

# APPENDICES

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# Appendix A: APPROVED PROJECT BRIEF



## IDE Master Graduation Project

### Project team, procedural checks and Personal Project Brief

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks:

- Student defines the team, what the student is going to do/deliver and how that will come about
- Chair of the supervisory team signs, to formally approve the project's setup / Project brief
- SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress
- IDE's Board of Examiners confirms the proposed supervisory team on their eligibility, and whether the student is allowed to start the Graduation Project

### STUDENT DATA & MASTER PROGRAMME

Complete all fields and indicate which master(s) you are in

Family name	Overdijk	7454	IDE master(s) IPD	<input type="checkbox"/>	Dfl	<input type="checkbox"/>	SPD	<input checked="" type="checkbox"/>
Initials	M E		2 <sup>nd</sup> non-IDE master					
Given name	Meike		Individual programme (date of approval)					
Student number			Medisign	<input type="checkbox"/>				
			HPM	<input type="checkbox"/>				

### SUPERVISORY TEAM

Fill in the required information of supervisory team members. If applicable, company mentor is added as 2<sup>nd</sup> mentor

Chair	Sicco Santema	dept./section	Design, Organisation & Strategy	<div>! Ensure a heterogeneous team. In case you wish to include team members from the same section, explain why.</div> <div>! Chair should request the IDE Board of Examiners for approval when a non-IDE mentor is proposed. Include CV and motivation letter.</div> <div>! 2<sup>nd</sup> mentor only applies when a client is involved.</div>
mentor	Aniek Toet	dept./section	Design, Organisation & Strategy	
2 <sup>nd</sup> mentor	Jonathan de Bruijne, Yannick Enting			
client:	Royal Schiphol Group			
city:	Amsterdam	country:	Nederland	
optional comments				

APPROVAL OF CHAIR on PROJECT PROPOSAL / PROJECT BRIEF -> to be filled in by the Chair of the supervisory team

Sign for approval (Chair)

sicco  
santema

Digitaal ondertekend  
door sicco santema  
Datum: 2024.10.27  
10:43:55 +01'00'

Name sicco santema

Date 23 okt 2024

Signature

### CHECK ON STUDY PROGRESS

To be filled in by **SSC E&SA** (Shared Service Centre, Education & Student Affairs), after approval of the project brief by the chair.  
The study progress will be checked for a 2<sup>nd</sup> time just before the green light meeting.

Master electives no. of EC accumulated in total \_\_\_\_\_ EC

Of which, taking conditional requirements into account, can be part of the exam programme \_\_\_\_\_ EC

★	YES	all 1 <sup>st</sup> year master courses passed
	NO	missing 1 <sup>st</sup> year courses

Comments:

Sign for approval (SSC E&SA)

Robin den  
Braber

Digitaal ondertekend  
door Robin den Braber  
Datum: 2024.11.06  
08:50:50 +01'00'

Name Robin den Braber Date 06-11-2024 Signature \_\_\_\_\_

### APPROVAL OF BOARD OF EXAMINERS IDE on SUPERVISORY TEAM -> to be checked and filled in by IDE's Board of Examiners

Does the composition of the Supervisory Team  
comply with regulations?

YES	★	Supervisory Team approved
NO		Supervisory Team not approved

Comments:

Based on study progress, students is ...

★	ALLOWED to start the graduation project
	NOT allowed to start the graduation project

Comments:

Sign for approval (BoEx)

Monique  
von Morgen

Digitally signed by  
Monique von Morgen  
Date: 2024.11.13  
09:14:10 +01'00'

Name Monique von Morgen Date 13/11/2024 Signature \_\_\_\_\_



## Personal Project Brief – IDE Master Graduation Project

Name student Meike Overdijk

Student number 4677919

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

Complete all fields, keep information clear, specific and concise

Project title Moving Multimodality from Margin to Mainstream: Shifting priorities within Royal Schiphol Group

*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)*

Royal Schiphol Group (RSG) envisions a future where, by 2050, they are “Connecting your world. Creating the world’s most sustainable and high-quality airports”

To better align with this vision, RSG should prioritize becoming a Multimodal Transport Hub (MTH). MTHs enhance connectivity and passenger experience by integrating various transport modes, such as air, rail, and road, into a single hub, allowing for seamless transfers and service integration (Toet et al., 2022).

This shift can help strengthen the role of RSG in connecting the world beyond aviation, meeting public demand for greener travel options. This broader connectivity not only improves passenger convenience but also strengthens Schiphol's role as a key hub for both regional and international travel, aligning with its vision of linking people, places, and businesses beyond aviation.

Also, prioritizing the MTH transition will position Schiphol as a more adaptive organization, better able to respond to national and EU regulations that increasingly call for sustainable transport systems. This adaptability will ensure that Schiphol remains competitive and resilient in both the aviation and broader transport networks (Royal Schiphol Group, 2023)

Short-haul flights generate significantly more emissions per seat-kilometer than long-haul flights, making them not only relatively high-polluting but also inefficient in terms of fuel use (Grimme & Jung, 2018). Therefore, by reducing reliance on short-haul flights and integrating rail services, Schiphol can not only offer passengers lower-carbon alternatives, but also support the airport in its efficiency goal.

→ space available for images / figures on next page





## 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)*

RSG has expressed its intention to further develop Schiphol as a multimodal hub, stating in their 2022 annual report: "We are committed to advancing multimodality and improving connectivity while simultaneously reducing our environmental and noise footprint."

However, there appears to be a gap in organizational awareness and enthusiasm around this goal. For example, in RSG's 2023 annual report, the term "multimodal" is mentioned only four times across 260 pages, suggesting that the concept of multimodality is not yet a prominent focus throughout the company. Also, no TPI (Top Performance Indicator) addresses how successful RSG currently is in facilitating multimodal journeys. There appears to be a disconnect between the organization's stated goals and internal focus

To successfully transform Schiphol into a Multimodal Transport Hub, cross-functional collaboration and consistent internal buy-in are crucial. The lack of awareness and desirability can hinder Schiphol in this transition, as inconsistent buy-in and resistance for change within RSG might slow down the process. Without stronger internal alignment, RSG risks missing opportunities to fully leverage multimodal transport as a key part of its future vision.

### 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 a way of working that improves widespread commitment throughout Royal Schiphol Group in their transition from an Airport Hub into a passenger oriented Multimodal Transport Hub.

*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)*

The approach to this project follows the Double Diamond framework.

In the Discover phase, the focus is on understanding what an MTH means for Schiphol and how it is currently perceived at Royal Schiphol Group. This involves conducting interviews, sampling internal perspectives on multimodality, analyzing external contexts, and studying change management principles and best practices within RSG.

The Define phase identifies challenges and opportunities. The state of the art is defined, and approaches for change are explored. Metrics to determine success are developed to measure the effectiveness of future experiments.

In the Develop phase, research is put into practice by conducting experiments with employees, testing the impact of different approaches on awareness and engagement with the concept of multimodality.

Finally, the Deliver phase synthesizes the insights gained from these experiments to deliver a strategic approach that enhances awareness and desirability, by which multimodality becomes a mainstream priority within RSG.

## 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	23/10/2024
Mid-term evaluation	18/12/2024
Green light meeting	25/02/2025
Graduation ceremony	26/03/2025

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	
Number of project days per week	

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)

In this project, my motivation stems from my own natural enthusiasm, especially when I am passionate about a topic. I see it as a great challenge to trigger that same excitement in others. The complexity of the project, involving multiple stakeholders, makes it especially interesting. Bringing together diverse perspectives around a common vision is no easy task, which is why I find this context so rewarding. My ultimate aim is to design a solution that is specifically tailored to Royal Schiphol Group (RSG) and the aviation sector, ensuring it is both practical and highly relevant for their unique organizational needs.

As for my personal ambitions, I generally work in a very structured and detailed manner, but in this project, I also want to challenge myself to think creatively and apply an out-of-the-box approach, while still relying on sharp insights. I am aiming for that "aha" moment, where I find the design spark in the problem. Besides, I want to dive deeper and get experience in change management in organizational acceptance of innovations.

In terms of competences, I want to demonstrate my ability to translate research into sharp insights and design, effectively making the necessary transitions between theory and practical solutions.

# APPENDIX D - SUMMARY OF EXPERT ROUNDTABLE SEAS TO SKIES CONFERENCE

## A summary of the expert roundtable

### Safe space for experimentation

*What we heard at the conference:*

Innovation requires an environment where experimentation is possible without compromising safety or operations. As the Strategic Accessibility Manager from Brussels Airport stated: "We need to make sure there is no security risk at all. Innovation comes with risks."

The nature of airports and ports leaves little room for failure, as highlighted by the Director of Innovation from Port of Rotterdam: "For this innovation path, we also need to be able to be unsuccessful."

### Breaking down silos and collaboration

*What we heard at the conference:*

Stakeholder collaboration is crucial for data sharing and advancing innovation. One expert emphasized: "Collaboration of stakeholders is needed to be able to gather data."

Financial resources are also a key enabler, but innovation also depends on market readiness, which can delay progress significantly.

### Balance competitiveness with collaboration

*What we heard at the conference:*

A key dilemma discussed was balancing competitiveness with collaboration in complex stakeholder environments. An expert remarked: "Getting support is crucial in such a large, complex stakeholder context."

*How this applies to RSG:*

At RSG, we observed resistance from operational teams when the innovation hub initiates Proofs of Concept (POCs). Although these POCs are designed to test and improve innovations that ultimately assist the operations department, the risk of disrupting daily operations often creates tension. This mirrors the experts' point that balancing risk and innovation is challenging in contexts where failure is not traditionally accepted.

*How this applies to RSG:*

Within RSG, intra-departmental collaboration functions well, but interdepartmental cooperation remains a challenge.

During a brainstorming session with an innovation hub member, a recurring conflict emerged over which department should allocate the budget for a POC. This issue reflects the broader challenge of coordinating financial resources when it comes to interdepartmental projects.

*How this applies to RSG:*

At RSG, this challenge is seen for initiatives that require cross-departmental collaboration. While the departments do not compete internally, each department has its own priorities. This can lead to misalignment in decision-making, delays in implementation, and difficulty in securing shared resources.



## Maintaining innovation momentum

*What we heard at the conference:*

Experts expressed that maintaining momentum is crucial so that long-term projects do not get forgotten. One participant emphasized: "We have to communicate about things we have put in a cabinet so that they are not being forgotten."

*How this applies to RSG:*

At RSG, the S&AP departments face a similar challenge: Important innovation projects, especially those with long-term horizons, often risk losing visibility and momentum. The takeaway from the conference suggests that regular communication is essential to ensure these initiatives remain prioritized and get these ready for implementation when the timing is right.

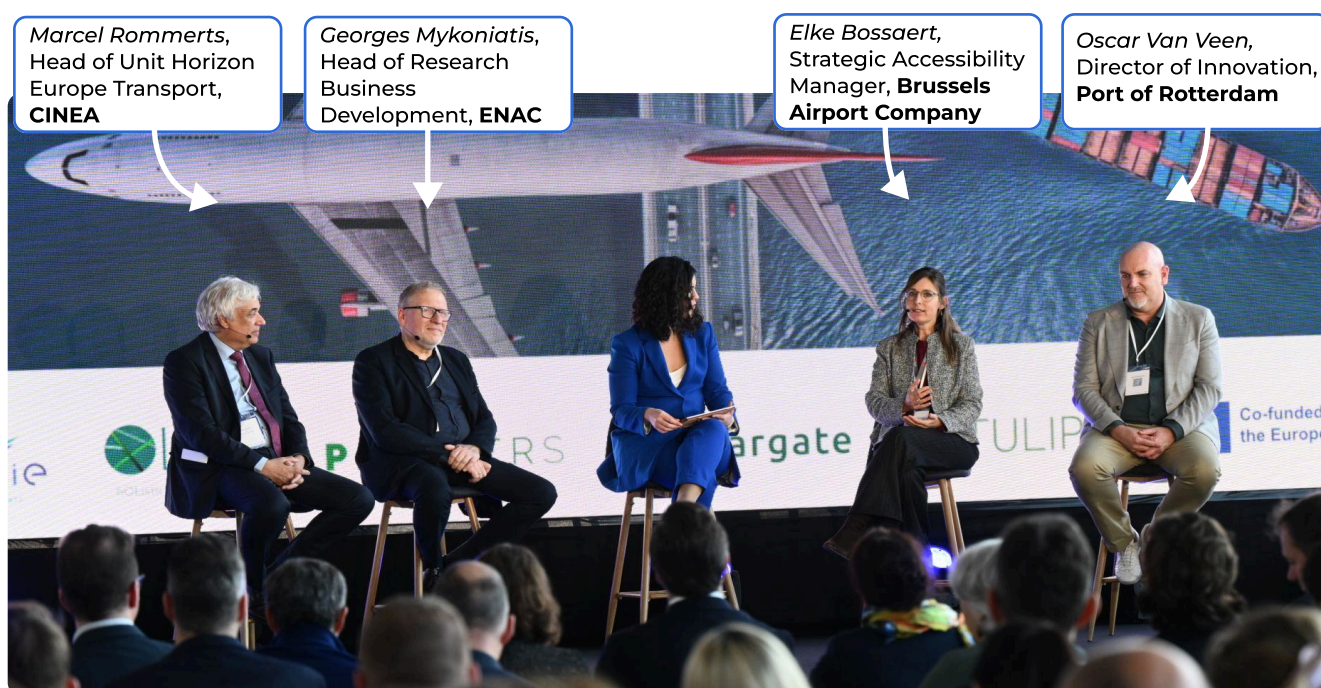
## Embracing enjoyment in the innovation process

*What we heard at the conference:*

Finally, the roundtable highlighted the importance of not losing sight of enjoyment in the innovation process. The director of innovation from Port of Rotterdam stated: "Do it together, don't take yourself too seriously and have fun with it." He added: "I think putting things in perspective is missed often in the innovation process. It should be fun!"

*How this applies to RSG:*

This insight is a strong takeaway for RSG. Incorporating fun and a sense of shared purpose into the innovation process can boost engagement and creativity. I plan to integrate this perspective in my design process, ensuring that our approach not only addresses operational challenges but also created a more enjoyable and collaborative work environment!



*Expert roundtable - Common drivers and barriers for greener mobility and digitization*

# APPENDIX F - PILOT TESTING

## **Pilot test**

To assess the usability and effectiveness of the way-of-working, I conducted a pilot test using a successful change case that had already reached mainstream adoption.

**Key insights:** The pilot test revealed that individual stakeholder identification is prone to blind spots due to habitual thinking patterns. The participants tended to focus on stakeholders they frequently interact with. This makes the process highly subjective, leading to potential gaps in identifying key stakeholders. Collaboration is crucial to mitigate these blind spots and ensure a more comprehensive stakeholder map.

Additionally, low-urgency stakeholders should be actively involved to prevent strategies from being based on incorrect assumptions about their level of engagement.

For the strategizing phase, the test underscored the importance of understanding the reasons behind a stakeholder's lack of urgency. The employee who filled in the pilot had successfully mainstreamed an initiative and reflected that strategizing was only possible in hindsight, after identifying why stakeholders were hesitant to engage. Without this understanding, it is impossible to develop an effective strategy.

**Now what?** Moving forward, the way-of-working should include a structured moment where lagging stakeholders are invited to discuss their perception of urgency, ensuring that strategic planning is based on real insights rather than assumptions.

# APPENDIX G - CO-CREATION SESSION FOR STAKEHOLDER IDENTIFICATION

## Co-creation session - Internal stakeholder identification at RSG

**What:** A 30-minute co-creation session to critically rethink how stakeholders are identified at RSG.

**Why:** The current stakeholder identification process assumes that stakeholders can be identified solely based on an individual's knowledge, as seen in the Innovation Hub's tools. The goal was to understand what happens inside our heads when we list stakeholders and explore ways to improve and structure this process.

**How:** Participants were given a scenario: placing a new bench at Schiphol Plaza. They were asked: How would you identify your internal stakeholders for this decision? This exercise helped surface the differences in personal habitual approaches to stakeholder identification. Participants reflected on the challenges of stakeholder identification at Schiphol and collaboratively generated tips & tricks to improve the process.

**Key insights:** The outcomes highlight that stakeholder identification approaches vary significantly. Some participants began by envisioning the physical space, others focused on hierarchical roles and responsibilities, while others prioritized the problem owner,



Figure: Participants noting their own approach



# APPENDIX H - ORGANOGRAM EXPERIMENT

## Organizational structure experiment

**What:** A 15-minute experiment designed to explore employees' perceived structure of departmental relationships and compare their perceptions with the formal organizational structure of RSG.

**Why:** The current organizational structure does not reflect the actual collaboration between departments. The goal of this session was to gain a better understanding of these dynamics and to explore whether employees share commonalities or differences in their perception of departmental relationships.

**How:** Participants were asked to sketch their perception of departmental relationships without referencing the official organogram. They then explained their sketches, highlighting key connections and influential actors. Afterward, they compared their perception to the official organogram, reflecting on their differences.

**Key insights:** The experiment revealed significant discrepancies between the formal organizational structure and large varieties how employees perceive collaboration within RSG, however there were also similarities.

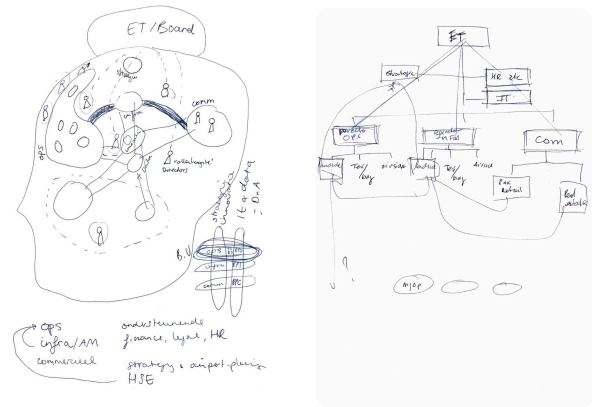
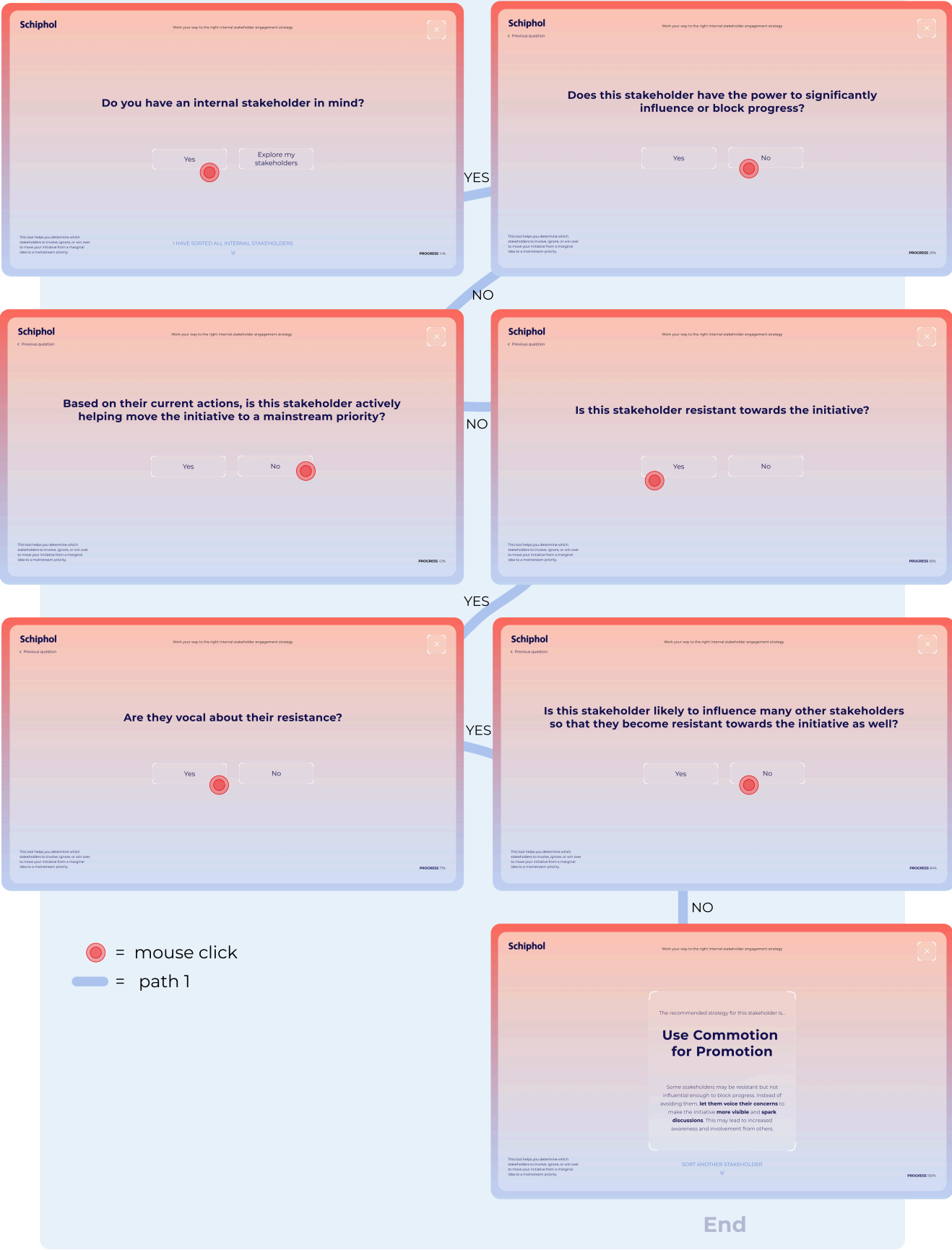


Figure: Two examples of drawings to explain the organizational structure RSG, made by employees of S&AP.

APPENDIX II

Possible route for engagement strategy 1:  
Use Commotion for Promotion

Start



APPENDIX I2

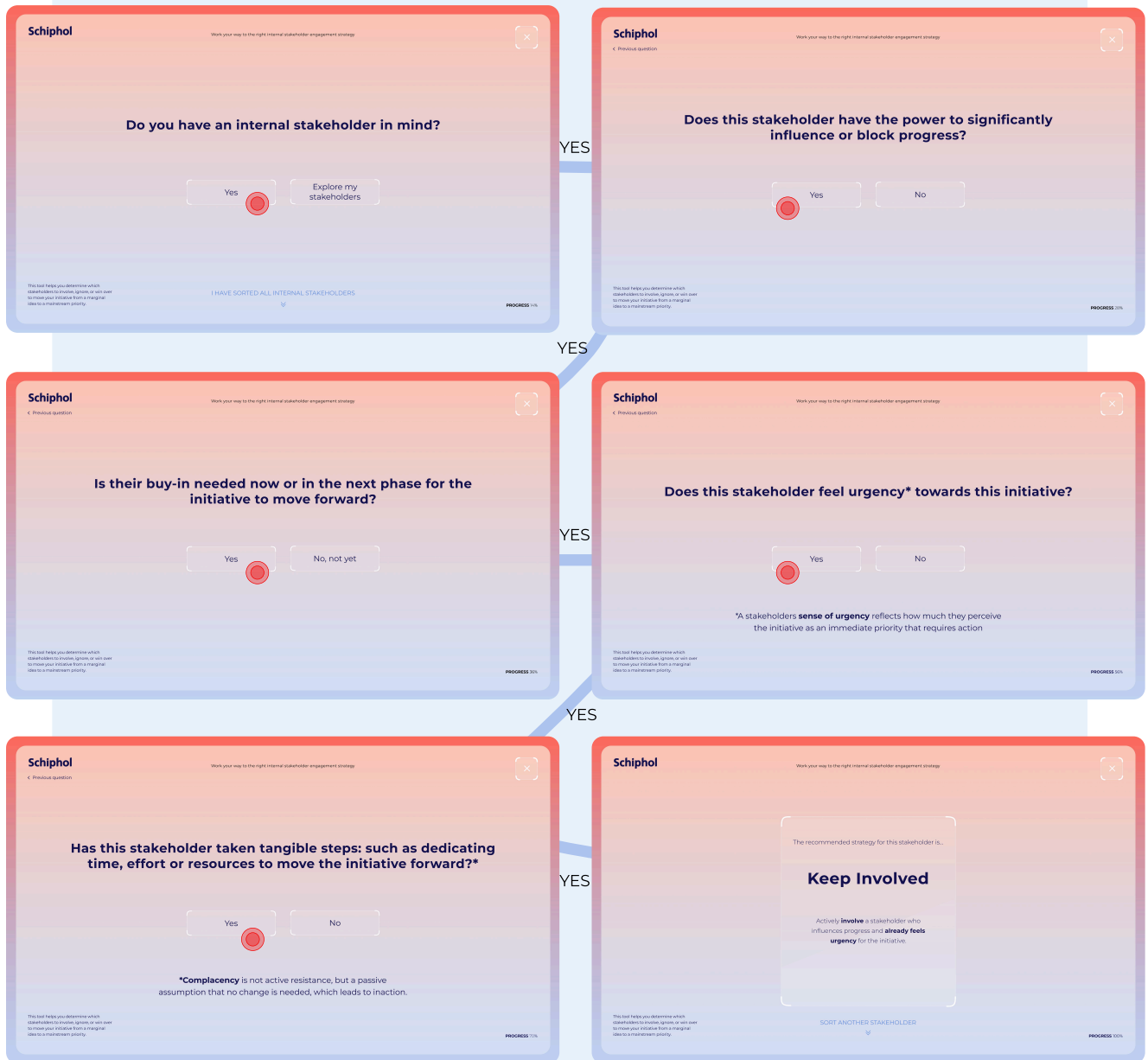
Possible routes for engagement strategy 2:  
Limit Attention



# APPENDIX I3

## Possible routes for engagement strategy 3: Keep involved

Start



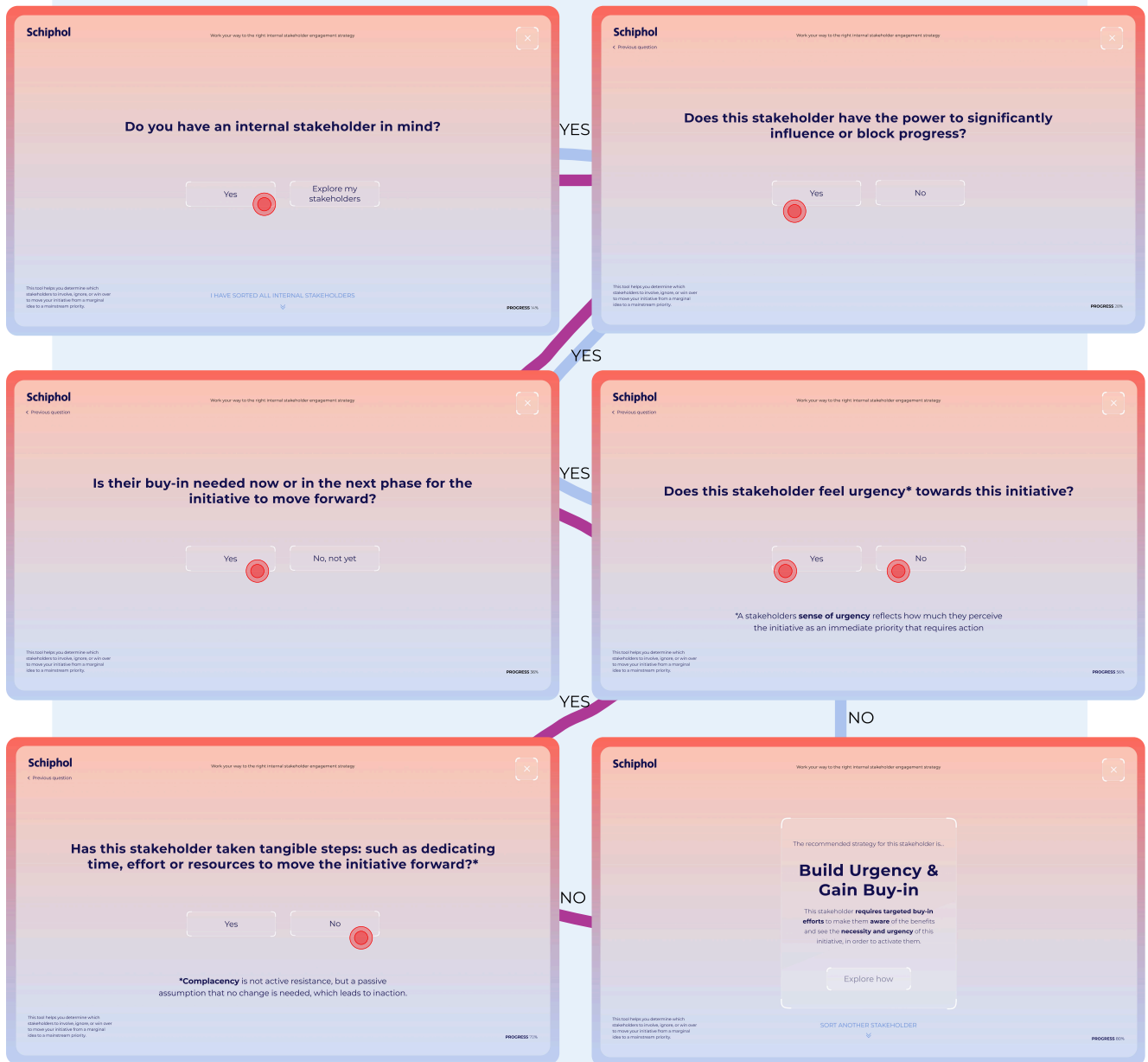
⦿ = mouse click

— = path 1

# APPENDIX I4

## Possible routes for engagement strategy 4: Build Urgency and Gain Buy-in

Start

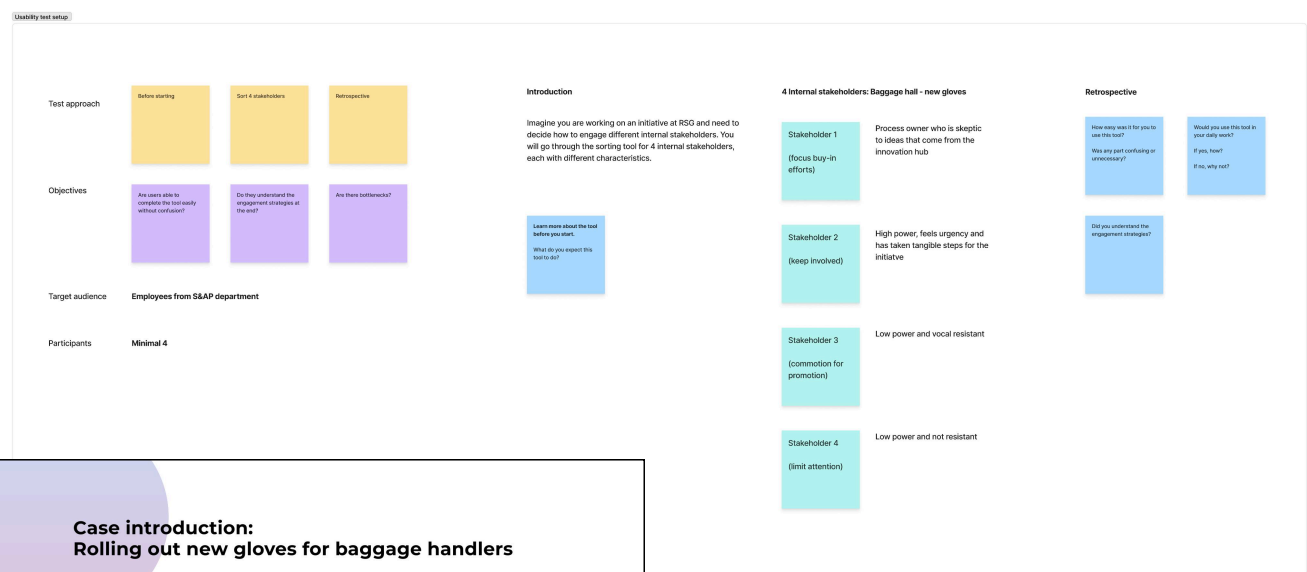


# APPENDIX J - VALIDATION SESSION WITH INNOVATION HUB





# APPENDIX H - CASE FOR USABILITY TESTING



## Case introduction: Rolling out new gloves for baggage handlers

At Schiphol's baggage handling hall, baggage handlers manually lift and move thousands of suitcases per shift. To improve comfort, grip, and durability, a new model of gloves has been introduced.

These gloves are more flexible and provide better grip, reducing strain on workers' hands.

However, even small changes can lead to mixed reactions. Some stakeholders see the benefits immediately, while others question the need for change.

### Project Stage: Securing Stakeholder Buy-in

The gloves have been tested and selected, and now the next step is getting internal buy-in before rolling them out across baggage handling teams.

Your task is to sort the stakeholders one by one.



Internal stakeholder 1  
**Manager Cluster  
Baggage**

#### Role

As the manager responsible for teams in the baggage cluster, she oversees daily operations and ensures efficiency. She approves new equipment and process changes, making her buy-in essential.

#### Attitude

When hearing about the new gloves, she immediately asks:

"Are these really better, or is this just change for the sake of change?"

"I am afraid this will impact baggage handling speed negatively."

"Do we have proof that handlers actually prefer these?"

She is not rejecting the idea outright, but she also does not feel urgency to make the switch. Without her support, the gloves won't be rolled out.



Internal stakeholder 3  
**Process Developer**

#### Role

She is responsible for optimizing the baggage handling process and has strong opinions about how things should be done

#### Attitude

When she hears about the gloves, she expresses:

"People are used to their current gloves. Why change something that works?"

"The last time we introduced a 'better' ergonomic solution, no one used it"

She talks openly about her resistance in meetings and casual conversations but does not have decision-making power.



Internal stakeholder 2  
**Senior Manager  
Baggage Process  
Management**

#### Role

He is always looking for ways to improve working conditions for baggage handlers. He recognized the benefits of the new gloves and believes they could help reduce hand strain and improve efficiency.

#### Attitude

He has already tested different models and he argues:

"This fits into the broader strategy of reducing physical strain on baggage handlers"

"We need to involve the handlers now and let them try the gloves, so we can make this a smooth transition"

He is pushing for change and has already reached out to the handlers to progress the gloves project.



Internal stakeholder 4  
**Service Manager  
Baggage**

#### Role

He oversees baggage service quality, but is not involved in process changes like new gloves for the handlers.

#### Attitude

When asked about the new gloves, he does not have a strong opinion:

"As long as the baggage handlers are comfortable, I have no preference."

"I assume operations will handle this, just let me know if anything changes in the workflow."

He does not block the initiative but also does not push for it.