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Inclusive Design for Air Travel

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Abstract

This paper addresses the issue of inclusive design in air travel. Firstly the scale of the problem is defined with reference to passenger demographics, and the different stages of a typical commercial air travel. The relevant government legislation is described, with particular emphasis on the new EU Regulation that requires special assistance to be provided to any passenger who requests it. An assessment of current practices in the air travel industry indicates that existing guidelines are having little impact on design practice. Similarly, an analysis of the major stakeholders in the air travel industry illustrates that a number of different parties are involved in the design and management of a typical journey. The study identifies the needs to reduce the number of passengers who require special assistance through inclusive design. The future directions, which include empirical work, case studies and the possible development of an information tool aimed at the industry are described.

Keywords

Air travel, inclusive design, regulations, assistance, barriers.

1. Introduction

Over 2 billion passengers per year use commercial airlines worldwide, and this figure is set to rise [1]. Of these billions of passengers, it is clear that all varieties of people will be represented, particularly in light of the lower price of air travel, increased migration and multiculturalism. It is also well documented that the worldwide population is ageing [2] and that there is currently a high prevalence of people with disabilities – approximately 20% of the UK population, for example [3]. Consequently, there is a large, wide and growing frequency of people at risk from design exclusion during a typical air travel journey. The needs of these groups must be considered and brought to the attention of designers and managers in the industry. Previous research in inclusive design [4]

suggests that this will not only improve the quality of the air travel experience for extreme users, but for all passengers, as well as alleviating the burden on air travel staff.

The aim of this early stage of the research is to gain a comprehensive understanding of the current situation with regard to the inclusivity of air travel. Air travel will be examined from the perspective of the industry, along with that of the passengers, with a view to identifying the problems and needs of both groups in relation to the inclusivity of the journey. The results from these initial investigations will narrow the focus of the research.

2. The Air Travel Journey

The first step in approaching this issue is to create a subjective framework for the analysis of a typical air travel journey. This will allow a more focussed assessment of the different stages of a typical journey, which will each have distinct issues with regard to inclusivity. The stages which were decided upon are illustrated in figure 1. It is important to note that the journey to the departure airport and from the arrival airport is exempt from this analysis, as this is considered to be a separate inclusive design issue in its own right.

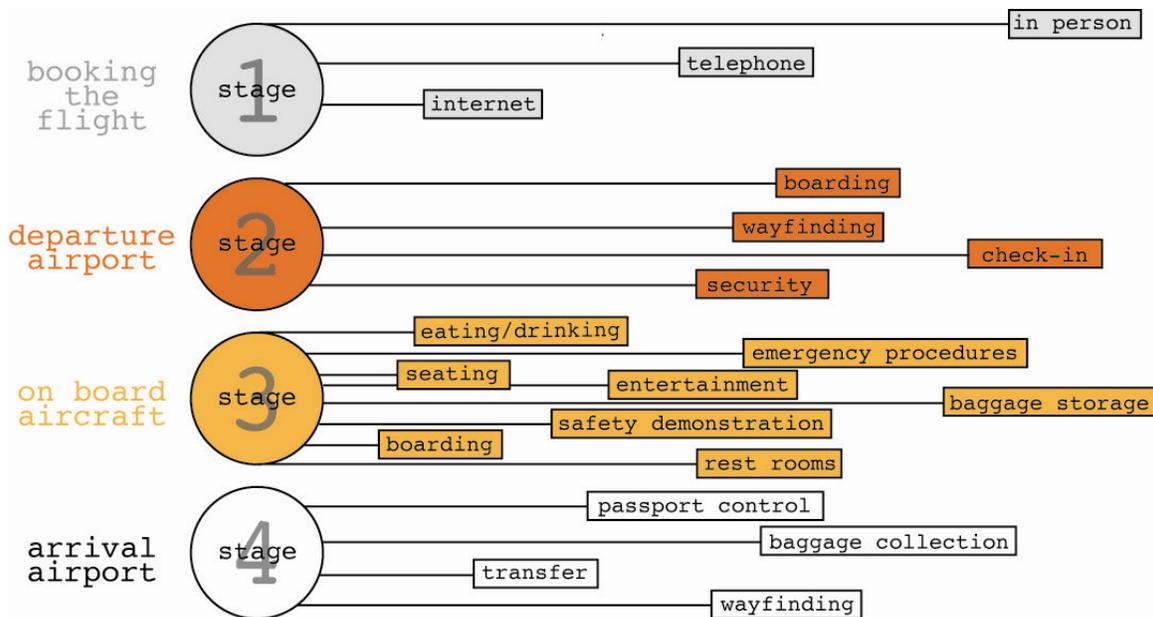


Figure 1: The stages of a typical air travel journey

The 'exclusion calculator' tool, which is provided by the Inclusive Design Toolkit [5], can then be used to analyse the four subjectively defined stages of a typical air travel journey described above, with a view to identifying specific problem areas, if any. Two sets of exclusion calculations were carried out based on previous experience and observations at airports and in air cabins, the general results of which are summarised in figure 2. The first set assumes the provision of special assistance at the airport or in the aircraft, and the second assumes that no special assistance is provided. It should be noted that this analysis is again primarily subjective and only intended to provide a basis for highlighting

problem areas. Further empirical investigation involving users with varying capability levels will be required to substantiate these initial findings.

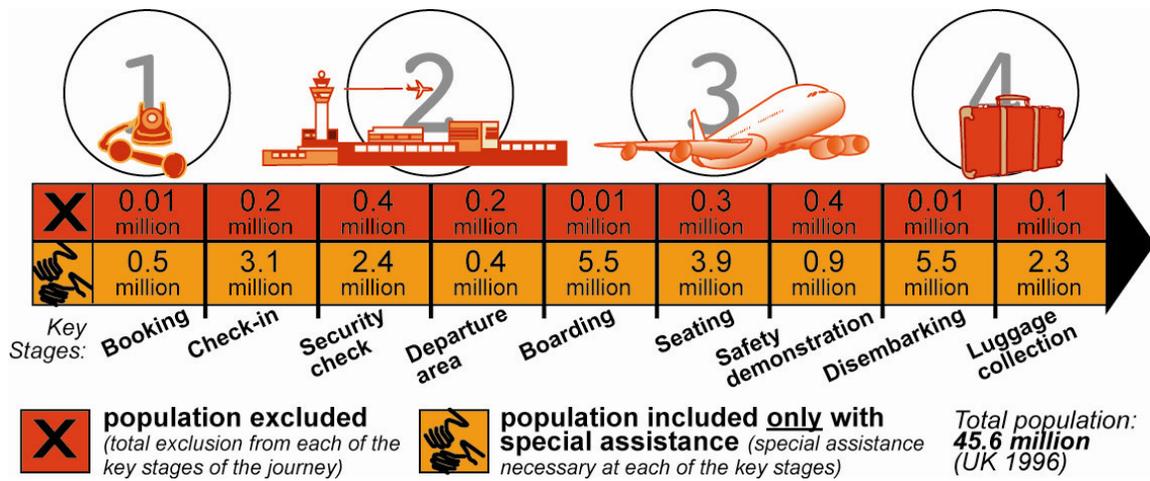


Figure 2: Initial results from exclusion calculations based on a typical air travel journey

The results described in figure 2 indicate that, while air travel is currently accessible to the majority of the UK population, a significant number (~400,000 or ~0.9%) are excluded altogether and for a large proportion (~5.5 million or ~12%) this accessibility is explicitly dependent on the provision of special assistance and is therefore not 'inclusive' as defined by the British Standards Institute [6]. This indicates that the primary aim of this research, therefore, is to facilitate a reduction in the number of passengers that require special assistance during a typical air travel journey. The reason for this focus is that the frequency of passengers who require special assistance is greater than those that are excluded altogether, and the issues facing these passengers are more feasible to address, although it is also important to consider how currently excluded passengers might gain greater access to air travel in the future.

3. Government Legislation & Guidelines

The focus on government legislation and guidelines is also important from an industry perspective in light of the new EU regulation governing air travel, EC 1107/2006 [7], which came into full effect in July 2008. This regulation assigns responsibility to airport authorities for the welfare of passengers within the airport (up until they reach the point of entry of the aircraft), and states that special assistance must be provided to any passenger who requests it. Before this date, airlines were responsible for the welfare of passengers throughout the journey. This legislation undoubtedly increases the need for the air travel industry to diminish the requirement for special assistance during a typical journey. The current cost of providing this assistance at airports (relative to the volume of passengers) must also be identified in order to provide a more specific analysis of the possible savings to the industry, and thereby provide further incentive for the uptake of an inclusive design approach.

Furthermore, this regulation widens the scope of inclusive design in air travel. The first legislation that gave rights to air travellers with disabilities within the UK was the Disability Discrimination Act [8] of 1995. This act only covered the rights of passengers within the airport, while vehicles (i.e. the aircraft) were exempt. Conversely, EC 1107/2006 also relates to passengers' rights within aircraft flying within the EU, making it illegal to refuse any person access to an aircraft on the grounds of their disability (though airlines can set a limit to the number of passengers requiring assistance that are allowed on each flight). This regulation provides a greater incentive for the industry to adopt an inclusive design approach, especially as the fines for breaching it can reach £5000 per passenger.

Elsewhere, a set of voluntary guidelines entitled 'Access to Air Travel for Disabled People - Code of Practice' was developed by the UK Department of Transport in 2003 [9] with assistance from The Disabled Peoples Transport Advisory Committee (DPTAC). The aim of these guidelines is to improve the accessibility of air travel for people with limited capabilities. The guidelines are not solely for designers, but highlight the fact that all stakeholders involved must co-operate in order to create a fully inclusive air travel journey. It is important to note, however, that a review of practice in 2005 [10], two years after the introduction of these guidelines demonstrated that they had made little impact. This might imply that the industry is not receptive to the use of such guidelines, that they were presented in a manner which resists use, or that the process of improving accessibility in air travel is very slow.

Similarly, conversations with design managers reveal that the primary concern in industry is to meet the minimum requirements of current legislation. This illustrates a further issue facing this project, in terms of delivering any design and management guidelines which are developed to the industry and ensuring that they have the maximum possible impact. These voluntary guidelines have also been renewed in 2008 following the review of practice, and further interviews within designers and managers with the air travel industry must be conducted in order to more specifically identify reasons for the slow uptake of this code of practice.

4. The Air Travel Industry

The current structure of the air travel industry is complicated. There are a large number of stakeholders and the power to make substantial changes to the design of the airport and aircraft broadly depends on the volume of passengers that pass through an airport, or the level of fares charged by an airline - as illustrated in figure 3. A number of regulations governing the design of aircraft cabins also exist, which must be considered alongside the legislation described above when developing future aircraft. For each stage of the typical air travel journey described earlier, the main stakeholders who bear responsibility for design and management have been identified, and this information will again be invaluable when addressing the issue of delivering the results of this research to the industry.

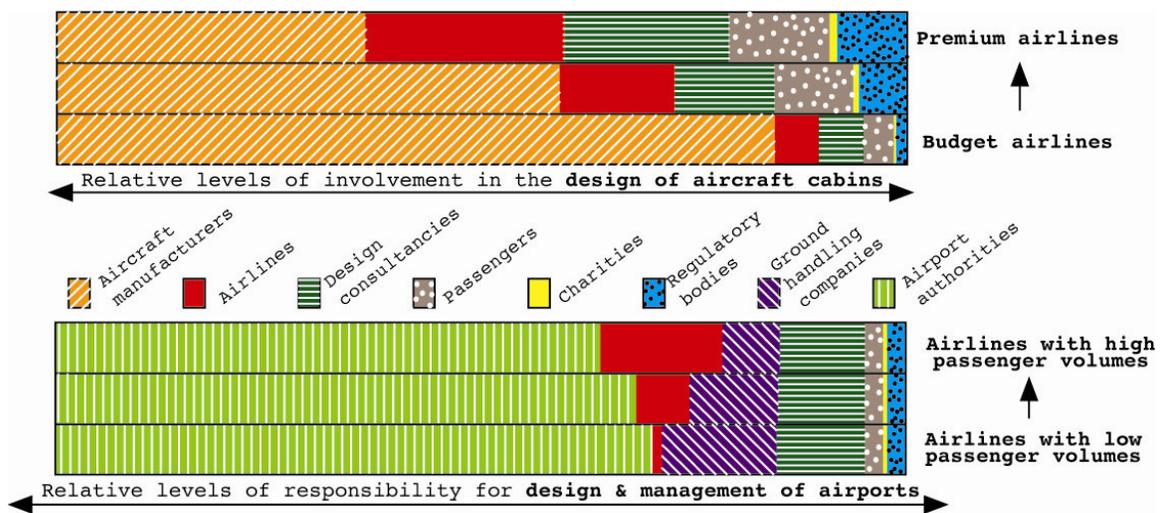


Figure 3: Stakeholders in the air travel industry and their relative influence

5. Conclusions and Direction of Future Work

The work carried out thus far has helped to provide a more specific direction for this research – to reduce the number of people who require special assistance at any stage of a typical air travel journey, as well as those that are excluded from air travel altogether. Furthermore, it has helped to identify several issues which may represent barriers to achieving this goal – such as the apparent unwillingness of the industry to act on and make use of existing design and management guidelines. The future direction of this work therefore consists of three main stages: (1) to support the work done so far with more detailed empirical findings; (2) to identify the barriers to inclusive design in the air travel industry; and (3) to develop and communicate effectively design and management guidelines which should reduce the need for special assistance and increase the accessibility of air travel.

The first stage, which is currently under way, will require a more detailed analysis of each stage of the typical air travel journey with three airlines (Virgin Atlantic, British Airways and Ryanair) and three airports (Heathrow T3, Heathrow T5 and London Luton) being used as case studies. Questionnaires are being prepared for distribution to passengers at each of the airports, and audits and interviews of the staff will also be carried out. For the airlines, audits of the different booking processes and typical cabins will be made alongside interviews and workshops with staff.

Secondly, it has been demonstrated that existing guidelines are not having a significant impact on the industry. Further investigation must be carried out to establish the reasons for this, in order to ensure that any guidelines created by this research are practical and will be made use of. Research carried out by Dong & Clarkson [11] identified a number of perceived barriers to inclusive design in industry including a lack of customer demand,

lack of budget and time, lack of knowledge, information and method. Further research involving design managers must be undertaken to confirm these findings in relation to the air travel industry.

In summary, there is a need to both facilitate and improve access to air travel for a large and increasing number of passengers. The research carried out thus far has identified and elucidated the nature of these obstacles, as well as the scale of the problem being addressed. Further work will aim to offer practical and achievable solutions which can easily be assimilated by the industry.

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