

# A passenger needs...

The fulfilment of fundamental needs to reduce stress at Schiphol.

Master thesis  
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“A passenger needs...”

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## Preface

Motivated by my interest in Emotional Driven Design, I searched for a context in which I could apply its principles and create impact at scale. This search led me to Schiphol, where passenger satisfaction is a central ambition. The airport offered a unique opportunity to combine my fascination with physical design interventions and emotional states, shaping a more enjoyable journey through the terminal.

The project began with the goal of designing a new service desk concept, but I soon discovered deeper, systemic issues influencing the passenger experience. Choosing to broaden the scope was intimidating, yet the potential positive impact far exceeded what was possible within the boundaries of the original assignment. I am proud of taking that step and of transforming its potential into a renewed vision for passenger assistance—while still delivering a concept for an improved service desk.

This thesis documents the process of shaping this new assistance vision, developing an Empathic Lens to translate it into actionable directions, and designing a concept that addresses the identified challenges and adds value to Schiphol.

## Acknowledgment

Many people supported me throughout this project. Without their help during brainstorm sessions, insightful conversations, and feedback moments, I would not have been able to achieve—nor be as proud of—what I have delivered.

My sincere thanks go to my supervising team, Pieter and Susie, for creating a safe space to discuss not only project-related matters but also personal situations.

Pieter, thank you for continuously challenging me, and at times even openly disagreeing with me. This taught me to question my own perspectives, think through my arguments thoroughly, and remain critical of the choices I make.

Susie, thank you for always pushing me to reach the best of my abilities, even when that meant adjusting the planning by a few weeks. Your understanding of who I am, what interests me, and what I am capable of has supported me many times during both my Bachelor's and Master's—and this project was no exception.

To Robbert, thank you for your confidence in my independence and capabilities. You gave me the freedom I needed to do my best work in a context often defined by rules, regulations, and requirements. Your early confidence in me, formed after just two conversations, encouraged me to live up to that trust throughout the project.

To my colleagues at MPX, thank you for welcoming me into your social, fun, and personal bubble within Schiphol. Your enthusiasm for my project and your willingness to involve me in every activity made this experience truly enjoyable.

To my family, thank you for your constant support—helping me prepare and practise presentations, checking my grammar, and proofreading this thesis.

And to my friends, thank you for reminding me that there is more to life than writing a thesis, and for providing the distractions I needed at exactly the right moments.

# 0 Executive Summary

## The Setting

Passengers at Schiphol Terminal Landside experience consistently elevated baseline stress. This reduces their ability to navigate independently and increases their reliance on assistance. At the same time, Schiphol's assistance services are fragmented across multiple locations, making them difficult to find and placing unnecessary pressure on ambulant staff.

## The Goal

This project set out to improve the passenger experience and reduce the number of assistance questions. Research revealed that the core issue is not the availability of assistance, but the emotional and cognitive state in which passengers move through the terminal.

## Key Findings

### Problem: Six Stress Pools

Across observations, passenger experience feedback, self-service units data, and literature, six recurring Stress Pools were identified. These pools accumulate into baseline stress throughout the journey, and impair passengers' ability to process information, make decisions, and stay confident.

### Underlying problem: Unfulfilled Fundamental Needs

The Stress Pools consistently undermined six crucial human needs: Security, Ease, Autonomy, Competence, Relatedness, and Beauty (BRACES). When these needs are not fulfilled, passengers become more dependent on assistance and have an overall negative passenger experience during their travel.

## Solution: The Empathic Lens

To translate emotional pain points into design opportunities, the project introduces the Empathic Lens; three Pillars that support the fulfilment of the Crucial Needs and reduce the Stress Pools. By ensuring all three Empathic Pillars are present, we create a supportive, visible, and personally attuned assistance for every passenger. Applying these Pillars to the encountered problems at Schiphol Terminal Landside results in the Empathic Satellite Concept.

## Concept: Empathic Satellites

- (A) Satellite Units: Recognisable clusters of Self-Service Units, Digital Wayfinding, and Flight Information Displays placed in need-intensive locations.
- (B) Satellite Hubs: Centralised, calming spaces offering human assistance, mobility support, and a clear anchor point for all passengers.
- (C) Satellite App: A redesigned Schiphol app offering reassurance, personalised guidance, and conversational AI support throughout the journey.

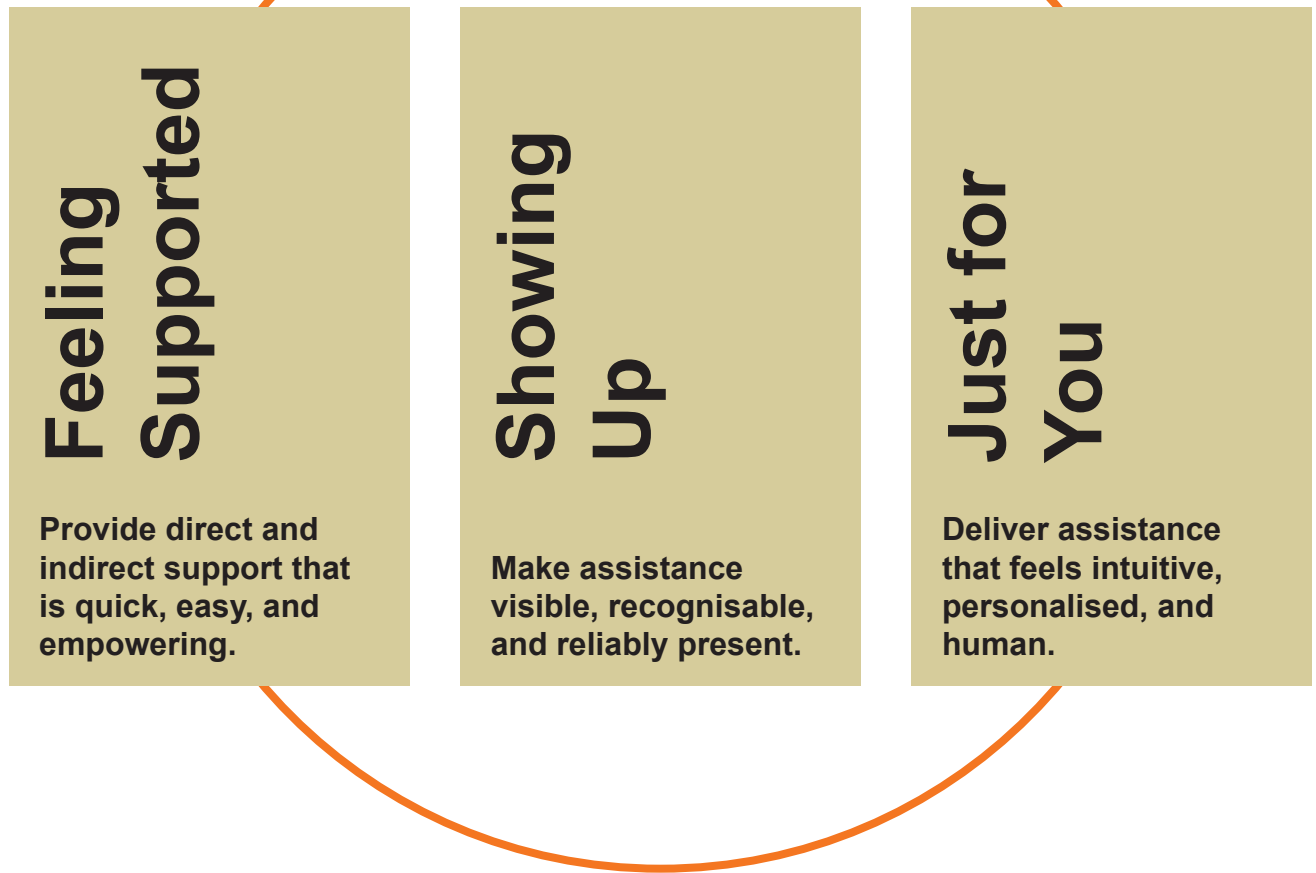
Together, these satellites reduce baseline stress, improve need fulfilment, and make assistance visible and intuitive — while decreasing the number of questions directed at ambulant staff.

## Impact

Testing of the redesigned app showed higher confidence, reduced perceived chaos, and a more enjoyable, intuitive experience. Demonstrating that designing for emotion meaningfully improves the passenger experience.

This project provides Schiphol with a future-proof vision and concrete tools to improve the passenger's experience and reduce stress and questions during their journey.

## Empathic Lens:



## Concept: Empathic Satellites



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# Chapter 1

## **Finding assistance at Schiphol Terminal**



“In search of the Lost&Found at Schiphol”

# 1.1

# AMS Schiphol Airport

## AMS Schiphol airport.

Each day, tens of thousands of travellers enter Schiphol Airport feeling anticipation, urgency, or uncertainty. Some fly for the first time, others weekly. Some travel for leisure, others for work. Some are excited, others anxious.

Although their motivations might differ, for all them their journey begins in the same place: the airport.

Amsterdam Airport Schiphol is the largest airport in the Netherlands. Approximately 80% of all Dutch flights operate through Schiphol (CBS, 2025), amounting to nearly seventy million passengers per year — almost eight thousand passengers per hour. Each of them interacts with dozens of products and services: wayfinding signage, luggage carts, check-in desks, shops, restaurants, toilets. Together, these elements form an intricate ecosystem designed to guide people smoothly from curb to gate.

Designing such an ecosystem is challenging. How do you create an environment that works for millions of people with different cultures, languages, and levels of travel experience? Let us first look at the domain through which all these passengers travel.

## Narrowing down the domain

Although Schiphol covers a vast physical area of runways, hangars, and logistics zones, only a small portion is directly experienced by passengers: the terminal.

On the next page, [figure 1](#) shows satellite imagery of Schiphol. Marked in dark green is the **Terminal**, accessible to passengers.

Within the terminal, another important distinction exists. After check-in, departing passengers pass through security screening. Departing passengers that have been checked at security for prohibited items that could risk the safety of a flight, are deemed safe and may pass through. This checkpoint divides the terminal into **Landside** and **Airside**, marked respectively in orange and gold.

The security boundary is not only a distinction between safe and unsafe; it also forms a clear shift in passenger behaviour.

Before security, passengers are generally task-oriented and time-conscious, focused on procedures such as check-in. After security, behaviour tends to relax. With the most time consuming part behind them, and the risk of missing a flight reduced, passengers are more open to browsing shops, eating, or resting.

### Project Scope

Because of the strongly varying needs and complexities of Landside and Airside, together with the limited timeframe of this graduation project, we limited our scope to Schiphol Terminal Landside. As this is where Schiphol noticed passengers struggling the most with finding assistance.

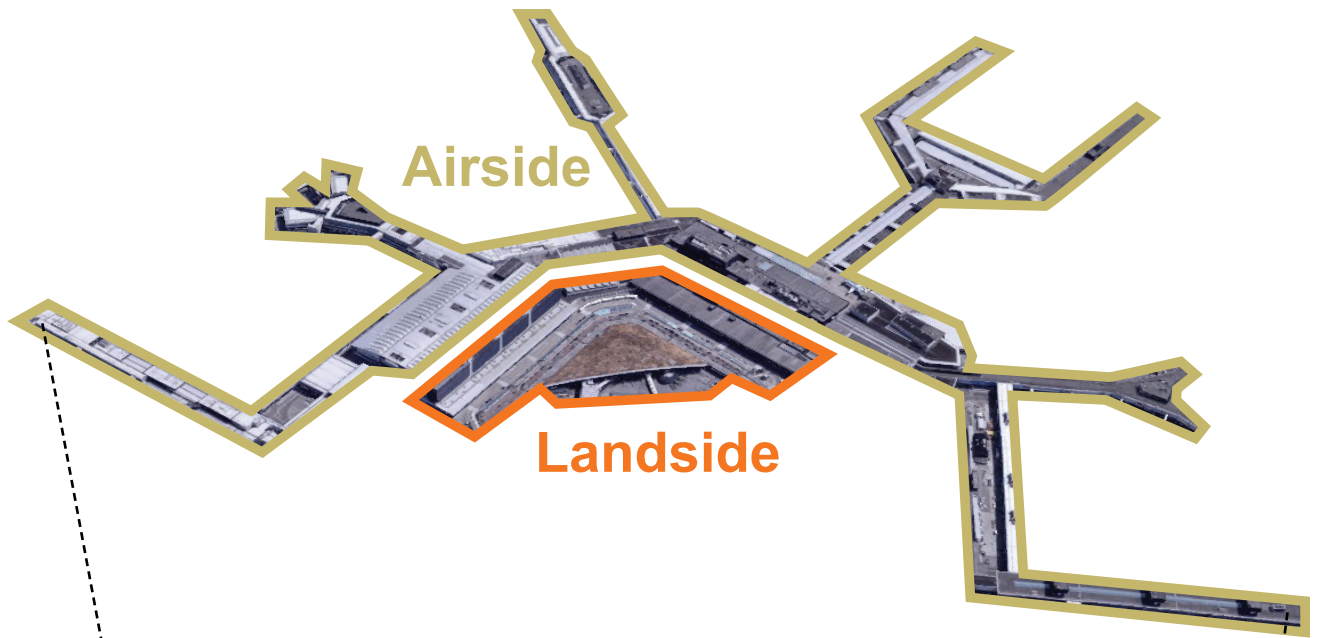


Figure 1: Google earth view of Schiphol zoomed in on the scope of this project: Landside

# 1.2

## Finding Assistance

### Assistance Strategy

Schiphol's general strategy is to accommodate diversity through variety. Across the terminal, passengers encounter a wide range of options: budget and premium restaurants, quiet areas and lively cafés, shared benches or exclusive lounges. The underlying principle is clear: provide enough variation so that everyone can find something that fits their needs.

This same approach is applied to the passenger assistance services. For each need there is a specific service and location as seen on Schiphol's floorplan in [figure 2](#).

- Lost your bag? Retrieve it at the Lost&Found in Schiphol's basement (-1).
- In need of mobility assistance? Request so via intercoms at all entrances, or make your way over to the mobility assistance desk in the Departure halls (+1).
- Not sure where the McDonalds is, or where to buy tickets for the train? Take a look at the Self-Service Units (SSU's) positioned in the corner of Plaza (0).
- Looking for your flight information? Flight Information Displays (FID's) are placed all over the airport.

### The Suspected Problem

The Customer Care department of Schiphol, noticed that their passenger satisfaction scores started to dwindle. Upon researching its cause they encountered the following problem: Assistance-services are scattered across several locations within the terminal. Passengers frequently struggle to quickly locate their desired assistance, turning to the ambulant staff instead. These employees, who's primary task is not answering

passenger questions, can rarely solve the issue directly and must redirect passengers to the appropriate service. This fragmented assistance results in unnecessary walking, repeated explanations, a loss of time, and growing frustrations. While simultaneously taking up valuable time of the ambulant staff. What should be a reassuring moment of support instead becomes a source of friction.

This led Schiphol to propose a solution direction for this fragmentation in assistance. As they are required to have a physical mobility assistance desk within the airport, why not integrate all assistance services into one physical Passenger Service Point (PSP)? This could be a one-stop hub for all passenger support. Such an integration could simplify the assistance journey, reduce questions directed at ambulant staff, and improve the overall passenger satisfaction.

### The Assignment

From this solution direction, the graduation assignment was formulated:

*Design the passenger interaction for an integrated Passenger Service Point concept, improving the passenger experience while alleviating ambulant staff at Schiphol Terminal Landside.*

#### Project goals

1. Improve the passenger experience
2. Reduce the number of assistance questions directed at ambulant staff

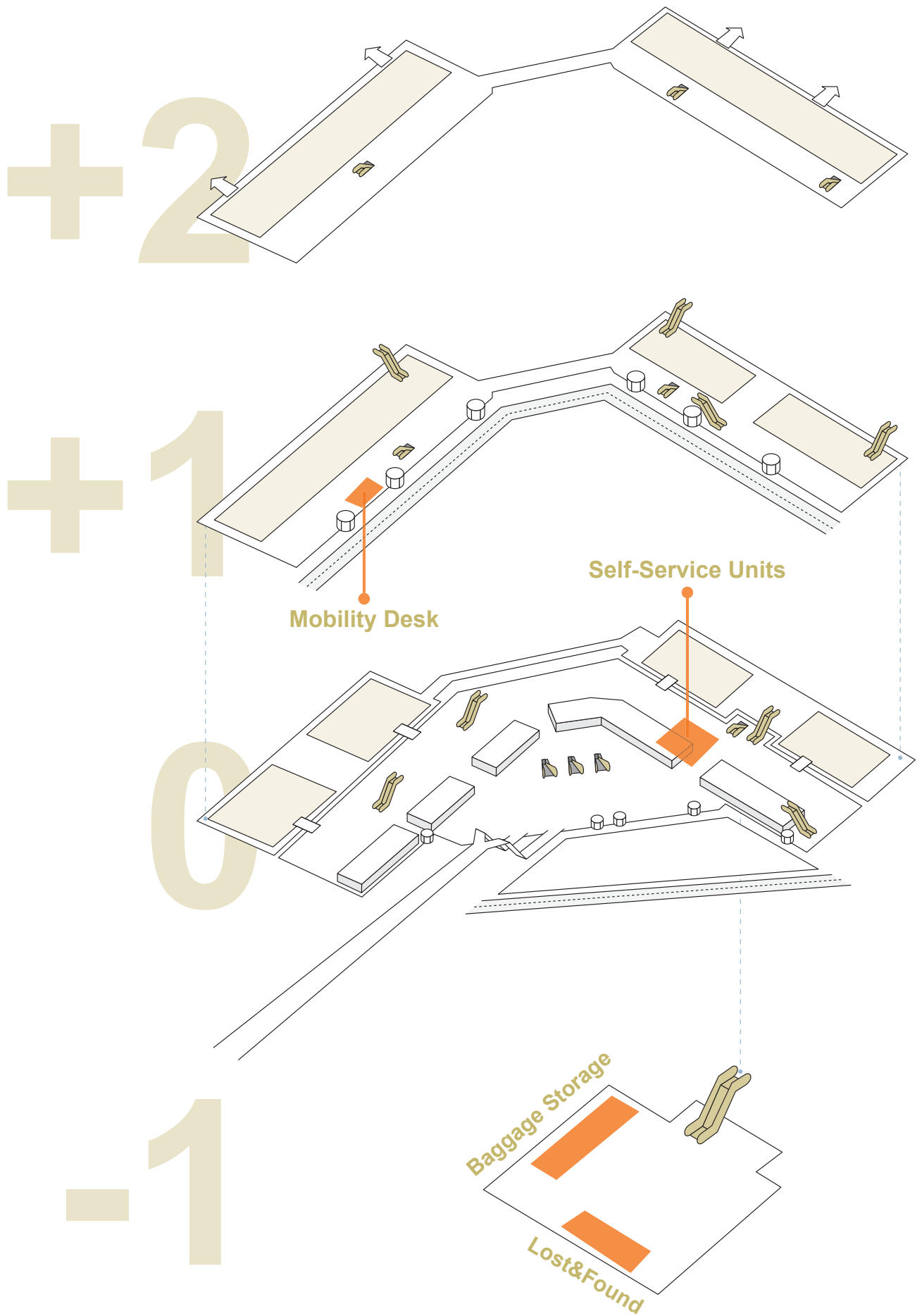


Figure 2: Floorplan of Schiphol Terminal Landside with its different service locations

# 1.3

## Project approach

### Visualising the Design Process

Two design process guide the structure of this project. The first is a widely used format: the Double Diamond. Two diamonds illustrate how first we diverge to explore the context, then converge to synthesise insights, diverge again to ideate, then finally converge toward a final concept. This model highlights the importance of the early phase, where the stated problem is critically examined to ensure the project addresses the core issue rather than a symptom.

However, the Double Diamond has a limitation: it looks deceptively linear. In practice, design is messier — fluid, iterative, and at times chaotic. Process often requiring stepping backward before moving forward. Over time, design intuition helps tame this chaos into a coherent trajectory. This dynamic is better captured by Damien Newman’s “design squiggle,” which visualises the gradual transition from ambiguity to clarity (Newman, 2002).

By overlaying these two models, this project benefits from both: the structured planning of the Double Diamond while embracing the exploratory freedom of the squiggle (Figure 3)

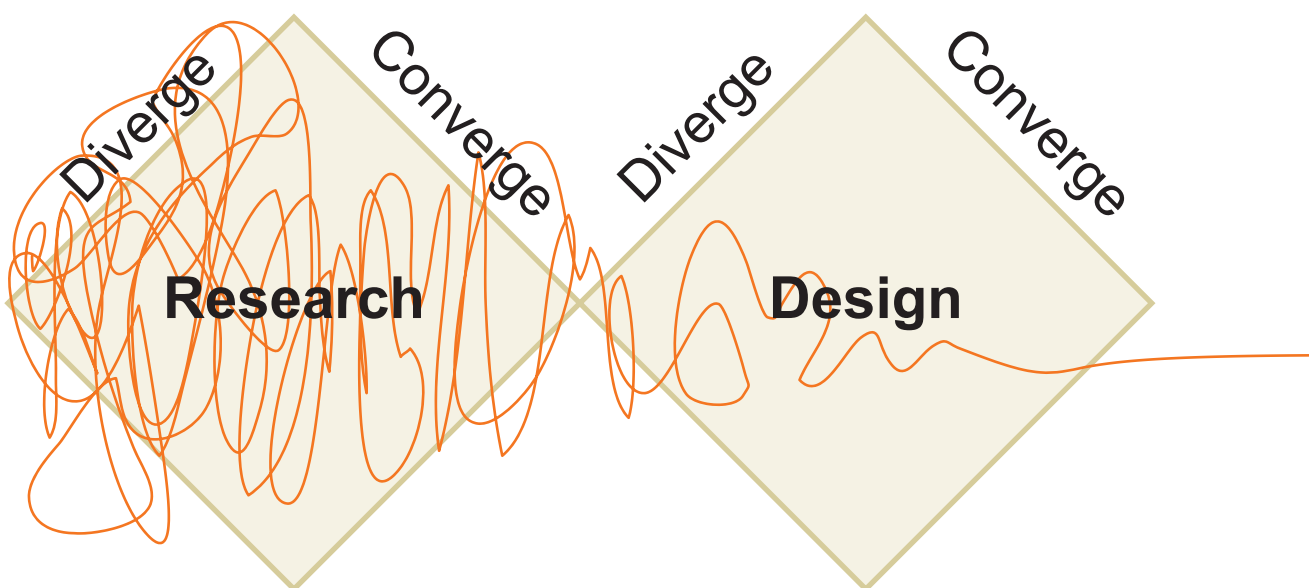


Figure 3: Combined design process visualisations

## The 1st Diamond: Research

Designing assistance for Schiphol requires more than solving an operational problem. It demands an understanding of how passengers think, feel, and behave within one of the most complex public environments in the Netherlands. For this reason the research phase was structured to build a layered understanding of the passenger experience. Multiple complementary methods were used to capture both the observable behaviour of passengers and the underlying emotional mechanisms driving that behaviour. This included:

- **Extensive in-situ observations** across the terminal to identify behavioural patterns, stress indicators, and recurring moments of confusion or hesitation.
- **Clustering of Passenger Experience feedback**, revealing the most common frustrations and emotional pain points expressed by travellers.
- **Analysis of Self-Service Unit data**, providing insight into the most frequently searched topics and the information passengers struggle to find independently.
- **Scenario walkthroughs of all existing assistance services** (Lost&Found, Baggage Storage, Mobility Assistance, Self-Service Units), allowing a first-person understanding of the friction points within each service journey.
- **Field visits to operational environments** such as the Lost&Found basement, Baggage Storage, and the behind-security Video Call Centre, offering insight into the constraints and realities of current assistance operations.
- **Mapping of journey types** (departing, arriving, visiting) to understand how goals, stressors, and information needs shift throughout the terminal.
- **Assessment of fundamental needs for Schiphol's five passenger archetypes**, connecting passenger archetype behavioural tendencies to deeper psychological drivers.
- **A broad literature review** covering stress and cognition, behaviour in shared spaces, crowd psychology, spatial perception, wayfinding, self-service experiences, and the emotional impact of growing digital assistance resulting in depersonalisation.

Together, these methods created a comprehensive picture of the passenger experience, revealing not only what passengers struggle with, but why these struggles occur.

At the end of the first diamond, we converged these insights to identify recurring patterns. This was done through thematic clustering and cross-referencing observations with PX feedback, SSU data, and literature. Many passenger difficulties were not isolated incidents but symptoms of systemic stress accumulating throughout the journey.

To interpret these emotional dynamics, the project applied the 13 Fundamental Needs framework (Desmet & Fokkinga, 2020). This lens made it possible to understand how unmet needs contribute to stress and shape behaviour at Schiphol Terminal Landside. This analysis ultimately led to the identification of stress pools; predictable clusters of stressors that affect passengers across all journey types.

## The 2nd Diamond: Design

The design phase translated these insights into actionable directions. Stress pools were converted into design principles, each targeting a specific emotional or cognitive barrier. These principles guided ideation and ensured that emerging concepts addressed the root causes of stress rather than its symptoms.

An analogy — “seeing your parents in the crowd during your school play” — was developed to articulate the desired emotional quality of assistance. This analogy informed the development of a new vision on offering assistance at Schiphol, which in turn led to the development of a concept. This concept transcends the solution of fragmentation, ensures more empathic assistance, and reduces stress at Schiphol Terminal Landside.

## Onwards

To explore why assistance is so frequently needed, we must understand how passengers experience the terminal itself. This shifts the focus from the organisation of services to the behaviour and emotional state of the people who use them.

# Chapter 2

## Understanding the Passengers





“Be careful of the stress pools honey”

# 2.1

## Types of Journeys

### Understanding Passenger Behaviour

Schiphol serves millions of passengers each year. They differ widely in age, language, culture, travel experience, and purpose of travel. Attempting to define their needs based on demographic characteristics quickly proves ineffective: a young traveller may feel just as uncertain as an elderly one; a frequent flyer may still become disoriented in a crowded terminal; a local visitor may struggle just as much as an international tourist.

In such a diverse context, who passengers are turns out to be less informative than what they are trying to accomplish. Schiphol themselves have encountered this issue, resulting in the creation of five Passenger Archetypes:

1. *Comfort Seeker*
2. *Autonomous Traveller*
3. *Carefree Enjoyer*
4. *Efficient Traveller*
5. *Mondaine Shopper*

Detailed descriptions can be found in [appendix A](#).

Another way to make behaviour more predictable is by viewing it through the lens of a passengers journey type. The goal of the visit determines how passengers move through the terminal, which locations they encounter, what information they seek, and when they require assistance. The journey, rather than the individual, structures their actions.

Both approaches will be applied throughout the project to guarantee that the concepts address the needs of all passengers.

### Distinct journeys Through the Same Building

Although all passengers share the same physical environment, they experience fundamentally different routes through it.

#### **Departing passengers**

Their primary objective is progression. They move from drop-off or public transport to check-in and security as efficiently as possible. Time pressure dominates their behaviour, making them highly sensitive to queues, unclear information, or unexpected detours.

#### **Arriving passengers**

After landing, their focus shifts to completion. They collect baggage, orient themselves toward ground transport, and often seek immediate basic facilities such as toilets, food, or meeting points. Their goal is to leave the terminal quickly and smoothly.

#### **Transfer or layover passengers**

These travellers balance time and exploration. Depending on their connection window, they may search for amenities, food, or short excursions, while simultaneously monitoring departure information. Their behaviour alternates between relaxation and vigilance.

#### **Visitors (pick-up and drop-off)**

Visitors rarely engage with the full airport process. They prioritise accessibility and short stays: parking, meeting points, or waiting areas. Their needs are practical and location-specific.

## A Building of Functional Layers

These behavioural differences are reinforced by Schiphol's spatial organisation. The terminal is structured into distinct functional layers:

- 0 Plaza: shopping mall and transport hub
- +1 Departure Hall: drop-off and check-in
- +2 Security: transition to Airside
- -1 Baggage Basement: Lost & Found and Baggage Storage

Each layer introduces new tasks, new decisions, and new stressors. When analysing assistance requests from the Self-Service Units, passenger feedback surveys and video call requests, we determine that most questions amounts to a small set of functional needs: troubles with navigating the airport, sourcing flight information, using transport connections, locating hotels, and general information questions.

These needs are not tied to who the passenger is, but to where they are in their journey or what has happened to them. A departing passenger asks about security queues; an arriving passenger asks about trains; a passenger who lost their bag asks about the Lost&Found.

## From Different Journeys to Shared Experience

While routes and goals differ, one observation remains consistent across all journey types: navigating the airport requires continuous decision-making under time pressure. Whether departing, arriving, or visiting, passengers must repeatedly interpret information, choose directions, and adapt to uncertainty.

Although passengers move differently through Schiphol, they share the same underlying vulnerability: Across all journeys a sequence of constant cognitive demands causes a steady rise of stress levels, impairing passengers' ability to process information and increasing their reliance on assistance. This concept is explored further in the next section.

# 2.2

## Observing stress

### Why Passengers Struggle?

The journey types described in the previous section reveal how passengers move through Schiphol, but they do not explain why many of them struggle, hesitate, or seek help. To understand this, we must look at the emotional and cognitive state in which these journeys take place.

Across observations, passenger experience feedback, Self-Service Unit (SSU) data, research literature, and conversations with Schiphol staff and passengers, one pattern consistently emerged: Passengers navigate the terminal under elevated stress.

Research supports this pattern, stating that experiencing stress at the airport is near-universal and often contributed by passengers to a fear of missing their flight (Denstadli, 2004; Cohen & Gössling, 2015; Akgunduz et al., 2020; Wensveen, 2020). This fear stems from experiencing a lack of physical and/or cognitive capabilities.

### Stress Reduces Passengers' Abilities.

Research shows that stress has a direct impact on cognitive functioning. It reduces the working memory, impairs information sourcing and processing, narrows the attentive vision, and increases reliance on emotional and impulsive decision making.

(Liu, Zhong & Zhu, 2025; Mendl, 1999; Arnsten, 2009; Shields et al., 2016)

We simplified and visualised these effects in figure 4. Our brains have finite space to process information. When stress grows (*number 3*), the space for other tasks (*numbers 1 & 2*) more difficult to complete.

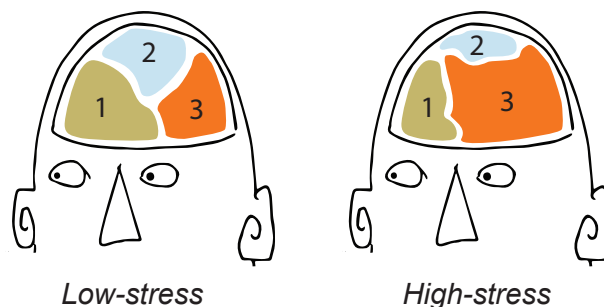


Figure 4: showing finite cognitive capacity in low and high stress situation

At Schiphol Terminal Landside we observed the behaviour of passengers under stress to show clear signs of:

- Overlooking signage
- Struggling with simple instructions
- Forgetting previously known information
- Repeatedly checking the same details
- Seeking reassurance even when information is available
- Reacting emotionally

These negative implications on cognitive capabilities are the very factors that reduce the experienced capabilities of passengers who fear for missing their flight. A vicious cycle emerges in which rising stress reduces a passenger's perceived capabilities, increasing their fear of missing their flight, which in turn raises their stress levels once more.

## Stress: The Underlying Problem.

The initial problem framing of this project focused on the fragmented nature of the assistance services at Schiphol. Assistance is currently distributed across separate desks, counters, and touchpoints. Passengers who require help must actively search for the right service, repeat their story, or navigate between systems.

However, as the research progressed, it became clear that this fragmented assistance experience affects **only a subset of passengers** at Schiphol Terminal Landside: those who explicitly require help and seek assistance.

Stress at the airport, however accumulates throughout the passenger's journey turning into a debilitating cycle. **It is experienced nearly by all passengers throughout every step of the journey.** This near-universal and continues accumulation of stress will be referred to as **Baseline Stress**.

## Focus on Baseline Stress

This shift in focus, from isolated stressful events to the continues emotional and cognitive state of the passengers allows us to recognise locations and times during the journey when Baseline Stress emerges prevalently.

A reasonable question arises: why, omit acute stressful events — such as, losing a bag or having a flight cancelled — when passengers experience them much more dramatically?

The answer lies in **visibility** and **reach**.

We already discussed reach, where Baseline stress impacts nearly every passenger, acute stressful events only effect the passenger that is experiencing them.

Visibility relates to how Baseline stress is easily overlooked, and thus remains largely unaddressed. Passengers move through the terminal in a steady state of low-level tension without recognising it. When asked why their journey was stressful, they often only name the acute stressful events that made the 'stress bucket' spill over, not the continues contribution of Baseline Stress that filled the bucket in the first place. Reducing baseline stress will allow the few that do run into acute stressors, be in a calmer state of mind to better deal with those events with the assistance services offered by Schiphol.

## Shaping Stress Pools

Across research and observations, it became clear that Baseline Stress emerges predictably from specific moments, environments, and interactions throughout the journey. Certain factors consistently triggered stress across different passenger types, suggesting that these were not isolated incidents but structural patterns within the terminal. By mapping these recurring stress-inducing situations, we were able to identify the underlying clusters from which Baseline Stress most commonly emerges. These clusters form the foundation of what we call Stress Pools

# 2.3

## Stress Pools

### Stress Pools

Baseline Stress gradually rises through the accumulation of small frustrations. Much like tidal pools that form where water collects in natural depressions, these minor frictions gather and concentrate into recognisable pockets of stress.

When observing passengers through this lens, clear patterns emerged. Across journey types and traveller profiles, the same clusters of stress repeatedly surfaced. At Schiphol Terminal Landside, six prominent Stress Pools were identified: **Environmental Overload, Time Pressure, Social Evaluation, High Stakes, Low Agency, and Orientationally Demanding**. On the next page a more detailed description is given for each of these Stress Pools.

A crucial distinction guided the identification of these pools: **To qualify as a Stress Pool, a stressor had to be system-dependent rather than person-dependent.**

For example:

- Fear of flying affects only a subset of passengers → person-dependent
  - Environmental overload affects everyone in the terminal → system-dependent
- System-dependent stressors are those that Schiphol can influence at scale through the design of its terminal, services, and interactions. In contrast, the fear of flying is a person-dependent stressor. While it can be alleviated through design, it can only be eliminated by the person who's experiencing the fear.

### Need Frustration

Just as stress pools cause the experienced Baseline Stress. Need frustration forms the foundation of the stress pools (figure x). Research in humanistic psychology shows that human behaviour is driven by the desire to fulfil fundamental psychological needs (see Desmet & Fokkinga, 2020). When a design supports need fulfilment, it feels satisfying, easy, and calming. When it thwarts need fulfilment, it feels frustrating, difficult, and stressful. It is this very need thwarting that is causing negative emotions and widespread frustrations during the passenger journeys at Schiphol Terminal. By paying closer attention to those frustrating moments, we can redesign them into fulfilling and satisfying interactions, thereby removing their contribution to the passengers stress levels.

The next chapter illustrates how these fundamental needs impact our experiences, and analyses which needs have a significant impact within the context of Schiphol Terminal Landside.

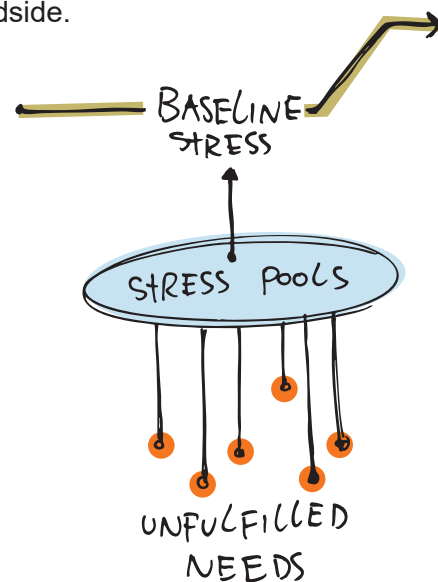


Figure 5: The underlying layers of Baseline Stress

# The Stress Pools at Schiphol Terminal Landside:



**Time pressure:** "I feel rushed and pressured because I have a flight to catch."

	KO 362	24	Delayed 15:48	3
	VY 8364	1A	Delayed 13:55	1
	D8 2039	27	Delayed 16:10	3
	DL 9356	6 - 8	Cancelled	1
atwick	EZY 8680	26	Delayed 16:35	3
ate	AZ 121	1A	Cancelled	1
	KL 1305	6 - 8	Delayed 12:50	1
	DL 9628		Cancelled	
	CI 9269	1A	Cancelled	1
	AC 809	28,30		3
	KQ 1187	6 - 8	Cancelled	1

**Low agency:** "I have little control over my journey or the factors that could delay me."



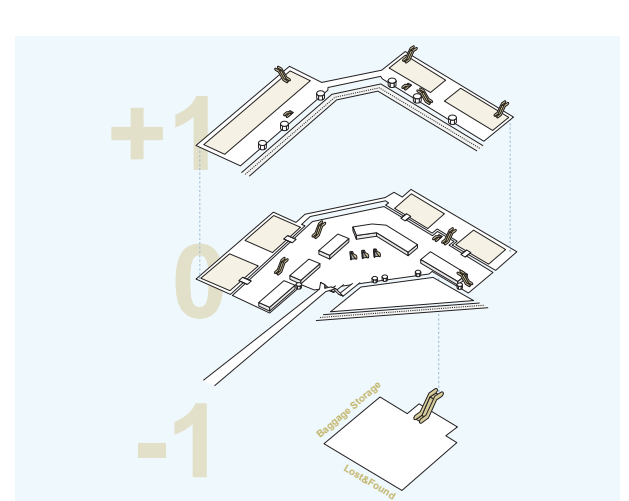
**Environmental overload:** "My surroundings are overstimulating me; I can't think clearly."



**High stakes:** "Missing this flight would cost me emotionally, financially, and logistically."



**Social evaluation:** "People are waiting behind me; I cannot take my time to figure this out."



**Orientationally demanding:** "The buildings layout is unintuitive, requiring constant orientation"

# Chapter 3

## Fulfilling the Passenger's Needs





“Mix, mix mix!  
All the ingredients for a happy passenger”

# 3.1

## Fundamental Needs

### Fundamental Needs

The previous chapter showed that stress at Schiphol accumulates in consistent ways, forming stress pools that affect passengers across all journey types. To understand why these stressors can have a strong emotional impact, we must look at the deeper psychological mechanisms behind them.

Human behaviour is driven by the desire to fulfil fundamental psychological needs. When these needs are supported, people feel capable, calm, and in control. When they are thwarted, people experience frustration, uncertainty, and stress. This principle is central to the 13 Fundamental Needs framework developed by [Desmet & Fokkinga \(2020\)](#), which provides a structured way to understand how design evokes emotions and influences general well-being.

In the context of Schiphol, this framework can help to explain why certain situations — long queues, unclear signage, crowded spaces — can trigger strong emotional responses. These situations do not simply inconvenience passengers; they frustrate their fundamental needs. For Schiphol it is crucial to understand how unmet or thwarted fundamental needs impact the passenger experience.

### How Unfulfilled Needs Contribute to Stress

[Figure 6](#) on the next page, is a picture taken while walking the arrival route at Eindhoven Airport. Upon landing, passengers are directed through a long, outdoor corridor formed by metal gates and fencing. The confusing layout gives no perspective on how far they need to walk (A). Passengers are forced to walk in a line, not wide enough to overtake slower passengers (B). On the left one sees people entering the building, but the gates block access (C). To make matters worse the journey is outside with little to no protection from the elements (D) and the loud noises of the departing planes (E).

Imagine having to walk through these gates, after a long sleepless night in the pouring rain. Instead of a warm inviting “welcome to Holland”, one is greeted with an impersonal, operational coldness. It is no surprise that a passenger behind me exclaimed:

*“It feels like we are being herded towards a slaughterhouse”*

The design of this arrival route is directly thwarting the fulfilment of multiple fundamental needs — autonomy, competence, ease, security, relatedness — causing negative emotions and contributing to the overall stress levels of the passengers by making them feel less in control, capable and at ease.

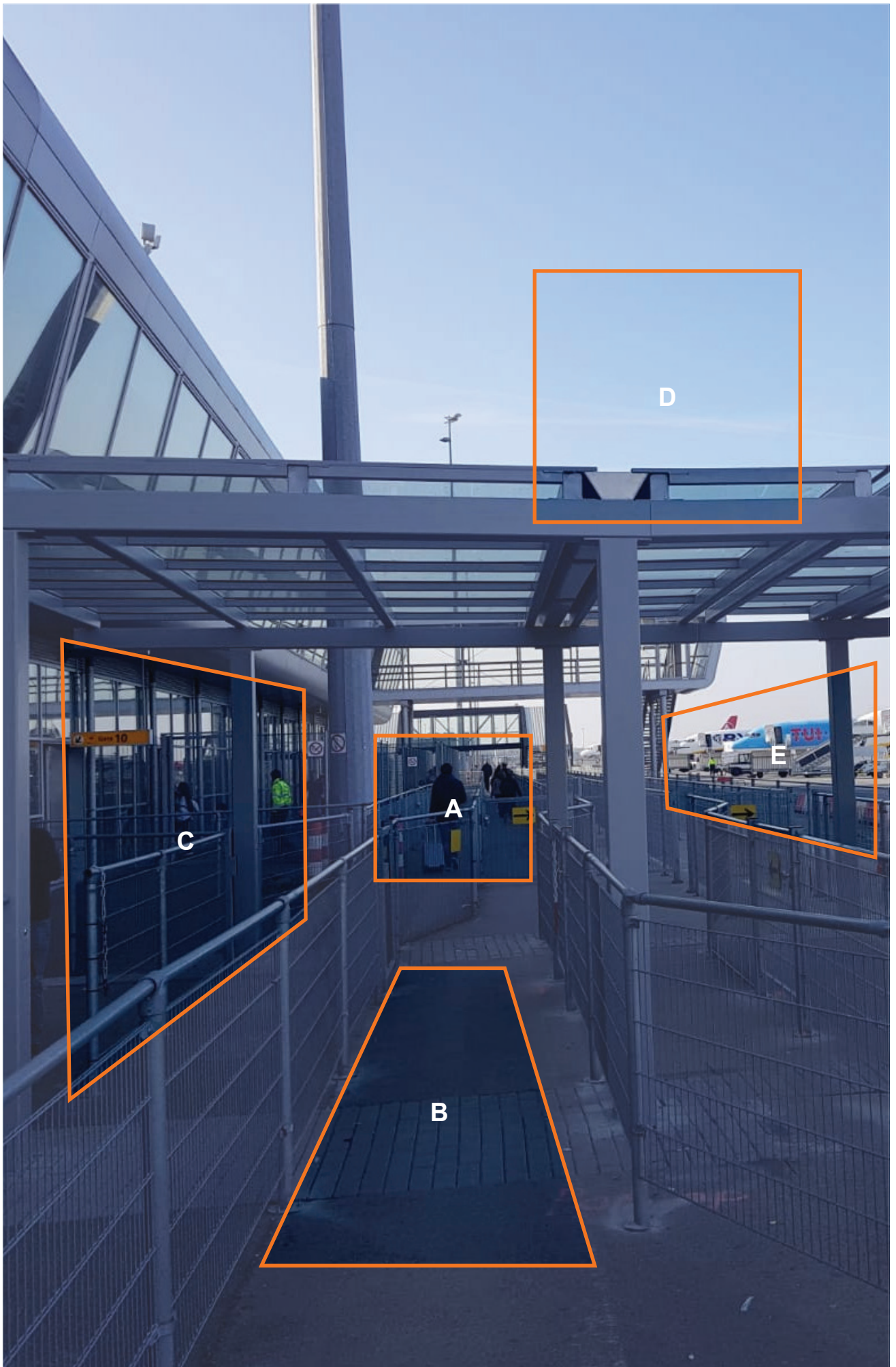


Figure 6: Arrival route at Eindhoven airport (picture from: Aa-Dee-Staalbouw)

# The 13 Fundamental Needs.

The following list of descriptions can be seen in more detail at [needtypology.com](http://needtypology.com) (Desmet & Fokkinga, n.d.) To make the long list of 13 needs more digestible we have placed them into three categories.

## Feeling capable:

These needs relate to feeling capable, safe, and in command of one's actions and environment.

1. **Security:** *Being safe from harm and threats, rather than feeling vulnerable, threatened, or insecure.*
2. **Autonomy:** *Having the freedom to make choices and do things your own way, rather than being constrained in what you do and who you are.*
3. **Competence:** *Using your skills to master challenges, seeing yourself improving, and having control over your environment, rather than being incompetent or ineffective.*
4. **Ease:** *Experiencing things as simple, convenient, and clear, rather than experiencing them as hard, effortful, or overstimulating.*
5. **Fitness:** *Having and using a body that is healthy, rested, and energetic, rather than feeling ill, listless, or weak.*

## Feeling connected:

These needs relate to belonging, social support, and meaningful interaction with others.

6. **Relatedness:** *Building and having warm and mutual relationships with people who you care about, rather than feeling isolated or being unable to form meaningful bonds.*
7. **Recognition:** *Getting appreciation for what you do and respect for who you are, rather than being disrespected, underappreciated, or ignored.*
8. **Community:** *Being part of and accepted by a social group or entity that is important to you, rather than feeling you do not belong anywhere and have no social structure to rely on.*

## Feeling meaningful:

These needs relate to enrichment and experiencing the world in a meaningful and engaging way.

9. **Stimulation:** *Having new and exciting experiences that engage your mind and body, rather than feeling bored, indifferent, or stuck in monotony.*
10. **Impact:** *Noticing that your actions or ideas affect the world and contribute to something, rather than experiencing your actions as insignificant.*
11. **Morality:** *Feeling that the world is a moral place where you can act in line with your values, rather than feeling that the world is immoral or your actions conflict with your values.*
12. **Purpose:** *Having a clear sense of what makes your life meaningful and valuable, rather than lacking direction or meaning in your life.*
13. **Beauty:** *Experiencing beauty, elegance, and sensory harmony in your daily life, rather than experiencing ugliness, chaos, or distaste.*

Dear reader,

To better understand these 13 fundamental needs, try exploring them yourself. Think of an activity in your life that gives you energy and joy. Which of the fundamental needs does this activity already fulfil?

Then take a look at the needs that remain unmet. Can you think of ways to shape or expand this activity so that it fulfils even more of these fundamental needs?

## The Most Urgent Needs

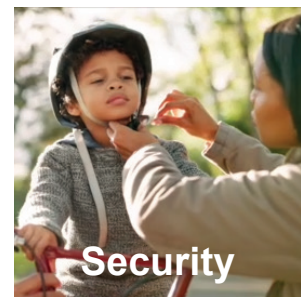
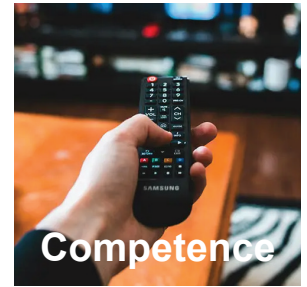
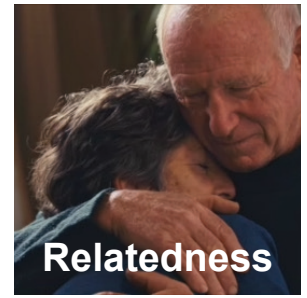
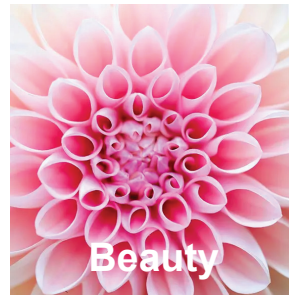
The 13 Fundamental Needs provide a broad psychological framework for understanding human behaviour. However, not all needs are equally relevant in every context. In an airport environment — especially one as complex and high-pressure as Schiphol Terminal Landside — certain needs are consistently challenged, while others play a more peripheral role. Additionally, the fulfilment of some needs cannot be meaningfully impacted by Schiphol Terminal Landside. For instance, Purpose

The 13 needs were examined through three complementary lenses in order to identify the most crucial needs at Schiphol Terminal Landside:

- **Journey analysis:** Analysing which needs are frustrated or supported during the many interactions of a departing, arriving, visiting, or transfer journey.
- **Passenger archetypes:** which needs support the natural travel behaviour of different passenger profiles set up by Schiphol User Insights.
- **PX feedback:** which needs passengers explicitly or implicitly express as unmet.
- **Interviews:** Asking people about their experiences at Schiphol and laddering down to reveal the fundamental needs thwarted or supported in those situations.

Across these perspectives, a clear pattern emerged. Despite their different goals and behaviours, passengers repeatedly struggled with the same emotional barriers. These barriers corresponded to six fundamental needs whose frustration had the strongest negative impact on their experience. These six needs form the emotional foundation of the passenger experience at Schiphol.

## The Six Crucial Needs:



*Image credits: needtypology.com*

Together, they create the acronym **BRACES**, a simple way to remember the emotional pillars that support a calm and capable passenger experience.

These needs are not abstract ideals. They directly influence how passengers behave, how they interpret information, how they respond to assistance, and how they feel. When these needs are supported, passengers feel more capable and less dependent on staff; when they are frustrated, stress accumulates and assistance becomes a necessity rather than a convenience. The next sections explore each of these six needs in detail, showing how they manifest at Schiphol, how they are currently frustrated, and how they can be fulfilled through design.

# 3.3

## Six Crucial Needs



Security refers to feeling safe, protected, and free from threats. At Schiphol, this need is challenged long before passengers reach the actual security checkpoint. The terminal environment is crowded, noisy, and full of time-sensitive procedures. Passengers worry about missing their flight, losing their belongings, or ending up in the wrong place. Even minor uncertainties — “Is this the right queue?” or “Am I going the right way?” — can trigger a sense of vulnerability.

When Security is frustrated, passengers become hyper-vigilant. Their attention narrows, they scan their surroundings more frantically, and they become less able to process information calmly. This makes them more dependent on reassurance from staff, even for simple questions.

Supporting Security means reducing uncertainty, clarifying expectations, and offering reassurance at the right moments.

### Fulfilled

When the need for security is fulfilled, passengers feel stable and reassured. They understand what is expected of them and trust that they will reach their gate on time. This confidence allows them to relax and engage more freely with the environment, for example by exploring amenities, shopping, or taking a break. Rather than rushing reactively, they move through the terminal with intention.

One way to support this need is by reducing temporal uncertainty. For example, a personalised planning tool within the Schiphol app could translate flight data and individual preferences into a clear, tailored schedule. By indicating how much time is available for each step — such as security, walking time, or optional activities—passengers gain reassurance that they remain on track. Such guidance transforms abstract uncertainty (“Do I have enough time?”) into concrete clarity (“You have 25 minutes to go shopping”), as seen in [figure 6](#) below, a visualisation of the app that shows a passenger they have time to go shopping!



Figure 7: Time schedule illustration



## 2. Autonomy

Autonomy is the feeling of being able to make one's own choices and move through the world on one's own terms. At Schiphol, this need is frequently restricted. Passengers must follow fixed procedures, stand in queues, and navigate predetermined routes. They often feel "pushed" through the terminal rather than guided.

When Autonomy is frustrated, passengers feel powerless and overly dependent on external cues. They hesitate, second-guess themselves, or repeatedly check information. Even confident travellers can feel constrained when they cannot choose their pace, route, or method of solving a problem.

### Fulfilled

When the need for autonomy is fulfilled, passengers experience a sense of ownership over their journey. They feel able to make choices, set their own pace, and decide how to navigate the terminal. Even within the constraints of the airport system, small opportunities for self-direction create a perception of control. This sense of agency reduces stress and increases confidence, enabling passengers to act more independently.

Supporting Autonomy means giving passengers a sense of choice, control, and self-direction — even within a highly regulated environment. For example, allowing passengers to choose between multiple queues, as seen in [figure 8](#) on the right, visualising the difference in experience of a passenger choosing their own queue.

Importantly, the value often lies in the perceived control. Even when alternatives perform similarly, or worse, the ability to choose reinforces agency and reduces feelings of helplessness. By embedding such moments of choice throughout the passenger journey, passengers become active participants in the system.

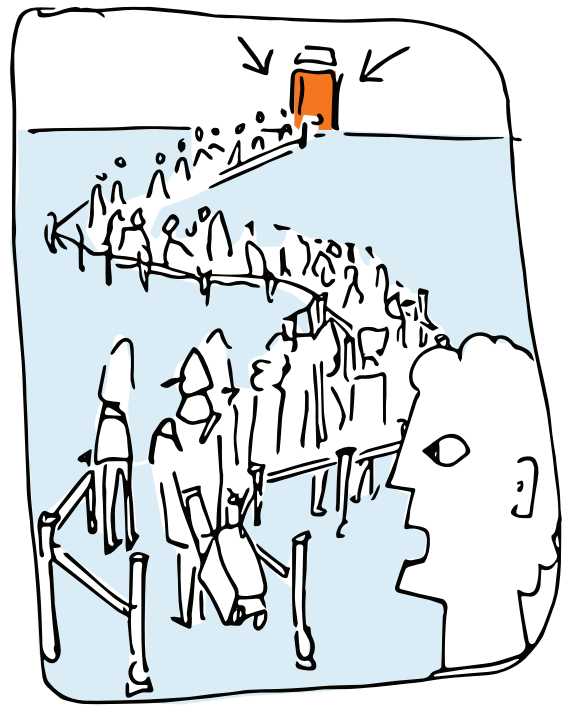
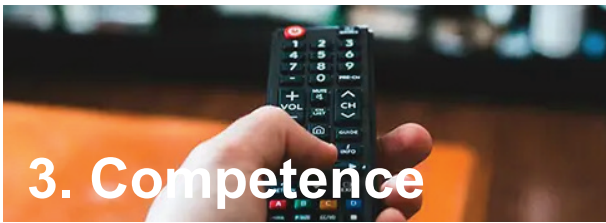


Figure 8: Long single queue illustration



Figure 9: Queue choice illustration



### 3. Competence

Competence is the feeling of being capable, effective, and able to handle challenges. Airports challenge this need constantly. Passengers must interpret signage, understand procedures, operate self-service systems, and make decisions under time pressure. For many, these tasks are unfamiliar or cognitively demanding. When Competence is frustrated, passengers feel confused or inadequate. They may avoid self-service options, rely heavily on staff, or become overwhelmed by simple tasks.

#### Fulfilled

When the need for competence is fulfilled, passengers feel capable and resourceful. They understand what is expected of them and trust their ability to manage each step of the journey. Successfully completing tasks independently, such as checking in, navigating to a gate, or resolving minor issues, reinforces this confidence. Supporting Competence means making tasks feel achievable, intuitive, and forgiving — especially for those who are already stressed. For example, intuitive self-service touchpoints can allow passengers to independently resolve common questions or tasks. When these interactions are clear, forgiving, and easy to complete, they create small but meaningful experiences of success.



Figure 10: Self help illustration



### 4. Ease

Ease refers to experiencing clarity, perspective, simplicity, and low effort. Schiphol Terminal Landside is a visually and cognitively dense environment. Quickly becoming overwhelming due to the multiple layers of signage, commercial stimuli, noises, and crowds. When Ease is frustrated, passengers experience their journey as an uphill battle, where everything requires their full focus and effort. Even moments of assistance will feel exhausting instead of comforting.

#### Fulfilled

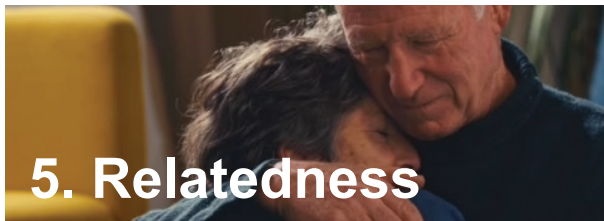
When the need for ease is fulfilled, interactions feel intuitive and fluid. Passengers who experience ease are calmer, more attentive, and better able to engage with their surroundings. As a result, they are less likely to feel lost or require assistance.

Supporting Ease means reducing unnecessary complexity, clarifying what matters, and helping passengers focus on the right information at the right moment.

A Schiphol personal assistant AI makes finding and interpreting flight information easier. A passenger can simply ask the AI how to get to their gates it will talk them through every step, while showing relevant information: "Here is your boarding pass, scan it at the gates in front of you and then take the stairs up to security. You have plenty of time so don't worry about the long queues".



Figure 11: Self help illustration



## 5. Relatedness

Relatedness is the feeling of being acknowledged, supported, and connected to others. In the airport context, this need is often overlooked. Interactions tend to be transactional, brief, or purely functional. Passengers may feel anonymous or alone in a stressful environment.

Yet PX feedback shows that even small moments of human connection — a smile, a joke, a reassuring tone — can dramatically reduce stress. Relatedness is especially important for passengers who feel lost, overwhelmed, or uncertain. When they encounter a supportive human presence, their emotional state stabilises, and their cognitive capacity increases.

### Fulfilled

When the need for relatedness is fulfilled, passengers feel seen, acknowledged, and supported. It reduces feelings of isolation and create a sense that someone is looking out for them.

Supporting Relatedness means designing assistance that feels human, empathetic, and emotionally attuned — even when delivered through systems or self-service tools.

Relatedness can be supported by making assistance visibly human and approachable rather than purely procedural. Importantly, these interactions do not always need to resolve a problem; their value often lies in communicating presence and care.



Figure 12: Mobile staff at Schiphol Terminal ([werkopschiphol.nl](http://werkopschiphol.nl))



## 6. Beauty

Beauty refers to experiencing sensory harmony, calmness, and aesthetic clarity. While it may seem secondary in a functional environment like an airport, Beauty plays a surprisingly important role in emotional wellbeing. Visual clutter, harsh lighting, and chaotic layouts can amplify stress, while calm, coherent environments can reduce it. At Schiphol, Beauty is often overshadowed by commercial stimuli and operational signage. Passengers move through spaces that are visually dense and cognitively demanding. When Beauty is frustrated, passengers feel overstimulated and fatigued.

### Fulfilled

Supporting Beauty means creating moments of visual calm — spaces that breathe, guide the eye, and offer a sense of orientation and relief

One way of doing this is to go back to the design of Schiphol from 1967. The interior designer Kho Liang Ie prioritised the passenger journey over visual expression. A strict spatial grid created order and predictability, where yellow navigation signs contrast the otherwise limited palette of whites and greys, making them highly visible. This approach treated the environment as a cognitive aid. By minimising visual noise, passengers could effortlessly distinguish essential information from the background. The architecture itself supported calmness, clarity, and flow.



Figure 13: Schiphol calm interior in the 1970's. (Meurs & Van Lent, 2019)

# Chapter 4

## Shaping a New Vision on Passenger Assistance





“I see... I see!  
Assistance that feels clear, caring and personal!!”

# 4.1

## The Feeling of Assistance

### From Needs to Emotional Direction

The previous chapters mapped the emotional landscape of the passenger experience at Schiphol. Stress accumulates throughout the journey, driven by predictable stress pools and the frustration of six crucial needs: Security, Autonomy, Competence, Ease, Relatedness, and Beauty. These insights shift the role of assistance from a purely functional service to an emotional one. To meaningfully improve the passenger experience, we must therefore define how Schiphol should emotionally relate with empathy to passengers in moments of stress.

This chapter translates these insights into a vision for empathic assistance at Schiphol Terminal Landside. The goal is not to design a single product or service, but to articulate the intended experiential effect that should guide all future design decisions. This vision acts as a compass: it defines how Schiphol should relate to passengers emotionally, and how assistance should intervene in their journey.

### The Analogy

Analogies serve as powerful tools for shaping a vision. They translate abstract emotional intentions into concrete, relatable experiences. From there, we can distill the interaction qualities that drive this feeling, which become concrete design directions during conceptualisation. An analogy does not describe what the design should be, but how it should feel and is free from the restrictions of the current context.

*“Seeing your parents in the crowd during your school play.”*

To illustrate the feelings in this analogy, I'll accompany it with a story and images (Figure 14).

*As the child walks on stage, his heartbeat quickens, his palms sweat, his eyes widen. The trumpet sounds, his queue to enter, he trembles and stutters, slowly making his way through his part, ever afraid of forgetting his lines. Weeks of practicing at home with his parents playing the other roles, steadily growing his skill and confidence. But tonight, with the spotlight shining brightly in his face, the words refuse to come... and the child becomes still. The child frantically digs through his memory while glancing over the crowd. Suddenly, within all those unfamiliar faces he spots his parents. Whether by their look or gesture, the child remembers his lines and is able to carry on. Gradually his nerves drop, knowing support is nearby, now and until the*



Figure 14: Analogy supporting images from the schoolplay scene in the movie: the Adam's family (1991) Where the parents, spotted in a crowd of strangers smiling proudly, give confidence to the boy.

very end of the play.

## Interaction Qualities

This analogy works as more than just an emotional metaphor. Its a source of concrete interaction qualities that can guide design decisions. Interaction qualities describe how support is experienced in practice: the observable behaviours and characteristics that make assistance feel reassuring rather than intrusive.

Three core qualities enable the feeling conveyed by the analogy: Feeling Supported, Showing Up, and Just for You.

### Feeling supported

In the analogy, the child regains confidence the moment he sees his parents. Their presence doesn't solve the problem for him, but it reassures him that he isn't facing the moment alone. This sense of support — sometimes silent, sometimes active — is what allows him to continue. The feeling arises not from intervention, but from knowing help is there if needed.

### Showing up

The parents' presence matters because it is visible. They are easy to spot in the crowd, unmistakably there for him. Their recognisable presence cuts through the overwhelming environment and becomes an anchor point. Support only becomes emotionally meaningful when it can be found at the exact moment it is needed.

### Just for you

What steadies the child is not just that someone is there — it is who is there. The support feels personal, familiar, and attuned to his situation. Their look, their gesture, their understanding of his struggle is directed at him specifically. It is not generic encouragement; it is support that feels meant for him.

With these interaction qualities we create a lens to see if interactions feel empathic. If a passenger does not experience the presence of the three empathic pillars in an interaction, then that interaction suffers from one or several of the Stress Pools and thwarts the fulfilment of the Crucial Needs. In the next chapter we discuss the empathic vision we strive to deliver and empathic lens to redesign interactions.

# 4.2

## Empathic Assistance

### A Systemic Solution

Empathic assistance starts from an understanding of the passenger's emotional and cognitive state. Instead of asking how to process requests more efficiently, it asks how interactions can make passengers feel capable, secure, and supported. Assistance becomes not merely a solution to problems, but a continuous source of reassurance and clarity.

When designed emphatically, assistance contributes directly to the fulfillment of the six crucial needs identified in this research. By being visible and approachable it strengthens Security and Relatedness. By enabling passengers to act independently it fosters Competence and Autonomy. By simplifying interactions and reducing overload it supports Ease and Beauty. Through these mechanisms, assistance no longer only resolves stress — it actively prevents its accumulation.

Empathic assistance therefore functions as a stress-reducing layer across the entire passenger journey. It is not confined to dedicated service points, but embedded in every interaction between passenger and airport. Whether digital or physical, human or automated, each touchpoint should communicate the same qualities: Showing Up, Feeling Supportive, and being Just for You.

### Empathic Vision

*“Empathic assistance that understands your situation, makes you feel seen and heard, and empowers you to move forward, while staying by your side.”*

### Empathic Pillars

Derived from the interaction qualities of the analogy, we established three pillars on which the empathic feeling is built. When all three pillars are present in a design, passengers will be supported in the fulfilment of the six Crucial Needs reducing the Stress Pools.

#### 1. Showing Up

Make assistance visible, recognisable, and reliably present throughout the journey. Assistance should remain by the passenger's side, always within reach. The presence of assistance — clearly identifiable across both physical and digital touchpoints — communicates care and reassurance. Assistance reduces uncertainty before stress emerges, by being easy to find and consistently accessible.

Addresses: Security, Relatedness, Ease

#### 2. Feeling Supported

Provide direct and indirect support that is quick, easy and empowering. Assistance should adapt to the passenger's capabilities. Whenever possible, it facilitates independence through clear information and intuitive self-service (indirect support), strengthening Competence and Autonomy. When situations exceed passengers' capacity, staff step in directly to collaborate and reduce effort (direct support), restoring Ease and Security. Together, these modes create a balanced experience that is both reassuring and empowering.

Addresses: Competence, Autonomy, Ease, Security

### 3. Just for You

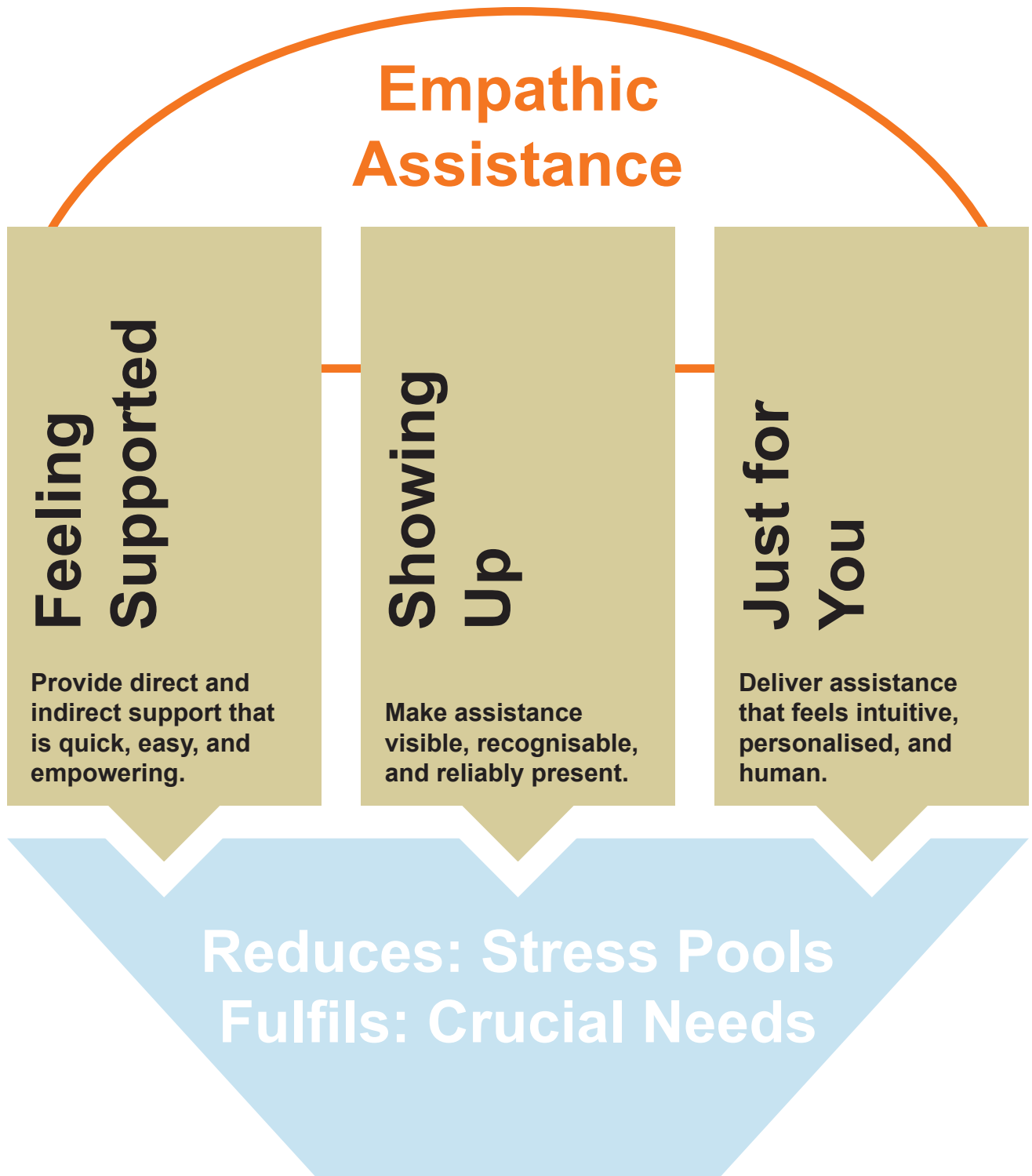
Deliver assistance that feels personalised, intuitive, and human.

Passengers should feel seen and understood as individuals rather than processed as part of a crowd. By tailoring information, creating space for one-to-one interaction, and shielding passengers from unnecessary disturbances, assistance becomes calmer, more relevant, and more meaningful. This personal quality fosters trust, dignity, and emotional comfort.

Addresses: Relatedness, Ease, Beauty

## Empathic Lens

The Empathic Lens below consists of the three Pillars that shape Empathic Assistance and support the fulfilment of the Crucial Needs while reducing the Stress Pools. By ensuring all three Empathic Pillars are present, we create a supportive, visible, and personally attuned assistance for every passenger.



# 4.3

## Empathic Relevance

In this chapter we will show that this new Empathic vision not only aligns but builds on to the current and future direction of Schiphol.

### Schiphol's Brand Values

In 2025 Schiphol introduced a new brand identity as part of their ongoing efforts to climb back to being one of the best rated airports in the world. This new brand identity aims to put the passenger experience at the centre, creating a calmer, clearer and more recognizable airport where travellers feel supported during the important moments of their journey (Schiphol, 2025).

Assessing their brand values shows that the Empathic assistance vision not only aligns with their values, but builds on to it.

(A New Brand for All of Schiphol, 2025)

“our airport should offer calm, clarity, and clear orientation. With the renewed visual identity, we are once again emphasizing that promise and ensuring recognizability across all expressions—from terminal screens to information on your phone.”

“The new brand promise centers on making a difference for the traveler. Today is the day is about the feeling travelers experience at important moments: the day of departure, arrival home, or reunion.”

“We want that day to unfold smoothly and pleasantly — with calm, clarity, and confidence.”

(The Schiphol Promise: Together We Make the Day, 2025)

These values form the foundation of the experience we create together: truly special, consistently high quality, and simply clear. And whenever possible, we aim to add a touch of wonder by going the extra mile, creating a lasting memory for a traveler or a colleague.

Their repeated goals for calm, clarity, clear orientation and confidence, shows they are actively trying to combat stress. Specifically, the Stress Pools of Environmental Overload and Orientation Demanding. They are aware of the negative impact stress has on the passenger journeys, however do not yet understand its full scale. They seem to be targeting the observable surface level effects, voiced by passengers; “I feel stressed”; “I cannot find my flight information”; “Everything about the terminal overstimulates me” (PX feedback survey, 2025). But have not yet nailed down the very origin of these claims. Doing so reveals 4 additional Stress Pools: Time Pressure, Low Agency, High Stakes, and Social Evaluation. The Empathic Assistance lens extends their scope in order to maximise their positive impact on the passenger experience and effectively reduce stress.

The absence of targets addressing the four additional Stress Pools identified in this research — **High Stakes, Low Agency, Time Pressure, and Social Evaluation** — indicates that Schiphol is not yet working from a structured understanding of the full set of factors shaping passenger behaviour and emotional state. Their current actions focus primarily on **observable, surface-level symptoms**. For example, recent efforts to

declutter the terminal — reducing contrasting visual styles and overstimulating information sources such as marketing campaigns — were initiated in response to growing passenger and employee complaints, rather than from an anticipatory recognition that visual clutter contributes to elevated stress levels. This pattern suggests that Schiphol is responding effectively to what people report, but not yet to the underlying mechanisms that produce those reports.

## A Snow Storm Crisis

The first week of January 2026 began with heavy snowfall at Schiphol, resulting in three thousand cancelled flights and leaving all affected passengers stranded in the terminal (de Lange, 2026). Queues stretched for hours, hotels filled up, and camping beds were placed in the terminal to accommodate those who had no place to go. When analysing the complaints that followed, two themes stood out. Passengers were deeply dissatisfied with the communication from airlines — an area outside Schiphol's control. The second theme, however, concerned Schiphol directly. Many passengers reported feeling abandoned, unseen, and unsupported, even while acknowledging the force majeure of the situation. Their frustration was not primarily about the cancellations themselves, but about Schiphol's limited presence and lack of visible care. To paraphrase two interviewed passengers:

*“There is no one around to speak to.”*

*“I am disappointed Schiphol is not offering water bottles to people who have been waiting for hours”*  
(AT5, 2026).

This crisis illustrates that in moments of disruption, passengers' needs shift from operational efficiency to emotional reassurance. What they needed first was a sense that Schiphol was present, attentive, and standing with them. Passengers judge the airport not only on operational performance, but on its **emotional presence**.

Crucially, this situation also reveals a deeper structural issue: Schiphol did not anticipate the factors that truly shape negative passenger experiences under stress. Had they been working from a structured understanding of the Stress Pools — particularly **Low Agency**,

**High Stakes, and Social Evaluation** — they would have recognised that passengers in crisis situations feel powerless, exposed, and uncertain. And they would have known that even small gestures of presence, guidance, and care can significantly reduce distress. In other words, they would have understood that showing up is not optional; it is the intervention.

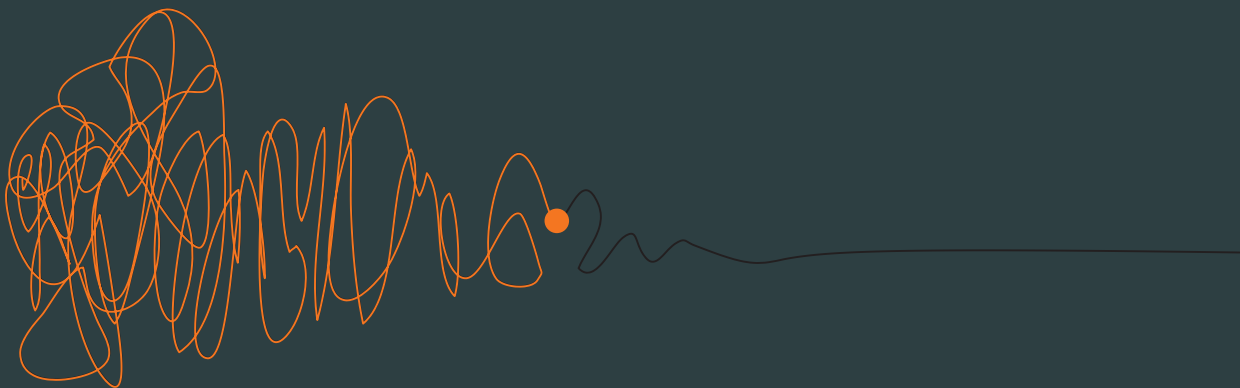
To the credit of the Passenger Experience department, a food stall offering free warm meals was set up on the final day of the crisis. This was exactly the kind of intervention passengers needed in that moment — visible care, presence, and support — though it unfortunately came too late to meaningfully shift the overall experience.

The snowstorm crisis therefore highlights the gap between Schiphol's current symptom-driven approach and the deeper, mechanism-driven understanding required to support passengers effectively. It demonstrates why the Empathic Assistance vision is relevant: it provides Schiphol with the strategic lens needed to anticipate emotional needs, not just respond to operational disruptions. With such a lens, Schiphol can develop crisis plans that include interventions targeted at the fundamental needs and Stress Pools most critical to maintaining a positive passenger experience in high-stress situations.

The next chapters will show how this new Empathic Assistance vision can be used to create a concept that aims to solve the encountered problems at Schiphol Terminal Landside: Improve the passenger experience, reduce the feeling of fragmentation, reduce the number of questions asked to ambulant staff, and reduce passenger's baseline stress.

# Chapter 5

## Ideating on Empathic Interactions





“Hands up if you have an idea!”

# 5.1

## Schiphol's Strong Suits

In the following chapters we show how the empathic assistance vision has been translated into a stress reducing and need fulfilling concept. In this concept we played into the current strong suits of Schiphol.

### Strong Suits

#### Empathic Brand Identity

Schiphol's brand identity plays into the pleasant and exciting emotions associated with travelling. The images they use show people waving, hugging, full of joy and anticipation. A clear example of their focus on emotions can be seen in their brand identity reveal campaign video: Today is the Day (Schiphol, 2025b)

The storyline, the imagery, the music, the colour scheme, everything echoes this focus on exciting and pleasant emotions. Sticking close to this brand identity will ensure that we represent this feeling across every level of the concept.

#### Mobile Assistants

A strong suit with a few flaws are the mobile assistants walking in the departure halls to assist passengers in need. During the research, none of the people we spoke to were aware of the existence of these mobile assistants. When shown a picture most people responded that they would not recognise them to be part of Schiphol, mainly due to their outfit. These people closely associate Schiphol with KLM and thus look for the blue KLM uniforms searching for assistance. They were unaware that the pink uniforms belonged to Schiphol employees (Figure 16). With the new brand identity of Schiphol, new uniforms are in the making, possibly improving this recognition.

Nonetheless, the physical mobile assistants not only serve as an effective interpersonal and truly empathic moment of assistance, but their presence also shows Schiphol truly cares about its passengers, enough to hire (expensive) humans instead of relying on digital solutions.

#### Information Filter

The website utilises a clear information filter. This filter shows a passenger the most relevant information depending on their journey type. This reduces the amount of information needed to interpret before finding what is relevant to them, hereby reducing environmental overload in a digital setting while supporting the fulfilment of Ease, Competence and Beauty.

#### Schiphol App

A person's phone is an immensely strong tool of assistance, being readily available in their pocket at any given moment. However, compared to the website, the app is miles behind in user friendliness and understanding of the passengers' needs. Currently the app has not been designed with the user's desires and needs in mind. It feels more like an information and services dump that 'perhaps could potentially' be useful for passengers. Its primary goal, functionality, target audience, and added value remain unclear to the people we spoke to.

However, an app still holds great potential in assisting passengers during their journey. Including it in the concept. Redesigning it with the Empathic Assistance vision, will allow us to draw out its full potential.

## Security timeslot

Another strong suit is the possibility to book a timeslot for security. This allows passengers to skip the queue at security, saving them, quite a bit of time and stress. This feature reduces Time Pressure and creates a moment of Agency in one's journey.

## Video call assistance

Schiphol's video call assistance service demonstrates a high level of empathy and personal support. During observations we even encountered a father and son memorialising their unique and enjoyable assistance experience by making a selfie with the video call assistant on the Self-Service screen. This shows how this form of assistance can really become a highlight in their journey.

In the next chapter we turn these strong suits, short comings, and design opportunities into empathic interactions which shape the new concept.

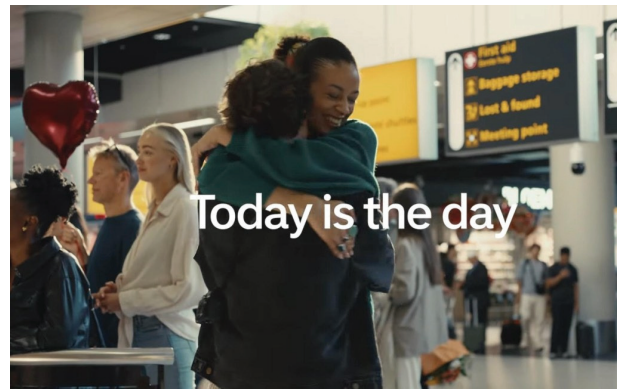


Figure 15: Today is the day, campaign video (Schiphol, 2025b)



Figure 16: Terminal assistant uniforms. (credits Schiphol)

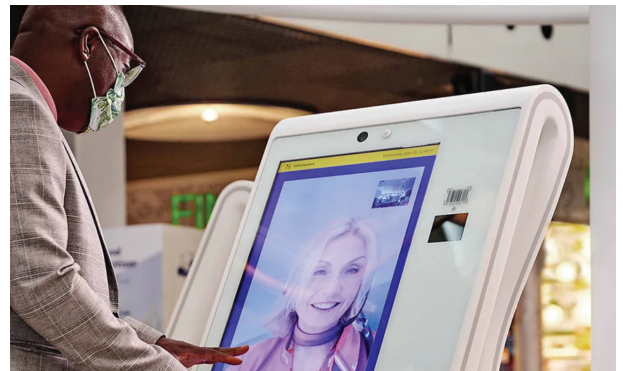


Figure 17: Schiphol Video Call assistance at a self-service unit. (credits Schiphol)

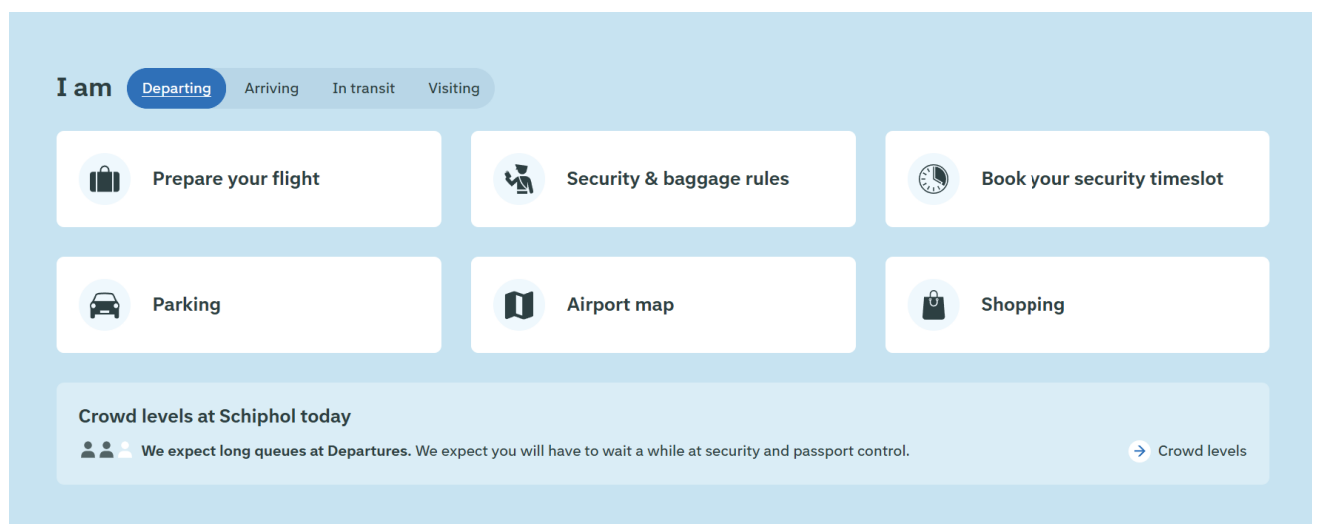


Figure 18: Schiphol website flight preparation information

# 5.2

## Ideation Sketching

### Discoveries

We explored possible interaction designs by ideation sketching with the empathic assistance vision in mind. Each interaction aims to reduce stress pools and support fundamental needs. These ideation sketches resulted in a few key empathic features and interactions that will be included in the concept.

#### Live Information

To aid in the need for constant reassurance, and agency, passengers should notice that every information source is constantly being updated; Walking distance durations and queue waiting times change depending on crowds; Flight information is visibly refreshing; Pro-active phrasing such as, retrieving gate number.

#### Assistance is Nearby

Assistance should not be searched for but simply grabbed. Using assistance satellites we can offer assistance anywhere at any given time for varying needs. A phone for quick assistance, A hub for tailored functions, a service point for staff assistance.

#### Stick out Quietly

Assistance points should be easily visible and recognisable. They need to be taller than the crowd and stick out on the chaotic environment of advertisements, wayfinding signs and mixed shopfront styles, without contributing to this visual clutter. A recognisable and familiar style for all assistance services, embodied in the environment as an embracing backdrop connecting the self-service units, digital wayfinding unit, and flight information displays to create one whole.

#### Protecting Domain

In order to protect the space in front of the assistance satellites we use a half round print on the floor. Passengers tend to walk around this, especially when someone using the space stands within. It is a simple nudge that guides the passenger flow around the satellite instead of through it.

#### Need Dependent Setup

The help resources present are dependent on the needs in high demand at that location. For instance, at arrivals where the focus lies on navigation and flight information, a digital wayfinding unit and flight information display takes priority over self service units.

#### Proudly Displaying Features

Every feature should be proudly displayed, not hidden behind complicated interfaces. Every possible function should be clear and present right away. For this reason we have placed video call right on the welcoming screen instead of behind a small and unrecognisable button. Its positive impact in delivering an empathic assistance is huge and should therefore be proudly displayed.

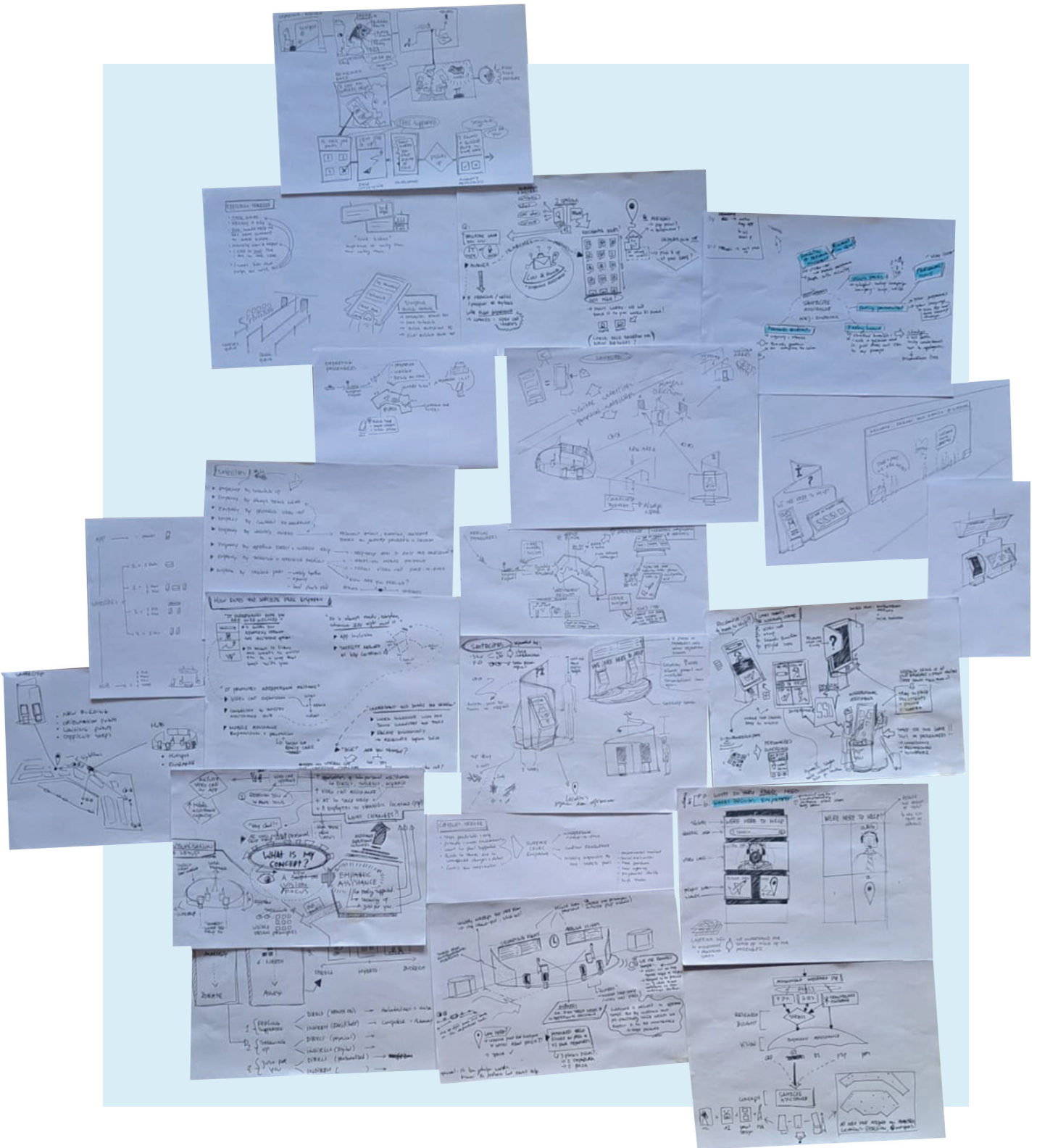
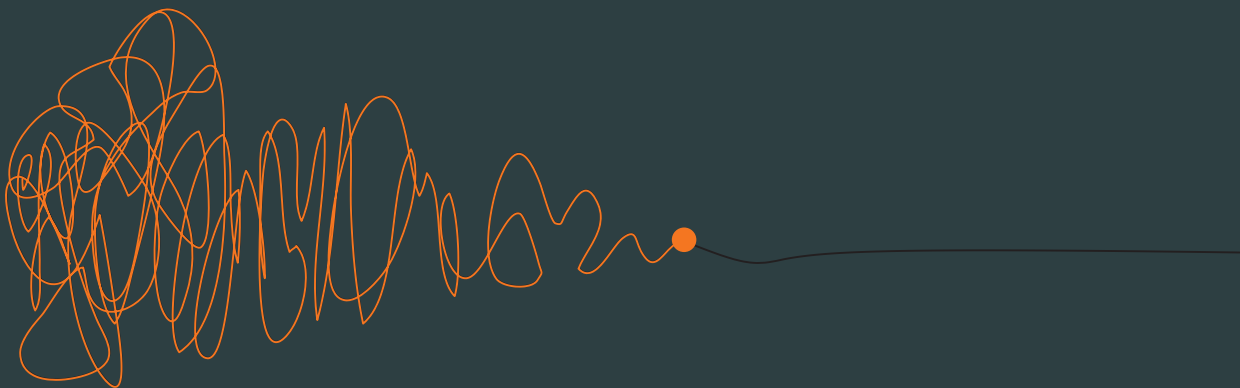


Figure 19: A collection of the most insightful sketches that will be used in the coming chapters

# Chapter 6

## The Concept: Empathic Satellites

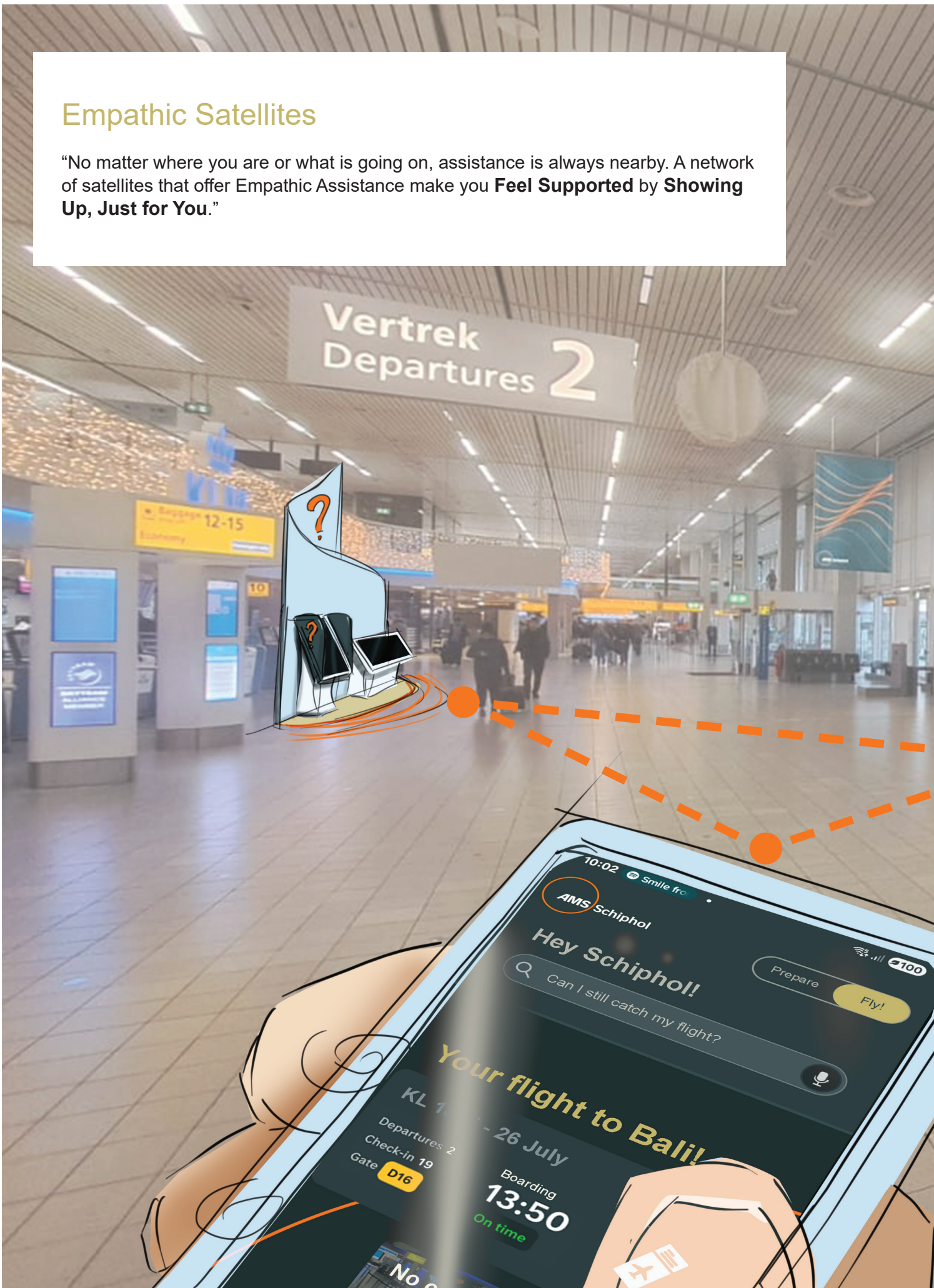




"In 3... 2... 1!"

## Empathic Satellites

“No matter where you are or what is going on, assistance is always nearby. A network of satellites that offer Empathic Assistance make you **Feel Supported** by **Showing Up, Just for You.**”





# 6.1

## Empathic Satellites

### The Concept

The concept introduces satellites of empathic assistance — a coordinated system of physical, digital, and human touchpoints placed at strategic locations throughout the terminal. (Figure 20)

**A. Satellite units** are calm, clearly recognisable assistance points placed in stress-intensive locations. They simplify orientation, reduce environmental overload, and provide immediate access to help without the social pressure of queues or crowds. Their design adapts to the needs of each location arrivals, departures, security, or transfer. They use a mixed array of the already effective Self-service units, Digital wayfinding units, and Flight information displays.

**B. The App as a Satellite** brings Schiphol's strongest digital tools into the journey itself. It offers context-aware reassurance, simple next steps, queue alternatives, and direct access to video call assistance. It acts as a personal anchor that travels with the passenger, reducing cognitive load and restoring a sense of agency.

**C. Satellite hubs** are placed near the entrances where the highest number of needs overlap. Where passengers in need of mobility assistance are welcomed and can rest before being picked up by personal assistants. Where passengers can always turn back to before passing through security. It integrates all assistant services such as Lost&Found, Baggage Storage, Mobility Assistance, and can answer any general information request.

**D. Human Satellites** are staff trained in empathic interactions. They are visibly present, approachable, and focused on restoring clarity before solving problems. Their presence reduces social evaluation, increases Relatedness, and provides emotional grounding in moments of uncertainty. They are always present at the Satellite Hubs, but can also be deployed around the terminal to support locally.

Together, these satellites create a supportive, recognisable, and emotionally understanding environment. The concept connects Schiphol's digital strengths to its physical weaknesses, reduces baseline stress, and frees up cognitive space so passengers can better handle unexpected disruptions. The concept does not replace existing services; it amplifies them, making assistance visible, accessible, and emotionally attuned throughout the terminal.

This is one possible expression of empathic assistance at Schiphol — a needs-driven, environment-wide approach that transforms the emotional landscape of the airport. In the coming chapters we showcase each independent satellite, discuss its purpose, its redesigns and show how they cater to the five Schiphol Archetypes — Carefree Enjoyer, Autonomous Traveller, Mondaine Shopper, Comfort Seeker, Efficient Traveller. Detailed Archetype descriptions can be found in [Appendix A](#).



Figure 20: Illustration of the Satellite concept in context.

# 6.1.1

## Satellite: Unit



### Purpose

Schiphol's Self-Service Units already had great empathic elements and the service as a whole strongly supports the fulfilment of autonomy and competence. Flight Information Displays offer crucial information, and the soon to be added Digital Wayfinding Units give more depth to the current static maps. However, when taking a critical look at the interactions through the empathic lens we notice that there are several improvement opportunities.

The detailed design interventions are shown on the next page.

### Caters to

Caters to passengers that prefer not to use the app, or are unaware of its existence, and are in need of quick, low-effort, self-service solutions situations without waiting on staff assistance. Motivations fitting Autonomous Travellers with their preference in self-help, Carefree Enjoyers also finds the unit useful, as it allows them to obtain essential information quickly so they can return to exploring the airport environment. Across these archetypes, the unit supports fast decision-making, autonomy, and frictionless navigation.

### Feasibility and Viability

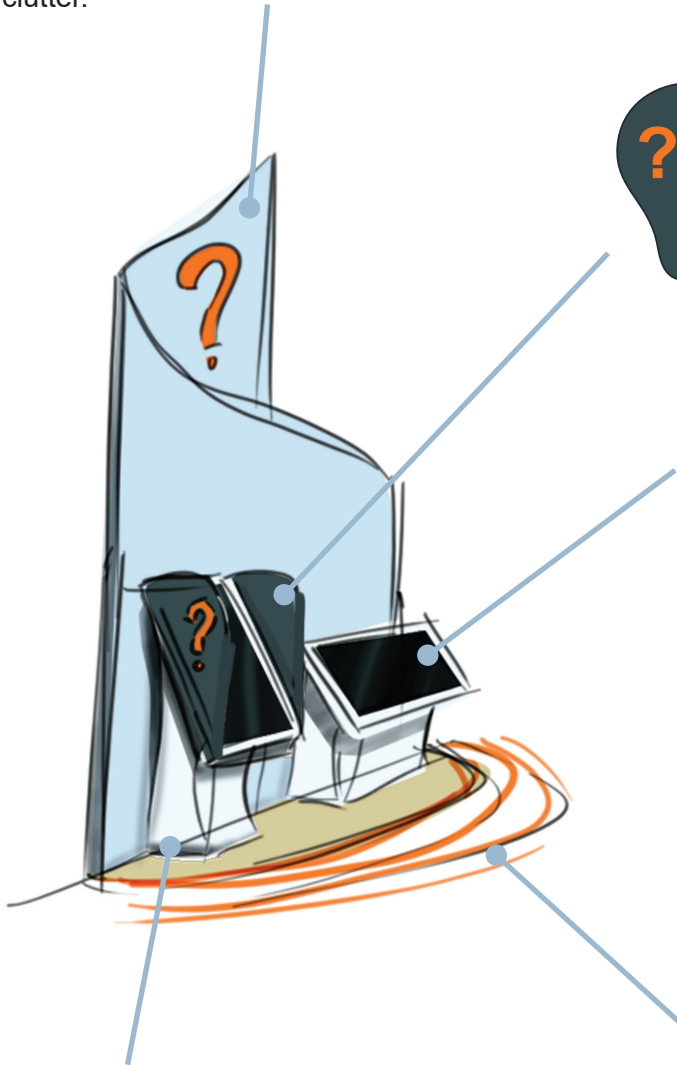
The Satellite Unit is highly feasible due to its compact footprint, modularity, and reliance on existing units. It can be deployed in multiple locations without major architectural changes, and its hardware requirements are already used at Schiphol. The main feasibility consideration resides in the larger expected pressure on video call assistance. As one of the design interventions is to promote video call assistance, showing it clearly on the welcoming screen of the Self-Service units, the number of calls is expected to rise. To facilitate these calls the team of video call assistants needs grow accordingly, requiring a larger budget for this department.

As these units are already in place, and easy to update the digital firmware, the independent units of this satellite maintain their viability into the future. Furthermore, the flexible arrangement of units ensures that the satellite changes along with locally changing needs and locations.

## Recognisable Backdrop

Currently the Self-Service Unit's themselves are not taller than most passengers. As they don't stick out above the crowd, they become steadily more difficult to spot as passenger numbers rise and the terminal becomes crowded.

Adding a backdrop makes the unit protrude well above peoples heads, even in large crowds. Additionally the backdrop unites the lose information units, creating one visual whole and reducing its contribution to visual clutter.



## Combinations

The satellite units can be flexibly arranged depending on the needs at a location. A mix of Self-Service Unit's (SSU's), Digital Wayfinding Unit's (DWU's), and Flight Information Displays (FID's) can be chosen.



## Proud of Video calls

The video call service in itself drastically improves the fulfilment of Relatedness and Ease. Sadly, this feature is currently hidden away in a small icon. Showing up pushes this feature to the very front of the welcome screen with an inviting thumbnail, proudly displaying this option for empathic assistance.



## Noise Barriers

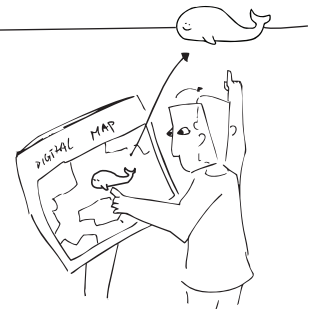
The Self-Service units are equipped with noise barriers resembling a listening ear. They also give a higher sense of privacy to its users. The question mark promotes the assistance functionality clearly.

## Landmarks

Adding landmarks to the digital maps will improve both navigation skills and growing a sense of place in the airport.

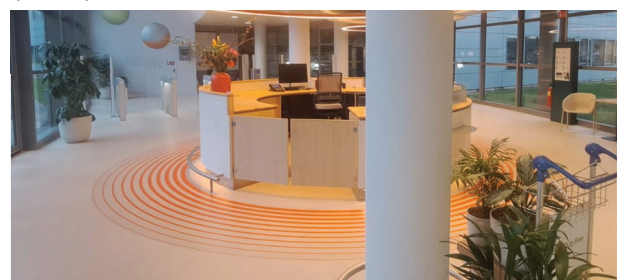
(Liu et al., 2025; Yesiltepe et al., 2021)

These landmarks, such as the cockpit at Plaza, used to be present on physical maps aiding in navigation while also creating a joyful Dutch airport identity.



## Subtle Domain

The orange strands subtly free up space by nudging the user flow around the unit. Passengers using the SSU's have more personal space. The strands embrace the entire hub creating one connected space. This currently used quite effectively on the information desk at Schiphol Hoofdgebouw (SHG) as seen below.



# 6.1.2

## Satellite: Hub



### Purpose

Used sparingly due to the large size, the satellite hub is the only satellite that offers direct human assistance. Staff is present to work together with passengers on their questions or problems. Outside of the hub two SSU's are placed at the sides of the entrance, acting like guards nudging towards self help to reduce the pressure on the employees. The hub is enclosed on the sides to shield passengers from the environmental overload during their assistance.

Orange lines on the ground create a domain, nudging the crowd to walk around the hub and leaving space for passengers to use the Self-Service units.

Above the hub there is a large flight information display, showing departing flights. Inside there are chairs and wheelchair spots for passengers that are waiting on mobility assistance, or need a moment to rest and hide away from the environmental overload.

The detailed design interventions are shown on the next page.

### Caters to

The Satellite Hub is valuable to travellers who need a recognisable one-stop location for all diverging and emotional needs. Passengers that are under high levels of stress or other emotional loads, requiring human assistance to relate and assist them. Passengers that struggle with mobility or require extra care in their travels.

For Comfort Seekers the hub provides emotional reassurance, spatial clarity, and a sense of being taken care of. The Carefree Enjoyer uses the self-service units at the hub upon entering the terminal to quickly find their relevant information for the next steps of their

journey.

The Mondaine Shopper might approach the staff out of the sense that being assisted by humans makes them feel valued and cared for.

### Feasibility and Viability

The Satellite Hub places more tension on feasibility within Schiphol's current terminal environment. It requires careful spatial planning and an integration of several departments — Lost&Found, Baggage Storage, Mobility assistance. The hub can be implemented at existing service-desk locations, however, would require additional space and possibly overshadows adjacent airlines service-desks. Its success depends on strategic placement in high-traffic areas, functional integration of services with the limited space available, and ensuring consistent and sufficient staffing.

The hub addresses a clear gap in the current passenger experience: the need for a recognisable, reassuring anchor point. Its viability is strengthened by its potential to unify fragmented assistance initiatives into a single, coherent presence. As long as passengers desire physical assistance, and do not feel confident in solving all issues with a self-service method, a passenger service point, such as this hub remains viable.

### The Flag

The pinnacle of the hub is the only place where a pointy form language is used. This contrasts with the rounded shapes of the hub, causing it to stand out and be clearly noticeable from far away.

### Easy to Process

The sloping walls **guide the eyes** from the flag — the first point of attraction — downwards past all information options: the Flight Information Displays, Self-Service Units, and finally ends by pointing towards human assistance.

### Enclosed Space

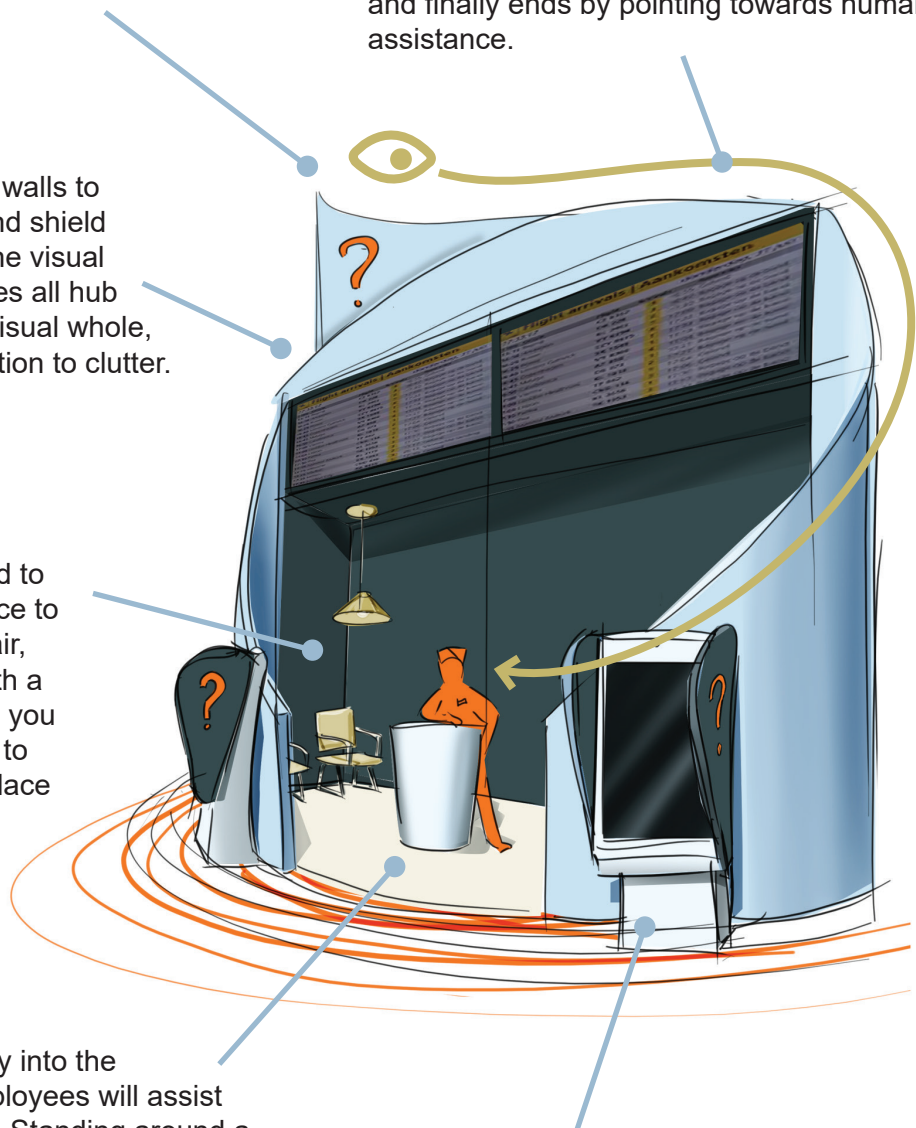
The hub is enclosed with walls to reduce incoming noise and shield passengers within from the visual clutter outside. It embraces all hub components, creating a visual whole, thus reducing its contribution to clutter.

### Cozy Corner

For passengers that need to wait for mobility assistance to show up with a wheelchair, there is a cozy corner with a few seats. A place where you are not dumped and told to wait, but a comfortable place to sit and rest.

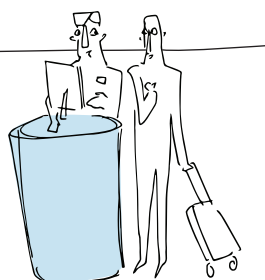
### Working Together

To add back some agency into the passenger's journey, employees will assist in a collaborative fashion. Standing around a high round desk, makes the interaction feel less transactional. It welcomes opinions and the sharing of emotions.



### Guards

The two SSU's are positioned on both sides of the entrance. They act as friendly guards, their presence being a final nudge to invite passengers to try their hand at self help. Self-help improves the fulfilment of competence, but also helps spread out the pressure on employees.



# 6.1.3

## Satellite: Staff



### Purpose

Even with strong digital tools and self-service options, Schiphol needs a layer of human assistance for several reasons. During moments of high stress, passengers often feel too overwhelmed to help themselves and seek emotional reassurance from a real person. Some services — such as mobility assistance or supporting vulnerable travellers — simply require and deserve human care and physical presence. Beyond that, the visible presence of staff signals that Schiphol genuinely cares about its passengers. Seeing real people available to help makes the airport feel empathic, human-centred, and trustworthy.

### Feeling Supported

The most important part about the human satellites is that they are seen. Passengers will understand that Schiphol cares enough for each and every one of them to employ humans. Nowadays, human assistance across many companies is being replaced by digital or AI solutions. Humans are expensive, making the decision to place human staff at the terminal all the more impactful. Passengers will feel truly valued and cared for. Even passenger never in need of this human help, will still notice their presence and experience these positive emotions during their journey.

### Showing Up

An important element in boosting passengers confidence and capabilities is that during personal human assistance, employees should not use any devices or services that differ from ones that passengers can use. The passenger should notice that the assistance they received by an employee could also be done by themselves. Next time they need assistance they remember that the employee

managed to solve their problem in the app, or at the self-service unit, and they'll be more likely to try those options themselves. Clearly show that there are no back-end/hidden tools that could assist passengers. Anything an employee can do, a passenger can as well.

### Just for You

First pay attention to the mental state of the passenger. Show that their stress and frustration is understood, and not all that uncommon. Ensure them that a solution is at hand and they will be on their way again shortly.

This instantly reduces the passenger's emotional fragile state and allows them to calmly and consciously partake in the steps towards a solution.

### Caters to

The Satellite Human is particularly important for travellers whose needs extend beyond what digital or self-service tools can provide. For instance when assisting passengers with reduced mobility physically until specialised mobility assistance arrives. In moments where stress is so high that the only solution desired is that of human support. Or when a passenger simply does not feel comfortable with or cannot resolve their issue by ways of self-help.

## Feasibility and Viability

The main feasibility challenge is twofold: Firstly, it lies in ensuring consistent behaviour, tone, and presence across staff members, which requires dedicated training in empathic communication and situational awareness. Secondly, the number of staff depends on expected workload, possibly requiring new hires. Mobile assistants are currently present at Schiphol, making this an enhancement or specialisation to those roles.

The human satellite is highly viable because it addresses the emotional and complex needs that digital tools cannot fully resolve. Its viability is reinforced by the fact that human interaction remains a key differentiator in airport experience trends foreseen for 2026 onwards, and are strongly linked to positive ratings according to (ACI, 2025).

# 6.1.4

## Satellite: App



### Purpose

The Schiphol app becomes a mobile satellite of empathic assistance — a calm, reassuring presence that travels with the passenger throughout the terminal. The app offers the most up-to-date information relevant to the passenger, assists in pre-travel preparation, facilitates all assistance services in one place, and offers relevant information for every step in a passengers journey.

The detailed design interventions are shown on the next page.

### Caters to

The Satellite App primarily caters to travellers who value control, predictability, and autonomy, through a self-help format, at any given moment throughout their journey. The Efficient Traveller benefits greatly from the app's real-time updates, waiting-time insights, and clear routing information, which support their goal of minimising time spent at the airport. The Carefree Enjoyer is reminded of the steps and packing regulations even before arriving at the airport. The Comfort Seeker uses it for clarity, preparation, and constant reassurance they need to feel confident and secure. Finally, the Autonomous Traveller finds the app useful because it offers only the essential information they seek, enabling them to remain independent and self-directed without unnecessary interaction or stimulation.

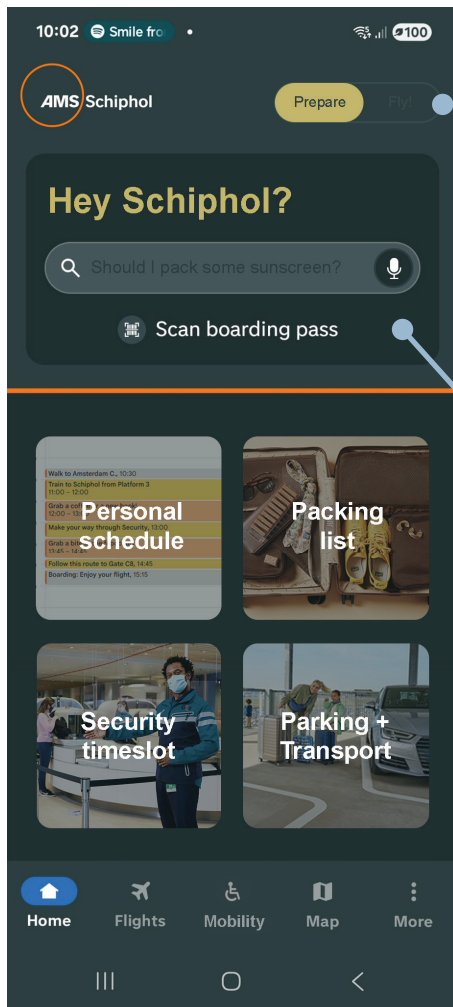
### Feasibility and Viability

The Satellite App builds on Schiphol's existing digital infrastructure, including the current app ecosystem, real-time data feeds, and established development workflows. Most required functionalities — such as flight updates, routing, and waiting-time predictions — already exist in some form and can be expanded or refined rather than built from scratch. The app represents an evolution rather than a disruptive change, making implementation realistic within existing capabilities.

One crucial task to reach the apps full potential is to make passengers aware of its existence. During this project we noticed that very few people are aware of the Schiphol app, and those that are do not view it to have added value over the airline apps they currently use. A marketing campaign is needed to make travellers aware that traveling at Schiphol feels better with the Schiphol app.

A widely used Schiphol app would also open up new commercialisation opportunities: The app can recommend a last minute gift to buy at Plaza, show seasonal marketing stunts, recommend daily deals, excite passengers with the large shopping assortment before even arriving at Schiphol Terminal.

# Concept App

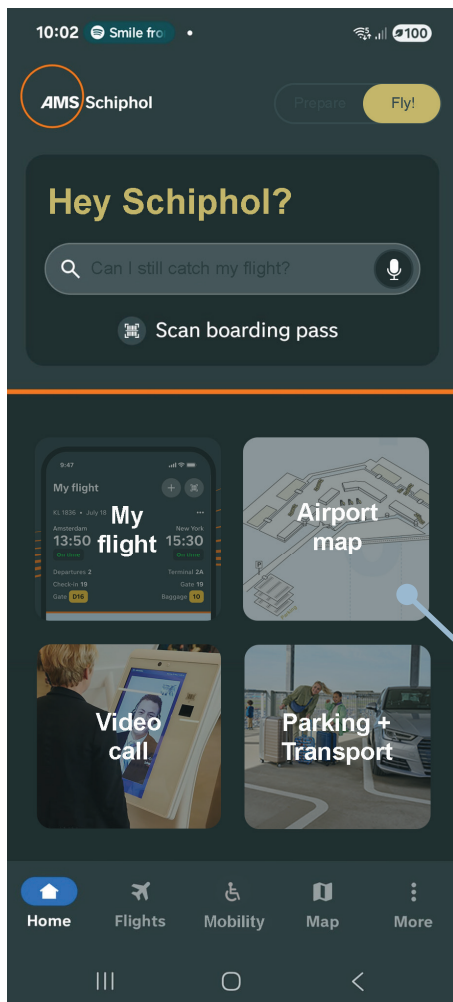


## Prepare or Fly

The focus is on growing the confidence of passengers in their ability to catch their flight, before even arriving at the Terminal. The main app is now split into two modes: Prepare and Fly. This allows for the addition of more features which aid passengers in preparing for their trip, without creating an overstimulating clutter of redundant information on the home page. It is a clean, purpose driven, filter that shows Schiphol is here to think along with its passengers even before they arrive at the Terminal.

## Schiphol AI

A personal AI assistant has been added to the app with a focus to improve constant reassurance, make the assistance in the app feel limitless, and improve the need for Ease. This assistant can offer suggestion for packing a suitcase, help with navigation through the terminal, answer any questions one might have about their flight, and much more. Its functionality is teased by having multiple inspiring example questions in the AI search that alternate every few seconds. This form of assistance plays into the desire of conversational assistance, further amplified by the option of using voice input. Speaking to AI has gotten more common over the years: "Hey ChatGPT!" "Hey Alexa!"



## Information Hierarchy

We have shuffled around with information based on how relevant it is. Mobility, not only important for a subset of passengers but also showing all other passengers Schiphol cares and is ready to assist, has therefore been moved out of the 'More' subscreen and in to the 'Navigation' tray at the bottom of the screen.

## Images

We use images to aid with information processing while simultaneously creating warm, welcome and pleasant feelings making the app feel more human and increasing Beauty, Relatedness and Ease fulfilment.

# 6.2

## User Scenario

### Concept in Use

To show how one passenger utilise and benefit from using several satellites throughout their journey, we describe the journey of a stress sensitive Comfort Seeker.

**The Comfort Seeker Archetype** values calm, clarity, and emotional reassurance throughout their journey. They prefer environments that feel predictable, organised, and low-stress, and they are easily affected by noise, crowds, and time pressure. When uncertainty rises, their confidence drops quickly, making them more likely to seek human support or clear, step-by-step guidance. They appreciate warm communication, visible staff presence, and spaces that feel safe and sheltered. Above all, the Comfort Seeker wants to feel taken care of — both practically and emotionally — so they can move through the terminal without feeling overwhelmed.

**A few days before departure,** the nerves of the Comfort Seeker begin to creep in. They find themselves repeatedly thinking about what to pack, whether to travel by train or car, and what time they should leave home. To calm these thoughts, they open the Schiphol App to see which boxes they can already tick off to calm their mind. Upon clicking on 'Prepare' they are immediately reassured by its functions: a packing list, an option to book a security time slot, and even an AI to ask questions. They try out the AI assistant to answers their small but persistent worries — “Do I need sunscreen?”, “How early should I arrive?” — giving them emotional reassurance. They book a Security Timeslot and feel much more at ease knowing they can skip the security queue on the day of their departure.

### The day before departure.

The Comfort Seeker begins packing early, wanting to avoid last-minute stress. They keep the app open beside them, checking off items from the packing list and asking the AI assistant for reminders about liquids, chargers, and travel documents. Seeing everything organised in one place gives them a sense of calm. Before going to bed, they check the crowd level indicator in the app. It suggests arriving a bit earlier than usual. This simple nudge helps them sleep better, knowing they have a plan.

### The morning of departure

Upon waking up the Comfort Seeker quickly checks if the crowd level, which has dropped giving them an hour extra to enjoy a cup of coffee in the sun. On the train to Schiphol, the Comfort Seeker switches the app to Fly mode. Their Flight Information pops up, wishing them a pleasant trip to Bali! All their relevant information is visible: check-in desk, gate, and boarding time. The app's tone feels warm and exciting look and feel makes them daydream about the coming vacation.

### Arriving at the terminal

Stepping into the busy terminal, the Comfort Seeker feels the familiar wave of overstimulation — crowds, noise, movement everywhere. Suddenly they receive an sms from their airline that some of their travel documents need to be verified!? All these events hitting at once causes them to experience high stress levels, unsure of what to do next. While looking around they spot the Satellite Hub, a clear point of assistance with visible staff present. Their high stress levels makes them feel incapable of using a self-help option so they approach the employee instead. The employee calms them and

together they quickly discover that this email must have been sent as a mistake, since all their documents are in order. Happy with the quick and caring assistance, the Comfort Seeker continues onwards.

### **Passing through security**

At security, a brief moment of panic is immediately replaced with a sense of relief. A long queue spreads out before them, but as they booked a time slot in advance, they can bypass the long queue entirely! This becomes the highlight of their journey: skipping the line not only saves time, but also shields them from the stress and loss of control they normally feel when standing in a slow-moving crowd.

Once through security, their stress levels drop significantly. With the most demanding step behind them, the rest of the journey feels manageable — a short walk to the gate, nothing more. They take a moment to reflect on how much calmer they feel compared to previous trips. The assistance satellites didn't just help them at the terminal; they reduced their stress days before travelling, giving them a sense of clarity and control that carried through the entire journey.

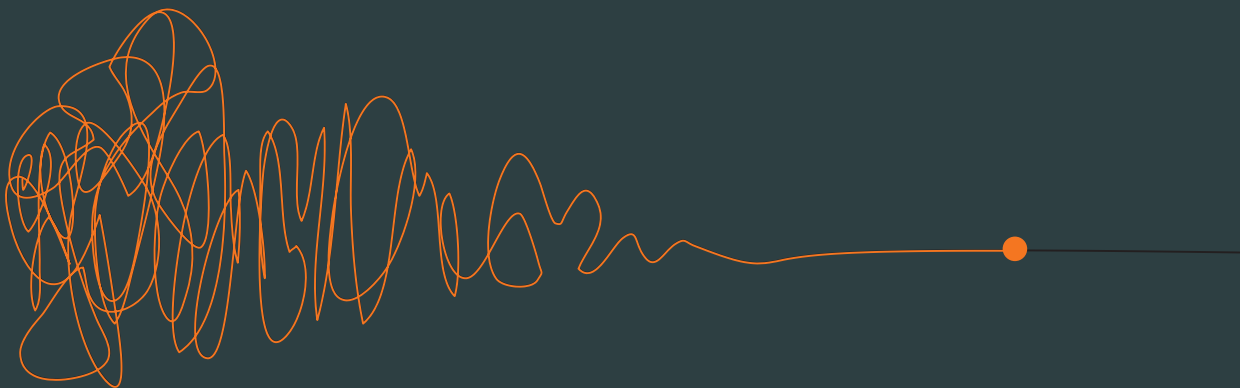
### **Arriving back home**

After enjoying the vacation the Comfort Seeker is on their flight back to Schiphol Airport. Upon landing they make their way to the baggage claim area where they use the app to check where their car was parked and use the map to figure out the quickest route. While waiting another passenger asks the Comfort Seeker how to get to Amsterdam. The Comfort Seeker walks with them to a Self-Service unit and shows how to buy a train ticket. The passenger thanks the Comfort Seeker and continues using the Self-Service unit to see if there is any place at the airport to store their baggage, as they are visiting Amsterdam for only a few hours during their long layover. The Comfort Seeker is proud for having assisted someone else, and the fellow passenger is glad someone was nice enough to assist them personally.

The satellite unit provides opportunities of assistance during all journey types and adds value for all of the five Schiphol Archetypes. No longer is it a matter of if a passenger can find assistance, but which type of assistance satellite they prefer.

# Chapter 7

## Testing the Impact





Observation: *The participant is trying its very best...*

# 7.1

## Test Plan

### How and What to Test?

Over the course of this thesis, changes proposed to the entire vision on passenger assistance established three pillars for an empathic experience. This new vision affects interactions across system and product levels. To test the satellite concept in its entirety, observing how the entire passenger experience changes, would require a large scale in context test with all elements present and functioning. This is unfeasible within the timeframe of a graduation project.

Therefore, only interactions on the product level have been evaluated: changes in passenger behaviour and emotions as compared to the current situation were assessed, offering insights into the impact of empathic redesigns on the passenger experience.

The app affords quick prototyping in relative high-fidelity. Enabling us to draw fair comparisons between the baseline behaviour of the current app, and the changed behaviour of the concept app. We tested these apps with three participants in separate hour long sessions. Discussing their first impressions, envisioned use, emotional descriptions, app comparisons, benefits and drawbacks, unfulfilled desires.

Their subjective feedback was translated into the BRACES model as shown in [figure 21](#) to describe the impact of empathic assistance on their passenger experience.

### Research Questions

The evaluation addressed four questions:

- How do participants describe their first impression of the current app versus the redesigned app?
- What behaviours, thoughts, and emotional responses emerge while using both versions?
- How do participants rate their BRACES need fulfilment after using each version?
- Which version do participants prefer, and why?  
(Or do they desire a hybrid that combines elements of both?)

### Preparation

To avoid courtesy bias by participants that we knew personally, the subject did not know which version of the app was the old version and which was the new version. Only a curated set of interfaces was shown for each version, ensuring a fair comparison and focusing attention on the redesigned interactions.

One requirement for the participants was that they had previously flown from Schiphol before. Familiarity with the context was crucial to imagining the use and potential of the app. Aside from that, as we tried to select three participants that varied widely in their personality and gauged travel behaviour. The self reported travel behaviour of the three chosen participants can be described as stressed, relaxed, and prepared.

Two things in this testing format are essential: Firstly, always ladder down the answers given by asking why. This reveals the fundamental reason behind their voiced opinions.

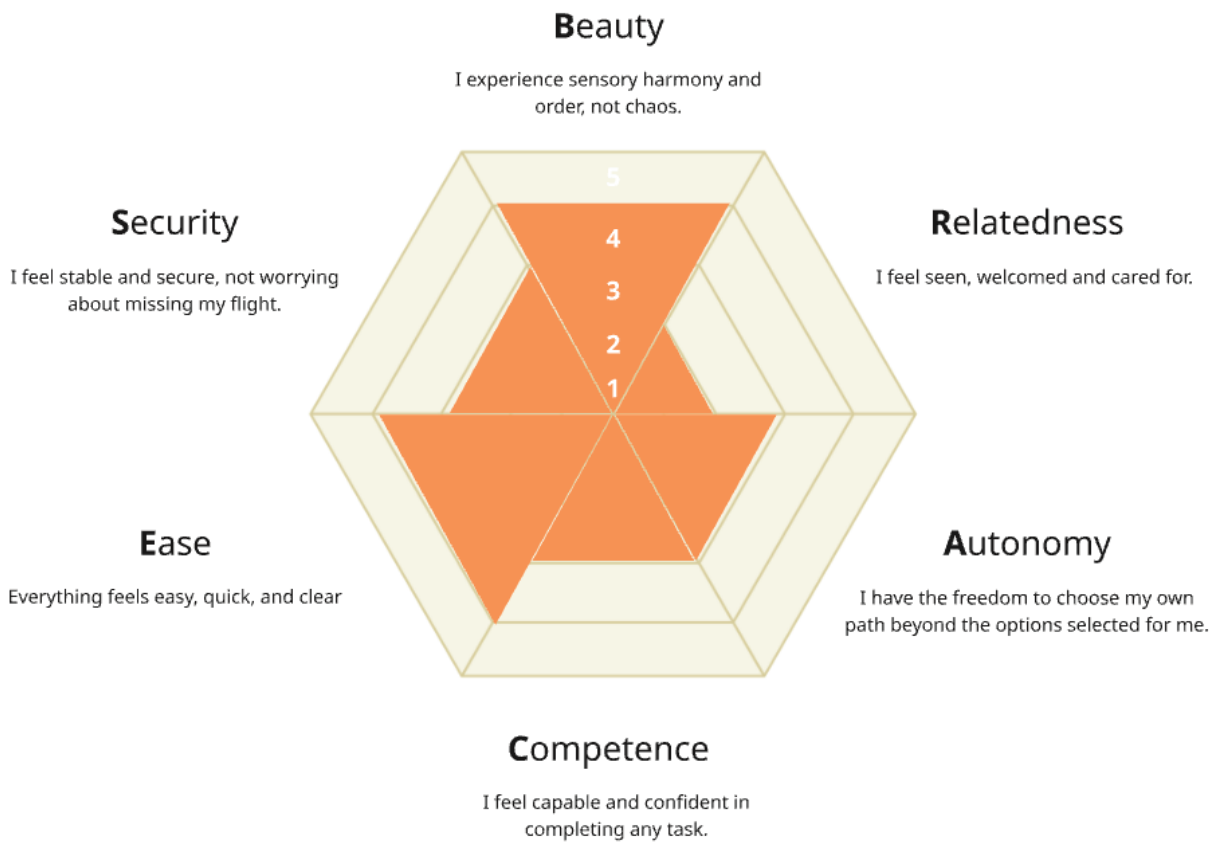


Figure 21: BRACES model to aid in discussing and assessing need fulfillment in the context of the Schiphol

For example: A: I like how it looks. Q: Why?  
A: Because it does not feel chaotic. Q:  
Why is that important to you? A: Because  
I want everything to be quick and easy to  
understand. Q: Why? A: Because at the  
airport I feel rushed and overstimulated, so  
an app should not contribute to this, hopefully  
even reduces these feelings. Only then will I  
enjoy using the app.  
Some participants require more laddering,  
others reveal their fundamental reasoning  
within their first few answers.

Secondly, for observations it is crucial to have  
participants voice their every thought out loud.  
Even the minuscule thoughts such as, now I  
will click on this button, can reveal important  
information. E.g. they interpret a certain shape  
as a button and expect it to have functionality  
by their intent to press it.

With these methods we achieved the most  
rich insights possible with the limited amount  
of time and resources.

## Insights

Firstly, the app specific insights will be  
discussed, illustrated by a final iteration on the  
app interfaces.  
A brief look at the BRACES fulfilment will  
follow, including a discussion of the potential  
of this model in testing interactions.  
Next, insights applicable to the entire satellite  
concept will be looked at.  
Lastly, the strengths and shortcomings of the  
conducted test will be discussed.

# 7.2

## App Insights Iteration

### Final Iteration

The test resulted in plenty of specific insights on the detailed functionality and layout of the app. These are less relevant for evaluating the overall impact of the satellite concept but still hold great value for potential future app redesigns. Lets discuss these insights by an iteration on the app interfaces.

#### Clear difference between Prepare and Fly

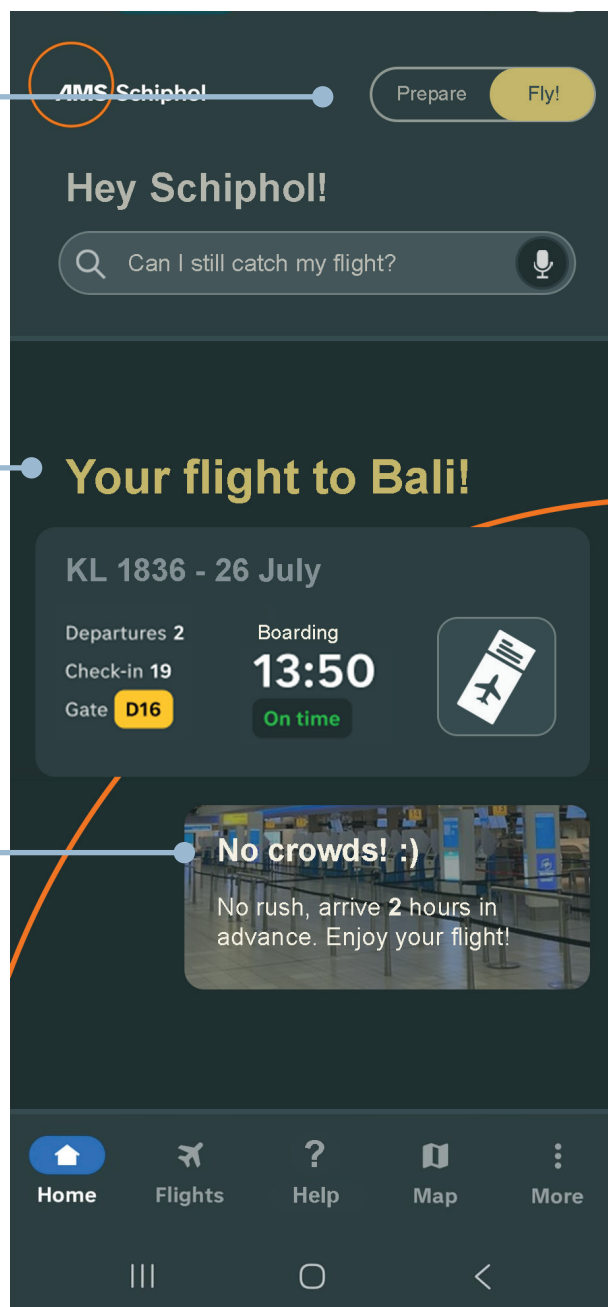
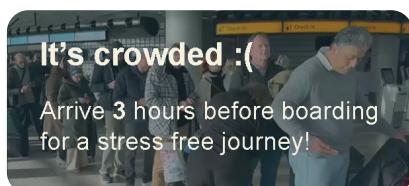
The difference between the Prepare and Fly pages have been accentuated. The information on both interfaces is organised differently creating a visual distinction. This aids in the fulfilment of both Beauty and Ease being less chaotic and requiring less attention to process.

#### Flight Information

The biggest change is that Fly is now exclusively one's relevant flight information. Ultimately, being able to quickly see the most crucial information for catching one's flight is what fulfils Security, Competence, and Ease the strongest.

#### Crowd Level

A repeating desire was to know the crowd level at Schiphol, and what that means for one's journey. A crowd level gauge has been added with an emotional tone to show Schiphol relates emotionally to the passenger's situation. This feature supports the fulfilment of Relatedness and Security.



## Clear Imagery.

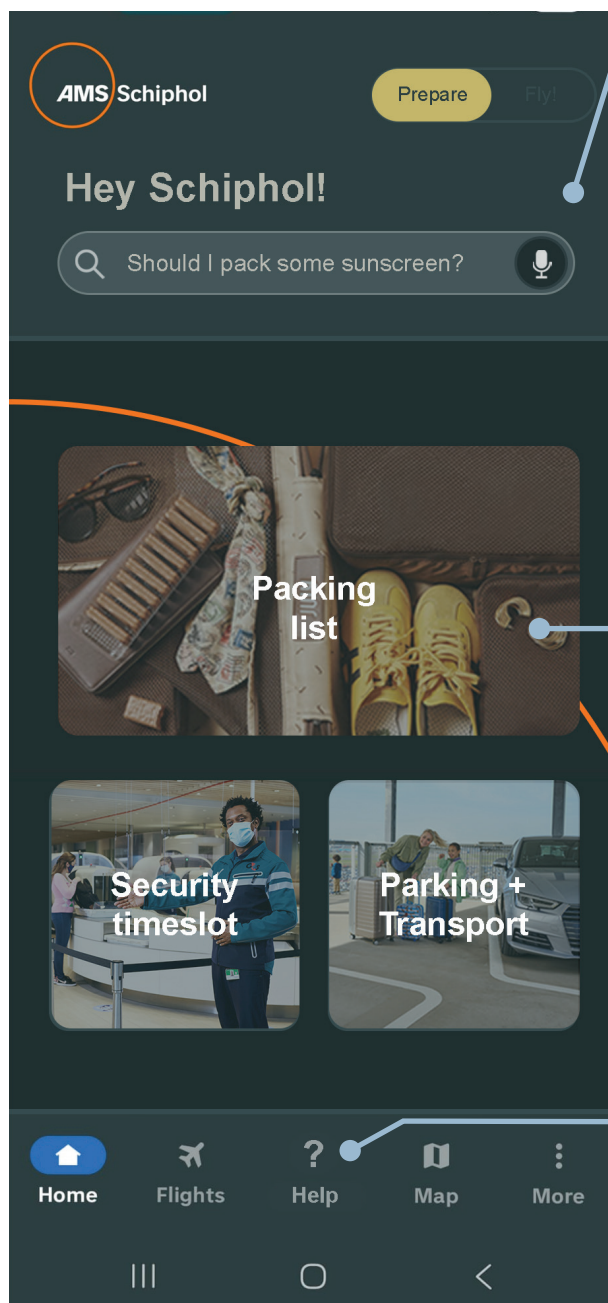
Images boost the atmosphere and character of the app, however, adding too many quickly make the interface feel chaotic and overstimulating. Careful consideration of the number of images and the composition of images must be ensured. They should communicate functions clearly, feel welcoming and fun, yet not contribute to visual clutter.

## Personal Schedule Removed

Participants did not feel the personal schedule afforded any added value. Up-to-date flight information and knowing how long before boarding they should arrive, is everything they needed in order to have control over their journey and feel capable of catching their flight.

## Open 24 hours a day.

This text from the original Schiphol app was experienced quite positively, as it clearly communicated that Schiphol is ready to assist day and night. This information should be included in the help interface.



## AI Seamlessly Included

The AI functionality has now become part of the overlay, always being visible, yet not demanding too much attention. Example sentences now rotate every few seconds to spike interest and promote use imagination:

- > *Do I have time to grab a coffee?*
- > *I need a gift for my girlfriend!*
- > *Guide me to the nearest toilet!*
- > *Will it rain when we land?*
- > *Is there WIFI on board?*

Being able to envision the endless possibilities greatly boosts the fulfilment of Autonomy, Competence and Ease.

## Reshuffle Information

How useful participants found the various available options resulted in a reshuffling of information displayed.

Participants were quite enthusiastic about the packing list helping them understand which items are prohibited while also making sure they would not forget items such as their earphones or sunglasses. They were inclined to use this feature often, so it has been scaled up.

## Help Upfront

The mobility button has been switched to a help button, placing not just mobility, but all forms of assistance upfront.

# 7.3

## BRACES Insights

### Surface Level Insights

The BRACES model gives a visual representation of the achieved impact of the redesigned app. In [figure 22](#) on the right, we see that the redesigned, more empathic app demonstrates a higher degree of need-fulfilment overall.

An interesting observation when looking at these BRACES test results, is that participant 1 experienced a drop in Relatedness with the redesigned app. This is the opposite of what was set out to achieve. The participants clarified that the use of images created a visual clutter. The images left too much space for interpretation, requiring time and cognitive space during use. This overstimulated the participant making her feel obstructed instead of assisted.

If the images were experienced as overstimulating, one would expect a concurrent drop in Beauty, however, Beauty was ranked equally in both apps. The participant's reasoning was: the decrease in Beauty resulting from the overstimulating images, is balanced out by the increase in Beauty resulting from the images creating an aesthetically warm and pleasant interface.

This illustrates how important the reasoning behind a participant's choices is, and that the BRACES model cannot be interpreted independently from the participant's reasoning.

### Conclusion

The BRACES ranking of the redesign shows a higher overall fulfilment by each participant. Meaning that the redesign better supports the fulfilment of the six Crucial Needs at Schiphol Terminal Landside. Ultimately resulting in a more positive passenger experience.

### Discussion

The Braces model is an easy to understand, visual indicator of the achieved impact. However, it provides a subjective assessment and only a rough indicator of what participants feel. The insights gained from the BRACES model can be greatly enhanced by exploring the reasoning behind the ranking assigned to the various need fulfilments. This is the valuable input needed for further iterations to reach the concept's fullest potential.

It worked fantastically to help the participants focus on how these apps impact certain emotions. The descriptor sentence made the fundamental needs easy to understand and with the five levels, ranking their fulfilment became easy.

The model worked especially well when comparing two concepts. Being able to flip back and forth between previous rankings, allowed participants to critically assess their varying fulfilment between the two concepts. Discussing why the redesign felt more fulfilling than the original app often resulted in very concrete cause-and-effect insights.

The next chapter will discuss these insights.

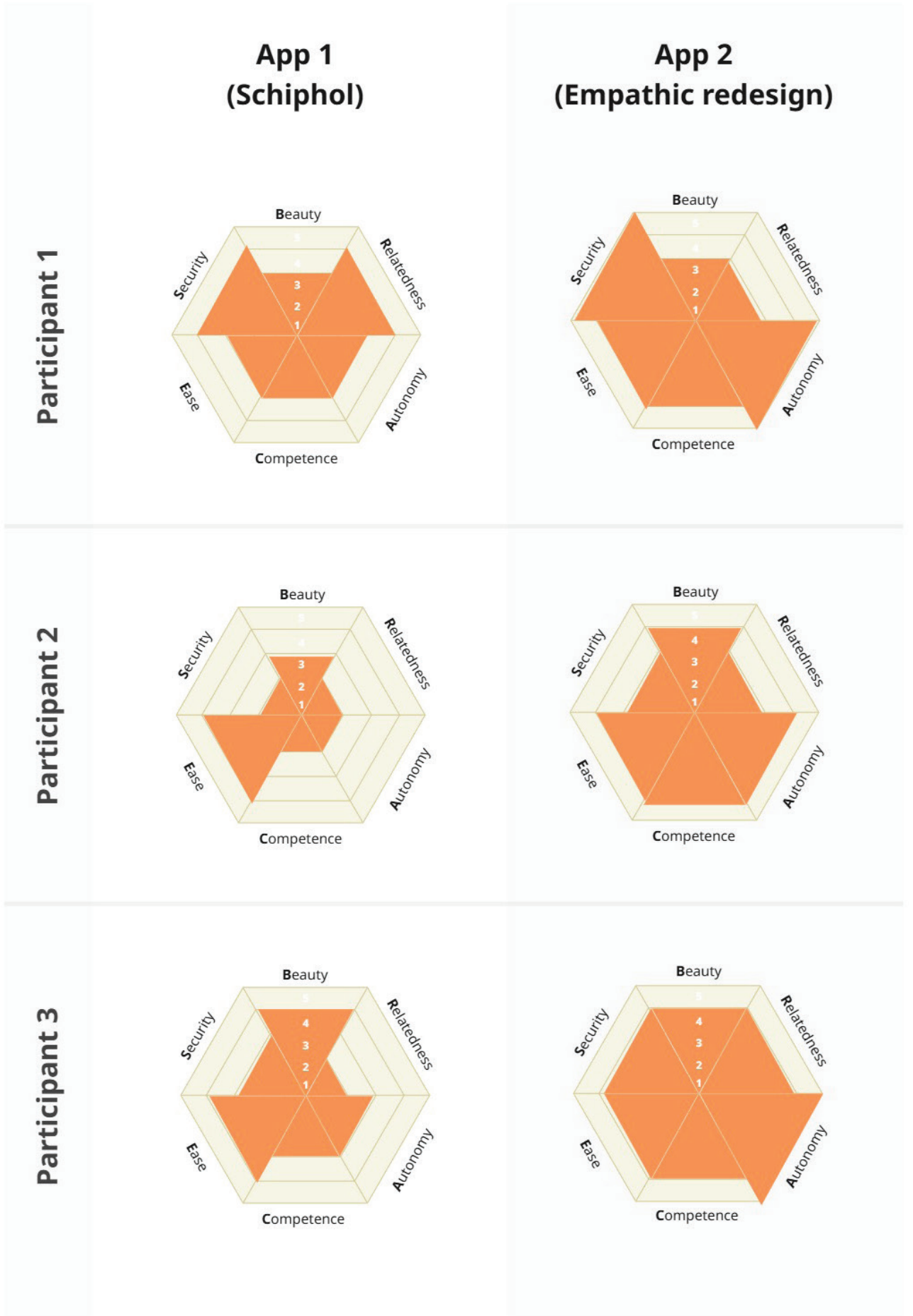


Figure 22: BRACES models overview of the results from three participant tests

# 7.4

## Empathic Insights

The following insights were distilled from observed behaviour, voiced opinions, and research questions answers during the testing of the app. These insights are relevant to support and iterate on the concept as a whole, as they support the empathic assistance vision in its entirety. We will discuss these insights by addressing the positive impact resulting from the three pillars of empathic assistance.

### **Preparation builds confidence**

#### *(Feeling Supported & Just For You)*

This was the part of the redesign which received the most positive feedback. The participants expressed that the added functionality for preparation held added value. Something that the airline apps they currently use do not have, giving them a reason to start using the Schiphol app.

In addition it streamlined their preparation process, eliminating the fragmentation from requiring a specific app with personal account for each and every one of many different airlines.

Lastly, it greatly boosted their confidence before they even arrived at the terminal. Feeling prepared and familiar with the assistance options present in the app, gave them great confidence in being able to catch their flight in a timely and relaxed fashion.

Extending the Schiphol's assistance focus to beyond their terminal, into the preparation phase of a passenger's journey, is where Schiphol can really make a difference in the passenger experience. For the app specifically, it is in this preparation phase that passengers experience added value, opting to use the Schiphol app instead of the airlines apps.

### **Seeing options — even unused ones — creates emotional safety.**

#### *(Showing up & Feeling Supported)*

Participants were impressed by the assistance services offered in the app, expecting quick and personal assistance upon use. They repeatedly stated that seeing all the useful assistance options made them feel calmer. Knowing that a solution is ready at hand boosts their confidence.

However, they felt it was a shame that these assistance options were hidden away under the 'More' button in the Schiphol app. For them the assistance options, even when not needed, were so important to feeling calm and cared for that they should be represented more proudly.

The option for assistance should be presented prominently within both digital and physical spaces, easy to spot for every passenger.

### **“The redesigned app makes my journey more fun” - Participant nr. 2**

#### *(Showing up & Just For You)*

The three participants noted that the redesigned app had a character that matched their feelings when travelling at Schiphol: exciting, characterful, joyful, pleasant and more human. These feelings were the result of applying the new Schiphol brand identity to the app. Using imagery focussed on human connections and emotions. Using language, punctuation, sometimes even emoticons, to convey and relate to emotions: No crowds today :) Enjoy your trip!

Schiphol should apply their brand identity to every level of their services in order to match the exciting and pleasant feelings associated with Schiphol. Starting with a redesign of the app and self-service unit interface, which currently lack the most in character.

## Passengers want personal attention

### *(Just For You)*

Each participant expressed the desire for an experience that was specifically personalised for their situation. The fine-tuned information hierarchy highlights relevant and important details, participants felt more confident in their ability to quickly source the information they needed and felt like Schiphol was thinking along with them.

Paying close attention to the information passengers need in specific steps of their journey, locations of the airport, or even moments of the day (e.g. rush hour or lunch time) makes moments of self-help assistance achievable and empowering.

## Passengers judge their worth by the perceived effort by Schiphol

### *(Feeling Supported, Showing up, Just for You)*

An unexpected insight was participants stating that they perceived the effort made by Schiphol — into the design of the app — to be higher in the redesigned app. This greater perceived effort and attention to user experience was seen as Schiphol caring enough about her passengers to spend more time (and money) on the design.

Why we initially found this surprising is that on paper, many more hours have gone in to the development of the Schiphol app than this redesigned prototype. This user perception illustrates the power of empathic assistance. It is not about the total hours of effort spent, but the **perceived** effort. A redesign focussed on addressing the emotions and needs of a passengers is perceived to be of higher effort, checking the boxes that passengers truly care about.

## Conversational assistance alleviates ambulant staff

### *(Feeling Supported, Showing up)*

Another interesting test result was the increased confidence participant's felt in relying on the redesigned app (as compared to the current app) for nearly all their questions. With the introduction of conversational assistance powered by AI, the app no longer feels like a static tool where users have to hunt for information on their own. Instead, it provides a dynamic, conversational experience that can intuitively guide them to the answers they need.

No longer afraid of asking repetitive and 'dumb' questions, conversational assistance by AI captures the bulk of questions that would otherwise need to be addressed by ambulant staff.

Creating a personal Schiphol AI assistant is of utmost importance as it shows Schiphol to be a pioneer in the field of utilising technology to positively impact the passenger experience.

An essential requirement for AI to be welcomed by Schiphol's passengers is the way it is presented and communicated upon launch. Schiphol needs to prove that AI is not just a hot-topic buzzword used to market themselves, but because it truly holds potential to add great value to the passengers journey.

## Conclusion

The tests showed that the empathic redesign achieved higher fundamental need fulfilment as well as directly supporting the three pillars of empathic assistance. The intended effect of creating a more supportive, welcoming, personal feeling was realised and all three participants preferred the redesigned app over the current app. The insights give concrete design directions to focus on in the future, while also supporting the claim that a redesign through the Empathic Lens results in a more positive passenger experience.

# 7.5

## Test Discussion

### Overall Discussion

Evaluating the full impact of the empathic assistance ecosystem is inherently challenging because its value emerges at a systemic level — across physical satellites, human interactions, environmental cues, and digital touchpoints working together in a real airport context. Such an in-context prototype deployment is not feasible within the scope of this project. The airport environment is too complex, too unpredictable, and too dependent on real-time operational dynamics to simulate authentically in a test setup. Emotional responses in particular are shaped by countless external triggers — crowds, delays, noise, time pressure — that cannot be realistically recreated/simulated in within the set time frame of this graduation project.

#### Controlled Environment

To generate reliable insights within these constraints, the evaluation was deliberately narrowed to a controlled environment in which all external variables were removed. Participants' behavior and emotional responses were influenced solely by the redesigned app interfaces they were shown and the instructions they were given. By eliminating outside stressors and focusing exclusively on the empathic redesigns, the test isolated the specific impact of the design decisions themselves. This approach ensured that any emotional shift, preference, or behavioral tendency could be traced directly to the intervention rather than to situational noise.

#### Small Sample Size

The sample size was necessarily small—only three participants—because uncovering emotional impact requires slow, careful, in-depth exploration. Each session involved

guiding participants through layers of self-reflection that most people are not accustomed to articulating. During pre-testing, it became clear that both participants and facilitator experienced noticeable fatigue when these conversations extended beyond an hour. Discussing emotions, vulnerabilities, and behavioral motivations is cognitively demanding, and pushing sessions longer would have compromised the authenticity and accuracy of the responses. A one-hour cap therefore balanced depth with emotional sustainability, making it the most feasible and responsible format within the available timeframe.

#### Underlying Insights

Although this approach may appear to limit the findings to the app alone, the depth of the conversations revealed the underlying psychological reasons why participants valued certain interactions. These reasons extend far beyond the digital interface. For example, appreciation for the AI assistant was rooted in the sense of autonomy and reassurance it provided — the feeling that any question could be answered instantly, without judgment or hesitation. It especially freed the participants from the fear of asking unnecessary or 'dumb' questions. This insight directly informs the design on the system level: passengers want to feel that support is always available, in any form, at any moment. Any question is worth asking, and every answer is quick, concise, and clear! By uncovering these deeper emotional drivers, the evaluation produced insights that scale naturally from the app to the entire empathic assistance ecosystem. In this way, short but intensive emotional testing generated concrete design opportunities for the full concept, despite the controlled and limited nature of the test environment.

# Interpretation Considerations

## Courtesy Bias

A potential source of distortion in the findings is courtesy bias. The participants were known personally by the designer and researcher which introduces the risk that these participants might exaggerate positive responses out of a desire to be supportive. To minimise this effect any indication of which interface belonged to the original Schiphol app was withheld, and a curated set of static screens placed the prototype and the real app on equal footing. Because none of the participants were aware that a Schiphol app existed, they could not easily infer which design was the redesigned version, reducing the likelihood of inflated praise.

Furthermore, by consistently asking “why” and probing deeper into the reasoning behind their feedback, participants were encouraged to connect their responses to genuine emotions and real motivations. This process makes it more difficult for participants to simply say what they think we want to hear, as they must genuinely believe and articulate their reasoning. In this way, the emotional interviewing format of this test naturally built in another layer of protection against courtesy bias.

Nevertheless, courtesy bias cannot be fully eliminated when using participants close to you, and the results should be interpreted with an awareness that some responses may be more positive than they would be in a fully anonymous setting.

## Influence of Prior Experiences

Participants’ previous experiences with assistance strongly shaped their expectations and interpretations of the concepts shown. A clear example of how prior experiences shaped expectations emerged in participants’ reactions to the voice and video call assistance. One participant had consistently positive experiences with customer-service calls — short waiting times, friendly conversations, and quick resolutions — which made them receptive to the idea of real-time assistance in the app. Another participant, however, carried almost the opposite history: they were routinely redirected through ineffective chatbots, placed in hour-long queues, and eventually connected to

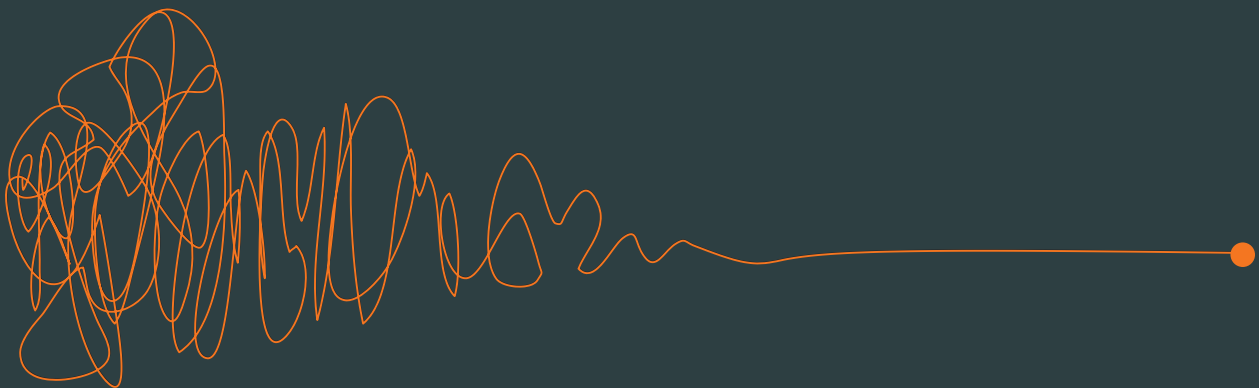
employees who struggled to help them efficiently. These accumulated frustrations strongly influenced their skepticism toward the same feature. This shows that positive and negative pre-existing experiences drive expectations and colour emotional responses. It highlights the importance of exploring the underlying reasons behind each reaction in order to truly understand the drivers of user sentiment.

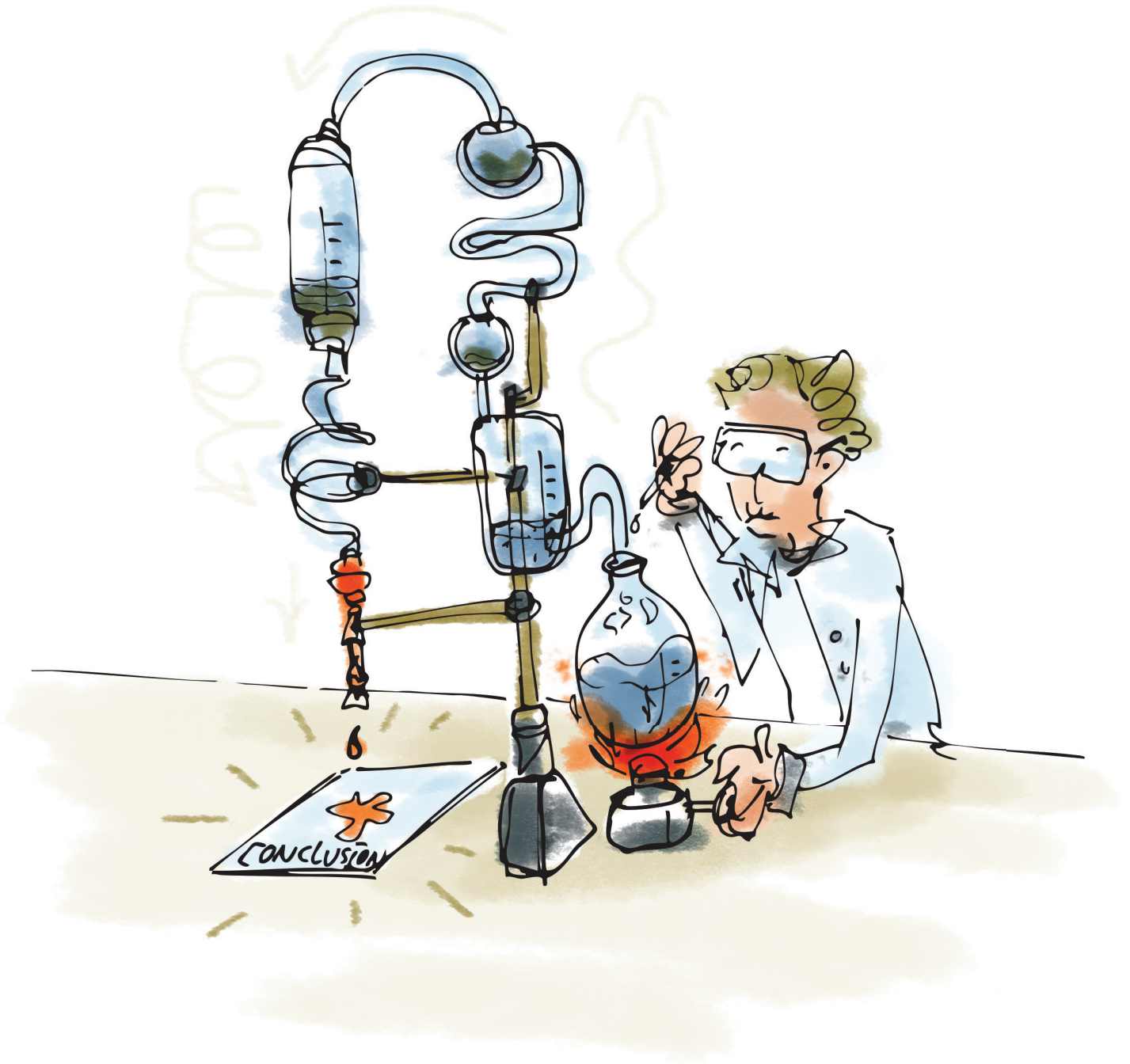
## Journey-Type Coverage

When reflecting critically on the test setup, we notice that the redesigned app unintentionally focusses heavily on the departing journey. The Prepare/Fly switch and the information displayed on the home screens, all suggest use for a departing journey. Consequently, participants imagine themselves primarily as departing passengers during testing. As Arriving, Layover, and Visiting journeys were represented less prominently, we naturally explored these alternative journey types less deeply. Further exploring how empathic redesigns can enhance various travellers needs is a recommended area for future research to fully develop the empathic assistance ecosystem.

# Chapter 8

## Conclusion





"It all boils down to..."

# 8.1

## Conclusion

### A passenger needs... **Empathic Assistance!**

This thesis demonstrates that passengers at Schiphol benefit most from assistance that recognises and responds to their emotional needs. What began as a brief for a single passenger service point evolved into a systemic rethinking of how assistance is delivered across the terminal. The project set out with two goals: **improving the passenger experience and reducing the number of assistance questions directed at ambulant staff**. Research into passenger behaviour and emotional states revealed a third, underlying challenge: **widespread baseline stress caused by six Stress Pools**. This stress not only increases the demand for assistance but also degrades the overall passenger experience. Addressing this became a central objective of the project.

#### **Improving the Passenger Experience**

The research showed that the passenger experience improves meaningfully when assistance is redesigned through an Empathic Lens. Interactions that support the fulfilment of the six Crucial Needs result in passengers experiencing their journey as **effortless, rewarding and confidence boosting**, while reducing the exposure to the Stress Pools gives passengers a greater sense of **calm, control, and clarity**.

Testing with passengers demonstrated that the empathically redesigned app made assistance feel intuitive rather than **effortful**, **increased confidence** both before and during their travel, and made their journey feel **enjoyable and exciting**.

#### **Alleviating pressure on ambulant staff**

As stress decreases, the number of questions caused by its negative effects — reduced cognitive capacity and narrowed attentional focus — also decreases.

Additionally, by consolidating assistance into a coherent satellite network and enhancing the app with conversational support, passengers feeling more confident in relying on digital and self-service touchpoints for the majority of their questions. These findings indicate a **reduced reliance on ambulant staff**.

This thesis shows that designing for emotion — rather than solely for efficiency — can meaningfully improve the passenger experience at Schiphol. The Satellite concept and Empathic Lens offer a foundation for a connected, supportive, and emotionally intelligent assistance network. Implemented thoughtfully, they can help Schiphol evolve into a truly empathic airport with a rise in passenger satisfaction as a result.

## Recommendations

### **Embed the Empathic Lens in Schiphol**

The Empathic Lens developed in this thesis can support Schiphol in identifying unnoticed problems and emotional friction points across ongoing and future projects. The upcoming redesign of the baggage claim area, for example, offers a clear opportunity to evaluate the current situation through this lens before finalising design decisions. Using the lens in this way helps reveal emotional needs that may otherwise remain invisible when focusing solely on operational or spatial considerations. By integrating the lens into everyday practice, Schiphol can maintain awareness of emotional needs and create a shared reference point that supports long-term, organisation-wide adoption of empathic design.

### **Iterate on the concept**

While the Satellite Concept demonstrates strong potential, it was intentionally developed outside the full complexity of Schiphol's operational reality. To move toward implementation, the concept requires a dedicated iteration phase in which it is adapted to the airport's concrete constraints. Three domains in particular demand further development:

- **Accessibility requirements** — ensuring full compliance with Dutch and EU accessibility standards, accommodating passengers with reduced mobility, visual or auditory impairments, and diverse cognitive needs.
- **Spatial and architectural limitations** — integrating the satellites into existing terminal layouts, circulation flows, and commercial zones without creating bottlenecks, adding to the visual clutter, or obstructing emergency routes.
- **Safety and security regulations** — aligning with aviation security protocols, fire safety regulations, and operational procedures that govern both passenger movement and staff behaviour.

These adaptations will inevitably influence the form, placement, and interaction qualities of the satellites. As a result, the concept's impact on stress reduction, need fulfilment, and staff workload must be reassessed after these adjustments.

### **Expand and Deepen the Testing Phase**

A crucial next step is to expand the testing phase with a larger and more diverse participant sample and to evaluate all elements of the satellite concept.

Testing in context would more accurately simulate real-world emotional states as participants are exposed to the Stress Pools identified in this research. This enables a more authentic evaluation of how empathic assistance influences behaviour and well-being.

# 8.3

## Relevance

### Relevance for Schiphol

Schiphol is currently undergoing a large-scale transformation aimed at restoring reliability, improving passenger satisfaction and strengthening its position as a world-class hub. Within this context, the insights from this project offer strategic value on multiple levels.

Firstly, the research reframes the assistance challenge from an operational issue to an emotional one. While Schiphol has traditionally focused on improving processes, capacity, and information clarity, this project shows that more attention should be paid to passengers' difficulties stemming from elevated stress levels and unmet psychological needs. By understanding assistance as an experience that shapes emotional states—not merely a service that resolves questions—Schiphol gains a new lens through which to improve the passenger journey.

Additionally, the project provides Schiphol with a structured understanding of systemic stressors. The identification of stress pools reveals where and why stress accumulates, enabling Schiphol to anticipate passenger needs rather than react to them. Undoubtedly there are more stress pools to be found if research continued. This proactive approach aligns with Schiphol's ambition to offer calm, clarity, and confidence throughout the terminal.

Furthermore, the project introduces a needs-based framework for evaluating and designing assistance. By grounding design decisions in the six crucial needs — Security, Autonomy, Competence, Ease, Relatedness, and Beauty — Schiphol gains a practical tool for assessing whether environments, services, and touchpoints support or undermine the passenger experience.

Finally, the proposed vision of empathic assistance directly supports Schiphol's renewed brand identity. The Empathic Lens strengthens Schiphol's goals, turning them into concrete design directions and behavioural expectations for staff, services, and digital systems at the Terminal.

In summary, this project provides Schiphol with actionable insights, a new conceptual framework, and a design direction that strengthens both **operational performance** and **emotional experience** — two pillars essential for the airport's future.

## Aviation Relevance

Airport Council International conducted a global survey to research the needs and desires of passenger in order to predict future trends. In their recent ASQ 2026 Global Traveller Survey (ACI, 2026) they distinguish five trends which define the next level of passenger experience at Airports:

1. Travellers value **authenticity, empathy** and **genuine connection**.
2. Passengers expect a **personalised** experience where products and services match their individual preferences, **behaviours**, and **needs**.
3. For a significant share of passengers, the airport is a source of **stress** and discomfort. Airports should place a greater emphasis on enhancing passengers' **well-being**.
4. An increasingly influential factor in passengers' assessment of the airport experience is **Sustainability**.
5. Delivering a truly outstanding experience, including a **great sense of place**, requires creating an atmosphere that makes the **journey memorable**.

These trends — with the exception of Sustainability — directly align with the empathic assistance vision proposed in this project. This external validation shows that the Empathic Assistance vision is not only internally grounded in the passenger needs at Schiphol Terminal Landside, but also fully aligned with global industry expectations.

## Design Relevance

Beyond its practical value for Schiphol, this project contributes to the broader academic discourse on human-centred design, service design, and emotion-driven interaction.

First, the project demonstrates how fundamental psychological needs—as described by Desmet & Fokkinga (2020) — can not only be applied to products, but also to **complex, high-pressure public environments** such as an international airport. This project shows how unmet needs accumulate, increasing stress and how design interventions can systematically reduce that stress by supporting need fulfilment.

Second, the project contributes to the field of service design for vulnerable states. Passengers under time pressure, uncertainty, or cognitive overload exhibit behaviours similar to those studied in healthcare, public transport, and emergency services. By framing assistance as an emotional and cognitive support system rather than a transactional service, this project offers a transferable approach for designing services that respond to human vulnerability.

Finally, the project enriches the discourse on empathic design. While empathy is widely discussed in design literature, it is often treated as a mindset rather than an operationalised design quality. The empathic lens developed in this project translates empathy into more concrete action points that can guide both design and organisational practice.

In this way, the project bridges theory and practice: it applies established psychological frameworks to a real-world context, generates new insights about stress and behaviour in airports, and proposes a design vision that can inform future research on emotional experience in public infrastructures.

# 8.4

## Project Reflection

### Work Methods

Looking back on this project, one of the most impactful decisions was to question the initial brief. Instead of limiting the scope to a single passenger service point, I explored what would happen if assistance at Schiphol was reconsidered at a systemic level. This shift clearly revealed the underlying issues of stress. Schiphol was aware of the effects of stress but had not yet been able to put the exact causes onto paper: Stress Pools. The positive feedback during a process update about this topic to the managers showed that this broader empathic vision did not just answer the original brief, but really broadened their horizon on ways to improve the passenger experience.

Throughout the process, I repeatedly challenged my assumptions and ideas with literature research. This never ending well of knowledge always proved to be the fastest and most effective way to confront my own preconceptions and reveal the potential of early ideas. For instance, it helped me see that the pervasiveness of baseline stress was not unique to only Schiphol airport, and that its effects had a major impact on the passenger experience and were even contributable to the very origin on many questions.

Balancing research, synthesis, and concept creation was a constant exercise in discipline. Following the Double Diamond approach helped me structure the project and allocate time intentionally to both divergence and convergence. However, during the concept creation I suffered from **Under-Commitment**. Constantly searching for a 'better' concept, using up valuable time. This became a great lesson on Under-Commitment (being afraid to commit to one concept) and Over-

Commitment (closing your mind off to alternative options because of being biased towards a certain concept). Being aware of these effects during future projects is strengthens me as a Designer.

Qualitative methods — such as conversations and interviews — were especially valuable in uncovering the emotional undercurrents of a passenger's journey. In contrast, quantitative data was less effective in this context as it often lacked the nuance needed to capture emotional experience and required adaptation to remain meaningful; numbers alone could not explain why passengers felt the way they did.

However, these qualitative methods also brought their own challenges with them. Reflecting on emotional experiences with participants during testing proved to be straining. During the pre-test session the participant showed noticeable fatigue after around an hour. Encountering this emotional fatigue was a good learning moment and its discovery also highlighted the importance of pre-testing; allowing for one more round of iterations before committing to a test format.

### Context

My understanding of airport operations grew significantly over the course of the project. I became more aware of the immense constraints imposed by existing architecture, operational requirements, safety regulations, commercial interests, and the division between in-house and external parties. Within this complexity, I also saw how different departments pursued their own goals and solutions, sometimes unintentionally working against each other. For example, efforts to declutter spaces to create a less

overstimulating atmosphere conflicting with the desire of commercial parties to add more Christmas campaigns and advertisements at the terminal.

My perspective on “assistance” itself changed fundamentally. At the start, I saw assistance primarily as direct help: a staff member answering a question, an employee pushing a wheelchair passenger to their gate, or a Lost&Found desk searching for a passengers lost wallet.

Over time, I came to understand that assistance also includes everything that indirectly supports passengers — quiet environments, clear lighting, intuitive layouts, and anticipatory information. Thinking ahead about what a passenger will need is, in itself, a form of assistance. This broadened view was crucial in shaping the satellite concept and the empathic vision behind it.

## Challenges and Limitations

Working with stakeholders in a data-driven organisation brought its own challenges. Many departments had fragmented initiatives and their own metrics for success, making it difficult to align them around an emotionally driven, qualitative vision. Convincing them of the value of empathic design — while only having qualitative not quantitative data — required a different way of communicating. I learned that the most effective approach was to make the experience relatable; let stakeholders envision and emotionally connect with the passenger’s journey. Once they recognised their own feelings in those situations, the value of the concept became much easier to convey.

The project also had clear limitations. Access to real passengers was restricted, partly out of a desire not to burden them during their journey. As a result, I relied on people in my surroundings who were familiar with Schiphol or had upcoming trips planned. Their insights were valuable, but not a full substitute for in-situ research with actual travellers and often brought on issues such as Courtesy Bias. Time constraints were another major obstacle. There were many aspects I wanted to explore and refine, but not all were feasible within the available timeframe. This made prioritisation essential—especially when deciding what and how to test during the evaluation phase.

The conceptual nature of the satellite network posed an additional challenge: how to ensure Schiphol understood that this was not a final, fixed solution, but one possible application of the empathic assistance vision.

To communicate this, I deliberately used sketches instead of polished renders and chose not to over-specify every detail. By focusing only on the most important parts, I kept the concept open and adaptable rather than prescriptive.

# 8.5

## Personal Reflection

### Independence

This project was a genuine test of my independence. I wondered whether I could keep myself motivated, stay on track, and reach out for support when needed. I am grateful that my team trusted me fully and gave me the space to push my own limits. Schiphol left me to work autonomously not out of neglect, but out of confidence in my capabilities. Their confidence in me directly boosted my own confidence in myself. They were always there as a safety net when I needed guidance, yet never imposed their own ideas, which allowed me to think freely and explore the project on my own terms. After the research phase, I realised I needed a sparring partner to help me think through ideas. Meeting weekly with a fellow graduate to brainstorm about each other's projects became an important anchor point and helped me maintain momentum.

### Struggling to Commit

During the concept phase, I repeatedly felt as though I was running into a brick wall. Whenever I expected to make progress, I found myself working for hours only to end up exactly where I started. I generated entirely new concepts, only to abandon them quickly for various reasons. I kept second-guessing myself and struggled to commit to a final direction. Although this kind of turbulence is normal in concept development, it felt different from previous projects.

Looking back, I can see why. I felt a strong responsibility to do justice to the depth of the research I had conducted. I had invested so much time in mapping the complexity of the problem and uncovering meaningful insights,

tools, and design directions. But when it came to creating a concept, every idea seemed to ignore at least some of the issues I had identified. I simply could not solve everything with one perfect solution — something that, in hindsight, is quite logical in a context as large and complex as Schiphol.

Additional pressure on finding this 'perfect' concept came from me trying to find the holy grail at the culmination of two decades of education. Creating something that reflected all the effort I had put in over the years, and all the skills I had acquired. Too late I realised that it was not the concept that would reflect this, but the entire half-year project itself.

### Using AI

Throughout the reporting phase, I worked with CHATGPT and Copilot as writing coaches. These supported in refining the phrasing for line of inquiry and suggesting alternate grammar options. Normally, I feel constrained by the many rules of academic writing, which often slows me down. This time, I could simply write what I wanted to say — without worrying about spelling, structure, or whether my argumentation was perfectly shaped from the start. Using AI made my writing process creatively freeing.

However, I did notice a limitation when fine-tuning paragraphs. The more we iterated on a specific section, the more hesitant the AI became to change anything I had previously approved. It became overly cautious, almost afraid to rewrite a paragraph in a way that might alter parts I had liked earlier, almost like the AI was suffering from tunnel vision. It seemed unable to look beyond its own self-imposed boundaries and take the creative risk of offering a completely new direction.

## All in All

This project challenged my work methods. I learned to think systemically in immensely complex contexts, to design for emotion rather than just function, and to communicate the value of qualitative insights in a corporate, data-oriented environment.

It showed me the importance of questioning briefs, and trusting that a well-founded vision — like empathic assistance — can create impact far beyond the original assignment.

It challenged and strengthened my ability to plan ahead and allocate sufficient time for tasks, something I have always struggled with.

The project always challenged and excited me equally, making me feel valuable and essential as a designer in this design field.

# 8.6

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📷 1  
Thijs Wolzak: Maarten Baas Schiphol Clock, n.d.



📷 2  
ANP: nos.nl/artikel/2596753, 2026



📷 3  
ANP, 2026

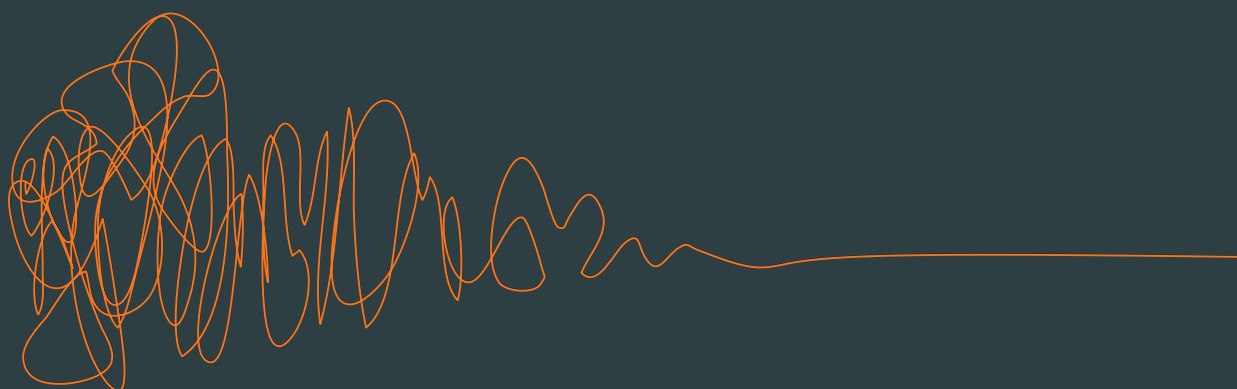


📷 5  
AI: freepik.com



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thinkstock, n.d.

# Appendix





“... I’ll probably don’t need those anyway”

# Schiphol 5 Archetypes

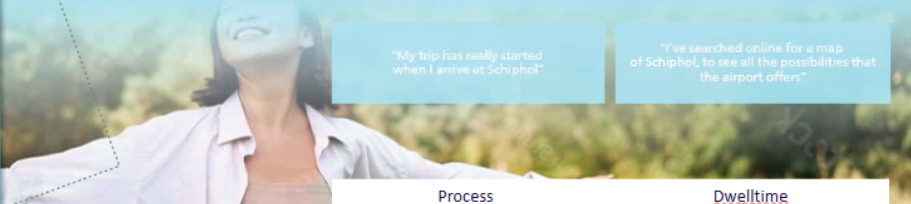
## Simplifying the massive variety of passengers

Schiphol's 5 Archetypes together represent all passenger's behaviour and desires at the terminal.

#in the action  
#on the move  
#venturing

+

Carefree enjoyer



"My trip has really started when I arrive at Schiphol"

"I've searched online for a map of Schiphol, to see all the possibilities that the airport offers"

	Process	Dwelltime
<b>Departure</b> ✈️	<ul style="list-style-type: none"> <li>▪ Arriving on time at Schiphol, it's a great way to get into the travel mood</li> <li>▪ Understanding when things don't go well</li> <li>▪ Prefer a short wait at the gate</li> </ul>	<ul style="list-style-type: none"> <li>▪ Looking for action to prevent boredom</li> <li>▪ Impulsive shopper</li> <li>▪ Treating oneself to something tasty</li> </ul>
<b>Arrival</b> ✈️	<ul style="list-style-type: none"> <li>▪ Move fast through obligated steps, politely jumping the queue is allowed</li> <li>▪ Understanding if things don't go well or take longer, 'it will be alright'</li> </ul>	<ul style="list-style-type: none"> <li>▪ Already thinking about the fun activities and things they'll do once they're home or at their destination.</li> </ul>
<b>Transfer</b> 🔄	<ul style="list-style-type: none"> <li>▪ Move fast through obligated steps, politely jumping the queue is allowed</li> <li>▪ Prefer a short wait at the gate</li> </ul>	<ul style="list-style-type: none"> <li>▪ Although tired, doing nothing feels like a waste of time</li> <li>▪ Impulsive shopper</li> </ul>

**I love airports! Feel the international vibel Awesome, isn't it? Let's get through the obligated steps as quickly as possible so I can enjoy my time at the airport.**

**My needs**

- When it comes to process steps, I want clear, practical, and fast information and routes. No, I didn't prepare, and I'm not familiar with the regulations on liquids and gels.
- After the obligated steps, I actively focus on exploring shops, restaurants, entertainment, and variety.
- I want Schiphol to facilitate and entertain me.

**Regarding my information needs**

I have minimal interest in process-related information, like booking timeslots at security. I just want the essential information, such as my gate number and boarding time.

8

#go with the flow  
#prepared  
#take it how it is

+

Comfort seeker



"I've packed my bag a week in advance, I'm afraid I otherwise forget something"

"The security staff was clear and friendly, even though it was busy. That put me at ease"

	Process	Dwelltime
<b>Departure</b> ✈️	<ul style="list-style-type: none"> <li>▪ Arriving on time to be well prepared and has buffer for unexpected issues.</li> <li>▪ Feeling a bit insecure but relieved when it's over</li> <li>▪ Nervous and insecure when things take longer or don't go well</li> <li>▪ A thorough security check reassures them</li> </ul>	<ul style="list-style-type: none"> <li>▪ Focused on preventing issues from happening and thus arriving on time at the gate</li> <li>▪ Friendly and slightly entertaining environment helps to relax and feel welcome</li> </ul>
<b>Arrival</b> ✈️	<ul style="list-style-type: none"> <li>▪ Relieved when they're "almost there"</li> <li>▪ Fast through all the steps (familiar environment, almost home)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Hoping everything goes well on their way home</li> <li>▪ Get stressed when they see unattended luggage</li> <li>▪ Focus on everything that needs to be done at home</li> </ul>
<b>Transfer</b> 🔄	<ul style="list-style-type: none"> <li>▪ A bit insecure, yet relieved once they've gotten through it.</li> <li>▪ Nervous and insecure when things take longer or don't go well</li> </ul>	<ul style="list-style-type: none"> <li>▪ Focused on preventing issues from happening and thus arriving on time at the gate</li> <li>▪ Doing nothing doesn't feel like a waste of time; it brings comfort</li> </ul>

**A good preparation is essential to ensure everything runs smoothly and to prevent unexpected issues. Rules and regulations provide safety. Unexpected changes or delays cause me stress. Double-check with the staff; just to be sure.**

**My needs**

- In process steps, I aim to make the necessary steps as predictable and easy as possible.
- I like to be in a clear, friendly, and warm environment where I feel supported.
- I am relieved once everyone has boarded properly.

**Regarding my information needs**

I read emails from the airline and airport thoroughly. Prior to departure, I look for information about security regulations on the website and app. Visible airport staff throughout the terminal is important to me for confirmation and clarification.

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#gogogo  
#smart  
#self-centred

## Efficient traveller

I approach preparation strategically and with a goal-oriented mindset to complete mandatory steps as efficiently as possible. This helps me minimize time spent at the airport. Avoiding queues is a goal in itself. I sometimes even regret arriving early when everything runs smoothly.

**My needs**

- The processes should be efficient. An effective environment allows me to move as quickly as possible.
- I want to minimize my time at the airport and use my time as efficiently as possible.
- I like to feel like I am in the lead.

**Regarding my information need**  
I'm very interested in information that helps me shorten waiting times. Other information and channels should be clear and practical.

"Public transport often has delays, so I'd rather go by car"

"It's best to stand in line behind businesspeople, they are often faster than families"

	Process	Dwelltime
<b>Departure</b>	<ul style="list-style-type: none"> <li>Planned with precise timing, balancing efficiency with allowance for hiccups</li> <li>Goal-oriented and strategic in meeting obligation</li> <li>Assertive and solution-orientated when things don't go well or take longer</li> <li>Arrive at the gate on time to secure a good spot in the boarding line and have space for hand luggage</li> </ul>	<ul style="list-style-type: none"> <li>Aimed at 'wasting' as little time as possible at the airport</li> <li>Effective and useful stay</li> </ul>
<b>Arrival</b>	<ul style="list-style-type: none"> <li>Focused and heading straight to the luggage hall or exit</li> <li>Impatient if things don't go well or take longer, 'this is a waste of my time'</li> </ul>	<ul style="list-style-type: none"> <li>Focused on all the activities planned from departure airport</li> <li>With more important things ahead, it's okay to push forward</li> </ul>
<b>Transfer</b>	<ul style="list-style-type: none"> <li>Goal-oriented and strategic in meeting obligation</li> <li>Assertive and solution-orientated when things don't go well or take longer</li> <li>Arrive at the gate on time to secure a good spot in the boarding line and have space for hand luggage</li> </ul>	<ul style="list-style-type: none"> <li>Aimed at 'wasting' as little time as possible at the airport</li> <li>Effective and useful stay</li> </ul>

24

#chill  
#me time  
#inner-focused

## Autonomous traveller

Waiting is just part of my journey to the destination. I can entertain myself and don't rely on the airport for distractions or entertainment. Once I know where to go, I look for a quiet place to relax.

**My needs**

- In process steps, I want to focus on clear, practical, and fast information and routes
- I prefer to find a calm spot to relax by reading, listening to music, or watching a film.
- I want to stay in a quiet place and do my own thing.

**Regarding my information need**  
I only look for the essential information prior to my journey. I'm not interested in what I can do at the airport.

"At an airport I want to avoid the crowds and look for a quiet spot"

"There is just some time for me, to take some time and be just by myself"

	Process	Dwelltime
<b>Departure</b>	<ul style="list-style-type: none"> <li>First, find out where they need to be, then look for a nice spot</li> <li>Calmy move through the obligatory steps</li> <li>Patiently wait for boarding</li> </ul>	<ul style="list-style-type: none"> <li>Focused on finding a quiet spot to retreat to</li> <li>Enjoy doing nothing</li> </ul>
<b>Arrival</b>	<ul style="list-style-type: none"> <li>Relaxed but moves purposefully through all the steps</li> <li>Understanding if things don't go well or take longer, 'it will be alright'</li> </ul>	<ul style="list-style-type: none"> <li>Live goes back to normal again</li> </ul>
<b>Transfer</b>	<ul style="list-style-type: none"> <li>Calmy move through the obligatory steps</li> <li>Get to the gate early to be there well in time</li> </ul>	<ul style="list-style-type: none"> <li>Focused on finding a quiet and comfortable spot to pass time</li> <li>Enjoy doing nothing</li> </ul>

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#perfect  
#customer is king  
#special

## Mondaine shopper

I enjoy being part of the international bubble that flying and airports provide. Great shops and excellent service excite me. It makes me feel special.

**My needs**

- In the process, I value a smooth service that makes me feel recognized and special.
- I want to experience the exclusive feeling an airport can offer.
- I want to be taken care of.

**Regarding my information needs**  
I do not extensively search for information prior to visit. Essential information on gates & boarding is sufficient. Looking for new stores, tax free advantages and exclusive entertainment at Schiphol.

"The museum had a new exposition, so after shopping I went there"

"When I am at Schiphol, I don't think about prices. The trip has begun"

	Process	Dwelltime
<b>Departure</b>	<ul style="list-style-type: none"> <li>Understanding if things don't go well or take longer</li> <li>Focused on comfort and pleasure; the trip has already begun</li> </ul>	<ul style="list-style-type: none"> <li>Conscious shopper</li> <li>Looking for nice things to make the trip more fun and comfortable</li> <li>Enjoying the luxurious and different stores</li> </ul>
<b>Arrival</b>	<ul style="list-style-type: none"> <li>Relaxed but moves purposefully through all the steps</li> <li>Relaxed, yet purposeful through every step</li> <li>Understanding if things don't go well or take longer, 'it will be alright'</li> </ul>	<ul style="list-style-type: none"> <li>Enjoying the last moments before the routine kicks back in at home</li> </ul>
<b>Transfer</b>	<ul style="list-style-type: none"> <li>Moving relaxed through Schiphol, as long as they're on time</li> <li>Understanding if things don't go well or take longer</li> <li>Focused on comfort and pleasure; the trip has already begun</li> </ul>	<ul style="list-style-type: none"> <li>Looking for nice things to make the trip more fun and comfortable</li> </ul>

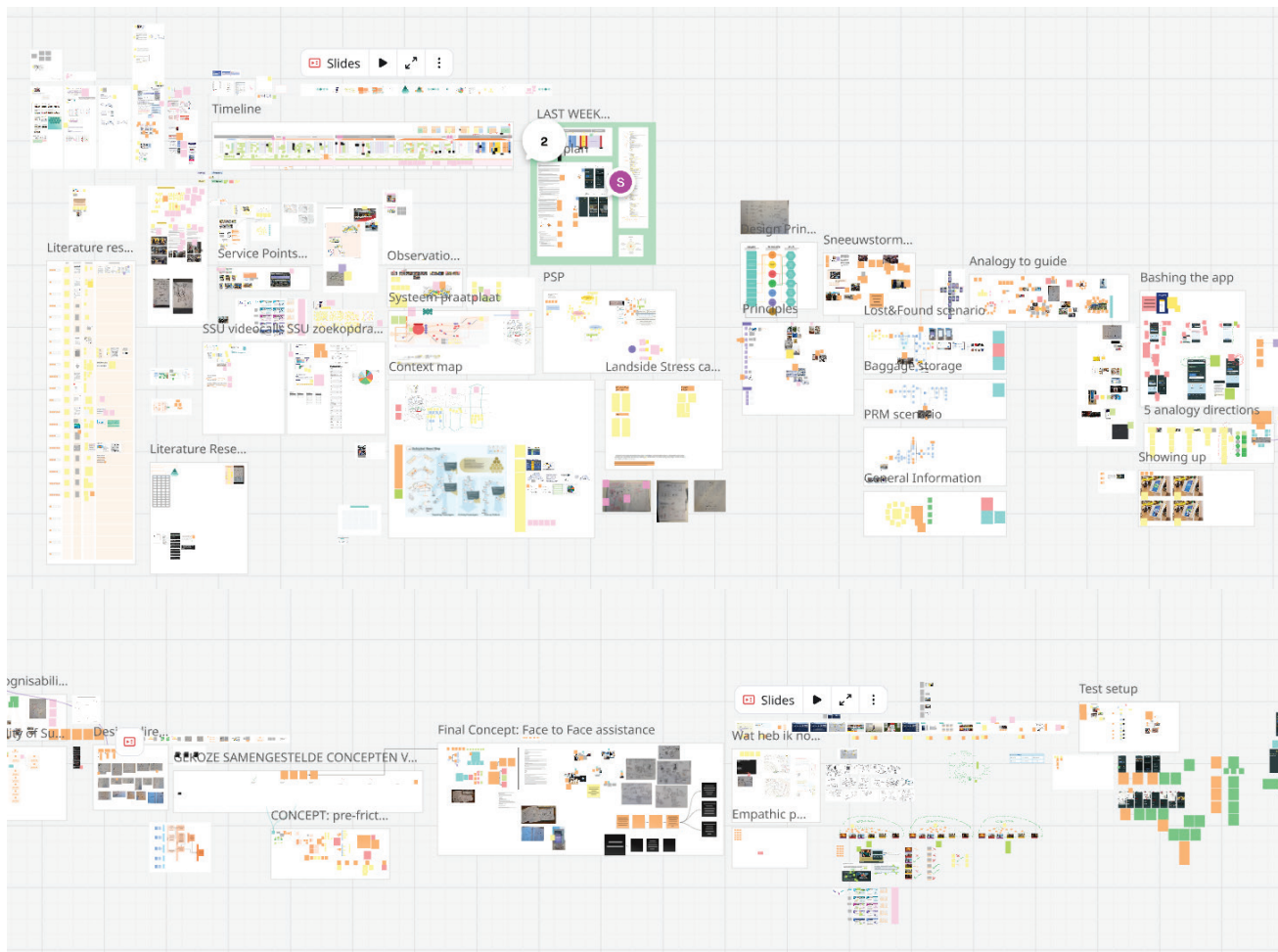
17



# Miro board

Digital whiteboard of the entire project

Scan this QR code to roam around in the behind the scenes of this report.



# C BRACES

## BRACES Model:

With the BRACES model we can assess to which degree the six Crucial Needs are being fulfilled. Ask passengers to rate their need fulfilment out of 5, by asking how well they relate to the statement.





# Project Brief

## Personal Project Brief – IDE Master Graduation Project

Name student  Student number

### PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT

Complete all fields, keep information clear, specific and concise

Project title

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

#### Introduction

*Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)*

Together with Schiphol, my graduation project aims to enhance the passenger service experience. Schiphol is the largest airport in the Netherlands with 60-70 million passengers annually. This comes down to a few hundred thousand passengers walking, waiting, eating, sometimes even running, at Schiphol every single day. Passengers from countries all over the world, with different cultures, speaking different languages, and of all ages. Not every passenger is able to complete their journey without a bit of help. To aid them in their travels, Schiphol currently offers several separate counters for assistance services:

- Lost&Found
- Bagage Storage
- PRM (Person with Reduced Mobility)

Schiphol has experienced a need for an additional counter, offering general information to passengers to relieve non-airport counters and ambulant staff. But also a need for a united front for Schiphol passenger assistance. A place where passengers can be helped, no matter their question or need. Here in lies a design opportunity to integrate all previously named services into one physical service counter(s). Combining these services creates a clear point of contact for passengers, reducing confusion and stress during their journey. It improves efficiency by streamlining resources, while also ensuring that staff can flexibly support a wider range of passenger needs.

Robbert van Vliet, Customer Care Manager at Schiphol, and his team will assist me in this project. Robbert has been working at Schiphol for 7 years, and aims for a memorable, personal and welcoming customer experience. He and his team can offer me plenty of support and advice with experience and data to back it up.

→ space available for images / figures on next page

introduction (continued): space for images



image / figure 1

### Assignment deep dive:

” Design the **passenger interaction** for an **integrated passenger service point concept**, to **improve passenger experience** and **alleviate ambulant staff** at the Schiphol terminal.



**Deliverable (1):** a passenger experience detailing how passengers perceive and interact with the integrated passenger service point.

**Deliverable (2):** a concept for an integrated passenger service point (location(s), layout, form language, resources)

#### Improve:

1. Emotional: Stress-free, confident, welcoming (13 fundamental needs, Desmet and Fokkinga (2020))
2. Logistics: Passenger flow (accessibility, location, visibility)
3. Prioritize: quick PRM assistance
4. Inclusivity: Languages, Hearing/Visibility/Motor-skills

**Alleviate:** the goal is to reduce the amount of passengers that approach ambulant staff with service counter related questions and otherwise make quick referral possible.

image / figure 2

## Personal Project Brief – IDE Master Graduation Project

### Problem Definition

*What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.*

*(max 200 words)*

At Schiphol, passengers can find assistance at various service points. These include: baggage storage, Lost & Found, and PRM. Self-Service Units (SSUs) offer video call support, designed to feel both intuitive and personal. However, navigating the assistance services can be difficult, especially under time pressure. SSUs can be confusing and intimidating, while some passengers are unsure of where to find the service points.

Furthermore, schiphol has noticed a need for a general information point to alleviate the ambulant staff. Passengers perceive the airport as a single entity; they often approach the nearest counter or employee, regardless of that person's role. This can lead to delays and frustration, as staff is interrupted and may need to redirect the passenger elsewhere.

There is an opportunity to reimagine assistance as a more integrated, visible, and human-centered system. A clear point of contact reduces confusion, improves passenger satisfaction, and allows staff to support a wider range of needs more flexibly and efficiently. Ultimately, aligning with Schiphol's vision of a seamless, stress-free journey.

I want to design a concept for an integrated service counter that is easy to find, feels welcoming and has intuitive, stress free user interactions. It is important that passengers with reduced mobility can be given priority and that language/culture barriers pose no issues.

### Assignment

*This is the most important part of the project brief because it will give a clear direction of what you are heading for.*

*Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence)*

*As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:*

Design the passenger interaction for an integrated passenger service point concept, to improve passenger experience and alleviate ambulant staff at the Schiphol terminal.

*Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)*

Phase one consists of Observations, collecting and analyzing data and research. To understand the current situation better and to prepare an initial in-context user test. During this test I will use the 13 fundamental needs introduced by Pieter Desmet (2020). In a nutshell, all humans share 13 fundamental needs. These needs drive our actions. Designing to satisfy these needs allows us to create the most rewarding experience. We can reveal the needs behind an action by observing and laddering interview answers. Laddering in this context means to dive deeper into answers until the core motivation, the underlying fundamental need, is revealed. This will lead me from the tests of phase 1 to the ensuing ideations in phase 2. Phase 2 starts with bundling the collected knowledge and creating user profiles. Schiphol serves a highly diverse population of passengers across age groups, cultures, and languages. It's important to design user profiles that are nuanced and avoid overgeneralization. Next comes ideation and conceptualisation, phase 3. Coming up with lots of ideas and combining these into functional concepts. These concepts can then be stress-tested by setting up several user scenarios and running through them with the user profiles. In phase 4 I will use these results to shape and detail the final concept. I strive to test this concept in a low-fi setup with test participants. This would give great insights for the last iterations. Phase 5 is finalising everything, concept and documentation. Carrying out the last iterations and bundling it in a presentable format.

## Project planning and key moments

To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a **kick-off meeting**, **mid-term evaluation meeting**, **green light meeting** and **graduation ceremony**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).

Make sure to attach the full plan to this project brief.  
The four key moment dates must be filled in below

Kick off meeting	13 Oct 2025
Mid-term evaluation	15 Dec 2025
Green light meeting	28 Jan 2026
Graduation ceremony	27 Feb 2026

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	<input type="checkbox"/>
For how many project weeks	<input type="text"/>
Number of project days per week	<input type="text"/>

Comments:

## Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.

(200 words max)

During my studies and internships I became most intrigued by designing tailored experiences in the physical world to improve or offer positive experiences, by playin into the basic needs and emotions of humans. Schiphol is a small ecosystem that fosters hundreds of design opportunities, where innovation is crucial. Passengers satisfaction is incredibly important and with the rush and stress of their travels, a designer can make a large positive impact in this emotional design context. Creating a pleasant passenger experience while integrating the multiple complex services is a challenging yet exciting puzzle to solve. It is a project that ties in closely with the elements I enjoy most when designing. On top of that, the early concept phase, doing the leg work to give Schiphol a solid launchpad for their innovation to take-off, is a phase in which I feel most comfortable and strong. These reasons are why I am excited to start the project and deliver a concept that will improve the passenger experience at Schiphol.

During the project I hope to grow;

- I want to get better at explaining my ideas briefly and clearly, and at convincing people of these ideas.
- I want to be open to the input and ideas of others without immediately forming reasons in my head why they wouldn't work. If I let them marinate a bit longer with an open mind, they often turn out to contain many good insights.
- I want to learn how, in a very short interview, I can purposefully collect the data I will need. This way, I could spend a whole day in a public place and gather a large, convincing data pool from passersby, while still being able to ask targeted follow-up questions on interesting answers.

