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IMPROVEMENT ACCESS TO AIR TRAVEL FOR DISABLED PERSONS

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Technological innovations implementation basis is established for the improvement of air travel access for disabled persons. Areas of airport services improvement for people with disabilities are determined.

Keywords: airport services, disabled passengers, technological innovations.

Представлено обґрунтування використання технологічних інновацій з ціллю покращення доступу до користування повітряним транспортом осіб з обмеженими фізичними можливостями. Встановлено напрямки удосконалення аеропортових послуг для користувачів з обмеженими фізичними можливостями

Ключові слова: аеропортові послуги, пасажери з обмеженими фізичними можливостями, технологічні інновації.

Problem

Free movement and free access to all transport modes is an essential right of every person living in the modern world.

While managing development of our country transport system a large attention should be paid to the infrastructure development according with the requirements of passengers with special needs and disabled passengers.

The Law of Ukraine “On Principles of Social Protection of the Disabled in Ukraine” dated March 12, 1991 No 875-12 as amended and supplemented is the fundamental law that defines and guarantees the disabled to ensure adequate social protection and support, social integration, equal opportunities with other citizens for personal fulfillment, proper life, education and employment, that is to lead a full life according to individual abilities and interests.

One of the criteria for evaluating disability policy is accessibility to disabled of the physical environment, including housing, transportation, work, culture, information and communication channels access.

The main problem of our transport system is that its infrastructure development needs an incredible breakout to reach the level that United States, European Union and other developed countries have, therefore Ukrainian transport companies should not be allowed to have slow and graceful expansion.

Analysis of recent research and publications

Even though there is a great inefficiency in the sphere of delivering transport services for disabled passengers in Ukraine there are no particular researches focused on this topic.

Contrariwise in other countries, such as United Kingdom, United States and Australia, this topic is widely discussed and supported by Governments. For example US Department of Transportation had conducted workshops within a framework of the exploratory advanced research program on Implementation of Technological Innovations for Disabled Persons. UK Department for Transport has developed a special Code “Access to Air Travel for Disabled Persons and Persons with Reduced Mobility” [1].

Particular interest should be attracted to the researches devoted to identifying mobility service needs for disabled air passengers [2; 3] and assistant for air passengers with disabilities [4]. Also research on synchronized dial-a-ride transportation of disabled passengers at airports [5] is very actual and innovative.

Past studies related to the disabled people are mainly connected with the land transportations [6.]. But there were no publications devoted to the implementation of technological innovations for disabled persons regarding actual Ukrainian air transport system conditions and particularities.

Purpose of whole articles

Opportunities for air travel have grown significantly in recent years, with cheaper flights serving a wider range of destinations. For many people, this has made flying a more common experience.

It is a matter of equality that disabled people and people with reduced mobility should have opportunities for air travel comparable to those of other people.

Problem of free movement of disabled persons is actual not only for Ukraine and other developing countries, but for the whole world.

Even in the most advanced countries disabled people travel a third less often than the general public.

Affordable and reliable transportation allows people with disabilities access to important opportunities in education, employment, health care, housing, and community life.

The main reason to develop transport technologies to disabled passengers' needs is to gain equity in transportation for these people.

In Western Europe about 50 % of people with disabilities do not actively participate in public life, while in Ukraine this percentage, unfortunately, reaches up to 90 %.

The main material

In April 2010, the European Union declared that tourism was a human right.

Before this European Regulation (EC) No 1107/2006 of 5 July 2006, concerning the rights of disabled persons and persons with reduced mobility when travelling by air, imposes legal obligations on airport managing bodies, air carriers, their agents or tour operators in respect of the service they provide to disabled persons and persons with reduced mobility.

The amount of disabled persons in Ukraine is about 2.640.000 [8], which means that near every seventeenth Ukrainian citizen needs some special conditions for good behavior.

Nowadays, the Ministry of Infrastructure is working on a program to create appropriate conditions for access for people with disabilities to transport facilities and road infrastructure and post offices belonging to the jurisdiction of the Ministry of Infrastructure for 2012–2016 “according to the draft State Program” National Action Plan implementation of the Convention on the Rights of Persons with Disabilities “on the period until 2020”, developed by the Government.

All legal documents of Ministry of Infrastructure must undergo an examination to ensure unimpeded access to infrastructure and transport by people with disabilities.

An example is the Air Code, adopted in 2011. It has a whole section devoted to this issue. In addition, all facilities are constructed, necessarily checked for accessibility for people with disabilities. For example, the facilities of Euro 2012: airports, roads, and hotels, etc. All of them have the appropriate expertise [9].

Aviation transportation service providing can be divided into four main processes: ticket reservation and buying, passenger's way to/from the airport,

moving through the airport and boarding/d disembarking the aircraft, on board the aircraft handling. Each process has its own particularities in accordance with the passenger's needs (Fig. 1).

However, people with disabilities typically have had a significantly different travel experience from able-bodied travelers, and it has been suggested that one reason for this has been that the air transportation industry has not yet fully analyzed the needs of disabled passengers [10].

First of all we should pay attention to different types of disabilities, which need special assistance. Generally they can be divided into following groups:

- a seriously ill passenger;
- an ill passenger on a stretcher;
- a deaf unaccompanied passenger;
- a blind passenger with a guide dog;
- unaccompanied blind and/or deaf passenger,

which will be transported under the care of the carrier;

- a passenger, whose ability to move when using an air transport is limited and/or whose condition demands special attention when being serviced (a passenger with limited excursion).

Regardless there is a trend of airline tickets online-sells, Internet sellers don't have an option for special service request.

The main reason for this is that flights operated by different airlines partners may have their own restrictions. Carriage of disabled passengers must be obligatorily coordinated with the airline simultaneously with booking of the flight ticket. A carrier has the right to refuse to transport a passenger, if the physical condition of the passenger threatens the safety of the flight or creates discomfort.

Carriage of disabled passengers shall be booked in advance. Time period of booking depends on the airline's regulations, but usually it is required to book such carriage not later than 48 hours prior the flight departure time.

Due to this all disabled passengers (or their representatives) must contact sale agent. That's the reason why sale agencies are the first point at air transportation procedure.

The second, and one the most challenging stage of air travel, is the route “city-airport-city”. Ukrainian land public transport development is a weak point for national transport system.

For example on railway special coaches for transportation of disabled in wheelchairs are included in the trains.

However, it is not enough to meet the demand for transportation of persons with disabilities. This important sector needs government support and further scientific researches.

Air Travel	Sale agency	Provision of information	
		Booking facilities	
		Rules on carriage of disabled persons or persons with reduced mobility	
		Obtaining information from customers	
		Seat reservations	
		Transmission of information	
	City public transport	Routes to the terminal	By car
			By train
			By subway
	Airport/ Handling companies	Landside	Check-in facilities
			Self-service equipment
			Reserved seating areas
			Access to information
			Public facilities
			Assistance dogs
			Customs, Passport control and other formalities
			Baggage retrieval
			Transfer arrangements
Airside		Security	
		Customs	
		Reserved seating areas	
		Shopping, catering, and other public facilities	
		Information	
Boarding/ Disembarking		Gate facilities	
	Loading wheelchairs and other mobility equipment		
	Boarding wheelchair users		
	Transmission of information		
Airline	Onboard handling	Carriage of medical and mobility equipment	
		Seat allocation	
		Catering	
		Entertainment	
		Moving through the aircraft cabin	
		Information	
		Assistance dogs	

Fig. 1. Disabled air passengers` travel processes particularities

Airport operations consists of landside, airside, boarding/disembarking operations, which can be provided by airport departments or handling companies. Usually airport staff provides disabled passengers with the following kinds of assistance:

- devices for transporting up and down the passenger steps: special chair, hard and soft stretchers (if required);
- escorting on the airport's territory;
- assisting the passenger while passing the immigration and customs controls and other preflight formalities.;
- medical transport for delivering the passenger on board of the aircraft;
- assisting while boarding;
- assisting while checking-in or picking up the baggage.

Special attention should be paid to such operations as check-in counter staff's service and ground service staff's attitude, exclusive customs counter and boarding priority. As a rule passengers are asked to inform the airport authorities about the special services they may need not later than 48–72 hours before the departure or arrival (depending on the airport).

And the last, but the most important part of air travel is onboard procedures during the flight. The policies of airlines such as Continental, Delta and Southwest offer a number of provisions for customers with all types of disabilities. Arrangements may be required for passengers who plan to travel with battery-operated wheelchairs, according to the Society for Accessible Travel and Hospitality. Handicapped passengers are eligible for

“pre-boarding,” which enables the customer and airline crewmembers to attend to any of their immediate needs, before others board the plane.

Special attention should be paid also to the European Football Championship (EURO 2012), which had inclined the country not only to build the objects which were lacking previously, but also to develop new standards and specifications in construction [11]. Airports of hosting cities were being reconstructed according to the projects complying with UEFA requirement, along with the needs of all categories of fans, including persons with limited physical mobility.

Not only were EURO 2012 objects made comfortable and accessible during the period of preparations for the tournament: the quality of services provided to passengers with limited physical capacities has substantially improved, and they made use of them for moving on their own.

Disabled people's need have been taken into account in different functional areas: entrances, technological service areas, utility cores, emergency exits, the same way as in provision of additional services.

Services for groups of people with limited physical capacities have been envisaged both in the general flow and in line with a special technological scheme in case if a person is unable to move on his own.

Ramps have been envisaged at entrances/exits, in paths for movement and in places having level differences; the coating of all surfaces is even and skid-resistant. Lifts, doorways and all emergency exits have the parameters which make possible the use of a wheelchair.

All EURO 2012 city airports were equipped with wheelchairs for servicing people having movement defects. Platform buses which carry passengers were fit for transporting disabled people and persons with limited physical abilities, and the boarding exit gates were equipped with mobile ramps and special lifts. In cases of boarding an aircraft, a special automatic lift for disabled people was used. Places for disabled people's motor vehicles had been allocated in parking areas.

There are several systems designed to help overcome the barriers faced by people with visual impairments in getting around in day-to-day life. These technologies can also be implemented in airports. Examples include large tactile print maps, accessible GPS and geographic information systems (GIS), variable message signs, remote infrared audible signs (RIAS), real-time passenger information systems, vehicle “destination” and “next stop” signs, accessible ticket machines, and detectable warning surfaces.

One example of a barrier faced is when construction blocks a pedestrian right-of-way and forces a change of direction for a traveler—it is important to know what to do at that point and a speaking sign would aid someone with visual impairment in this situation.

Other popular trend is using robotics and artificial intelligence to improve mobility and navigation of people with special needs [12; 13]. In the area of assistive technology, developments to focus on in the near term should include steering assistance, obstacle avoidance, path guidance, and personal transportation systems. Additionally, very little work is currently being under-taken to merge robotics technology with service animals.

On the other hand opportunities and innovations in mobile technology for accessible transportation are investigated. Vehicle-to-vehicle and vehicle-to-infrastructure systems refer to vehicles with onboard equipment offering positioning and computing capabilities to a traveler and the ability to interact with infrastructure. Traveler-to-vehicle and traveler to infrastructure communication would enable a pedestrian with a disability to enter the dialog of what's going on at an intersection using a smart phone.

Conclusions

Travelling and tourism for people with disabilities is becoming increasingly common in the world. People with special physical needs are beginning to require fairly open society, free access to all shared resources — including the recreation areas, hiking trails, interesting architectural objects and nature, parks, beaches. The complexity of this type of tourism is the incompleteness of the regulatory framework, lack of methodological support systems, training of trainers, professionals working with this group of people. And it is impossible to uphold human rights of disabled persons without providing free access to all transport modes. While air transport is an essential part of national transport system, air transport companies should regularly review their policies, procedures and practices to ensure that they meet the needs of disabled persons and persons with reduced mobility.

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