

# Application of human factors to improve airport experience for passengers requiring support

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## SUMMARY

The paper presents an application of human factors framework to improve airport operations and customer experience. A pilot study was conducted at one of the UK airports and focused on experiences of passengers requiring support and staff working in Assistance Points. The results highlighted that airport operators would benefit from applying more holistic approach to understand passenger experience and should aim to look beyond passenger satisfaction, at the factors that can influence staff satisfaction and performance.

## KEYWORDS

User Experience, Accessibility, Aviation, Human Factors

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## Introduction

The study explores airport experiences through different lenses and considers a broader perception of the airport environment experienced by passengers and staff. The pilot study was driven by the need to support airport operators to improve passenger experience in the post-pandemic world with particular focus on vulnerable travellers. It has been reported that 17.8 million people in the UK have some form of disability, and many require help while travelling (ONS, 2021). This study focuses on passengers requiring special assistance (PRS) and staff who work across landside Assistance Points (AP). The aim was to understand both perspectives, identify the challenges, and build a more accurate picture of operations to enable more targeted solutions. The project applied a holistic human factors framework to investigate experiences from both passengers and staff perspective. The human factors framework, which is based on the Onion model (Wilson and Sharples, 2015), highlights a number of factors influencing individuals and their interactions with environment. The study considered not only the physical space or layout but the holistic interactions of people (passengers and staff), technology, and equipment. It assessed airport cognitive and physical environment, and additionally for staff their work environment and organisation culture.

## Methods

The study used three methods of data collection, which included self-administered passenger survey (qualitative and quantitative questions) and semi-structured interviews with staff (qualitative questions) supplemented by short observations. Data collection was conducted across landside APs only. The study collected 58 responses from PRS and 11 responses from staff. Based on the responses, a thematic analysis was conducted to identify emerging themes.

**Results**

The overall rating for passenger experience was positive, with a total of 47 (81%) passengers indicating their experience as ‘Good’ or ‘Excellent’. However, the qualitative answers provided detailed insights into some of the challenges. These results are summarised in Table 1.

Table 1: Passenger survey qualitative results – summary of challenges

Cognitive Environment	Physical Environment
<ul style="list-style-type: none"> <li>- Special Assistance not easily available outside the terminal (car park, taxi drop-off area, limited access to wheelchairs)</li> <li>- Fragmented journey through multiple handover points (up to six stop points per journey) - Concerns about long waiting time at each handover point</li> <li>- Insufficient communication from staff about expected waiting time</li> </ul>	<ul style="list-style-type: none"> <li>- Long walk from taxi/car drop-off point</li> <li>- No designated check in desks for passengers with special assistance</li> <li>- Cramped and crowded space in check in area</li> <li>- Insufficient seating in landside AP in peak time</li> </ul>

The qualitative analysis of staff responses and observations identified a number of challenges faced by the staff which are summarised in Table 2 below.

Table 2: Staff results – summary of challenges

Cognitive Environment	Organisational Culture
<ul style="list-style-type: none"> <li>- Some staff lacking sufficient awareness of how to deal with passengers with various disabilities and from different cultures</li> <li>- Tasks appear to be unequally distributed across teams and shifts (overload vs underload issues)</li> <li>- Insufficient training for new staff</li> <li>- Various experience across the team which is not considered when allocating shifts.</li> </ul>	<ul style="list-style-type: none"> <li>- Unequal treatment by management (favouritism) - Confusing management structure - unclear who to contact on the day</li> <li>- Better communication needed, currently no regular briefings for staff on shifts - Some staff use their native language to communicate making others feel left out - Lack of reward system for staff that impacts motivation levels</li> </ul>
Physical Environment	Work Environment
<ul style="list-style-type: none"> <li>- Lifting passengers and pushing wheelchairs across difficult to access locations (e.g. station ramps)</li> <li>- Inefficient layout of the main landside AP - No dedicated security lane for PRS, staff supporting PRS are often facing long queues</li> </ul>	<ul style="list-style-type: none"> <li>- Multiple check point making passengers frustrated when facing a problem</li> <li>- Inefficient allocation of staff across checkpoints</li> <li>- Shortage of wheelchairs, Personal Digital Assistance devices and Hi-vis vests for staff</li> </ul>

**Conclusions and Recommendations**

The holistic approach to investigate airport experience has proved its potential to look beyond passenger experience and consider the broader perspective including staff experience. This study showed some interdependencies across experiences of both user groups and identified some overlapping themes. The findings discovered inconsistent and inefficient handover processes for PRS and inefficient layout of the main landside AP, which equally affect passengers’ waiting time as well as staff workload and their tasks. The research also highlighted some organisational challenges faced by staff that may ultimately affect overall passenger experience. A number of recommendations were made to improve the physical layout of AP, including joining two waiting

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areas and introducing one way system for wheelchairs. Further research is however recommended to include larger sample size and capture end-to end passenger journey across all landside and airside APs in order to verify the results of this study and build more complete picture of PRS journey.

## **References**

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