



The Design of a Self-Service Wheelchair Service System for Schiphol Departures



Schiphol Group

Context

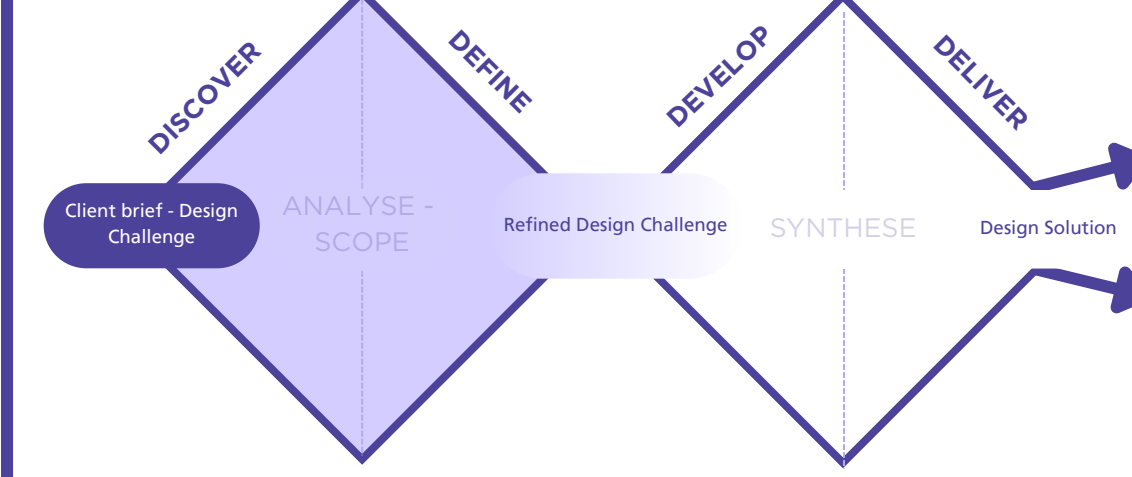
As the number of PRM (Passengers with Reduced Mobility) travellers increases and staffing shortages persist, Schiphol faces growing pressure to ensure reliable and accessible mobility services. The current system, which relies heavily on staff assistance, is under strain and limits passenger autonomy.

At the same time, it is increasingly clear that many PRM passengers seek more independence in how they move through the airport. Existing procedures do not always reflect this shift, leading to mismatches between service provision and passenger needs.

Innovative mobility solutions are emerging as a shared ambition across departments, combining goals of accessibility, operational efficiency, and future-oriented service design. These developments offer an opportunity to rethink how autonomy for PRM passengers is supported within a complex airport environment.

This graduation project contributes to that ambition by exploring the introduction of a self-service wheelchair system in the departure area, and by outlining how such a solution could evolve into a scalable, strategic service model.

Method



This graduation project followed the Double Diamond model and used a human-centred, strategic design approach. The project combined a short-term case with long-term service development, both at Schiphol.

A self-service wheelchair concept was explored as a short-term solution. This real-life case provided input for a future-ready service model. The process included qualitative interviews, action research with PRM users, a case study of the Paris 2024 Paralympics, and context studies, such as field observations and desk research, to understand how accessibility unfolds in public mobility systems.

Insights were translated into six design criteria that shaped both concept and strategy. The iterative approach ensured a balance between user needs and operational feasibility.

Criteria

1. Facilitate Autonomy

The system must offer full autonomy in accessing a wheelchair.

Independence is a core value. Users should never depend on staff or rigid procedures. The solution must accommodate diverse mobility needs and work intuitively without explanation or help.

2. Inform Comprehensively

Information must be available from the moment of travel planning and remain clear throughout the journey.

From the first moment of planning, users need access to accurate, up-to-date, and usable information, such as wheelchair locations, availability, and usage instructions.

3. Design Universally

The solution must be functional, simple, and universally usable.

Simplicity is a core value. The design should avoid mental or physical barriers and work for all users, regardless of age, language, impairment, or experience. Interfaces and interactions must be intuitive, clear, and require no additional mental effort.

4. Build Accessible Infrastructure

Wheelchair locations and infrastructure must be logical, efficient, and accessible.

Wheelchairs should be strategically placed in logical, recognizable locations. Wayfinding should be intuitive, routes seamless, and physical effort minimized.

5. Manage the Operation

The service must be reliable, well-managed, and clearly assign responsibilities.

The system must always function properly, and wheelchairs must be available. Digital systems must be flawless. A clear service model should define tasks, responsibilities, and cooperation between teams.

6. Adapt to Change

The design must be able to adapt to external trends, regulations, and technologies.

The solution must be modular and scalable. Innovations and policy updates must be easy to integrate. Think of evolving technologies, sustainability, and regulations, the service must grow and remain relevant.

1

Set-up of a short-term wheelchair station concept to explore practical needs and test basic conditions.

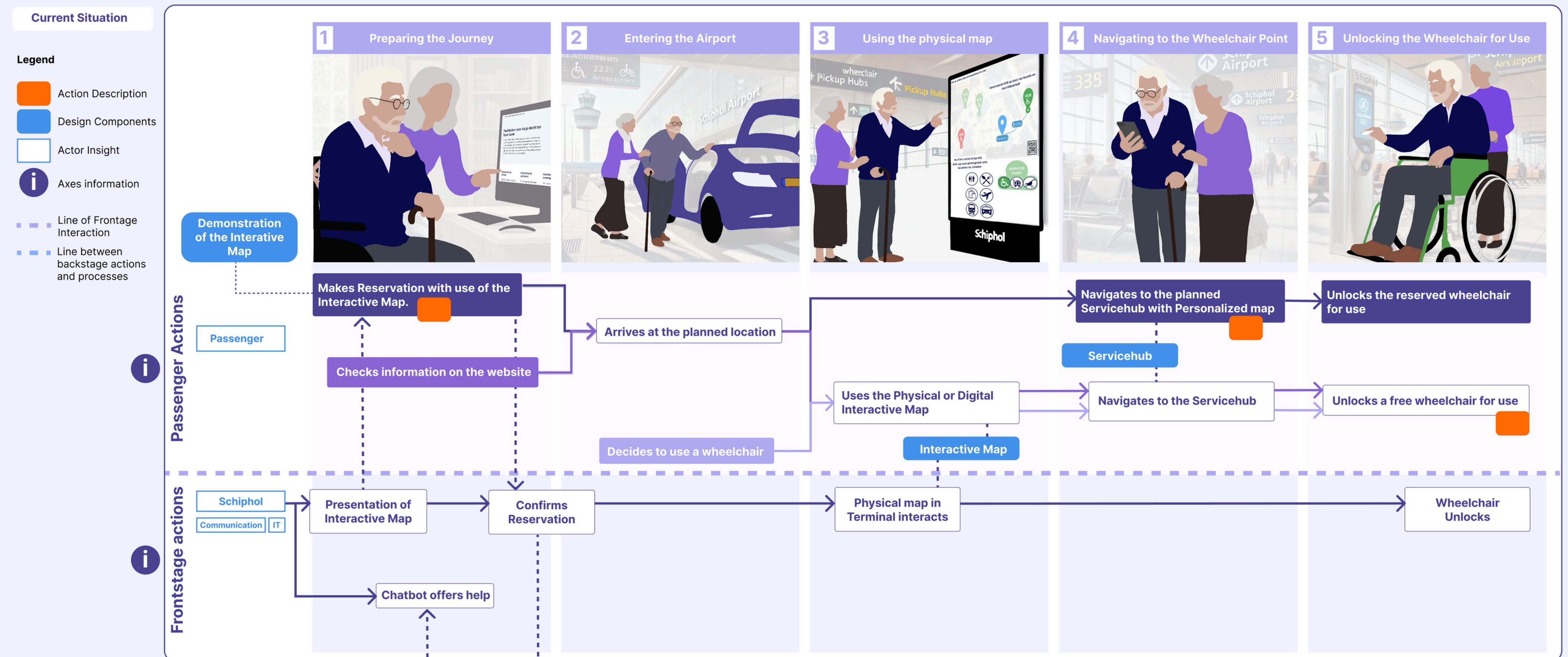
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Use of pilot insights to inform and iterate the development of a future-oriented solution.

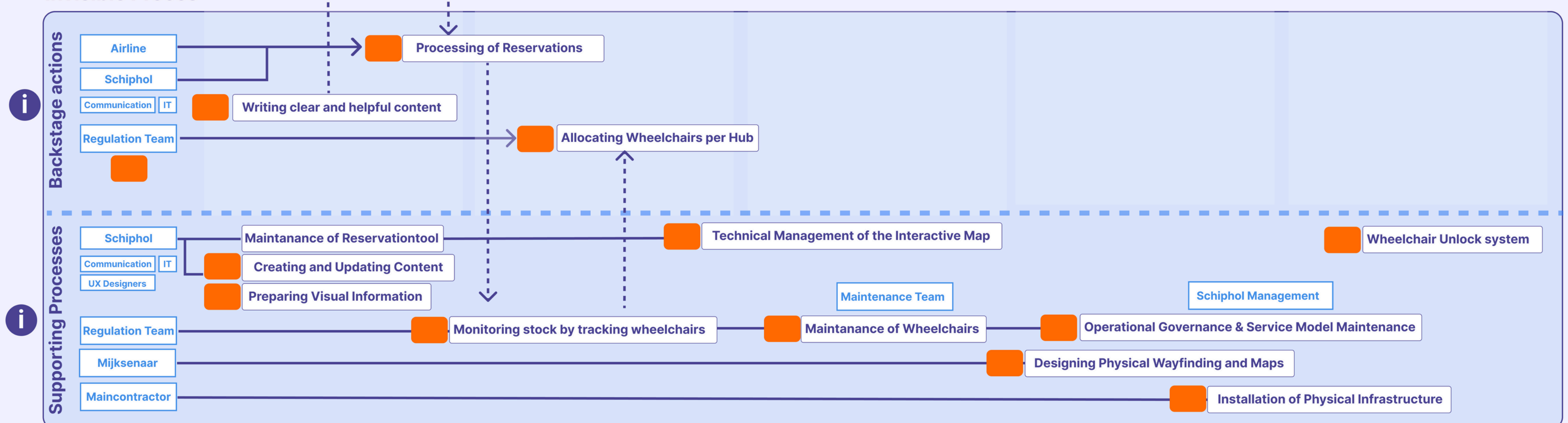
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Finalisation of a strategic service design for a scalable self-service wheelchair system at Schiphol.

Visible Proces



Invisible Proces



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Self-Service Wheelchairs at the Departure
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