard to reach that dot on the horizon, as multiple paradoxes explain the different aspects of the problem situation.

Time delay costs money, however arranging finance for an innovation project requires a lot of paperwork and therefore often results in delay.

Within a dynamic context like Schiphol, every day counts. Delay of a project could mean that passengers have to face large delays as well, as if the facilities are not in place yet. Naturally, stakeholders will dislike those delays as a delay in flight departure brings extra costs in the form of airport charges. In some cases those costs are passed through to Schiphol group, in other cases stakeholders have to cope with the consequences of project delays themselves.

If delays come at a price, it would make sense for Schiphol Group to work in a way that minimizes delays. However, in practice it works slightly different. Innovation comes with risks, since it is hard to predict the return on your investments and is mostly based on assumptions. Therefore Schiphol Group requires many official approval signatures from multiple people to make a change, which often is a time consuming operation. The Drop&Go project has set the goal to make the check-in process in departures 1 more efficient in order to host more airlines in a similar space. This goal creates time pressure for the Drop&Go department since departures 1A will close in Q1 of 2020 to facilitate space for the built of terminal A. Therefore any delay or failure will result in last minute temporary fixes, which are costly and only offer a short term solution.

On one hand Schiphol Group does not want any time delays. However, on the other hand Schiphol Group wants to reduce risks, which costs time. This creates a time versus risk paradox.



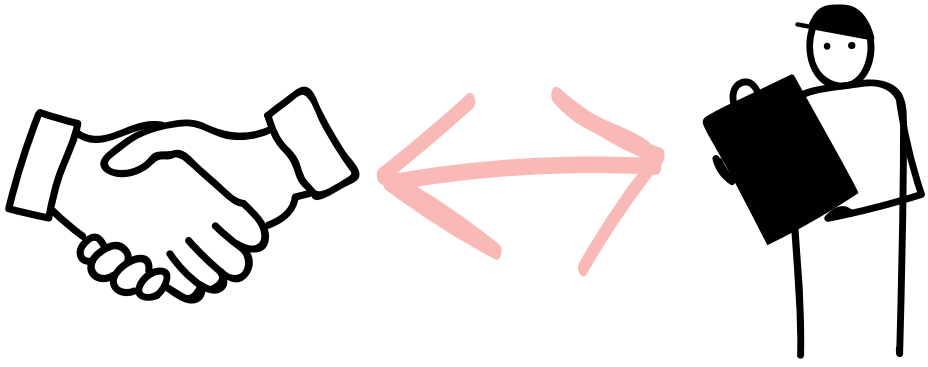
Common use integration requires strong collaboration. However, handlers have no incentive for cooperation, since it will drastically affect their current business model.

As mentioned earlier, common use requires the cooperation of all stakeholders to make the common use check in process work. This includes the cooperation of the luggage handling companies. However, so far the involvement of the handling organisations is minimal. In daily business the contact between Schiphol Group and handling companies is limited, since the handlers work on behalf of the airlines. Schiphol Group only facilitates the working environment of handlers. Only Olaf van Reeden, business partner handlers Schiphol Group, is in contact with handlers on a regular basis.

Airlines set strict working requirements for handlers, like luggage time from arrival of airplane to luggage on conveyor belt. Those requirements are so hard to maintain, that handlers have performed strikes to show it is not possible to work accordingly (ANP, 2018). Instead of work interruptions, the handlers preformed punctuality actions. When working according to the airline rules performing on time failed completely. Depending on the agreements between handler and airport, handling agencies can receive a fine for not meeting requirements. Since the profit margin of handling agencies are low, the impact of fines are considerable.

In a traditional, non-common use scenario, the airlines set the requirements on how many passengers can be handled by one ground handler. As handling agencies have troubles keeping up with the requirements imposed by the airlines, long waiting lines can occur in case of disruptions and other unexpected situations.

Although the introduction of the common use principle may seem to have mainly negative effects for handling agencies, it could also be seen as an opportunity to participate in the developments from the start. This gives handlers a change to anticipate and adapt to the seemingly inevitable changes.



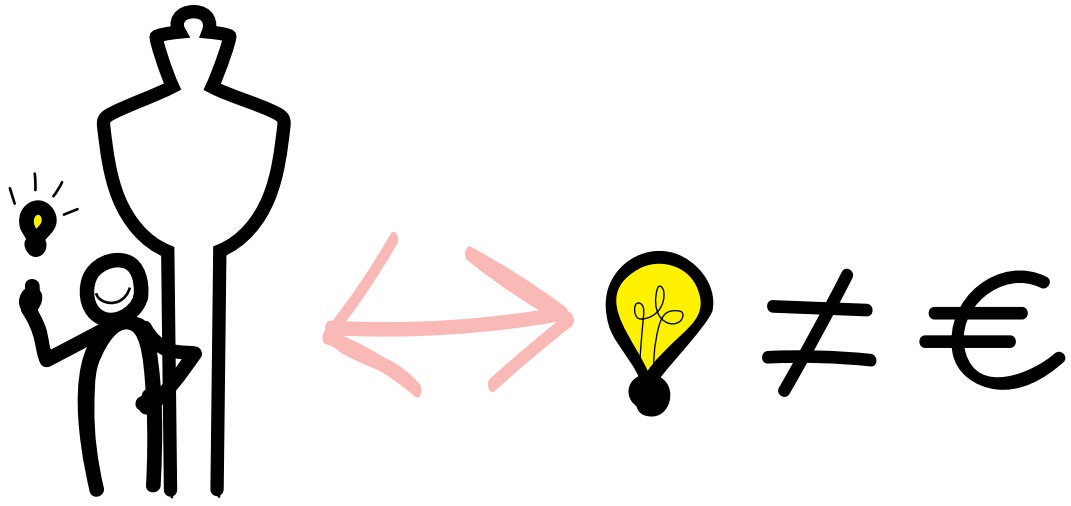
Innovation needs to be encouraged, instead of -financially- challenged.

Innovating within a static environment is rather challenging on itself. Within Schiphol Group it is important to keep and maintain the current quality and level of security while innovating. Changing the processes is not a direct task of Schiphol Group, only when quality or security are at risk a new situation is likely to be adopted.

As with the Drop&Go project, the management team Operations of Schiphol Group has decided that working towards more efficient facilities and the implementation of Common Use would be the solution for current problems at the departure halls. A team is composed of individuals from multiple existing project teams, such as 'HBS2020', the upgrade of the luggage systems, 'Uitrol CUSSDOP', the conversion of conventional desks to SSDOP and 'HT1', upgrade of terminal 1. All those projects have their own budget, and the budget for the common use project is divided among all those projects. For instance the conversion of the desks is part of 'Uitrol CUSSDOP', the banklining and wayfinding is part of 'HT1' and the adjustment of the luggage systems is part of 'HBS2020'. Having no budget to spend, Drop&Go fully relies on other the funding, schedule and portfolio of other projects which results in inefficient planning and unnecessary delays.

Besides budget issues, Schiphol does not have innovation guidelines. According to Christiaan Hen (Innovation NeXt manager), departments of Schiphol Group should be able to execute first horizon innovations themselves, the sort of innovation which is about extending core businesses. NeXt is a small innovation team within Schiphol Group, responsible for monitoring the second horizon by exploring opportunities for building emerging businesses. So where NeXt is researching the potential of external development for Schiphol purposes, there is no platform or action plan for innovations from within the organisation.

The introduction of a common use departure hall is an innovation that originates from operational benefits and influences all directly involved stakeholders. However, since there is no standardized innovation process, different departments of Schiphol Group are not in favor of such a radical innovation project. Receiving (financial) credit for innovation projects is hard, which makes such projects even harder to succeed. In order to increase the chances of success with innovation from within the organisation, Schiphol Group should encourage innovation instead of challenging it.

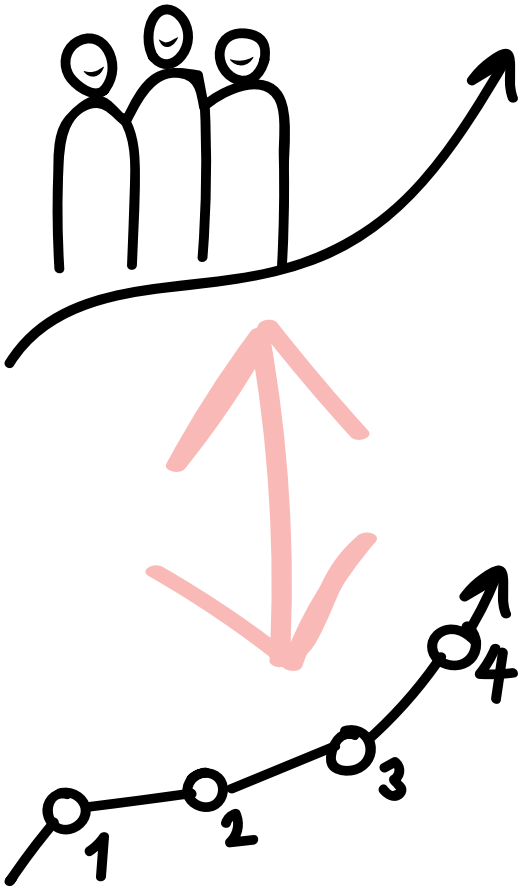


The aviation industry is aiming for a seamless flow, however the number of touchpoints within the passenger process is growing.

In order to create an efficient journey for passengers in the departure hall, the amount of touch points have increased over time. In earlier days passengers just went to a conventional desk and the ground handler was responsible for check-in of the passengers, printing of the boarding card, labeling and taking in the luggage. Nowadays, passengers check-in at home, print their boarding card, do some minor adjustments at the kiosk and drop their luggage at a desk or SSDOP.

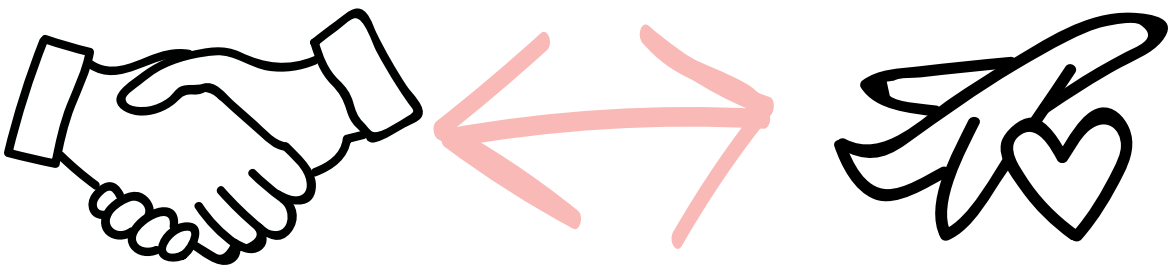
With the common use introduction, Schiphol first aimed for a completely integrated SSDOP, with e.a. a payment module and a luggage tag printer. This was done to minimize the required touchpoints. On the other hand research shows that this so called one step SSDOP is less time efficient than two step common use, a process where multiple steps are integrated in a single touch point, e.g. luggage drop off and luggage tag printer are available at a single device. Although an increase in touch points will increase the time efficiency, it is still unknown how this affects the passengers perception of seamless flow.

So on one hand Schiphol wants to be more seamless and on the other hand wants to become more efficient which requires more touchpoints.



Schiphol Group wants to force airlines to become common use, but also wants airlines to participate actively in the development of a common use departure hall.

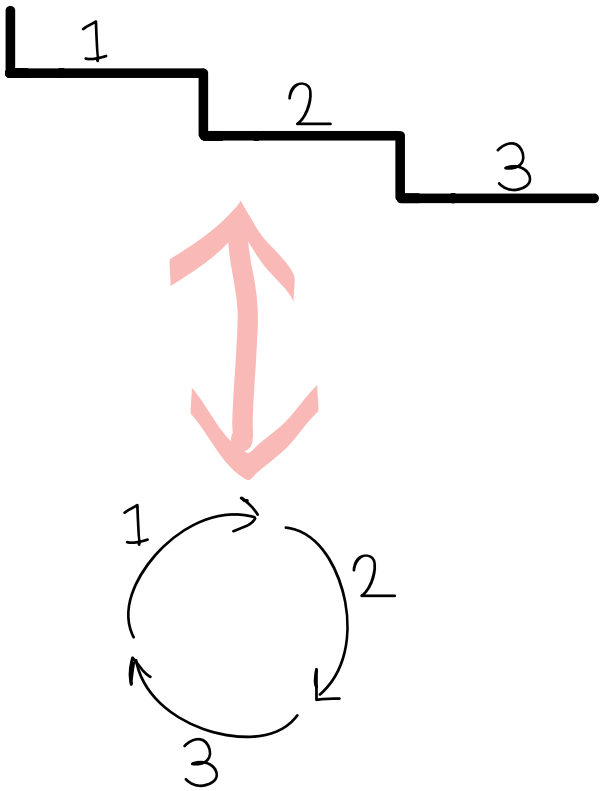
The relationship between airlines and Schiphol Group is very delicate. Airlines are probably the most important clients of Schiphol Group, simply said 'no airlines, no airport'. Airlines pay Schiphol Group airport fees, which enables Schiphol Group to maintain and expand the facilities to host passengers. As passenger amounts are growing and the temporary departure hall 1A needs to be closed down in 2020, more passengers need check-in facilities in a smaller space than today. To prevent disruptions from happening, Schiphol Group set course to a common use departure hall in current departures 1. A group of fourteen airlines have been told that they will become part of this future departure hall. Until now, airlines have been asked for their opinion and their cooperation. However, Schiphol Group does not have an alternative plan to host the airlines who cannot or do not want to become common use. Therefore at some point in time, Schiphol will have to force Airlines to become part of the common use departure hall. The problem is that in order to become common use and convince other stakeholders to become common use, airlines need to be part of this movement. So on one hand Schiphol wants to force airlines to become part of the introduction of a common use check-in process, on the other hand Schiphol also does not want to hurt the delicate relationship between both.



The introduction of a common use requires a different approach, to what Schiphol Group is used to do.

However, Schiphol Group has not experience doing so. Within the process development department the developers are used to a three step process. This process is a general process within Schiphol Group to develop and create facilities for stakeholders. The three steps contain masterplan design, detailed design and technical design. The next phase only starts when the previous phase is successfully completed and approved by all stakeholders. Making changes in one of the completed phases is seen as impossible and calls for the reopening of multiple discussions with stakeholders [Postma-Atsma, personal conversation].

The introduction of common use in departure hall 1 requires a more iterative and flexible approach. Within Drop&Go the masterplan design is about the lay-out of the departure hall. The detailed design involves the location and implementation of a.o. the hand luggage check. Furthermore the technical design contains details on creating IT connections between airlines and airport. Due to time constraints, every step needs to happen at the same time. Iterative project management is new for most of the Process Developers. When innovating, the standard Schiphol process is insufficient and developing a new method is not working out. There is a need for a true innovation approach within Schiphol according to multiple employees, a.o. Christiaan Hen.



Summary and conclusions

As each stakeholder has its own opinion on the discussed mather, which means that coming to a common ground is hard. Although this type of new project requires a new approach, time constraints does not make the change easy. If a fitting solution is found, Schiphol Group might be ready for disruptive changes.

Autoethnography of paradox

When you dive into the world of Schiphol Group, you quickly spot multiple issues within or between organisations. For example the Dutch government is major shareholder of Schiphol Group, which makes Schiphol Group a state company. Many issues can be seen as legal issues and politics are part of many solutions. Since I study design and not law, it reminded me to set a clearer scope. No legal issues, no environmental public image issues and no organisational structure issues. My focus is on the introduction of a common use check-in process in the departure hall and the activities of the Drop&Go team.

Coming up with paradoxes was hard. It requires zooming in and out on a certain topic, which means I became both part of the group as well as an outsider. I helped defining issue lists with the Drop&Go team and at the same time I analysed the complete situation is search of paradoxes and a complete understanding of the problem context. As I experienced, this outsider role is difficult since you need to dissociate from that 'Schiphol' mindset to see the bigger picture. Zooming in and out of a situation is necessary to understand its context from both an inside and outside perspective. Specially for me, as a perfectionist, this phase was hard. I got caught in the temptation of little details, as I was still exploring all the problems from a stakeholder point of view. Scoping was again the answer to my perfectionism issue. This topic is interesting interesting, but does it fit in my scope? If not, forget it, I can not do it all.

The role of Schiphol Group

Working at Schiphol Group makes you think like Schiphol Group. Problems are anywhere waiting to be solved, it is just a matter of urgency. When there is no direct urgency to solve the issue, it will not be on the list of higher management and therefore will not be carried out. Organisational change requires the readiness of the people leading the change, and urgency is a katalysator for change and therefore makes change in organisation more easy (Armenakis, Harris, & Mossholder, 1993).

My research into the company background and my attendance in meetings with the drop&go project group resulted in broad understanding of the problem situation, mainly from a Schiphol point of view. Schiphol Group is my client and therefore I made Schiphol Group problem owner in the introduction of the common use process. When reading the examples in the Frame Innovation book, I realised something that changed my mindset for this thesis. Within this graduation project, I am a graduate intern at Schiphol Group, which makes me the problem owner of my own research about how to make a common use departure hall work. In that case Schiphol is not only a problem owner or client, it is likely that sometimes Schiphol Group could be the problem itself. At first I believed airlines are the major problem while introducing CUSSDOP, later I discovered it is not. My research is about all stakeholders who need to come to an agreement, it is about creating the common good. In order to come to a conclusion stakeholders will need to do some compromises, including Schiphol Group.

The role of Process Developers

As I mentioned earlier, Process Developers are best in solving operational problems. Setting a goal and solving problems is the PD way of moving forward. Although they are aware of paradoxes, they are uncertain on how to deal with paradoxes. Most likely Process Developers pursue the way that is favorable for Schiphol Group itself, and try to convince others to adopt their choice.

The role of Frame Innovation

Frame Innovation presents a lot of examples with a more social oriented cause, it inspired me and helped me to understand the purpose of the method and its potential effect. However, it could be that the method works a bit differently in a commercial context. Perhaps finding common ground can be more difficult for commercial organisations, since the motives are different. Organisations within the aviation industry are making profit by not spending money. In the example of Kings Cross by Dorst as explain in the 'Project approach' chapter, all organisations were willing to invest in solving the problem. All stakeholders recognize the same problem, the violence of night visitors in and around the bar district. Within the common use problem, all stakeholders see different problems and Schiphol Group want to solve them all, one by one.

Context

Stakeholders play a large role in the success of a common use departure hall. In order to succeed, every stakeholder should take some compromises in the process. This means that becoming common use will change the way stakeholders have worked the last centuries at Amsterdam Airport Schiphol. The most important stakeholders within this thesis research are Schiphol Group, Airlines, luggage handlers and passengers. Schiphol Group facilitates space for all other stakeholders, airlines facilitate transportation for passengers, handlers facilitate the ground handlers in the departure halls and is responsible for the luggage transportation towards the airplane (figure 20).

Schiphol Group

Schiphol Group is the owner of all terminal facilities of Amsterdam Airport Schiphol. In order to change towards common use check in process a dedicated project team 'Drop&Go' is assigned to explore the operational feasibility. Drop&Go heads towards the opening the first common use check in process in departure hall 1 in the first quarter of 2020. Peter Flierman is program manager of Drop&Go and Jeanine Aarts-Draaijer is Process Developer dedicated to finish the job. Furthermore the team consists of different members with interest in the common use departure hall. The Drop&Go team works towards a common use drop off process, where fifteen different airlines with two different, handlers should be able to receive their daily passengers to drop off their hold luggage.

Current strategy in the common use project

The airlines which are currently operating in the departures 1A, a.o. Lufthansa Group and KLM, will move back to departures 1. In this case, more airlines need to operate on the same space available today. In order to prevent a failure from happening, the departures 1 undergoes an upgrade. This upgrade is called HT1 (Herinrichting Terminal 1) and facilitates more security lanes by creating a mezzanine. Security will move towards the mezzanine and thereby create more space for luggage check-in. Despite the increase of check-in space, the check-in capacity does not match the passenger growth. Therefore self service machines are installed. However, self service machines is not enough, in order to become efficient with the equipment the airlines need to become common use. So that every self service drop off point can be used by any passenger.

To conclude, Schiphol Group decided to solve the luggage check-in capacity issue by installing common use self service drop-off points. The CUSSDOP needs to be operational with fifteen Schengen flying airlines before the first quarter of 2020. Therefor the Drop&Go team is very efficiency driven and wants to speed up the process by making quick decisions. Everyday the 'on time departures' are monitored. The operations departments alone defined 160 new KPI's last year (Jerkovic, 2017). These examples are just the tip of the iceberg, reaching targets is part of Schiphol's daily business and is also a way to check competence. This clear focus on improving efficiency, could be of help in the Drop&Go project, since multiple departments need to work together.

What is of importance? Human values/concerns

Time is really important for Schiphol Group. Not only on time departure is important, also time delays cost money as is explained in paradoxes. In large projects, like the development terminal A, the development can take years. In that case a month delay will be manageable, but in other project a month can be a catastrophe. Most of the time, projects are connected to other projects. The time schedule of Drop&Go depends on the time schedule of HT1 and HBS2020, so any delay in one of the projects affect the others. Therefore time is continuous concern by Schiphol employees.

Process Developers want to reach their goals, they want to finish their project successfully. However, Process Developers often feel that other departments are not in line with their goals. This again results in time delays due to errors inside the organisations. Sometimes this misalignement of goals is a result of miscommunication, but often due to a mismatch of priorities. If such a situation happens management offers a option called 'escaleren', which means that management will convince the other departments management of the priority of this project.

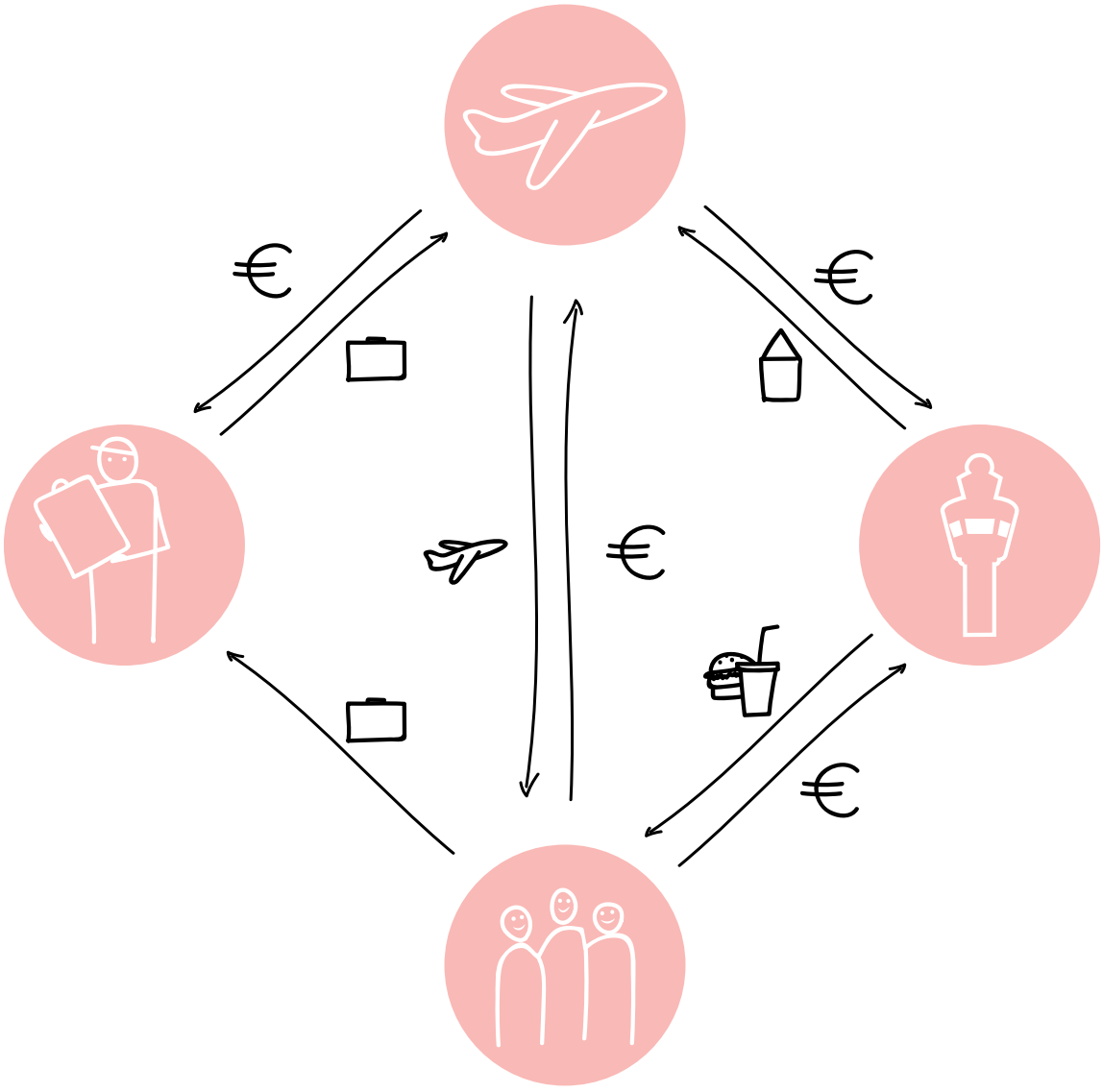


figure 20 - Relations between stakeholders at Schiphol

Passengers

In the summer season, more than 200.000 passengers arrive and depart at Amsterdam Schiphol Airport. From those passengers forty percent will stay on the airport awaiting their next transfer flight. From the other sixty percent, some bring hold luggage which should be dropped of in the departure hall. Passengers are the users of the service of both airlines as airport. Although passengers are not actively involved in decision making yet, they are an important stakeholder in this research.

Current strategy in the common use project

Persona's

All passengers are different, some a in a hurry, some arrive hours before departure. In order of Algemene Nederlandse Vereniging van Reisondernemingen (ANVR), Capgemini researched the future of travelling in 2025. Among which four types of persona's of future travellers (figure 21). These persona's are created based on two characteristics, attitude towards travelling (personal assistance <> self service) and desired support (hassle/necessity <> enjoy). This resulted in the convenience seeker, efficiency seeker, discovery enthusiast and service enthousiast. Drop&Go serves the efficiency seeker and the discovery enthusiast best, who desires being in control and having freedom of choice. So Drop&Go should pay extra attention that the common use self service process provides the amount of recognition the passenger needs. The service enthousiast is likely to be a priority passenger. For the priority passengers personal assistance is appreciated by many passengers and therefore Drop&Go should be flexible to the needs of priority passengers.

Self service technologies

Self service technologies (SST) are changing the way passengers have interacted at Airport. Where as SST might be relatively new to the aviation industry, in the banking industry with ATMs and petrol industry with pay-then-pump SST have become common sense. Things like self scanning and self ordering are introduced recently too. SST is becoming more popular under companies, simply because they see that it works. However, SST is mostly for simple classic transactions in which no personal contact is required




Persona	CONVENIENCE SEEKER	EFFICIENCY SEEKER	DISCOVERY ENTHOUSIAST	SERVICE ENTHOUSIAST
Attitude towards travel	Hassle	Hassle	Enjoy	Enjoy
Desired support	Personal assistance	Self-service	Self-service	Personal assistance
Key driver for travel	"Recognition"	"Functional achievement"	"Personal development"	"Reward"
Life philosophy	"Peace of mind"	"In control"	"Freedom of choice"	"Tailored solutions"
I am looking for ...	Ownership of the entire travel plan	A quick, reliable & flexible travel plan	Inspiring content & intuitive self-service	A premium travel experience

figure 21 - Passenger personas as defined by Capgemini (2015)

(Meuter, Ostrom, Roundtree & Bitner, 2000). Langeard and colleagues (1981) found out that mostly younger people, better educated with lower income levels are more willing to use SST, but when SST are observed other target audiences are functioning fine as well. People make mistakes, but since they make the mistakes themselves, they tend to blame themselves and not the machine and therefore are more likely to use the machine again the next time (Meuter et. al, 2000). When using the SSDOP, passengers might have trouble with knowing which code to scan, how to to place their luggage in the container or to acknowledge that the luggage tag is self sticking. In this case, it might take longer as Schiphol want their process time to be. However, these passengers learned by doing and will probably not make the same mistakes again.

What is of importance? Human values/concerns

It is no secret, passengers do not like to stand in waiting lines, the time spend in the departure hall feels like undesired obligation (Beautiful lives, 2016). Ideally common use will limit the amount of waiting lines and will create complete freedom for passengers on where to drop their luggage in the departure hall. Drop&Go is a small step in the right direction of achieving that common use goal. Until that goal is reached, the passenger would like continuous confirmation of their progress in the process. Furthermore, passengers want to experience the feeling of being in control of their own process.

Airlines

The Drop&Go project aims to accommodate common use lugggage check-in capacity for fifteen airlines, including Adria Airways, Aegean, Air Baltic, Air Malta, Finnair, Iberia Express, IcelandAir, LOT, Lufthansa Group (containing Lufthansa, Swiss and Austrian), SAS, Skywork, TAP and Vueling. In the first phase Finnair, IcelandAir, SAS and TAP will become common use and selfservice on drop-off row two. After a successful implementation with those four airlines and handler Swissport, the second phase start to add other airlines to the common use process. For the second phase, check-in row three needs to transform into self service machines.

Airlines have big influence in the success of the Drop&Go project, since they also influence the behavior of luggage handlers. If airlines wants something to happen, they are able to force handling agencies to change with them. Besides convincing the handlers, the help of airlines is also needed to develop the process itself. For capacity calculations by Schiphol Group the data of airlines is needed to make an sufficient model of the future situation. More so airlines have major influence on approving the purchase of new equipment, like new kiosks. These are just examples of the many options airlines have to influence to project result.

Current strategy in the common use project

When becoming common use, the airlines look like equals. Within the common use departures 1 their logos will be same size and no distinction can be made (figure 22). However, the airlines feel different. Where Lufthansa Group is known as a premium carrier and Vueling is known as a low-cost carrier. Nowadays airlines can distinct themselves in the service they provide in with the check-in, that will change when self service machines take over the drop off process. From that moment the machine will serve a Lufthansa passenger and a Vueling passengers as equals. This is a pain point for the Lufthansa Group and is one of the reasons they are a bit critical about the common use introduction. However, this pain is very emotional driven. Some station managers of airlines are already for a long time in the aviation industry, change is

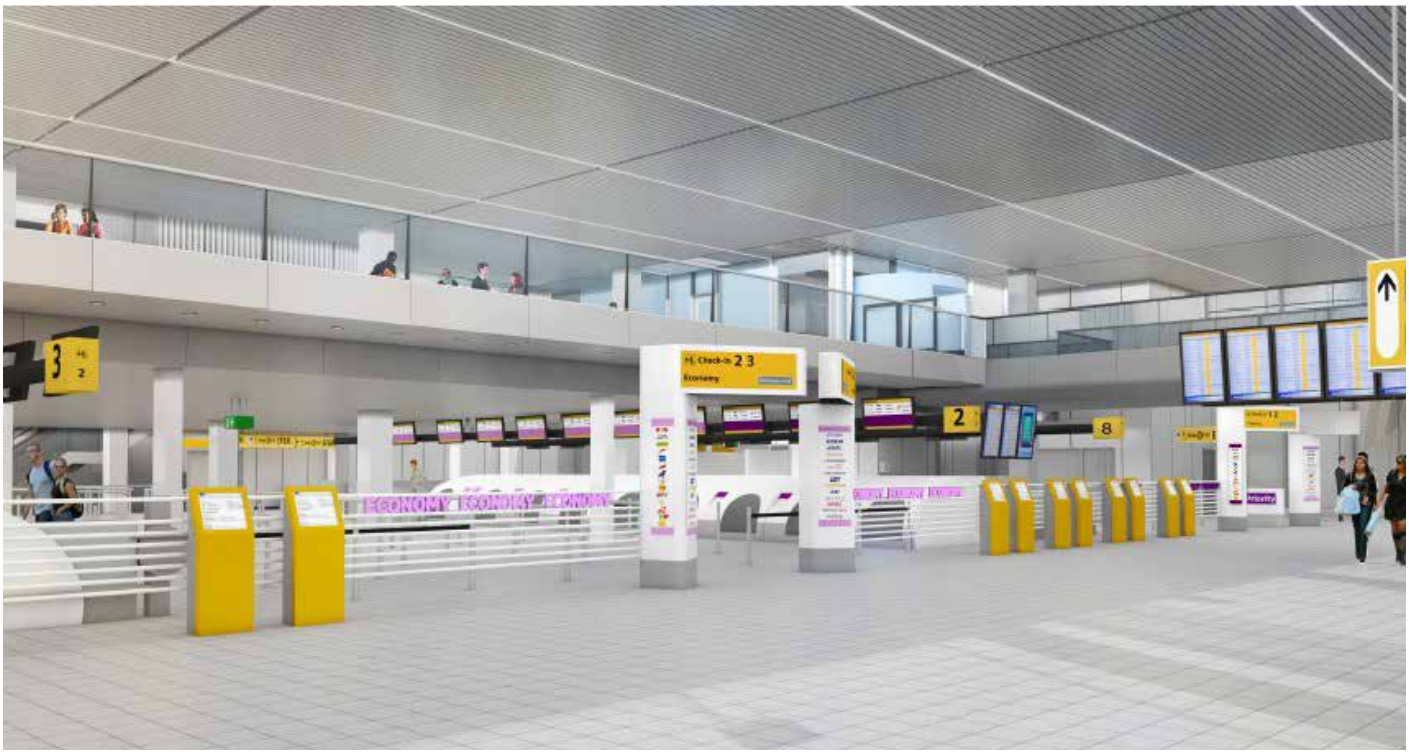


figure 22 - Render Departures 1 common use, commissioned by Drop&Go

difficult and full of risks. Although a defensive reaction is logical, it also makes decision making very difficult.

The airlines show different levels of eagerness for change (figure 23). Some just go with the majority, others want to be actively involved. The other important factor is the ability for change. The implementation of common use requires airlines to create a digital platform for the drop off process. Although the IT department of Schiphol Group wants to support in every possible way, airlines should do most of the IT work themselves. This can be difficult, as specially for (smaller) airlines who have no experience with drop off points. Icelandair also works with drop off points in Reykjavik and encourages other airlines to follow their example. On the other hand, Adria Airways does not even has its own DCS and operates on the DCS of the handler. Both factors together could provide a good estimation about the amount of effort it takes for the airline to become successful integrated in the common use departure hall (figure 22). As the strategy of Icelandair Group confirms Icelandair is sharing information quickly and wants to increase efficiency (Icelandair Group, 2018). Lufthansa Group has the technical and financial resources to create the IT connections. However, Lufthansa Group is a bit more critical towards the idea of common use and would like to continue in the current situation. Thereby Lufthansa focuses on premium positioning, whereby they value the customers perception of quality, especially of premium passengers (Lufthansa Group, 2018). SAS focuses on increasing the customer experience, since it has effect on passenger growth travelling with SAS. Furthermore their aim is to reduce cost and increase flexibility (SAS Group, n.d.). SAS prefers common use and sees also future in the common use of priority passengers to reduce costs. The airlines with less frequent connections, like Adria Airways and Air Malta, show less interest in common use. These airlines just want to follow the majority (confirm in Drop&Go meeting, 2018). Although Schiphol Group needs to be aware of their (financial) ability to invest in the development of self service interfaces and IT connection to the Schiphol network.

What is of importance? Human values/concerns

Airlines earn the most money by selling business class or first class tickets. Therefore the priority passenger are very valuable for airlines and providing excellent personal service check-in service is part of the priority experience. Where some airlines like SAS are open to provide the option of self service luggage drop off, Lufthansa wants to welcome their priority passengers personally the German way. Drop&Go cannot neglect the effects of changing the priority check-in, it is really an topic of concern by airlines and need to be handled with care.

Overall the monthly meetings between airlines and Schiphol Group, provides transparency in the process and decision making. This transparency is needed to create trust in the relationship between airlines and Schiphol Group. Some airlines, like Lufthansa Group and Vueling, are very critical. Talking about capacity numbers is not enough to provide certainty that the common use principle will effectively operate fifteen airlines at same time. To provide some certainty, Schiphol Group will start with a trial with all Scandinavian airlines and TAP in 2019. In this way, capacity problems will happen on a smaller skill and the common use principle can be experienced instead of talked about.

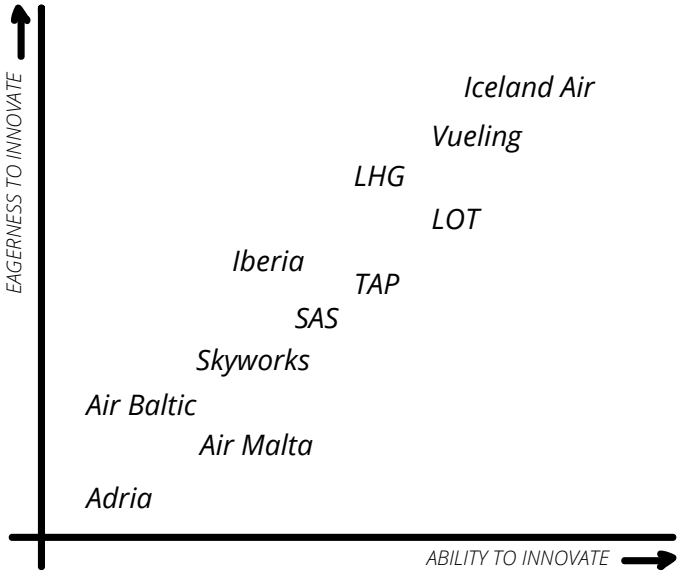


figure 23 - Innovation ability vs eagerness

Handlers

The handling companies are responsible for multiple parts in the departing and arriving process. Handling companies deliver both ground handling agents as luggage handling personal. Ground handlers support the check-in process and the boarding process and luggage handlers transport luggage in between the terminal and airplanes. Drop&Go focuses on two luggage handling companies, Aviapartner and Swissport, which are currently handling the fifteen airlines within the Drop&Go scope.

The handling business is a very competitive business (figure 24), since airlines are able to switch between handlers when ever they like. So for the handlers it is important to keep their prices low and deliver good results, to maintain a healthy business. The introduction of common use self service machines comes with large risks for handling companies. Currently the business model of handlers is likely to charge their services by the hour. With the introduction of the self service machines the amount of ground handling hours will lower drastically and on the long term even vanish. Since airlines are more or less in control of the handling businesses, the handling companies are in tough position.

Current strategy in the common use project

Despite many requests for participation, handling companies has not shown much interest in the common use principle. Probably common use is perceived as a big threat for their company. Mostly handlers are not future oriented, they are more worried about the present (van Reeden, 2018). Every day they work hard to reach all targets from the individual airline agreements. Failing targets could result in airplane delays and even large claims from airlines. Handling companies try to maintain a continuous balance between process time reduction, maintaining a happy client (airline) and management of all employees/assignments.

An advantage for the handler companies within the common use agreement is to move towards more employee independence, ground handlers are hard to find and even more hard to maintain in their businesses. The salaries are low and if young people could earn more for the same job in the flower industry they are gone (Van Reeden, 2018).

Only recently, Schiphol Group appointed a handler representative within its own company. Thereby Olaf van Reeden is the only person within Schiphol Group, who is in regular contact to discuss future plans and strategic changes. For years, airlines have been the middleman between Schiphol Group and handlers.

As both of strategies of Aviapartner and Swissport suggest, creativity and new solutions are part of their core values. However, it is most likely that this happens on higher management level and not on Amsterdam based level.

What is of importance? Human values/concerns

The business model of handlers depends on the agreement with the airline and for Schiphol Group the specific content of this agreements are unknown. Schiphol Group focuses on airlines and believes as airlines are in, handlers will follow automatically. Handlers are in risk of losing their current business strategy, participation in the Drop&Go project could provide insights for business model change. Perhaps the future of handler agencies is providing a home delivery services or delivering special services for priority passengers.

Summary and conclusions

Airlines and handlers have a hard time trusting Schiphol Group, that Schiphol employees do everything with their best interest for stakeholders at heart. This results in a negative driven collaboration, where decision making goes hand in hand with strong criticism. Airlines criticize the common use principle and therefore it may seem that airlines are against the common use principle. On the other hand, Schiphol Group lacks trust in airlines and handlers, since handlers are hard to reach and airlines do not provide promised information.

Airlines need certainty, to overcome the known common use failures, like London Heathrow Airport. The capacity calculations by Schiphol Airlines do not provide the certainty airlines and handlers need and they therefore act suspicious. Numbers need to be recalculated numerous of times and checked by multiple people in the organisations. Common use takes away the certainty of the current business model of handlers. Where passengers are searching for continuous certainty in the check-in process, whenever it is about appointed gates or the waiting line their in. Schiphol Group wants certainty that airlines will be able to create the IT connection with Schiphol Group.

Airlines are willing to help developing a common use departure hall. However, only when they have a feeling of some control over the decision process. Some passengers want to be in control of their own journey, with the help of self service machines. Schiphol Group wants to be in control of the whole development process.

Aviapartner

No Cargo, focus on passenger Handling @ AAS. (Aviapartner, 2015)

Core Values:

- *Creativity:* *Stimulate new ideas and a pro-active approach. Invest in new tech, togheter we come to the best solution*
- *People:* *We listen to our customers and their customers. Satisfied customers are the best garantee for our success.*
- *Competitive:* *We want to be number one! (Aviapartner, n.d.)*

Swissport

Core Values:

- *People:* *We show respect to our people. No compromises on their safety.*
- *Professional:* *Pioneers working constantly on achieving sustainable results. We creatively expolore new options and improved solutions.*
- *Partnership:* *Continually striving to exceed the expectations of our clients. Deliver excellent service. (Aviapartner, n.d.)*

figure 24 - Core values of Aviapartner and Swissport

Autoethnography of context

I spend a lot of hours in the departure halls, I became a passenger assistant for three days, answered many questions, looked up their gate change, where/ when they had to drop off their luggage, supported a disabled lady through the check-in process, I shadowed passengers without them knowing, I shadowed passengers with them knowing, I set on a binge and just eat my lunch there. I dove into the context, just to understand what was going on. I spoke with multiple ground handlers agents to understand their daily tasks.

Besides the context in dove into the business side of my context, spoke with all involved airlines multiple times, went of a business trip to Fraport Frankfurt Airport together with Lufthansa Group and went to architect meetings about the development of new departure hall A. Although speaking with the management of handlers hard to facilitate, at the end of my project I succeed in meeting Rob Diependaal, COO of Swissport Amsterdam and Michael, Operations manager Aviapartner.

The role of Schiphol Group

When being part of Schiphol Group I heard multiple complains about not getting things done. Schiphol Group undergoes multiple reorganisations of departments at the same time, which create confusion on who to contact. I believe some of the options to become more innovative, is reducing the amount of complexity. Organisations with high level of complexity are poor in creating value, complexity reduction is not just a matter of time. Since when employees are not able to get things done or wait for decisions to be made, their morale suffers and followed by frustration (Heywood, Hillar & Turnbull, 2010).

Multiple people within Schiphol Group complain about the lack of efficiency in the large spider web, called Schiphol. People wonder about the possible efficiency improvements which schiphol as an organisation can make, however I believe they talk about efficiency in between departments and the functioning as an organisation. I mean another way of efficiency, which is about getting things done due to time pressure, where time pressure means both the personal perceived time pressure or the forthcoming deadline. Time pressure not contribute to creative thinking (Amabile et al., 2002), so time pressure keep people in the familiar way of working.

A two-day stakeholder meeting took place to inform the stakeholders about the common use plans of Schiphol Group in December 2017. As I was told, the news of Schiphol Group was not what airlines had in mind, very defensive discussions was the core of the meetings. As I was researching the relationship between airlines and airport, I realised it was not that bad as people explained to me earlier. It is mostly a matter of trust and reliability on each other. Having those monthly meetings for update about common use and discuss all the concerns, builds trust slowly, but is also very fragile.

The role of Process Developers

The primary goal of OPS is to respond to the interest of the airlines at a competitive price. However, are you able to do so if you are rearranging the whole airport? The airport is becoming a complete construction side, since plans are made to build new roads, a new terminal, a new pier, replace all furniture in the lounges and piers, creating a new security filter in terminal 1, replace current conventional desks to self-service drop off points, replace luggage system and introducing common use in departure hall 1. These projects are just the tip of the iceberg, since I was mostly involved with employees of terminal operations. It is extraordinary that they are managing all those different processes at the same time, especially since a lot of these projects are overlapping.

While developing those new plans, process developers have the urge to think about their own perspective most. The process I experienced myself

when become an intern at Schiphol Group, as I saw Schiphol Group only as problem owner. Doing what is best for Schiphol Group is the process developers' job. However, it is also their job to represent stakeholders during their meetings with o.a. contractors, architects and builders. I believe this step of the Frame Innovation process could be very helpful for Process Developers, since it will create better understanding of the problem situation and opens up solutions from different perspectives.

The role of Frame Innovation

Frame Innovation provides guidelines to explore the practices of the inner circle stakeholders, who clearly be part of any possible solution. The result is about what influences the stakeholders' behavior and about their current strategies related to the problem situation. The research is completed after information saturation (Dorst, 2005, p.76). Although Dorst provides lots of examples of results of this process step, he does not explain the best way to discover their needs and reasons for behavior. I believe a non-designer should have more guidelines to answer the question of 'what is important for the stakeholder?

Field

The field focuses on all other stakeholders that are not the predefined inner stakeholders. This can be anyone who is connected to the common use solution at some point in time, ranging from shareholders of Schiphol Group to implementation of robotics in the departure hall (figure 25). In the far future, a departure hall would probably not exist, all the luggage will be picked up at home and people check in online. Since changing manual desks to self service machines already created difficulties, having no check-in facilities at the airport is a long way of becoming reality.

Recently, passengers of Corendon gained the ability to book an additional luggage home pick-up service with their flights. For 10 euros per item, passengers avoid the hassle of bringing luggage to the airport and can skip the line at the luggage drop off (Corendon, n.d). Not only airlines in cooperation with PostNL are delivering this service, also dedicated companies like 'Travel light' and 'Send my bag' provide a similar service. Another example of improving passenger experience is luggage tracking, a bag with a tracking service. In this way passengers can continuously monitor the location of their luggage. Passengers still experience stress, even though the number of lost bags decreased from 18,88/1000 bags in 2007 to 5,75/1000 bags in 2016 (SITA, 2017). This service what aims at reducing stress and provides a more pleasant travelling experience (Rubin, 2015).

Another way to solve the capacity problem is by lowering the amount of luggage drops in the departure hall. The best known solution is an off-airport luggage drop. In that case other transportation companies will offer a luggage dropping service, like luggage drop machines at Amsterdam CS rail station. Especially groups can be hard to manage when all enter the departure hall at once. So off airport luggage drops at harbors when cruises unload could be a feasible solution. Even more so if people stop travelling by air, due to quicker and/or cheaper alternatives. For instance by creating a fast reliable European railway network or autonomous vehicles for short or long distances.

What all airlines have in common is the desire to reduce cost and increase efficiency. Technologies to provide that change are being developed constantly. The driving drop-off robot 'Leo' from SITA is not the solution the aviation industry is waiting for, but it provides insight in where the industry may go. Perhaps the aviation industry is at the steps of changing from static check-in desks, to more dynamic ones. Other technical solutions may eliminate the handling activities completely. After the self service check-in machines, these solutions create an autonomous luggage transportation between airport and aircrafts. Even more reasons for handling companies to start developing other business models.

Summary and conclusions

The results of the field are somewhat to be expected, it brings together the available options for change. Most concepts focus on improving customer experience by reducing effort or by shortening waiting times. Some concepts are about reducing costs, by seeking for an alternative to the hard work of handling agents in the luggage basements.

However, it is interesting to realise that passengers are in need of the same values that airlines and handlers value. Apparently passengers distrust the airline logistics, in that their luggage will arrive upon arrival. As a result they want certainty about where their luggage is located, they want to be in control of their own belongings.

figure 25 - Representation of field

Autoethnography of field

After the 'Field' step I realised, with help of supervisors, that I was dwelling. I was going through the steps of the Frame Innovation process, however it was not heading somewhere specific. It became apparent to me that I had to make a decision. Either I remain on high ground, where I can solve relatively unimportant issues or I dig deeper and solve more important problems (Schön, 1987). I chose for the last one, focussed on the processes within the departure hall itself.

This step was incredibly hard. 'All stakeholder outside the inner circle' is limitless, where to start and where to stop? The result therefore is a bit superficial, I was not amazed by the result. Besides that, I am already aware of most new technologies, I did not learn much new. My continuous journey of what is in scope and what is not, did not help me with this step. What I realised creating this field, is that passengers are in search for ways to get continuous updates about the location of their luggage. I believe this is more of a larger trend where people want to be up to date about everything. People look at buienradar to see if it rains outside, instead of looking out of the window. People want to base decisions on numbers and figures.

The role of Schiphol Group

The role of Schiphol Group is not that large in this step, since it about what happens around Schiphol Group that could influence the situations.

The role of Process Developers

Process Developers are mostly aware of what is happening in the world. Interesting developments of IATA, startups, larger organisations or other airports are directly shared via Whatsapp, Intranet or email. It functions as inspiration for own projects.

The role of Frame Innovation

I understand the purpose of the Field step as to broaden your context and see other stakeholder who might be interested in the solution. Where Dorst encourages you to look for social, economic, cultural and intellectual space around the context, I was confused. A mentor to ask questions about the proceedings of the process is almost a necessity, since both 'Frame Innovation' and 'Designing for the common good' are not really clear how to create a field and its actual purpose.

Themes

After researching the stakeholders separately and looking for the even bigger picture, it is now time to set aside the differences and start looking for the common ground. A theme is a deeper factor that underlie the needs, motivation, and experiences of all stakeholders in the wider field (Dorst, 2015, p.83-84).

Guarded freedom

This theme originates from the passengers who want to control their own journey. These passengers want to experience freedom in every step of the process. The Drop&Go provides that sense of freedom for passengers, and delivers freedom in a controlled environment that fits the airport, airlines and luggage handlers.

Quantified now

Passengers have the urge to know the exact location of their luggage at any moment in time. This allows the passenger to also checks just before leaving the house whether or not their plane is delayed. Airlines and handlers want to double check the capacity analysis. Schiphol persuade airlines with appealing cost reductions.

Sense of identity

Priority passengers identify themselves as part of the priority community. As airlines repeat constantly, priority passengers do not want to mingle with economy passengers. Besides deviation in class, there is also a deviation among airlines. Lufthansa Group presents itself as a premium airline and believes it is known for their excellent service. However, passengers can experience this community feeling at any airline, like passengers always flying with KLM.

Summary and conclusions

As a result of the context and field, the common values are trust, certainty and control. However, those values are very general and will still count after many years. Similar values, but more applicable for the common use context are ‘Guarded freedom’, ‘Quantified now’ and ‘Sense of identity’.

Autoethnography of themes

Themes feel like the conclusion of the analysis phase, the common values that say it all. I believe the three cover most of the common ground there is.

The role of Schiphol Group

Within Schiphol Group, we talk a lot about about differences between stakeholders. The biggest stakeholder in the business of Schiphol Group is KLM. Although KLM is not part of my scope, it would be a good start to discover the common ground between Schiphol and KLM. They both serve the same passengers and they both value the transfer passengers most, since they want them to come back and have another transfer at Amsterdam Airport Schiphol. It is nice to see that Schiphol and KLM, although probably the biggest opposites in a business meeting, also have things in common.

At the beginning of September, the union of security personal announced a 24 hour strike. All departing and arriving flights should have been cancelled or rebooked, the days after the strike recovering from it would have been slow. A disaster for all stakeholders at Amsterdam Airport Schiphol. All stakeholder representatives came together with one common goal; limit the damage. Where other days nothing is possible, now everything was possible. After all, six days prior to the strike the unions came to an agreement and the strike was cancelled. A great example on how common ground supports progress.

The role of Process Developers

It is not the current role of Process Developers to create common ground between stakeholders. But as the example of the security strike shows, the effort will most likely pay off.

The role of Frame Innovation

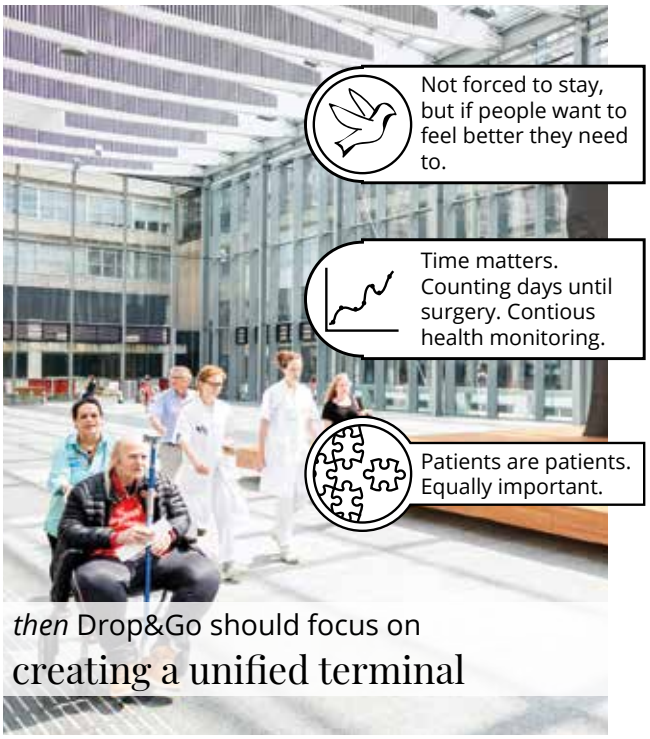
This step of Frame Innovation is very valuable for a successful cooperation between stakeholders.

Frames

When conversations with stakeholders about change are difficult and agreeing seems unlikely, framing can be helpful. Framing is equal to seeking similar situations or locations in the world, where after being inspired for possible solutions. For example, a school could be seen as a sports club. In both cases, people learn and develop over the years. Every year a certain amount of people will come and go. In theory, school stakeholders would be more willing to talk about changes within sports clubs. After which those ideas for change can be transformed towards the situation of the school. It is a lot easier to discuss and change conditions which are not emotionally close to you (Dorst, 2005). Therefore the creation of frames supports stakeholders to move forward together, instead of stagnating on disagreements.

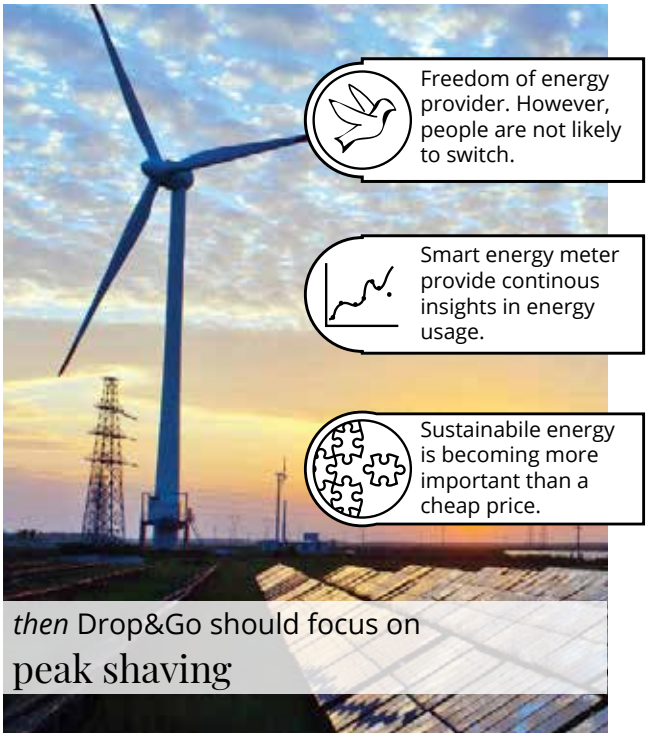
The presented frames are based on the previously defined themes; guarded freedom, quantified now and sense of identity. In collaboration with three Schiphol employees, associations between the different themes were identified, which lead to the frames as presented here.

If the departure hall is approached *as if* it is
a hospital



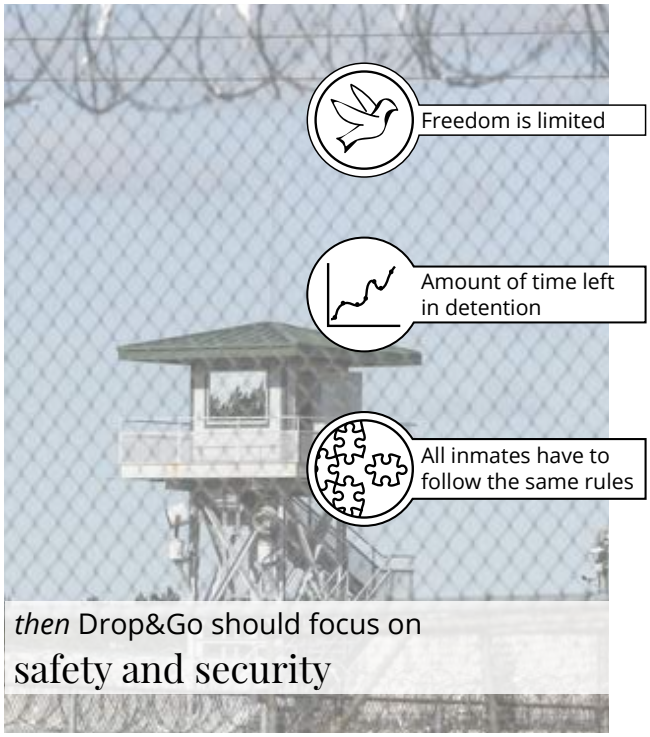
then Drop&Go should focus on
creating a unified terminal

If the departure hall is approached *as if* it is
the energy sector



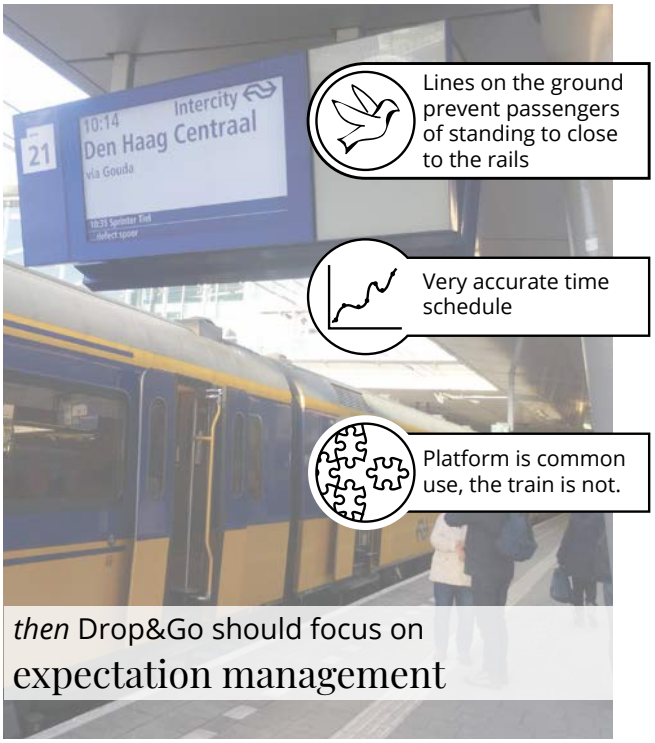
then Drop&Go should focus on
peak shaving

If the departure hall is approached *as if* it is
a prison



then Drop&Go should focus on
safety and security

If the departure hall is approached *as if* it is
a train station



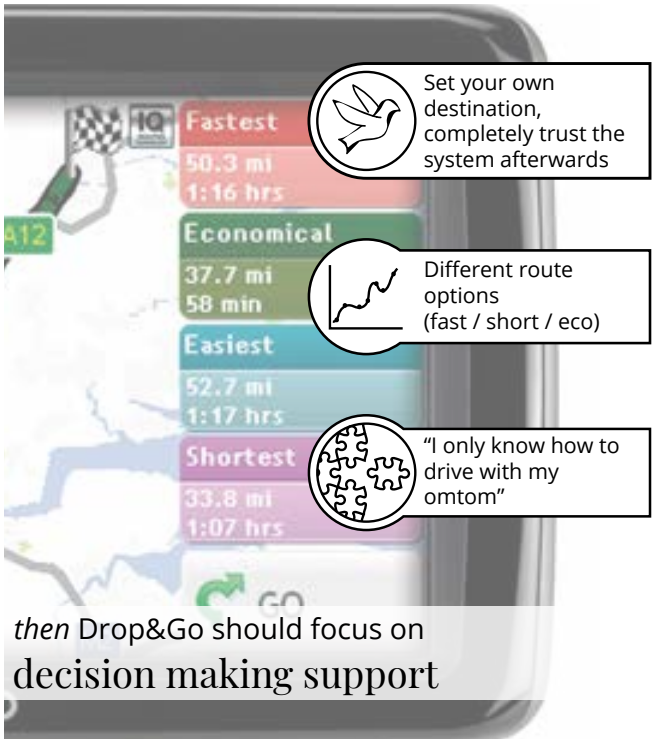
Lines on the ground prevent passengers of standing to close to the rails

Very accurate time schedule

Platform is common use, the train is not.

then Drop&Go should focus on
expectation management

If the departure hall is approached *as if* it is
a traffic navigation system



Set your own destination, completely trust the system afterwards

Different route options (fast / short / eco)

"I only know how to drive with my omtom"

then Drop&Go should focus on
decision making support

If the departure hall is approached *as if* it is
a marathon

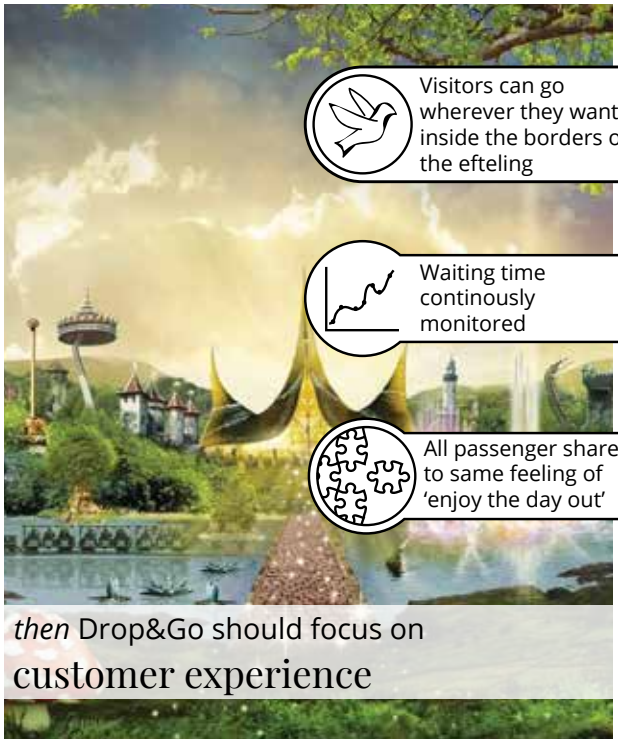
Freedom to stop, but pushed by audience and yourself

Time is super important, but also health issues like heart rate etc.

Marathon runners are part of a community

then Drop&Go should focus on
seemless flow

If the departure hall is approached *as if* it is
a themepark



Visitors can go wherever they want, inside the borders of the efteling

Waiting time continously monitored

All passenger share to same feeling of 'enjoy the day out'

then Drop&Go should focus on
customer experience

Summary and conclusions

Although all frames have characteristic from the themes, this does not mean all frames will fit the situation. The frames should have a lot of ideation potential. To understand its potential, 'futures' are created in the next step of the Frame Innovation method. Thereby the benefits per stakeholder are determined. Based on the most promising stakeholder potential, three frames are determined; Theme park, Hospital and the Energy sector. From theme parks, Schiphol Group can learn how to increase the waiting experience for passengers. From hospitals, Schiphol Group could learn how to become one, so the departure hall belongs to the airport and not the airlines. From the energy sector, Schiphol Group could be inspired to work with peak shaving, which can lower intensity peaks and creates a more consistent flow of passengers. By building futures of these three frames the benefits per stakeholder will be clear, and a final decision of the frame can be made.

Autoethnography of frames

To create frames I organised two sessions, one with three friends with design backgrounds (TU Delft and Design Academy) and one with three Schiphol colleagues from the Drop&Go project. Within the first session, I used the themes, trust, certainty and control. For me this was a trial, to experience the potential of frame creation and its effect. It became clear that the themes 'trust' and 'certainty' had overlapping values since certainty causes trust. Besides there similarities, the frames results were too broad and not context specific, like luxurious products like Mercedes Benz cars and Italian espresso makers.

The revised themes of the previous chapter served as a basis for the second session. The participants of this second session were older, which made it easier to define frames, since frame creation builts on the life experience of the participants. I can confirm this statement since the second session created much more frames in the same amount of time.

The role of Schiphol Group

I believe this step can be precious for Schiphol Group since it will support employees of Schiphol Group and their stakeholders to think outside the Schiphol and aviation world. Many things can be learned for other industries or even approaching the same challenge from another (stakeholders') perspective. Although the facilitation of frame creation session can be challenging, it is worth a try. Hiring designers/ frame innovators to facilitate these sessions could be a solution as well.

The role of Process Developers

Within the scope of this project, Process Developers will start to explore the potential of frame innovation. The younger process developers show more interest in my results, and therefore are more likely to try this kind of methods. They get excited about its potential but are uncertain about how to do it themselves.

The process developers role will become either the facilitator or they should hire a frame innovator, which would help them facilitate towards dynamic change. By becoming a facilitator, the process developer should be neutral in the session. The frame creation workshops are not created to push Schiphol's ideas. It is about creating something together within the common ground. By having this same set-up, stakeholders will feel more comfortable and understood (see "Frame Innovation Workshop" on page 91).

The role of Frame Innovation

Dorst states that (multiple) designers are required to create frames, to get out of scope (Dorst, 2015, p.76). Shifting focus on other situations and analogies will help to set the non-designers on a different way of thinking.

It is easier to come up with locations with similar themes than analogies. Analogies can be very personal and thereby interpreted differently by many people, which makes them not suitable for frames. A right frame should not require any explanation, it should speak for itself. The people who are working with the frame should equally understand the meaning of the frame.

As the theory of Dorst describes, a chosen frame will be used for further decision making (Dorst, 2015, p.73). It can distract potential ideas for the frame but also help to prioritise. However, I believe 'frame thinking' can also be used on a more regular base. It will help the aviation industry to open up their box, where they seek similar environments outside of the familiar aviation world.

Frame Innovation will function better if the process is more dynamic, going back and forth between the steps creates the best outcome possible. From only frame creation, it is not possible to choose a fitting frame. Participants need to think of potential futures and transformations before making final decisions.

Futures

The futures are developed to clarify which frame is the most fruitful for the implementation of the common use principle. The frame provides a solution on how to reach the desired outcome. Futures represent the creative exploration within the potential frame, in which the 'what' question is answered using design abduction (figure 11).

Futures are created out of the themes presented in the previous chapter; improving the passenger experience, peak shaving and creating a unified terminal.

Passenger experience

All passengers are different and require different types of support that fit their journey (Capgemini, 2015). The introduction of common use makes it possible to create separate entries for different passenger groups. So far this separation was not possible since self-service machines and full-service desks were dedicated to a particular airline. The distribution in passenger personas will result in less frustration for the more experienced passengers and will support the passengers according to their demands.

stakeholder advantages

Passenger: The passenger comes first while making decisions. Passengers demands are of high value.

Handler: The handler can create value by delivering full-service support to the passenger group in need, like PRM, families, elderly (cruise) groups and passengers with odd size luggage.

Airport: Special passenger flows will need more attention. However, since they are centralised, it is easier to create proper facilities.

Airlines: Better start of the complete passenger journey.

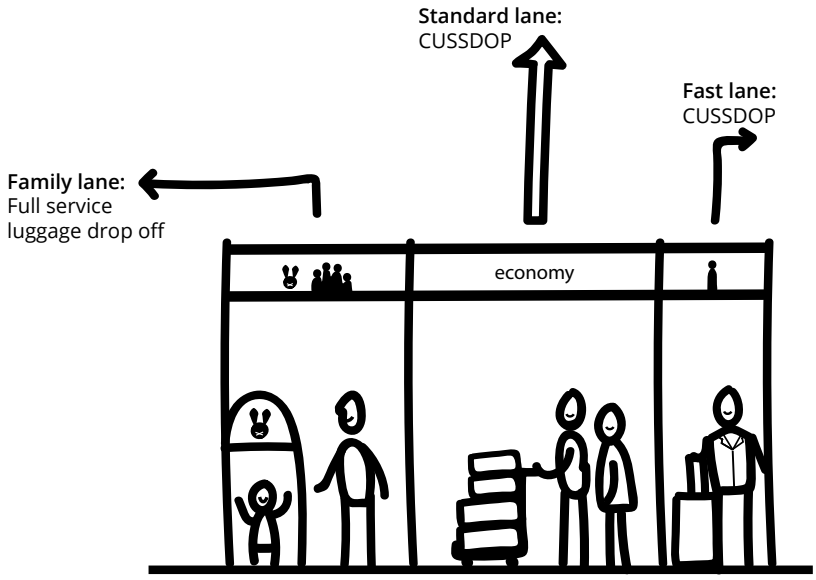


figure 26 - Creating a passenger specific experience

Peak shaving

Peak shaving will contribute to a more seamless flow for passengers and operational processes since occupancy is more consistent. Amsterdam Airport Schiphol has three major daily peaks of departing passengers. The peaks in the departure hall also form peaks with security and border control. When lowering the peak and increasing the hourly PAX flow, the workload is more consistent.

The introduction of common use self-service luggage drop off will enable peak shaving, by supporting early check-in. Schiphol Group could create an additional function to the Schiphol smartphone application; 'Schiphol buddy'. This application functions as a buddy which will create a personalised travel journey for arriving on time at Amsterdam Airport Schiphol. By asking simple questions, the application understands in what time slot the passenger fits best. A 'convenience seeker' will, for example, enjoy the extra hours Schiphol and an 'efficiency seeker' would prefer to check-in last minute. In this way, Schiphol Group can acquire extra data about their passengers and send them last minute instructions in case of disruptions. In a more elaborate version of this application, passengers could, for example, have the ability to pay an additional fee for their preferred time slot.

stakeholder advantages

Passenger: The passenger is more confident about what to expect along the journey since the smartphone application will confirm the actions taken. On the long-term, peak shaving will lead to shorter waiting lines and more seamless passenger flow.

Handler: The handler could invest in a 'pick up luggage at home' service, which could be added to the smartphone application of Schiphol Group. In general, peak shifting will limit the workload in peak times and would therefore perhaps lead to fewer staff members being required in the long term.

Airport: Schiphol Group will acquire much more passenger data. Such as preferred ways of travelling, preferred time spend on the airport and live location of passengers to create more accurate predictions. With most passengers carrying a smartphone, the options are almost limitless. Besides data, passengers are also likely to spend more time and thereby more money in lounges.

Airlines: Some passengers book their tickets through an intermediary (a.o. cheapticket.nl). In that case, the airlines have no contact details about those specific passengers. The smartphone application will create an additional communication channel with those passengers in case of disruption.

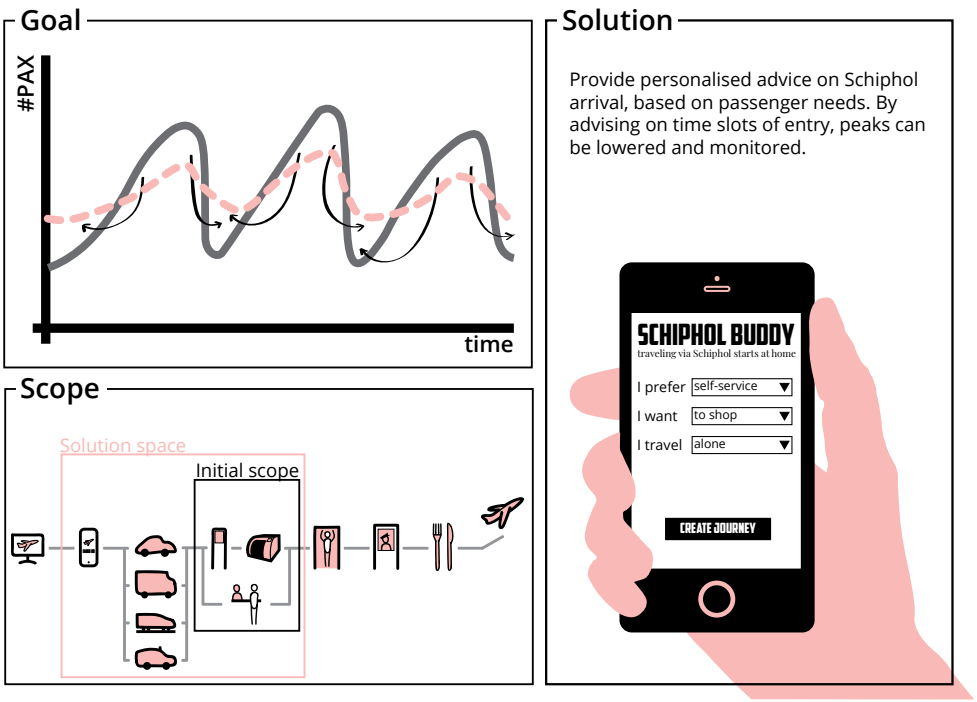


figure 27 - Peak shifting by collecting passenger data

Creating a unified terminal

Every passenger process step at Amsterdam Airport Schiphol is common use, except the processes in the departure hall. Schiphol Group is held responsible by passengers for failures in for example security, border control or lavatory. Since ground handling staff is hired by the airlines and therefore dressed in an airline specific uniform, airlines are criticised for disruptions at the departure hall. To reduce the number of stakeholders involved in the development of the departure hall, Schiphol Group wants to have more control over this area, which includes the ground handling personnel. If Schiphol Group pays for all staff in the departure hall, Schiphol can create a unified passenger experience. Handling agencies can continue to do their work, now contracted by Schiphol.

When Schiphol Group is becoming a potential client, handling agencies are more likely to cooperate in the common use integration.

Common use check-in and luggage drop off point will allow for a Schiphol orientated departure hall, instead of a mixture of all airlines. All standard procedures, like document checks, will be done online in advantage or last minute at the CUSS Kiosk.

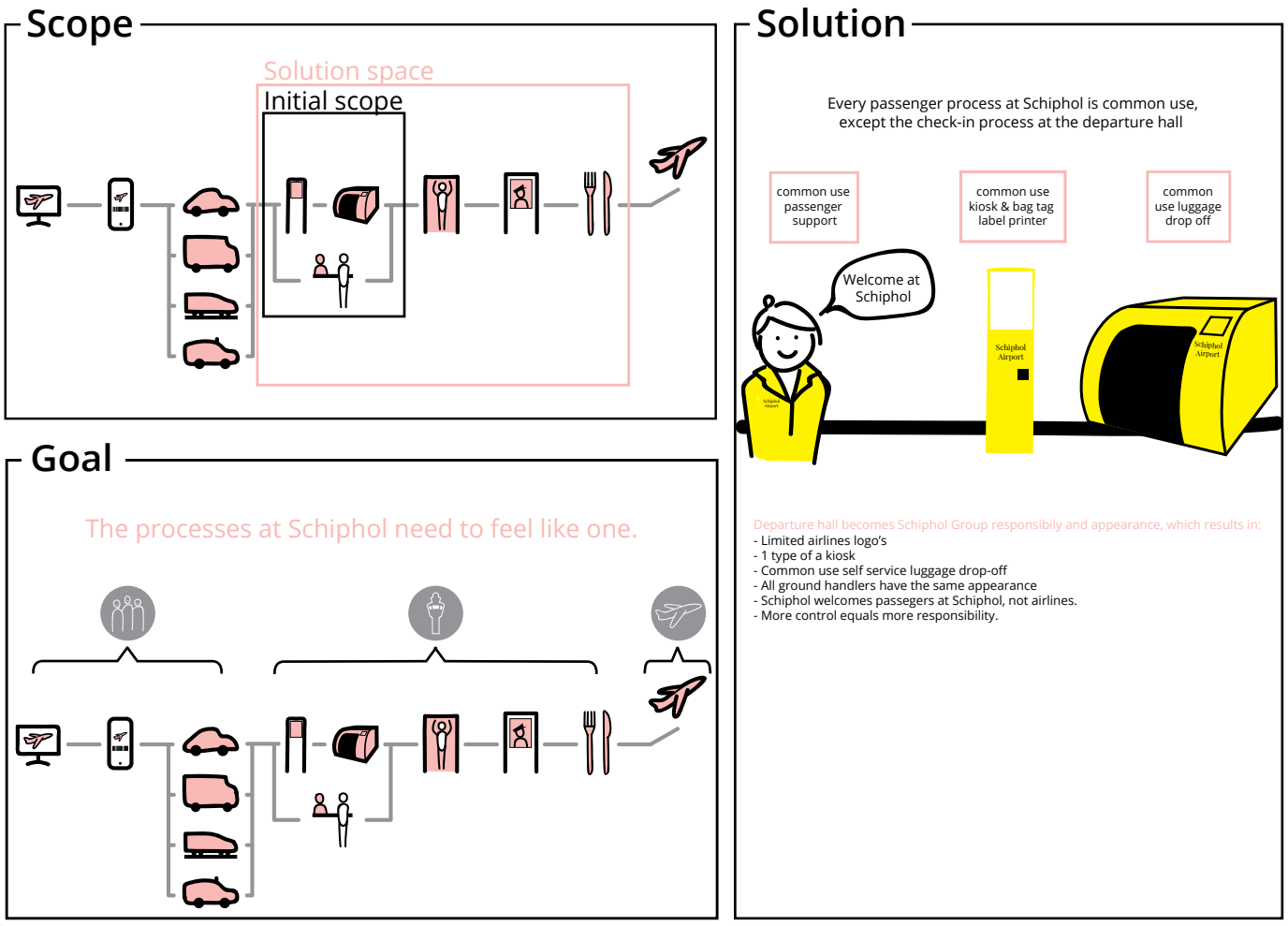


figure 28 - A unified terminal opperated by Schiphol

stakeholder advantages

Passenger: The passenger feels welcome at Amsterdam Airport Schiphol and looks forward to the temporary stay before entering the aircraft. All passenger procedures are common use, so the number of mistakes during the check-in procedure is reduced. In the departure hall, the passenger is free to choose every Common Use Self Service Drop Of Point (CUSSDOP) available. However, to use a CUSSDOP, the passenger should be in possession of a boarding card and bag tag label, which can be received online or at the kiosk.

Handler: Handler agencies have a new client, Schiphol Group. Handlers agencies are shifting from doing check-in tasks to delivering a service. Therefore ground handlers will support specific passengers groups, such as families, elderly and odd sized luggage. Furthermore, ground handlers will offer support in case of disruptions.

Airport: Schiphol Group gets control over the whole terminal by becoming common use. As a result of this increase in control, Schiphol Group receives more responsibilities along with more freedom. The IT department of Schiphol Group could create a Schiphol specific interface for CUSSCI and CUSSDOP, choose the appearance of the departure hall and influence the ground handling procedures. Schiphol Group could still outsource different responsibilities, without losing control.

Airlines: As common use is implemented in the departure hall, airlines lose their ability to distinguish themselves from other airlines. As this reflects the level of service for each airline, the airlines' natural response is to preserve this distinction and thereby obstruct the implementation of common use. Although smaller airlines are less likely to hinder the common use implementation from an organisational point of view, limited investment capabilities do form an obstruction. Despite that airlines will lose their first contact with passengers by becoming common use, the implementation process is greatly simplified due to the reduced number of stakeholders. For the airlines, the first contact with the passenger will shift towards the boarding procedure. The passengers are welcomed by trained flight attendants of the airlines themselves, rather than ground handlers trained by the handling agencies.

Summary and conclusions

The departure hall is not a nice place to be, as passengers define the luggage drop off in the departure hall as a ‘must do’ (Beautiful lives, 2016). Passengers prefer to do the obligatory as quick as possible to have more time to relax in the lounge. The Dutch Tax Authorities define a similar situation as, ‘We cannot make it any more fun, but we can make it easier’. In other words; improving the user experience is mainly about reducing the time spent for this ‘must do’ procedure. Furthermore, it is also unclear how handles can benefit from an improved passenger experience. Therefore the ‘improving passenger experience’ frame is not suitable for this particular situation.

Both peak shaving and creating a unified terminal are very promising futures for all stakeholders. Seeing the terminal as one is a great frame to integrate common use by creating guarded freedom for passengers. More so it creates a sense of identity by shifting perspective from an airport-specific passenger towards a Schiphol visitor.

The theme quantified now is more prominent within peak shaving, where it is all about data. A Schiphol journey planning application enable passengers for early or late arrival at Amsterdam Airport Schiphol. Although passengers will have a feeling of control, their travel plan is guarded by the smartphone application.

The results have been checked with representatives of all stakeholders. Where in general the frame ‘create a unified terminal’ is most appreciated since it is a logical first step. The airlines look forward to not getting blamed for situations they have less control over, as this is often the case in the current situation. Handlers prefer a more centralised approach in the departure hall. Despite all risks involved, Schiphol Group will gain control over the departure hall, as desired.

Autoethnography of futures

The frame of the theme park to approach the situation as a passengers experience improvement, was something I had in mind from the start. I thought that if all stakeholders focused on what is best for the passenger, instead of what is best for them, it would make decision making easier. Many times airlines have expressed what their passengers want, I was always wondering if airlines knew the interests of their passengers. The same I did with employees of Schiphol Group knowing the benefit of their stakeholders.

When I explained my frames to multiple people, since I was uncertain about the outcome, I realised that the result should be linked to the introduction of common use. Therefore the common use principle would improve the passenger experience for most passengers. However, the convenience seeker will be uncomfortable by the removal of full-service desks (Capgemini, 2015). I believe that convenience seekers need extra time to adapt to new situations, in the end, they want to have ownership over their process. So for passengers, this frame can be helpful. However, the passengers do not wish to extend their stay in the departures hall even though it could be more enjoyable. The time in the departure hall should be, and the common use principle would be able to facilitate that shift.

Passenger experience was not the way to solve the issue of common use introduction. I still liked the idea of the theme park. I started asking myself why I thought it fitted so well with the introduction of common use. One moment in time it finally made sense, it is not about the excellent customer experience, it is about visitors experiencing everything as one. The walking figures, the lavatory attendant, the attraction supervisors or waiter of a restaurant; the visitor will believe they are all part of the same organisation. It is all part of the Efteling or Disney experience. I presented the 'united terminal' frame and the 'peak shaving' frame to stakeholders of the Drop&Go project. Although they were enthusiastic about the potential of a unified terminal, they could not relate the departure hall to a theme park. People want to be in a theme park, and people do not want to be in the departure hall. It is more similar to the waiting room of a dentist, where you are waiting for something you are not looking forward to. That is how the hospital frame arose. The hospital has similar aspects as the entertainment park in a sense that the patients are experiencing everything as one. However, the experience itself is entirely different and more modest and therefore more fitting to the departure hall context.

The role of Schiphol Group

This step is a natural outcome of the framing step since it easy to translate the inspiration from the frames in ideas for the current situation. However, Schiphol employees still need to be aware of the effects on all stakeholders.

The role of Process Developers

The first solutions are not always the best. I encourage process developers to go back to the frames and create new futures again. Try to kill your darlings, the ideas you like most, to come up with new refreshing ideas. Keep the interest of stakeholders in mind by creating ideas, by approaching the situation from different perspectives; 'What would the passenger do?'. Always check results with stakeholders, it will result in a better outcome and possibly new solutions.

The role of Frame Innovation

Dorst is right about not being attached to a particular idea. I had to let go of my theme park frame since the stakeholders could not relate to it. This step of the process is created to test and evaluate the frames together with the stakeholders.

Transformation

The stakeholder advantages described in futures show overlap with the intention of the transformation step. Within the transformation step, a business plan is created, including the benefits per stakeholder and a strategy on how to get from the current situation to the desired situation. At Schiphol Group, all projects follow a similar project approach. Process Developers use the following procedure; (1) a business case, (2) preliminary concept of operations, (3) final concept of operations. Finally, the concept will be implemented. With the implementation of a 'united terminal' will come risks and extra responsibilities for Schiphol Group. Therefore legal issues need to be solved between the business case step and the preliminary concept of operations.

Business case

The concept with stakeholder benefits, as presented in futures, functions as a basis for the business case. Additional financial benefits and quantitative figures will have to be included and are outside the scope of this thesis.

Legal issues

Since creating a 'united terminal' requires a shift in responsibilities, the roles and risks need to be analysed, discussed and solved with the legal department of Schiphol Group.

Preliminary concept of operations

A concept of operations with separate plans for the involved processes, namely (1) passenger processes and (2) luggage processes. Both containing, among others, floor plans, capacity calculations, flow concepts, passenger journeys and required facilities. A list of requirements combines all aspects and necessities of the concept.

Final concept of operations

The feasibility of the preliminary concept of operations is tested with all involved stakeholders and adjusted if necessary to create a final concept of operations. The tender procedures will start after the finalising the concept of operations, after which the realisation of the project will begin.

Summary and conclusions

The transformation step shows a strong resemblance with the current way of process development within the Schiphol Group. Since Schiphol is considered as an expert in its field of operation, Schiphol Group is very well capable of executing the implementation step.

Autoethnography of transformation

As Process Developers are great in solving issues and working according to the Schiphol Group procedures, I discussed the transformation step with a couple of Process Developers. All Process Developers proposed the same way of approaching this transition. As implementing new plans is part of the daily job of process developers, I followed their advice. Since the elaboration of the ideas is save in the hands of the Process Developer, I decided to emphasise on the implementation of the Frame Innovation workshop, rather than a detailed strategy.

The role of Schiphol Group

Schiphol Group should create a culture where it is possible to innovate based on customer needs.

The role of Process Developers

This step is a natural step for Process Developers since it is close to the daily job of a Process Developer. After the 'future' step, the Process Developer defines a new dot on the horizon. As explained in the context chapter, Process Developers are best in finding the shortest route between now and the future.

The role of Frame Innovation

The power of Frame Innovation is the frame creation. This step is part of the process to make sure a new plan can be implemented.

Integration

While following the implementation of the transformation steps, the stakeholders should not be forgotten. By maintaining transparency in the development of the process, trust is created between Schiphol Airport and the stakeholders.

Creating frequent meetings to both inform and discuss the developments with the inner stakeholders will strengthen the relationship between stakeholders. Which is necessary to keep stakeholders aligned and proactive in offering development support.

Autoethnography of integration

Within the Drop&Go project, the monthly meetings contributed considerably to the overall transparency. During the first meetings I attended, the airlines were more defensive compared to later sessions. Often the help of stakeholders is required to move forward, like delivering data, sending comments and confirming decisions. Therefore keeping the stakeholder involved in the development is extra important.

The role of Schiphol Group

Schiphol Group should contribute to the integration of a 'unified terminal'. Budgets should be assigned, and internal stakeholders need to be aligned.

The role of Process Developers

The Process Developers should maintain the trust that has been built between Schiphol Group and its stakeholders.

The role of Frame Innovation

Successful integration of the Frame Innovation process will contribute to its success. If the incorporation of a process still follows the interests of the involved stakeholders, the stakeholders are more likely to participate again in a Frame Innovation session. Furthermore, successful implementation can be used as an example in the commercial aviation industry to explain the potential of Frame Innovation. This, in turn, could serve as a successful example of the Frame Innovation method within a commercial context.

Implementation at Process Development

Reflection and adjustments of method

While exploring the Frame Innovation process within the Drop&Go project, autoethnographic reflections were used to document the process steps for the different roles Schiphol Group and Process Development have. These reflections shape the advice on how the Frame Innovation method could work within the Process Development department. Feedback from process developers created further insights into the potential of the Frame Innovation process for Schiphol. Furthermore, a workshop with representatives of all involved stakeholders proved the potential effects of the Frame Innovation method. Together this contributes to a recommendation per step on process development potential and readiness.

Archaeology

Archaeology is about obtaining a deep understanding of the problem situation. For an outsider this step is of extreme importance, to critically create a full understanding of the problem situation. However, to Process Developers the stage is less critical since they are already aware of the problem. Process developers are excellent firefighters. They will quickly know which fires need to extinguish. Therefore Process Developers work with large issue lists and a plan on when to tackle which problem by who. Frame Innovation, it is not about building a chronological plan of issue solving. It is about creating a bridge between the problem and the solution space (figure 29).

Process developers tend to find it easier to determine the problem space than the solution space, therefore the paradox, context and field can become helpful.

Paradox

Higher management or the process owners determine the desired situation. Process developers search for the shortest route between the current situation and the desired situation. If during this journey obstacles appear, process developers will solve the issue and move along. However, in case of more severe problems, addressing them can be very challenging (figure 29). Even more so when a project involves many stakeholders, whose businesses require a change.

Paradoxes are contradictions within the issue list of a process developer. Defining those paradoxes will determine the inner stakeholders for the context step. To put it differently, which stakeholders make it hard to come from the problem space to the solution space and why?

Context

Process Developers often express that they find it hard to know their stakeholders' interest. As a result of that, Process Developers tend to make assumptions. Afterwards, it becomes clear that their assumptions were incorrect. By taking time to listen to the stakeholders individually, their intentions should be clarified.

Field

Within the field step, Process Developers should broaden their scope. Besides the context stakeholders, which other parties could be involved or interested in the results of the frame creation? When those stakeholders are of importance in the future scenario, their interest should be taken into account by defining what is essential to them. The field stakeholders do not have an active role during the project.

Themes

Themes conclude the analysis steps and are highly important for a successful outcome of the process. Themes give direction towards the solution space in a way all stakeholders are likely to agree on, later in the process. Creating themes can be done individually based on stakeholder interest or, preferably, together with stakeholders during a workshop.

Frames

Frames are associations made with all themes combined. These frames are situations from outside the aviation industry with similar characteristics as the context of the current situation. Frame creation can be hard and requires some external guidance. Therefore frame creation should be executed in groups, preferably with older people from different backgrounds. Since all involved stakeholders should agree that the frames fit their future scenarios, frame creating should be done together with stakeholder during a workshop.

Futures

Futures come naturally after the creation of frames. Almost instinctively the exciting elements from a frame are translated back to the desired future of the stated problem. What can be learned and how will it affect all stakeholders involved? Creating frames and futures go hand in hand. However, the process developer should be aware of a tunnel vision. It is better to create multiple frames and futures than staying with the first idea since mostly the first ideas are not the best ideas. The final futures should be tested with all inner stakeholders, to be sure the future serves the common good.

Transformation

Create a business case with a positive gain for all stakeholders and planning on how to achieve the results. Start the internal process to obtain a financial budget.

Integration

Create regular meetings with all inner stakeholders involved, be transparent about the procedures and what help is required to change. By doing so, the process is experienced as a collaborative achievement. The Frame Innovation method does not prevent conflicts from happening. Nonetheless, it creates an atmosphere in which thoughts can be shared, which will smoothen the project process.

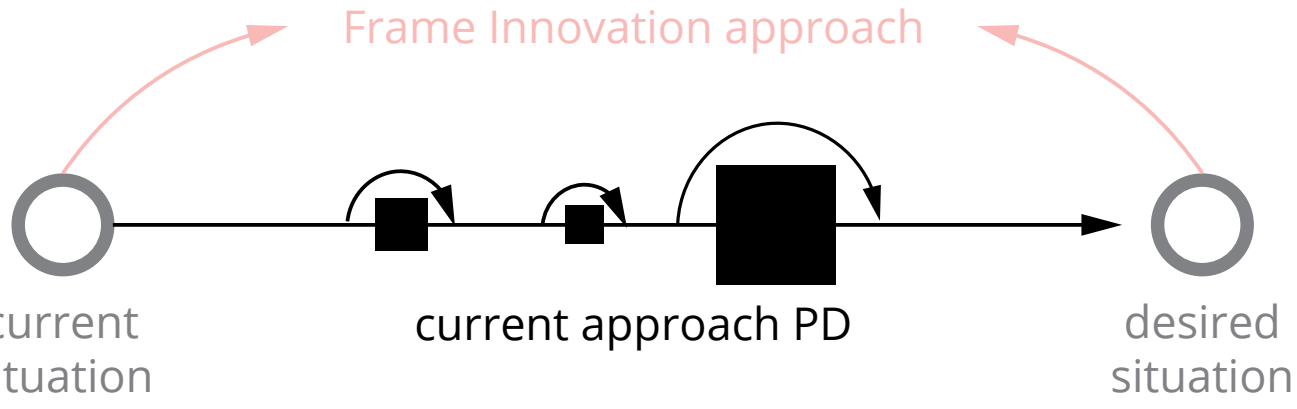


figure 29 - Approach Process Development vs Frame Innovation

Framework for Process Development

The nine-step process of Kees Dorst is a linear process (Dorst, 2015, p.75), in which a participator follows the Frame Innovation process step by step. For the situation at Schiphol, the inner stakeholders are often part of the problem space. The desired situations, determined by higher management, are often not in line with the expectations of stakeholders. Therefore stakeholders tend to have a slightly cynical approach when it comes to innovation. By defining the interests of stakeholders through having conversations, earlier defined paradoxes might require rectification. If the field exploration identifies a new inner stakeholder, the process should include this stakeholder as an active participant in the process. To facilitate this transition, the frame innovation method should be more dynamic. Kees Dorst identifies this as 'Frame creation as zooming out and concentrating' (Dorst, 2015, p.103-105).

The Frame Innovation process at Schiphol contains 9-steps and is more dynamic, with three clear milestones desired outcome, themes and integration. In between 'desired outcome' and 'themes', there is an exploration phase for the problem space; Who is involved? What are their interests? What makes it hard to reach the desired situation? Themes are the outcome of the problem exploration phase and result in themes which cover the common ground of all involved inner stakeholders. Afterwards, the solution exploration phase starts, where multiple frames and futures are created. When all stakeholders agree with the desired future, a business model with the benefits for all inner stakeholders is formed within the transformation step. The plan is integrated into the daily task of the process developer, who starts working on the implementation of the future situation.

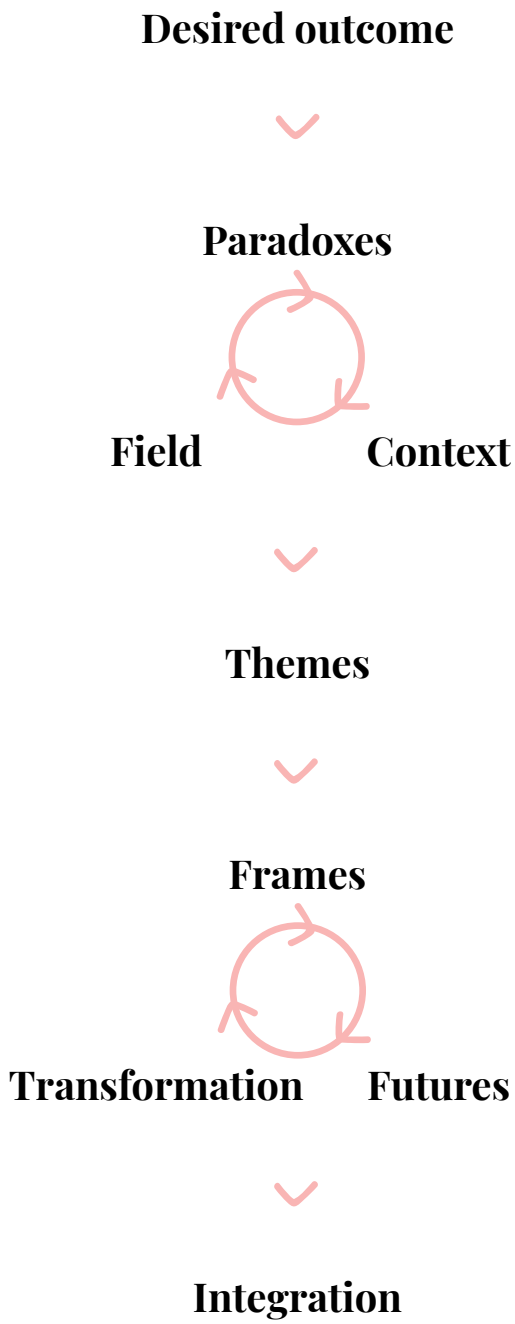


figure 30 - Framework for Schiphol

Frame Innovation Workshop

Based on the previous reflections, it is assumed that the Frame Innovation theory would work equally good in commercial companies as in public sector examples of Dorst (2005, p.98). The method of Dorst is put to practice in a workshop with representatives of all inner stakeholders of the Drop&Go project. The session served two goals, (1) To discover if stakeholders can set aside their differences and create frames together. (2) To reflect on the results of the Frame Innovation exploration.

The attendees of the workshop:

1. A representative of all handlers (Business partner airlines at Schiphol Group)
2. A representative of airlines (Area manager of eight airports of LOT Polish Airlines)
3. A representative of Schiphol Group (Process Developer)
4. A representative of passenger (Designer)
5. Notetaker/Photographer
6. Facilitator (Designer)

Agenda of the session:

Within a 2-hour workshop (figure 32), the attendees experienced and evaluated the Frame Innovation method. First, the attendees encountered the technique by creating frames/futures together for the introduction of a common use departure hall. Lastly, participants evaluated the design results of this thesis for the Drop&Go project.

- Introduction: The results of the session are no promise for execution. (5 min)

- The ideal departure hall: Design the ideal departure hall from your perspective. (15 min)

- Themes: What is the common ground within all ideas? (20 min)

- Frames: Associate situation or analogies similar to the predefined themes. (40 min)

- Reflection: Presentation [frames & futures] + reflection. (20 min)

- Conclusion: Final remarks on the workshop (10 min)

Autoethnography of workshop

As I am not an experienced facilitator, I asked for help by developing an agenda for this workshop. During the session, I liked the beginning, in which an object had to be thrown while thinking on the spot about what elements your ideal departure should have. This game sparked some minds on where to think about, processing the input individually helped to define people's ultimate departure hall. Creating an overview helped to understand the differences, but also to see the overlap.

More so, what I liked about starting with the ideal departure hall is about dreaming about where to go together, which is a different approach than Schiphol Group uses. Often process developers ask for input about the development and for confirmation on the decisions Schiphol Group made earlier. During the workshop, it became clear what stakeholders genuinely want and how it overlapped the airport's desires. The process developers were surprised by the airline wanting a unified departure hall, with no distinction between airlines at all.

Being with only four people influenced the results. In a regular Drop&Go airline session, LOT is one of fifteen airlines, where another airline representative can be more dominant. In the workshop, everyone was equally involved, which makes it easier to talk openly and have a good conversation.

As I expected, it was easy for the participants to start talking about the examples they see in the aviation industry. Like the common use equipment on airside, or interventions on different airports, like the floor stickers to engage people to get their passports ready in Copenhagen Airport. This explorative thinking is already a step in the right direction. However, sometimes input of designers helped to get out of the aviation bubble. All in all, the participants created numerous frames (figure 31).

In a previous workshop, about creating frames around the themes I created during my research, this problem did not occur. Probably mixing the problem and solution space, reminded the participants to stay in the context. However, what will happen if designers are not there? A Process Developer could fill in the facilitator function, where he/she should change the subject towards a new frame once in a while. A couple of examples frames are provided to simplify facilitation of frame creation.

The response I received from participants afterwards was very positive. The airline representative was very excited about the workshop. She felt understood. The handler representative had a feeling that everyone could talk freely and that you start taking into account different perspectives, which he liked. The airport representative found out that her assumptions about the interest of LOT were incorrect. This phenomenon supports my belief that you should talk with the stakeholder, before 'knowing' what their interest is.

figure 31 - Resulting frames created in a workshop with stakeholders

figure 32 - Frame Innovation workshop in progress

Workshop insights

The attendees experienced a constructive interactive workshop. The facilitator was not experienced as a leader, only as a guidance provider. Due to this open, transparent environment, the handler representative had the feeling that everyone was equal and allowed attendees to speak freely. The frame creation was experienced as necessary, refreshing and inspiring.

Passengers do not want to spend time in the departure hall, they experience the time as a loss and want to get it done quickly. Therefore the 'theme park' frame does not fit the context. However, the futures 'unified terminal' and 'peak shaving' had a lot more potential.

As a first time experiment, the workshop outcome gave hope for future integration of the method. Adjusting the workshop approach according to the experiences and results of the workshop will improve the flow of future workshops. Especially the transition of ideal situations to themes requires extra attention. However, attendees taught along by proposing possible next steps, which emphasised the social collaboration.

Tool

For Process Developers to start exploring the potential of common use themselves, a tool has been created based on the progress of the workshop with Drop&Go stakeholders. The tool supports Process Developers to facilitate a Frame Innovation workshop themselves and comes in the form of preprinted 'flip over' paper (figure 33, figure 34 and figure 35). The three flip-over sheets contain a context, themes, frames and futures. The sheets include guidelines and fill-in field to simplify the facilitation. Together with the inner stakeholders, Process Developers can discover the possibilities of Frame Creation. As expertise is of value with creating frames, it is encouraged to ask for help and invite colleagues who have done a Frame Innovation workshop before.

Conclusion

The Frame Innovation method contributes to the creative exploration of future scenarios. It sets aside the differences between stakeholders and focuses on the common ground, which supports collaborative thinking among all stakeholders. Both the Frame exploration and the workshop with Drop&Go stakeholders show the promising results. Within the workshop with stakeholders, the frame creation was experienced as necessary and refreshing. Extra testing should reveal the potential of process developers as facilitators.

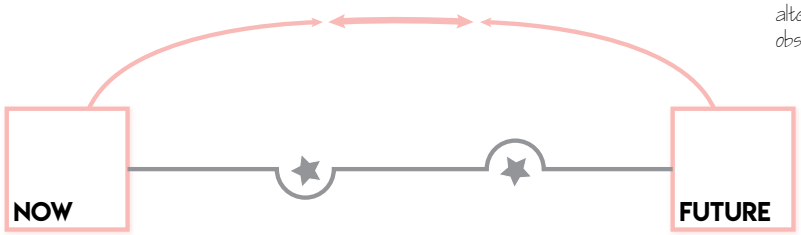
As a guideline, applying Frame Innovation at Schiphol Group would be helpful when;
1. Process Developers notice conflicting goals between stakeholders.
2. Stakeholders will need to change their current way of working drastically.
3. There is no obvious solution available.
4. A Process Develop is open to trying a new method to find alternative solutions.

FRAME INNOVATION

ADOPTED TO Schiphol

WHAT IT IS ABOUT

This workshop is about bridging the gap between now and the future by finding an alternative route rather than avoiding the obstacles on the straight path.



HOW IT WORKS

COMMON USE DEPARTURE HALL — Define your context.

24/7 CONTROL FLEXIBLE CAPACITY — Prepare individual presentation of ideal context.

RIDING A CAR — Create frames; known scenarios that also contain those properties.

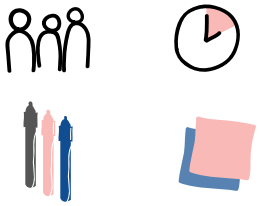
MY IDEAL CONTEXT IS ... — My ideal context game: Throw around an object and while throwing say 'My ideal (context) is...'

CONTROL FREE — Find a 'common ground' by selecting properties that are similar for several stakeholders. All stakeholders should agree on this common ground.

CHECK IN IS ONE STRAIGHT LINE — Create futures; a possible way to implement those properties in the context.

WHAT YOU NEED

* One workshop facilitator; explains and maintains the rules
* Workshop participants, preferably a representative for each stakeholder
* 2 hours of their time
* Sticky notes in two colours
* Permanent markers in three colours



THE RULES

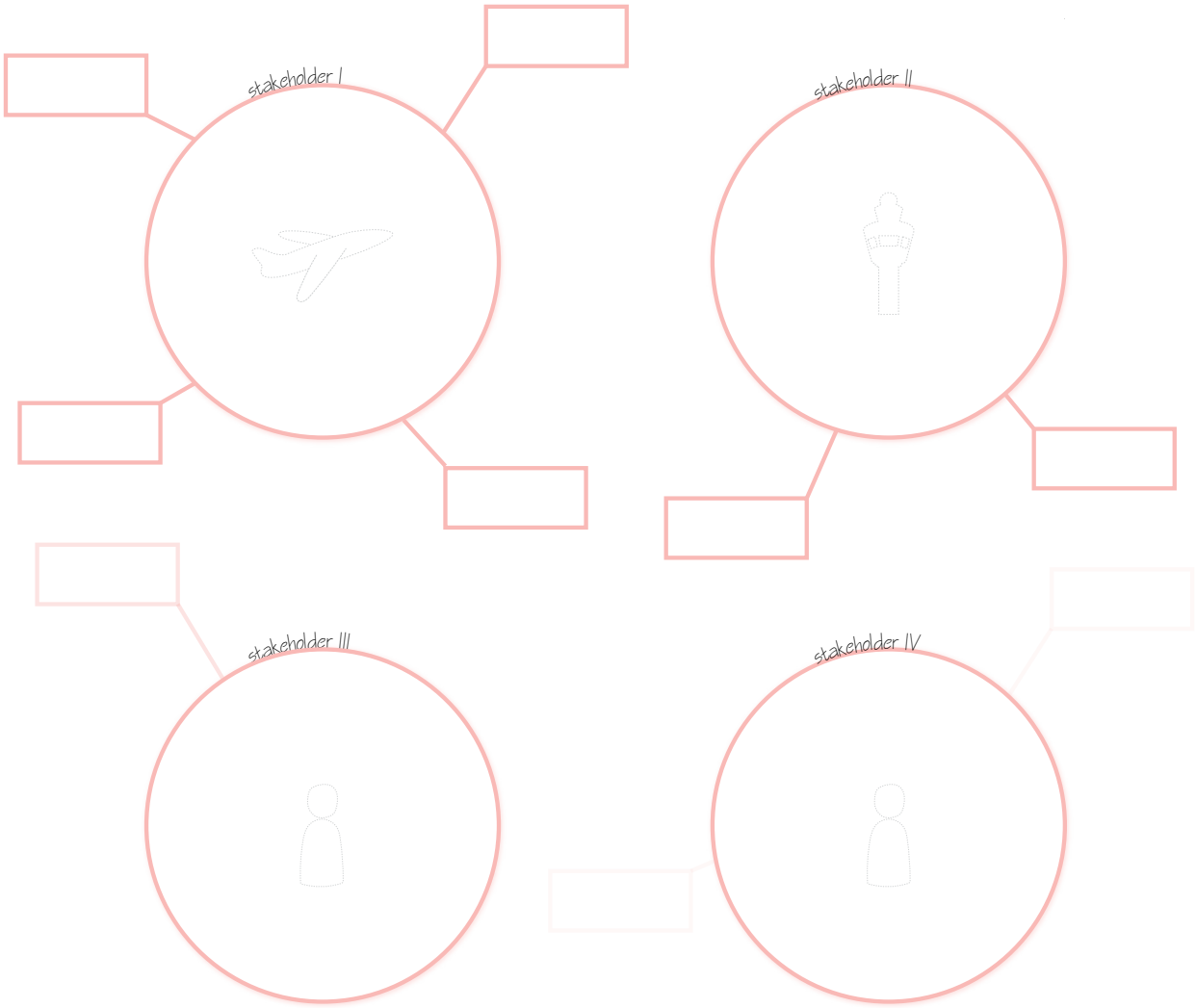
* Do not criticize anyone
* You can not do it wrong
* Quantity above quality
* Also encourage the most idiotic and unlikely ideas
* build on other people's ideas

figure 33 - First page of the frame creation tool

FRAME INNOVATION

ADOPTED TO Schiphol

SHARE IDEAL FUTURES AND FIND COMMON GROUND



THEMES

HOW IT WORKS

1. Draw a stakeholder in each circle. Start placing properties that fit this stakeholder in the 'perfect' scenario.
2. Use an other colour to connect properties that are shared among stakeholders.
3. Write down the common ground based on the connections made. Make sure that all stakeholders agree on this common ground.

figure 34 - Second page of the frame creation tool

FRAME INNOVATION

ADOPTED TO Schiphol

CREATE FRAMES AND FUTURES

THEMES

HOW IT WORKS

1. Write down your common ground to this new sheet.
2. Think of scenarios that contain the properties defined by the common ground. Write them down on a coloured stiky note and place above.
3. Think of how to implement this in the context. Write them down on a different colour sticky note and place them next to the previous one.

figure 35 - Third page of the frame creation tool

Conclusions
Contributions
Limitations
Recommendations

Conclusion

This research aimed at designing an approach to support process developers at Schiphol Group to effectively incorporate stakeholders within their projects. The Drop&Go project has been a use case to explore the potential of the Frame Innovation method within the implementation of a common use departure hall at Amsterdam Airport Schiphol. The proposed framework and tool for process developers ("Tool" on page 94), is the result of adjusting the Frame Innovation method by Kees Dorst towards a feasible workshop facilitated by Process Developers of Schiphol Group. This thesis presents the journey of Frame Innovation exploration and Frame Innovation implementation within Process Development.

How to effectively incorporate stakeholders within a Process Development project?

As the first paradox ("Paradox" on page 48) explain that time delay comes with costs. Therefore it is of great importance to minimise time delay. Due to the many conflicts with airlines, stakeholder collaboration is often associated with time delay. Therefore it is not strange that Process Developers prefer only to inform the stakeholders with updates. However, this could cause problems in a later stage of the project.

The Frame Innovation process requires some extra effort with stakeholders at the beginning of a project. By having regular meetings to express concerns and talk about the desired situation, the stakeholders have time to adapt to change. Change is difficult, especially in an aviation context which does not change often. There frame creation can be used to simplify talking about change.

Frame creation should be used as inspiration, or result in an entirely new future approach of implementing the project. By collaboratively creating the frames with stakeholders, the interest of stakeholders is guaranteed, and the stakeholders will feel ownership over the future goals. Thereby the stakeholder is more likely to participate in the further development of the project actively.

How to align the interest of stakeholders and process developers?

To align the interest of stakeholders, first, the interest of stakeholders need to be known. Many process developers state they have trouble knowing the stakeholder's interest since they have made assumptions based on earlier experiences. However, the first impression of a stakeholder should not leave a indefinite impression. Within the Drop&Go project, stakeholders need time to prepare for change. Over the time span of half a year, meeting stakeholders went from very defensive towards willing to help. By having multiple conversations with stakeholders and showing sincere interest in their opinion, a complete understanding of the different stakeholder interests was created.

Frame Innovation supports the alignment of different stakeholders since it focuses on their similarities rather than their differences. Stakeholders have a severe impact on the success of the process development project, and therefore the common ground is determined together. The second sheet of the Frame Innovation tool supports the process developer to find themes within the common ground. Defining the common ground will align stakeholders with process developers on setting priorities and will function as a base for creating future scenarios.

Contribution

Contributions to Process Development

This research focuses on its contribution to the Process Development department at Schiphol Group. The contributions to Process Development is twofold; (1) An adjusted framework of the Frame Innovation method, on how effectively incorporate stakeholders in a project. (2) Ideas on how to successfully implement a common use departure hall in Terminal A.

The second page of the proposed design tool can be helpful in solving conflicts by clarifying the differences and subsequently focussing on the similarities. Frame creation, the third page of the proposed tool, will support the process developers when no obvious solution is available. In this case the stakeholders need to change their current way of working drastically.

The results of the Frame Innovation exploration can be used as an inspiration on the potential implementation of a common use departure hall in the new terminal A.

Contributions to Schiphol Group

The research is executed within Schiphol Group. The potential of Frame Innovation is not limited to the Process Development department since a lot of departments continuously work with stakeholders. However, Frame Innovation is not a stakeholder management tool. It is a co-creation tool to create collaborative ideas for change. Within Process Development, the method can should be explored further to form an inspiration for developing an innovation process within Schiphol Group.

Contributions to the aviation sector

Although a successful integration of the common use principle will be of interest to multiple organisations around the world, this research only shows ideas specifically developed for Schiphol Group.

Contributions to design research

Frame Innovation (Dorst, 2015) and Designing for the common good (Dorst, Kaldor, Klippan, & Watson, 2016) showcase many examples of successful integration of the Frame Innovation method in public and social practices. This research contains documented reflections of potential successful integration within the commercial domain.

Limitations

This research resulted in an adjusted framework and practical tool to facilitate stakeholder involvement within a Process Development project. Furthermore, the framework is based on the observations and discussions about the Drop&Go project and are documented in an autoethnography of every process step of the Frame Innovation method.

Therefore results of the research are limited to the stakeholders within the Drop&Go project scope; airlines, baggage handling agencies, passengers and Schiphol Group itself. In the broader context of Process Developers, much more stakeholders can be addressed. Although this research shows potential to implement the Frame Innovation process, it has not been proven yet to work for other stakeholders. The process development department works together with internal stakeholders, such as asset management and IT departments, as well as external stakeholders, like NS and Customs.

Schiphol internal stakeholders

When employees struggle to get things done due to issues with external stakeholders, it would be helpful if other departments would not form an obstruction to the process. However, Process Developers are frequently complaining about not getting things done within Schiphol Group. Continuous inefficient collaborations between departments resulted in multiple reorganisations of separate departments at the same time. Previous functions disappeared, and new responsibilities arose, which creates confusion on who to contact. Organisations with a high level of complexity are weak in creating value. When employees are not able to get things done or wait for decisions to be made, their morale suffers and followed by frustration (Heywood, Hillar & Turnbull, 2010).

Within the timeframe of this research, the focus has been on adjusting the method to the needs of the Process Development department. Therefore exploration of the transformation and the implementation step, during the Frame Innovation exploration, is limited. A process Developer's daily task is to create a business case and implementation plan. Therefore, the first seven steps of Frame Innovation proof to create most difficulties. Without profound exploring these final steps, the research questions could still be answered.

The Frame Innovation workshop with the Drop&Go participants required the presence of designers. No tests were executed on how the workshop proceedings with a process developer as facilitator. The proposed Frame Innovation tool is a first attempt to support Process Developers in Frame Innovation facilitation. Although the tool is co-created with Process Developers, it has not yet been tested.

Recommendations

To fully validate the Frame Innovation tool, it needs to be tested within different Process Development projects with entirely different stakeholders. The first validation will have to take place with two Process Developers developing a remote bus station for touring cars. The involved stakeholders are the bus drivers, the bus companies, the travel agencies (D-Reizen) and passengers. If the Process Developers keep track of their Frame Innovation experiences in a logbook, other Process Developers could prepare themselves based on previous experiences of colleagues. Providing a physical tool is an approachable way of trying the Frame Innovation method. Positive experiences of other Process Developers should encourage other Process Developers to try the method. However, other incentives to start using this technique could be investigated.

As a results, the Frame Innovation exploration about the introduction of a common use departure hall, was well received by all inner stakeholders involved. It is recommended to start investigating the legal and financial options of the unified departure hall. Especially since Schiphol Group will take more responsibilities and thereby risks. Furthermore, Schiphol will also gain more control over their facilities, as desired. A robust quantitative business model and overview of legal options are required to convince operational management about its potential. When management agrees, there is an opportunity for implementation.

Besides the ‘unified terminal’, other ideas can serve as a showcase of what common use could bring for different stakeholders. Where improving passengers experience can be done from the start, peak shaving is more an ideal situation that can be achieved after the introduction of a common use departure hall.


Baggage lockers
Hotel reservations
Telephone
Change

References

References

A

Accenture. (n.d.). Airline Strategist Reflects on Disruptive Innovations - Accenture. Retrieved July 6, 2018, from https://www.accenture.com/us-en/insight-perspectives-travel-nawal-taneja

Amabile, T. M., Mueller, J. S., Simpson, W. B., Hadley, C. N., Kramer, S. J., & Fleming, L. (2002). Time pressure and creativity in organizations: A longitudinal field study.

ANP. (2018, May 3). Weer staking bagagepersoneel Schiphol. Het Parool. Retrieved September 1, 2018, from https://www.parool.nl/amsterdam/weer-staking-bagagepersoneel-schiphol~a4597028/

Armenakis, A. A., Harris, S. G., & Mossholder, K. W. (1993). Creating readiness for organizational change. Human relations, 46(6), 681-703.

Aviapartner. (2015, July 29). AMS Cargo Press Release. Retrieved July 3, 2018, from https://www.aviapartner.aero/news_amscargo

Aviapartner. (n.d.). Company values. Retrieved July 3, 2018, from https://www.aviapartner.aero/company-values

B

Beautiful lives. (2016). De klantreis van een reiziger. Retrieved from Schiphol intranet

Bourdieu, P., & Accardo, A. (1999). The weight of the world: Social suffering in contemporary society. Alhoda UK.

Brehmer, B. (1990). Strategies in real-time, dynamic decision making. Insights in decision making, 262-279.

C

Corendon. (n.d.). Home pick-up Bagage. Retrieved September 9, 2018, from https://www.corendon.nl/homepickupbagage

D

Dorst, C. H., Kaldor, L., Klippan, L., & Watson, R. (2016). Designing for the common good. BIS publishers.

Dorst, K. (2015). Frame innovation: Create new thinking by design. MIT Press.

Drennen, H. (2011). Self service technology in airports and the customer experience.

E

Ellis, C., & Bochner, A. P. (2000). Autoethnography, Personal Narrative, Reflexivity: Researcher as Subject [Abstract]. Handbook of Qualitative Research, 2nd ser., 735-768.

European Parliament. (2018, February 23). Schengen: Enlargement of Europes border-free area. Retrieved July 26, 2018, from http://www.europarl.europa.eu/news/en/headlines/security/20180216STO98008/schengen-enlargement-of-europe-s-border-free-area

F

Flierman, P. (2018, July). Drop&Go business case.

H

Haegens, K. (2017, May 31). Verdwijnt dit vertrouwde straatbeeld? Rabo, ING en ABN overwegen pinautomaten zonder logo. Retrieved July 27, 2018, from https://www.volkskrant.nl/economie/verdwijnt-dit-vertrouwde-straatbeeld-rabo-ing-en-abn-overwegen-pinautomaten-zonder-logo~b76c7be4/

Haighton, M. (2009, February 12). Schiphol hard geraakt door crisis. Retrieved June 6, 2018, from https://www.volkskrant.nl/nieuws-achtergrond/schiphol-hard-geraakt-door-crisis~b017e74f/

Heywood, S., Hillar, R., & Turnbull, D. (2010, April). How do I manage the complexity in my organisation? McKinsey & Company.

I

IATA. (2010, January 27). 2009: Worst Demand Decline in History. Retrieved July 2, 2018, from http://www.iata.org/pressroom/pr/Pages/2010-01-27-01.aspx

IATA. (2016, October 18). IATA Forecasts Passenger Demand to Double Over 20 Years. Retrieved June 29, 2018, from https://www.iata.org/pressroom/pr/Pages/2016-10-18-02.aspx

Icelandair Group. (2018). 2017 annual report of Icelandair Group. Retrieved from http://vefbirting.oddi.is/icelandair/arsskyrslaicelandair2017/index.html

L

Langeard, E., Bateson, J., Lovelock, C. H. & Eiglier, P. (1981), “Services Marketing: New Insights from Consumers and Managers,” Report No. 81-104.

Cambridge, MA: Marketing Science Ins.
Luchtvaartnieuws. (2008, July 05). Zelf bagage inchecken voor KLM-passagiers op Schiphol. Retrieved from https://www.luchtvaartnieuws.nl/nieuws/categorie/3/airports/zelf-bagage-inchecken-voor-klm-passagiers-op-schiphol-fotos
Lufthansa Group. (2018). 2017 annual report of Lufthansa Group. Retrieved from https://investor-relations.lufthansagroup.com/fileadmin/downloads/en/financial-reports/annual-reports/LH-AR-2017-e.pdf

M
Meuter, M. L., Ostrom, A. L., Roundtree, R. I., Bitner, M. J. (2000) Self-Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters. Journal of Marketing: July 2000, Vol. 64, No. 3, pp. 50-64.

P
Pine, J., Gilmore, J. (1999). The experience economy; work is theatre & every business a stage. Harvard Business School Press, Boston, MA.

R
Rogers, E. M. (1995). Diffusion of innovations. (4th ed.). New York: Free Press.
Rubin, R. (2015, January 31). 4 Luggage Innovations to Bag Travel Hassles. Retrieved July 6, 2018, from https://www.inc.com/ross-rubin/4-luggage-innovations-to-bag-travel-hassles.html

S
SAS Group. (n.d.). Strategic priorities. Retrieved July 3, 2018, from https://www.sasgroup.net/en/strategic-priorities/
Schiphol Group. (2012, April 5). 'Zelf bagage inchecken' op Schiphol uitgebreid. Retrieved July 25, 2018, from https://nieuws.schiphol.nl/zelf-bagage-inchecken-op-schiphol-uitgebreid/
Schiphol Group. (2015a). The power of the mainport Schiphol Group Strategy, 2016-2020. Retrieved from intranet.
Schiphol Group. (2015b). Concept of operations, A-gebied. Retrieved from intranet.
Schiphol Group. (2016a). Airport Facts about Dutch international airport. Retrieved July 3, 2018, from https://www.schiphol.nl/nl/route-development/pagina/amsterdam-airport-schiphol-airport-facts/
Schiphol Group. (2016b). Ambitions document, development of Area A. Retrieved from intranet.
Schiphol Group. (2016c). Blauwdruk PDC. Retrieved from intranet.
Schiphol Group. (2018). 2017 annual report of Schiphol Group. Retrieved from https://www.annualreportschiphol.com/
Schiphol. (n.d.). 100 years of history. Retrieved July 27, 2018, from https://www.schiphol.nl/en/you-and-schiphol/page/over-100-years-of-schiphol/
Schön, D. A. (1987). Educating the reflective practitioner: Toward a new design for teaching and learning in the professions. Jossey-Bass.
Sedee, M. (2018, May 3). Opnieuw werkonderbrekingen bagagepersoneel Schiphol. Nrc. Retrieved June 21, 2018, from https://www.nrc.nl/nieuws/2018/05/03/opnieuw-werkonderbrekingen-bagagepersoneel-schiphol-a1601736
SITA. (2017). The baggage report 2017: Air transport industry insights. Retrieved September 9, 2018, from http://comms.sita.aero/rs/089-zse-857/images/baggage-report-2017.pdf
SITA. (n.d.). Leo, SITA's baggage robot. Retrieved from https://www.sita.aero/innovation/sita-lab/intelligent-machines/leo-sitas-baggage-robot
Swissport. (n.d.). Swissport's Core Values. Retrieved July 3, 2018, from http://www.swissport.com/corporate/core-values/

V
van Diemen, R., Smit-Banting, J., van den Bos, J. (2018, January). Jaarrapportage Kaliteitsbeleving Schiphol. Customer Insights, Schiphol Group.
van Ormondt, J. (2018, May 03). Korte stakingen bij afhandelaars Schiphol. Retrieved June 21, 2018, from https://www.upinthesky.nl/2018/05/03/korte-stakingen-bij-afhandelaars-schiphol/
Vanderlande. (2017). FLEET: Future-proofing baggage logistics. Retrieved July 6, 2018, from https://www.vanderlande.com/airports/innovative-systems/fleet

W
Wanders, J. (1994, December 23). Schengen-verdrag maakt splitsing Schiphol nodig. Retrieved July 25, 2018, from https://www.volkskrant.nl/nieuws-achtergrond/schengen-verdrag-maakt-splitsing-schiphol-nodig~b327e048/

Interviews and conversations

Aarts-Draaijer, J.	Sr. Developer	Schiphol Group	Process Developer on Drop&Go project
Bouwman, M	Regional manager North-Wast Europe	LOT	Participant in Drop&Go project
Cabrera, J.	Supervisor technical services	McCarran International Airport	Interview about common use integration
Cardoso. A.M.	Airport services manager	TAP	Participant in Drop&Go project
Carmichel, F.	Ground OPS manager Europe, CIS & Maghreb	Lufthansa Group	Participant in Drop&Go project
Coulson, B.	Change management consultant	ARUP	Interview about common use integration at London Heathrow
Creegan, J.	Associate	ARUP	Interview about common use integration at London Heathrow
de Kok, E.	Jr. Developer	Schiphol Group	Talked about progress of graduation multiple times
de Lange, T.	Sr. Developer	Schiphol Group	Talked about progress of graduation multiple times
Erdamanis, A.	Regional manager	Air Baltic	Participant in Drop&Go project
Flierman, P.	Programma manager Drop&Go	Schiphol Group	Business developer behind Drop&Go
Franchini, N.	Ground OPS manager MUC & FRA	Lufthansa Group	Participant in Drop&Go project
Fullerton, S.	Engineer	ARUP	Interview about common use integration at London Heathrow
Gangsaas, M.	Manager PPM	Schiphol Group	Talked about project brief when she was interim Manager PD
Goslett, J.	Associate Director | Advisory Services	ARUP	Interview about common use integration at London Heathrow
Groenhof, M.	Jr. Developer	Schiphol Group	Talked about Schiphol Group as an organisation
Groot, M.	Ground OPS manager AMS	Vueling	Participant in Drop&Go project
Hen, C.	Manager Innovation Next	Schiphol Group	Talked about innovation at Schiphol and Next's role to innovate
Henderson, G.	Director terminal operations	Toronto Pearson	Interview about common use integration
Höh, R.	Regional manager	Skywork	Participant in Drop&Go project
Huijgen, A.	Sr. Developer	Schiphol Group	Talked about progress of graduation multiple times
Ingalls, S.	Assistant Director Aviation Information Systems	McCarran International Airport	Interview about common use integration

Jansen, B.	Mr. Developer	Schiphol Group	Talked about Schiphol Group as an organisation
Leurdijk-Kool, L.	Service Owner Passenger	Schiphol Group	Talked about the potencial of common use in the departure halls
Lymperopoulos, G.	Regional manager	Aegean	Participant in Drop&Go project
Minocher, K.	Associate Director | Airline programs & services	Toronto Pearson	Interview about common use integration
Mizzi, F.	Regional manager	Air Malta	Participant in Drop&Go project
Ólafsson, G.	Area Station Manager Central Europe	Icelandair	Participant in Drop&Go project
Örn Víðisson, A.	Portfolio Manager | Airport systems	ISAVIA Airports	Interview about common use integration
Poeschmann, M.	Vice president infrastructure charges	Fraport AG	Interview about common use integration
Prins, A.	Station manager AMS	Lufthansa Group	Participant in Drop&Go project
Rijs, M.	Process Owner Passenger	Schiphol Group	Talked about the potencial of common use in departure process
Sanner, J.	Program manager Common Use	Fraport AG	Interview about common use integration
Tadeo, L.	Airport coordinator Benelux, UK, Ireland & Portugal	Vueling	Participant in Drop&Go project
Van de Kletersteeg, R.	Station manager AMS	SAS	Participant in Drop&Go project
van der Lee, C	Process Owner Aircraft	Schiphol Group	Talked about the effects of common use for baggage systems
van Reeden, O.	Business Partner Handlers	Schiphol Group	Talked about the effects of common use for handlers

Master thesis by

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