Taxonomy of Interactions and the Design of the Airport Passenger Screening Process

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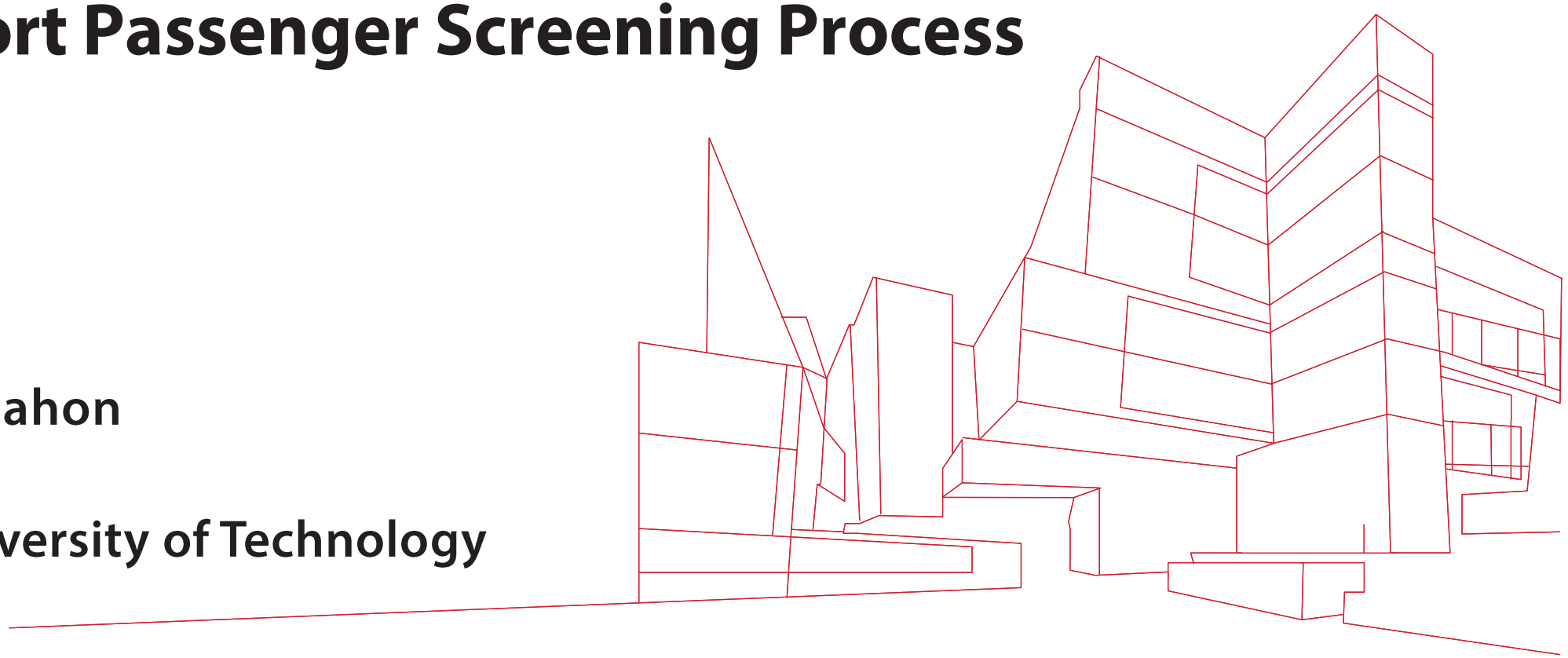


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Three Functions

Security Efficacy
- Effectiveness has been questioned
- Increasing novelty and number of possible threats
- Increased security measures

Economic Efficiency
- Passenger throughput

Passenger Experience
- ‘Smart Security’ and ‘Security as a Service’
- Organisation of technical and human aspects

Research

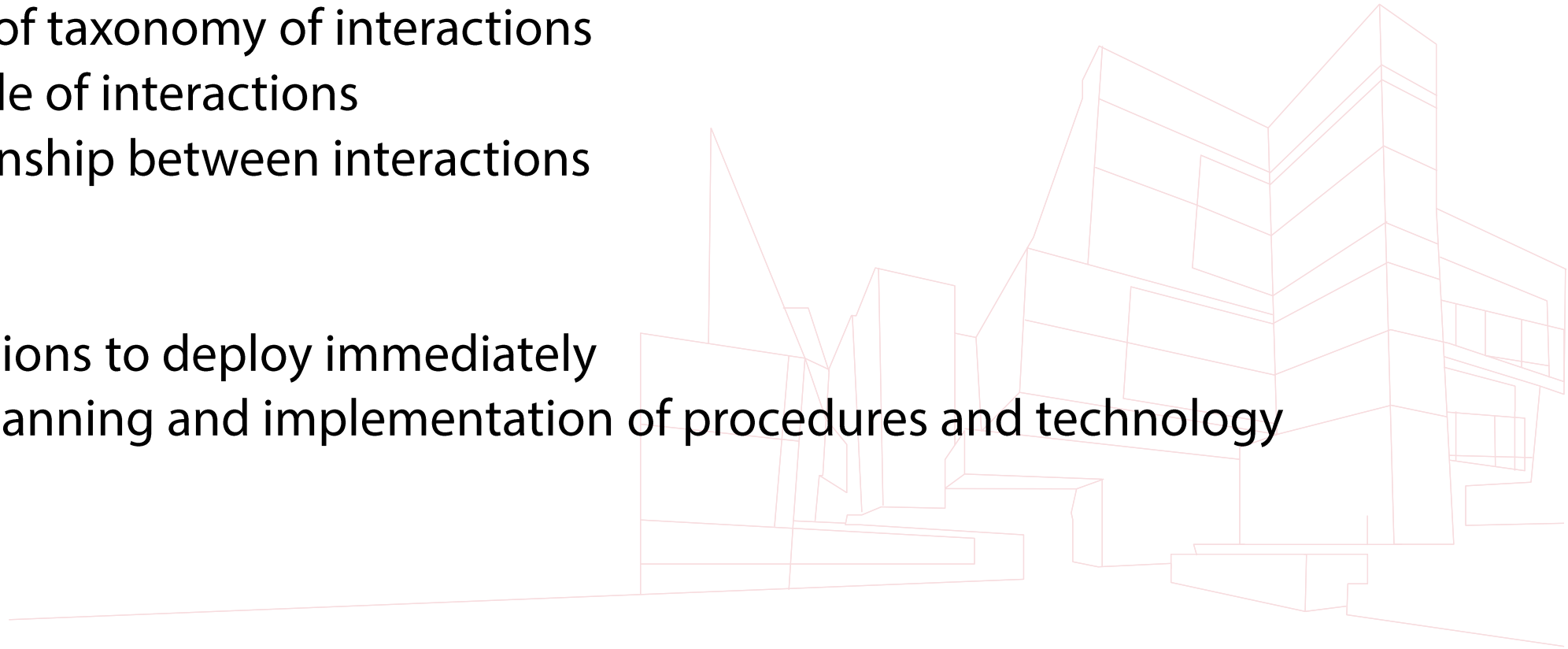
Analysis of interactions performed by security officers

Aims

- Development of taxonomy of interactions
- Understand role of interactions
- Explore relationship between interactions

Significance

- Recommendations to deploy immediately
- Assist future planning and implementation of procedures and technology



Procedure

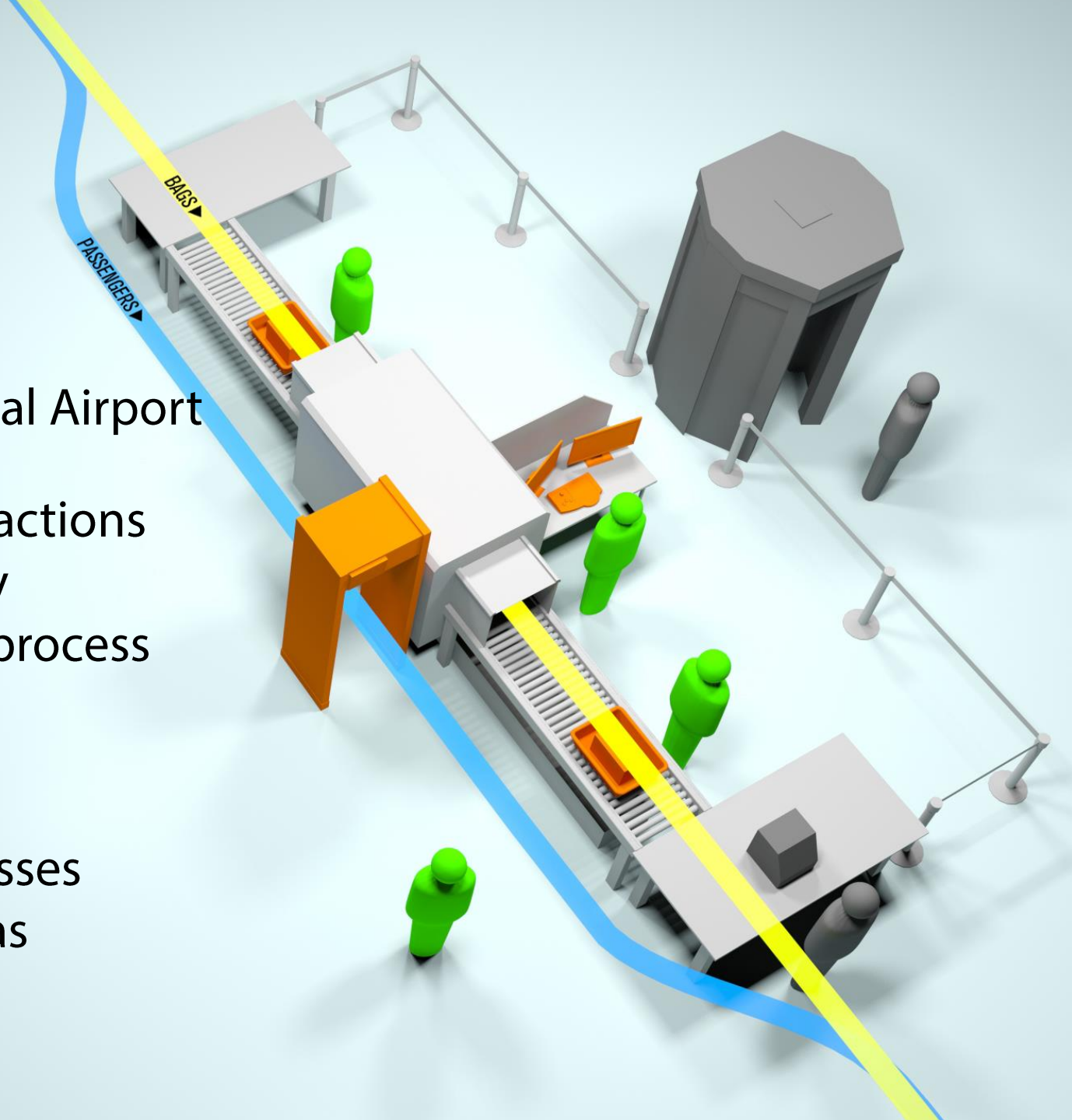
Method: Observations

Context: Australian International Airport

Focus: Security officers' interactions during the mandatory passenger screening process

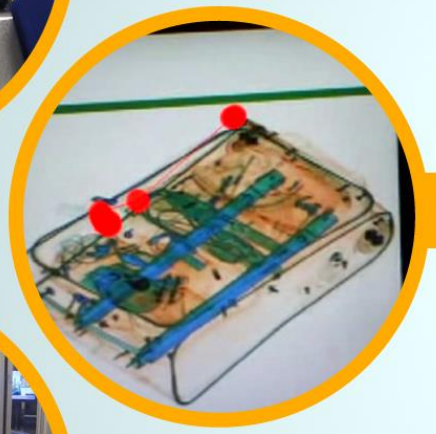
Participants: 9 security officers

Equipment: Tobii eye-tracking glasses
GoPro Session cameras



Procedure

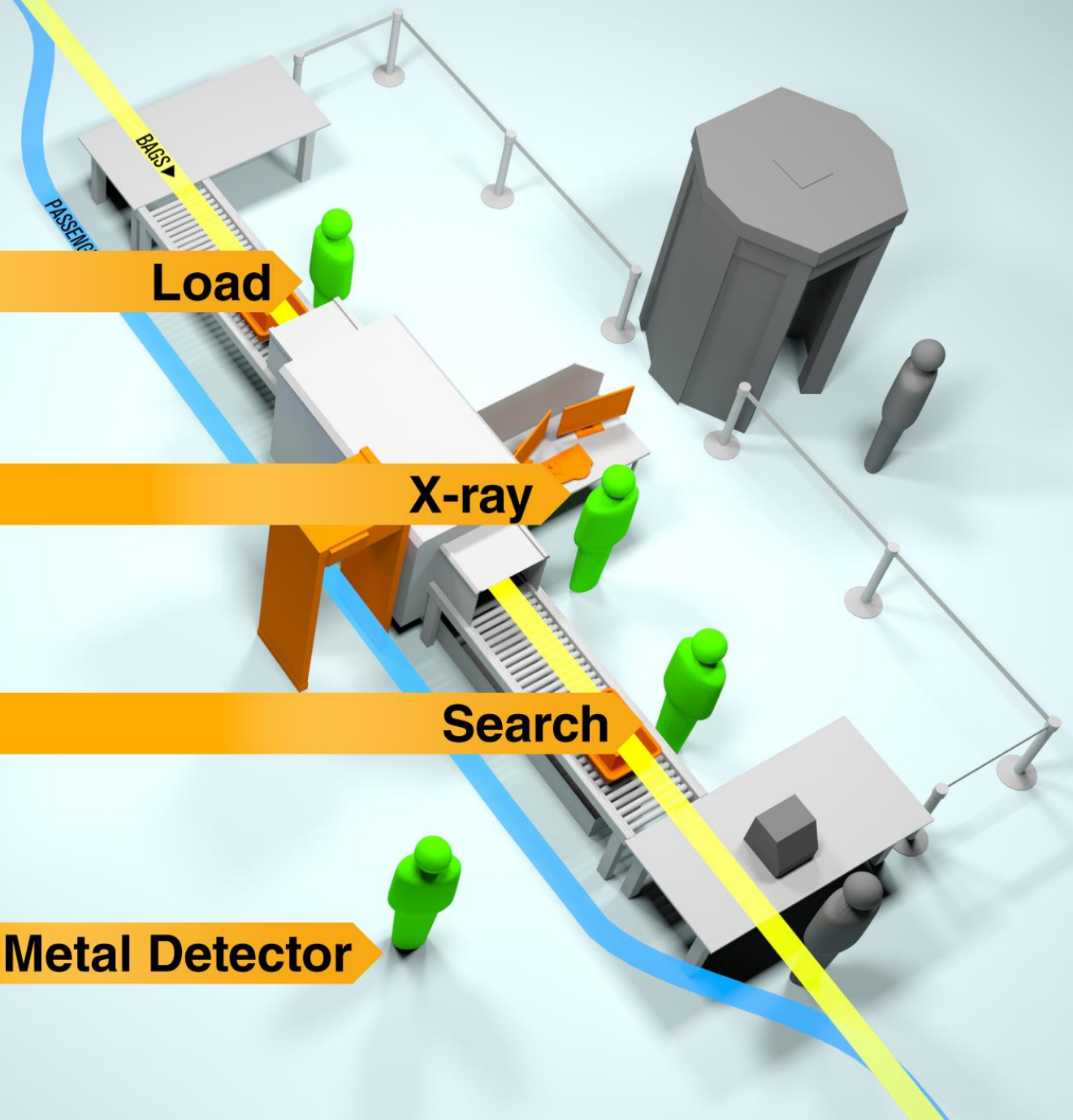
Load



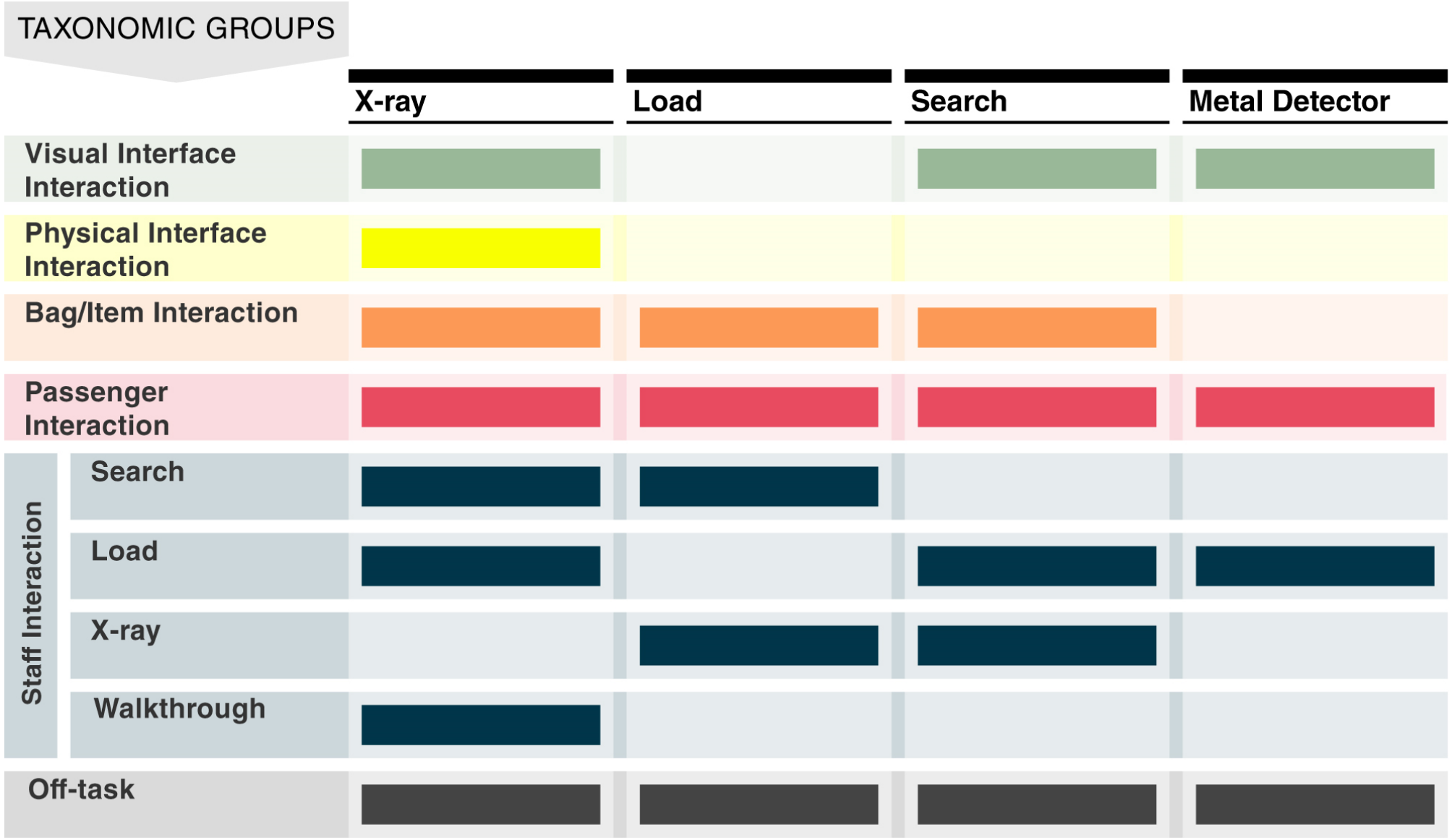
X-ray

Search

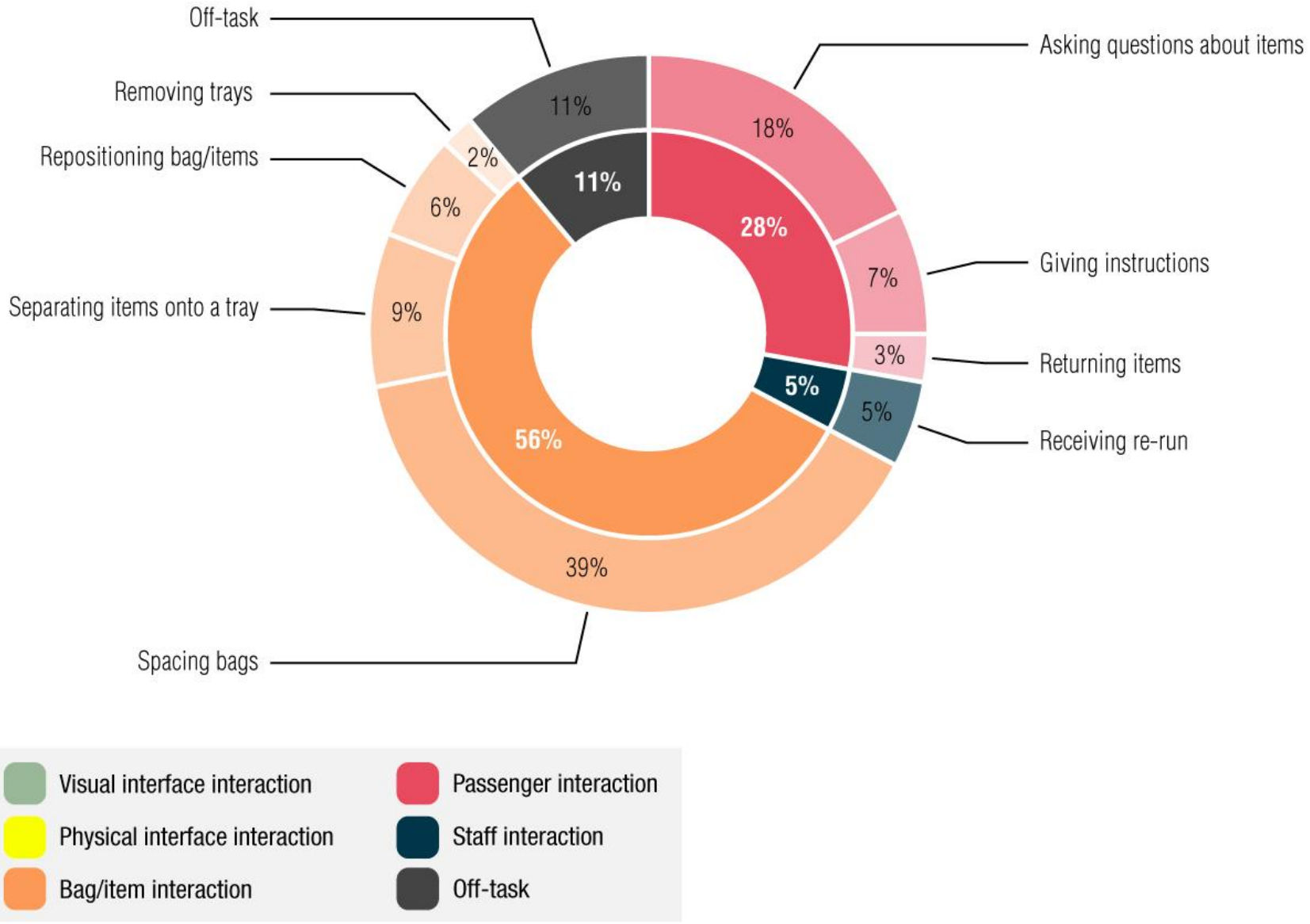
Metal Detector



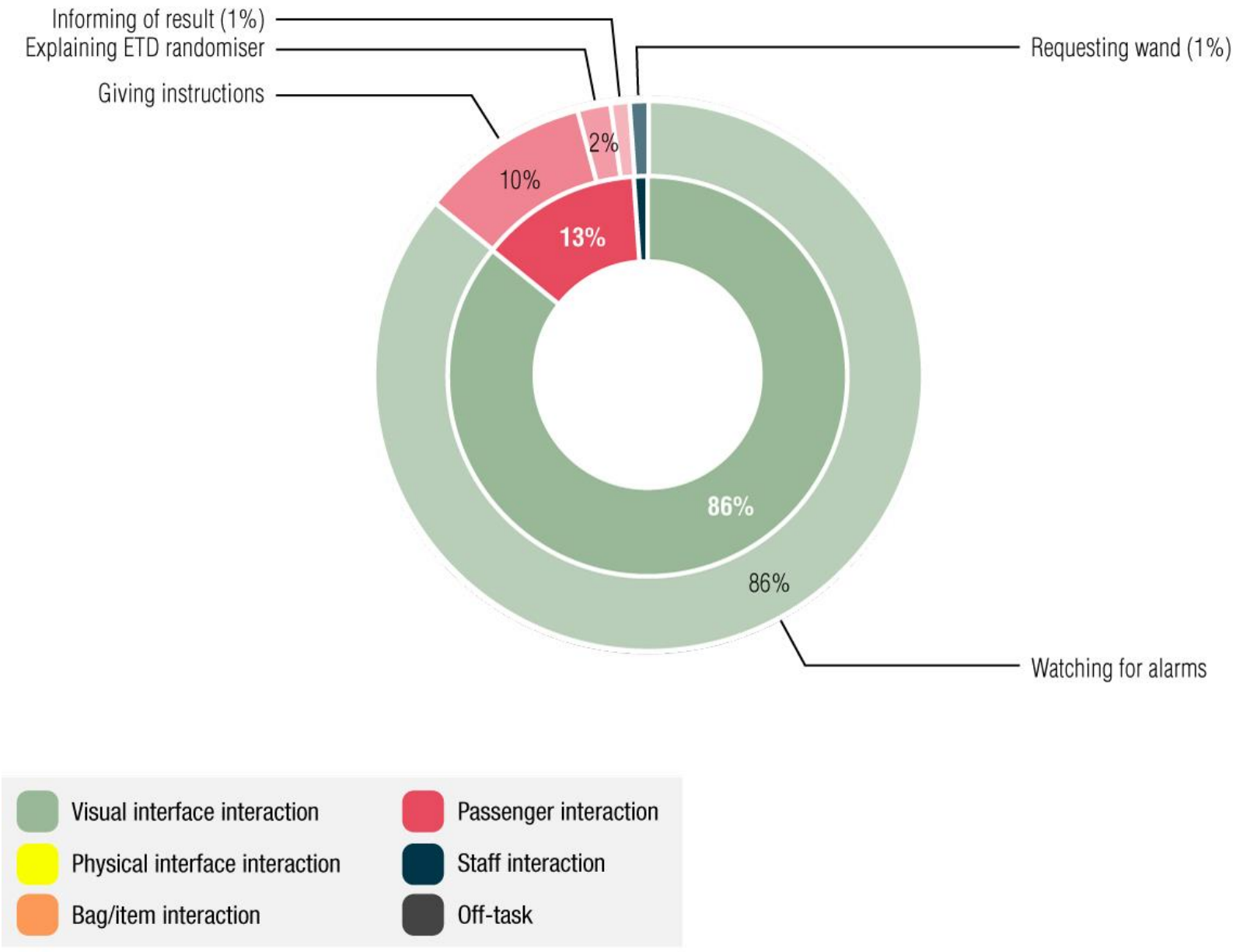
Taxonomy of Interactions



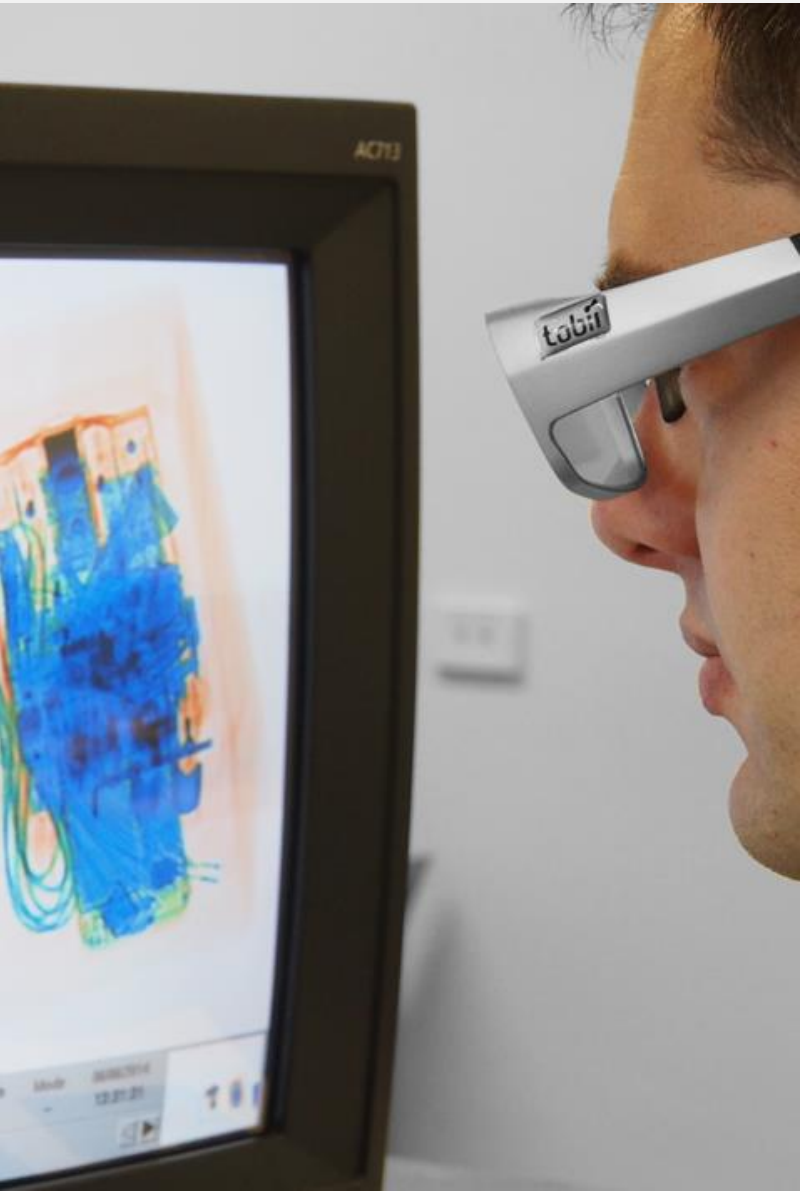
Load

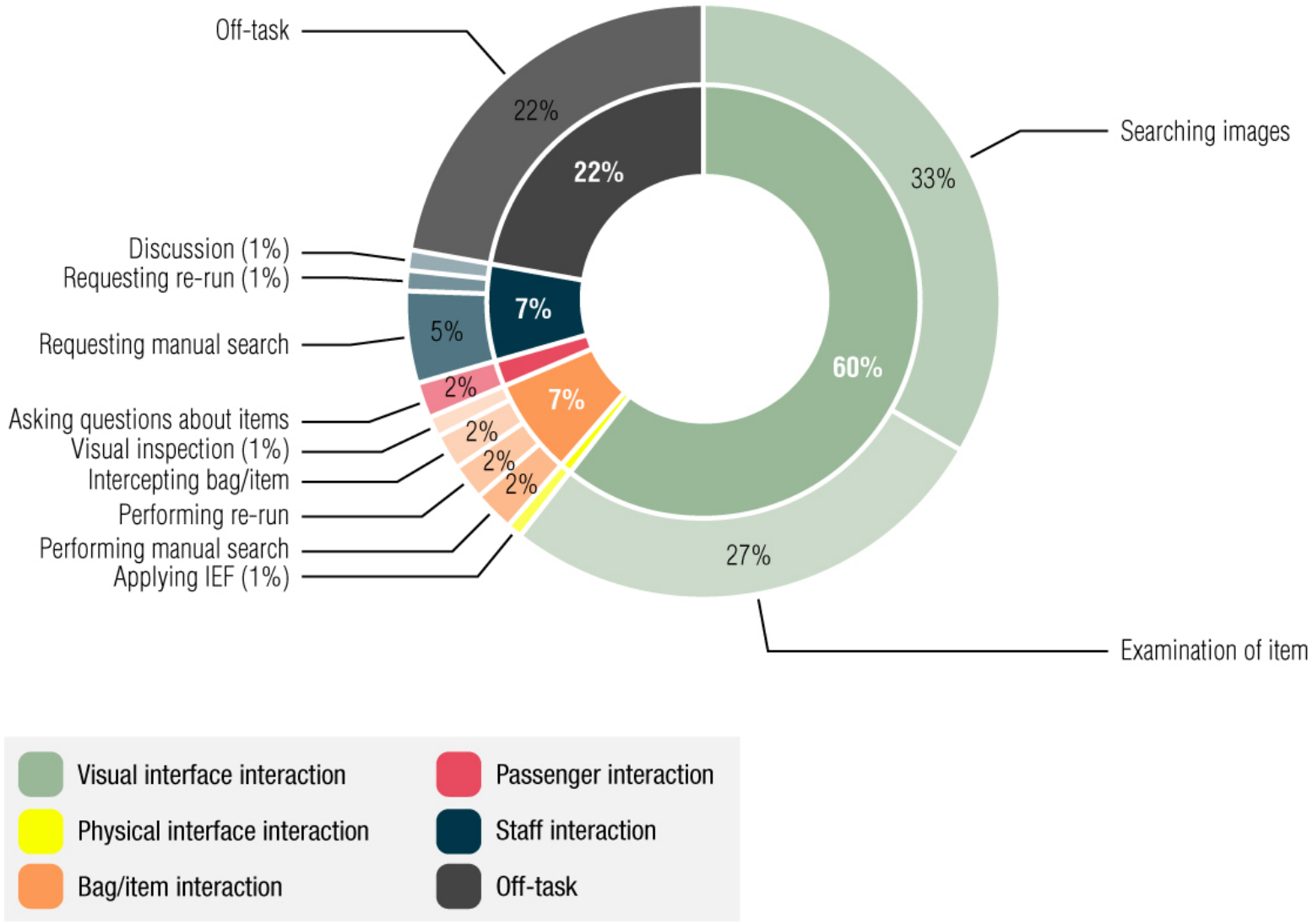

Off-task
Removing trays
Repositioning bag/items
Separating items onto a tray
Spacing bags
Asking questions about items
Giving instructions
Returning items
Receiving re-run
11%
18%
2%
11%
28%
6%
7%
9%
3%
5%
5%
56%
39%
Visual interface interaction
Physical interface interaction
Bag/item interaction
Passenger interaction
Staff interaction
Off-task

Metal Detector

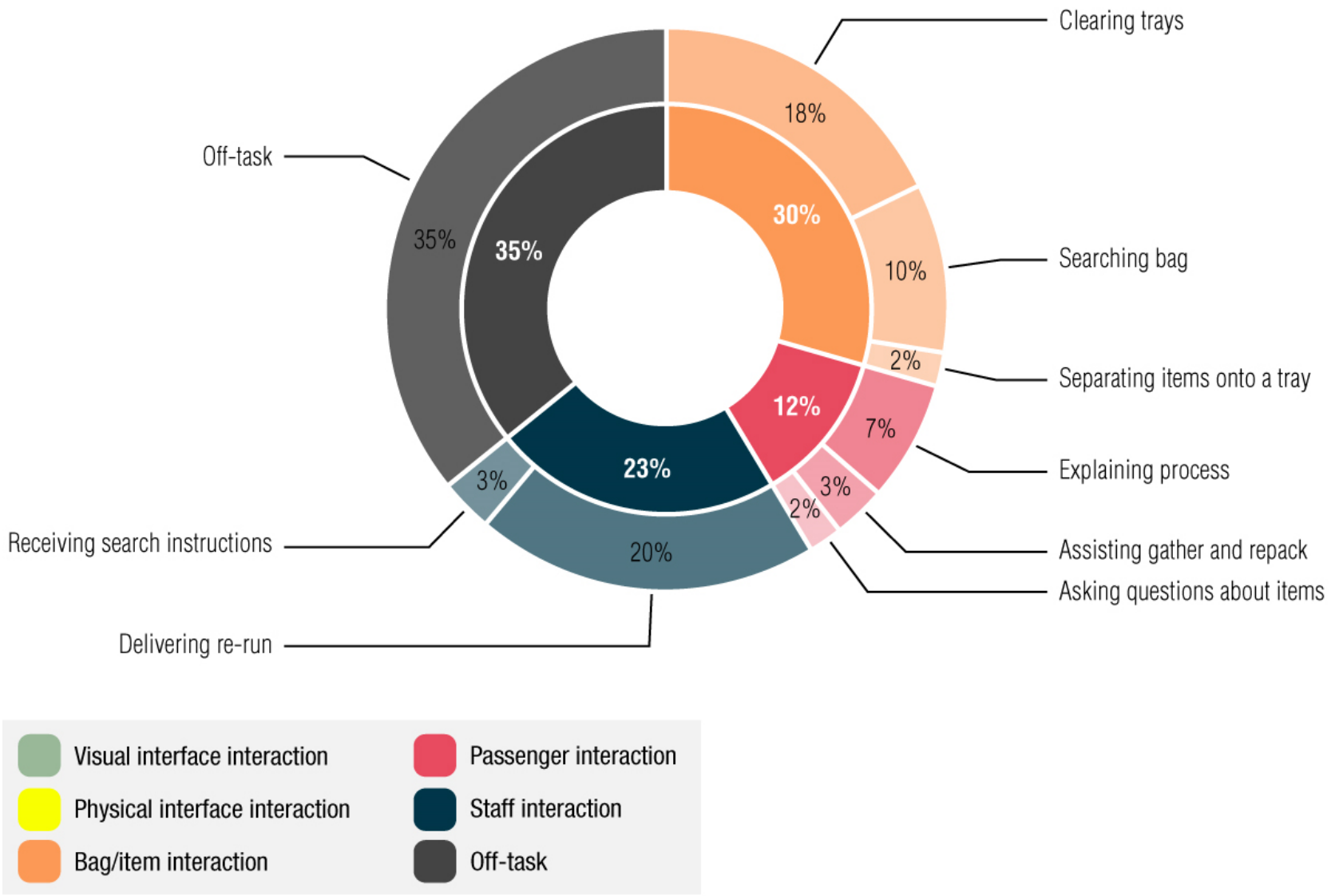


X-ray

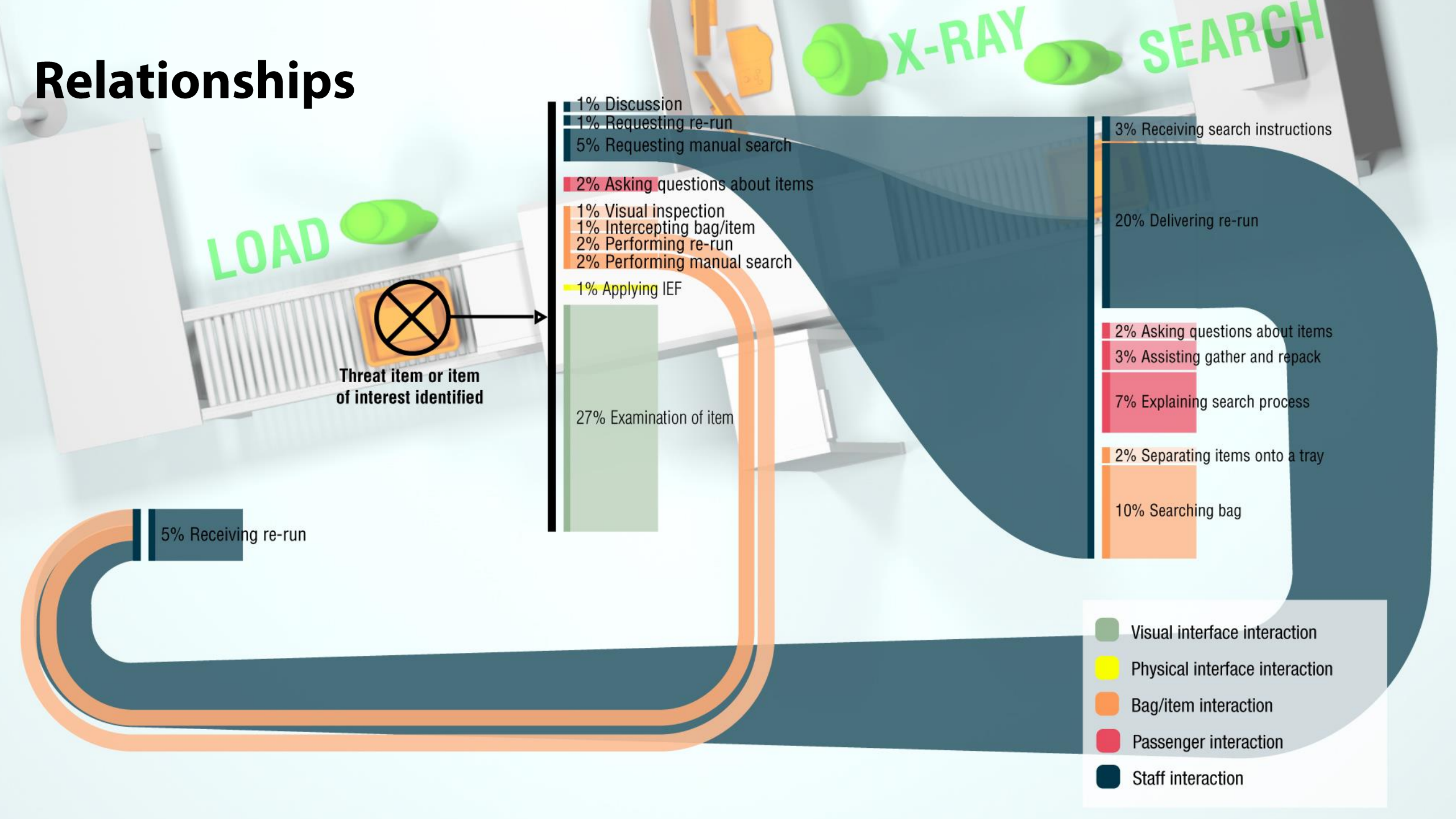

tobii


Off-task
22%
22%
Searching images
33%
60%
Discussion (1%)
Requesting re-run (1%)
Requesting manual search
5%
7%
2%
7%
Asking questions about items
Visual inspection (1%)
Intercepting bag/item
Performing re-run
Performing manual search
Applying IEF (1%)
2%
2%
2%
27%
Examination of item
Visual interface interaction
Passenger interaction
Physical interface interaction
Staff interaction
Bag/item interaction
Off-task

Search

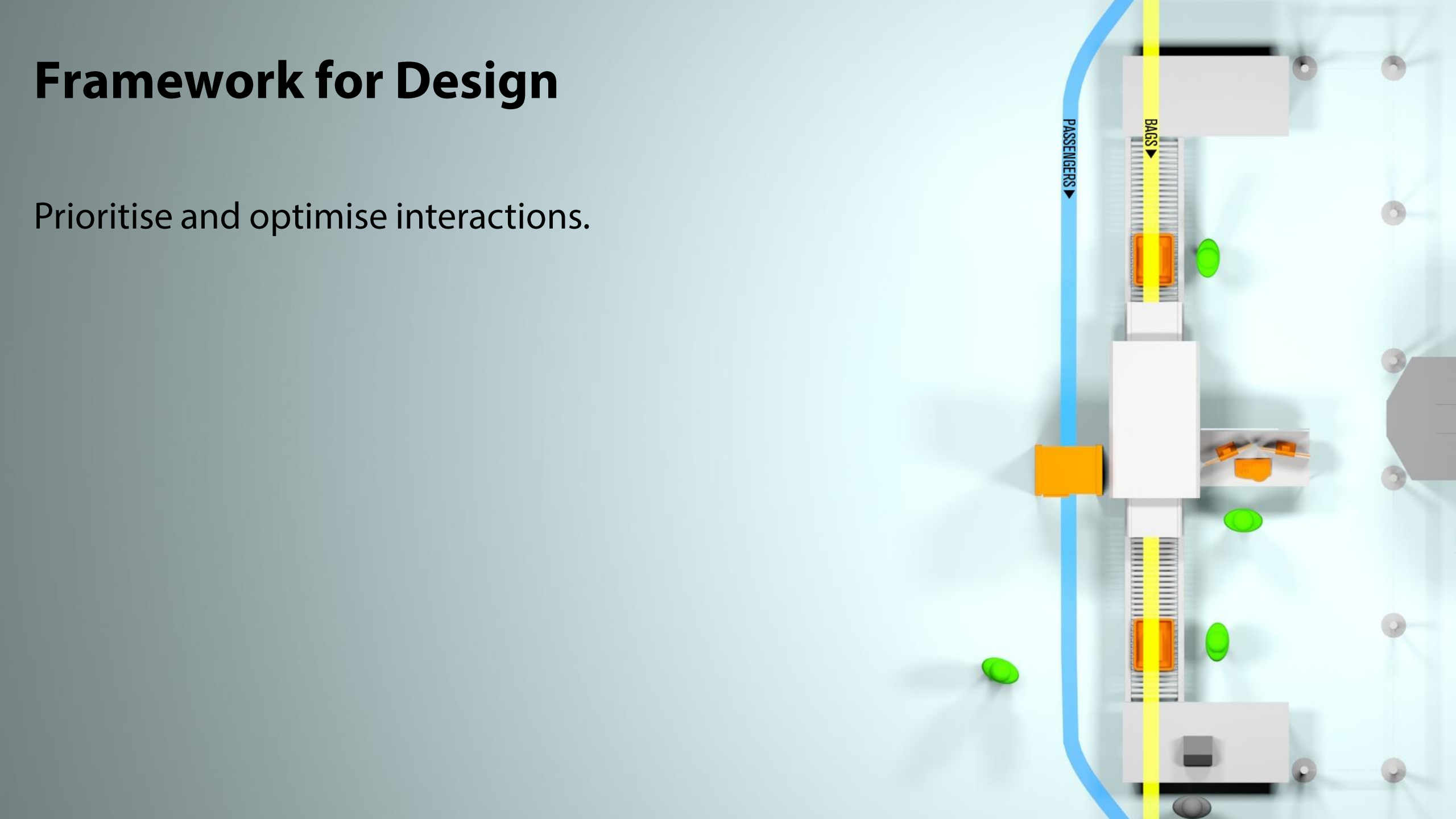

Clearing trays
18%
30%
Off-task
35%
35%
10%
Searching bag
2%
Separating items onto a tray
12%
7%
Explaining process
23%
3%
3%
2%
Receiving search instructions
20%
Assisting gather and repack
Asking questions about items
Delivering re-run
Visual interface interaction
Passenger interaction
Physical interface interaction
Staff interaction
Bag/item interaction
Off-task

Relationships



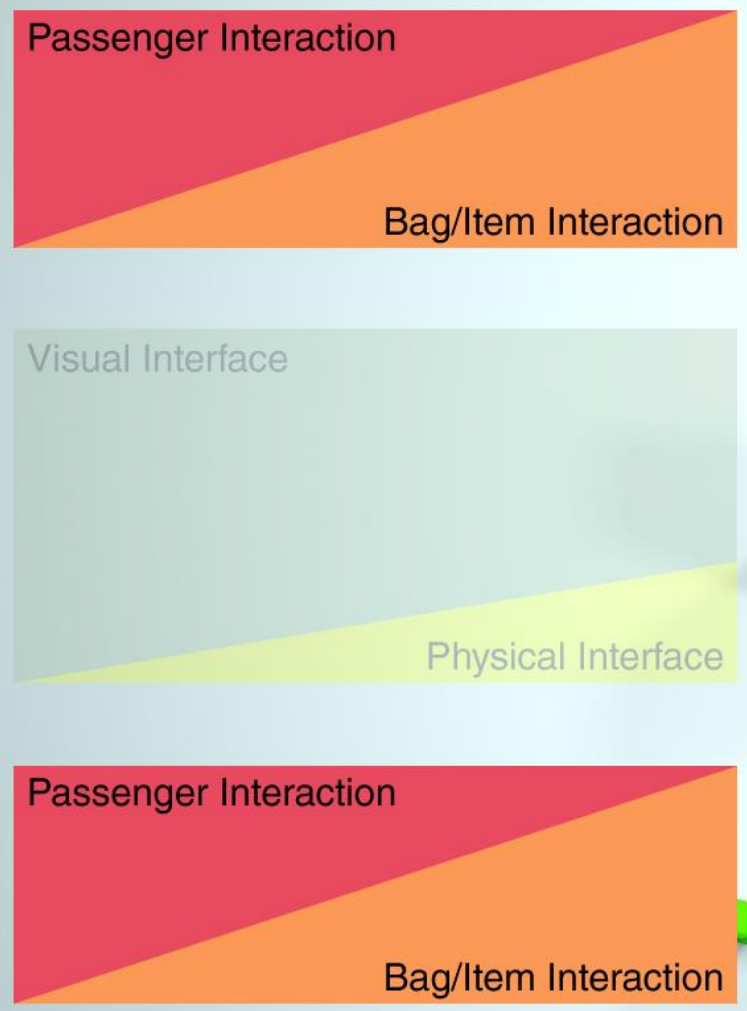
Framework for Design

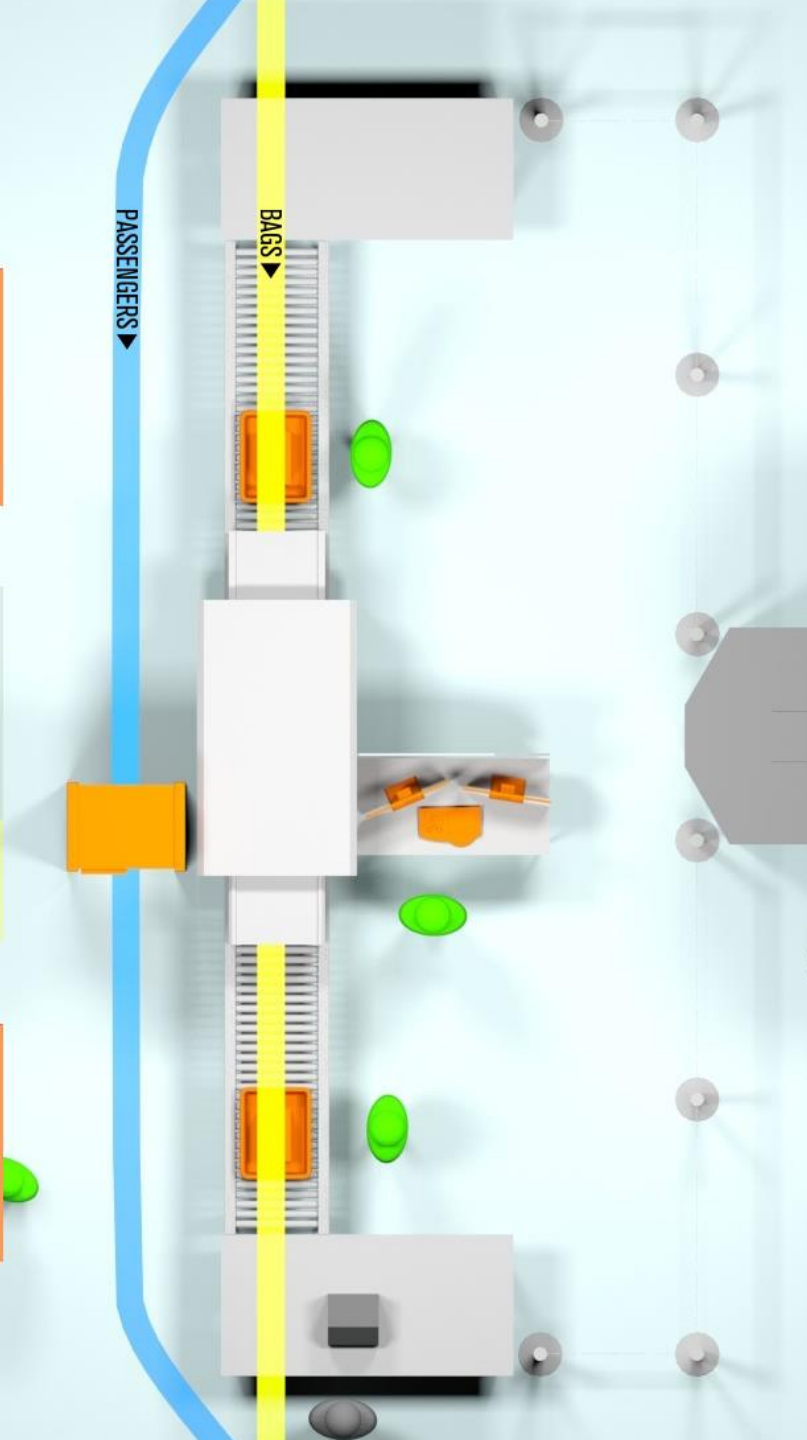
Prioritise and optimise interactions.



Passengers and Belongings

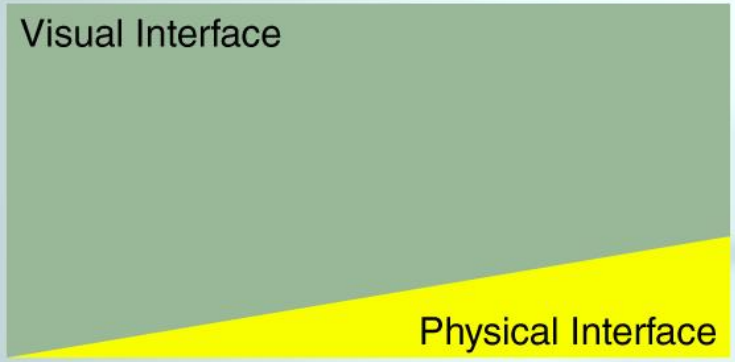
- Improve efficiency and passenger experience
- Adequate preparation space
- Visibility between staff and passengers
- Behavioral cues from other passengers
- Group similar preparation activities

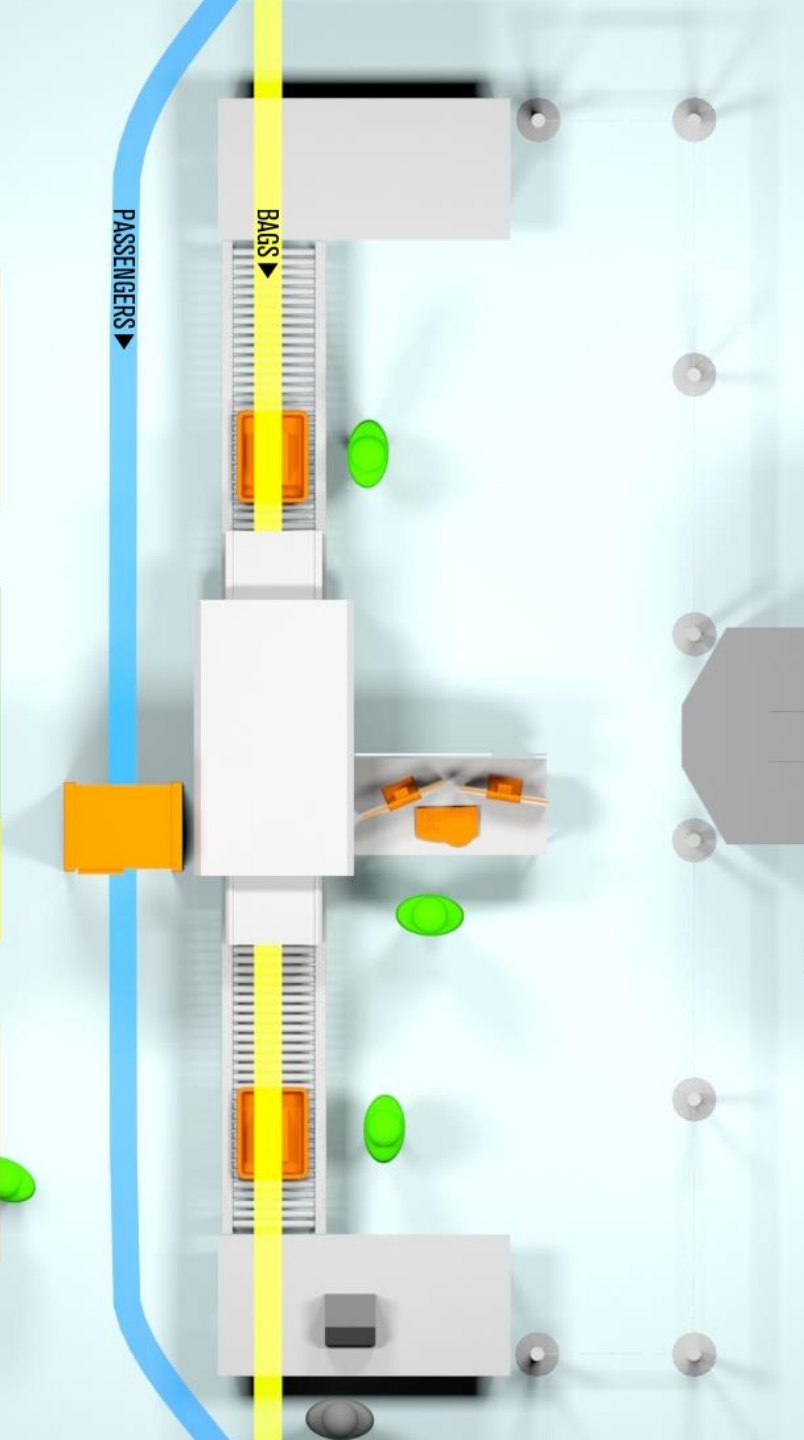




Interfaces and Technology

- Improve efficiency and efficacy
- New technology
- Prioritisation of interactions
- Focus on processing interactions
- Reduce distracting interactions



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