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EFFICIENCY EVALUATION OF AIR TRANSPORTATION SERVICE SYSTEMS FUNCTIONING

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An urgent problem facing the airports of the Russian Federation is the efficiency of air transportation service systems functioning, which would allow maintaining the quality level of their performance, safety, and passenger comfort. One of the methods of solving this problem is a rational way of organizing the technological operations execution [1].

The purpose of the study is to assess the possibility of improving the efficiency of the airport check-in stage (sector).

Passenger service in the airport terminal is a multiphase process and the sequence of phases depends on the following factors:

1) transportation type. Passenger service on international air lines requires a much larger number of operations than domestic ones;

2) passenger category. Departing passengers go through different stages of service than arriving passengers;

3) service technologies adopted at a particular airport;

4) check-in methods used, etc.

The statistical basis for calculations is the schedule of departing flights. The definition of the busiest day is shown in Figure. It is necessary to calculate the intensity of the incoming flow of passengers on the selected day. Using the probability of arrival of passengers in a given time interval, all flights were distributed over intervals of 15 minutes. The required number of check-in places calculated by the flight-by-flight method will be 2 less than the number of check-in desks calculated by the free method.

Часы	1 авг	2 авг	3 авг	4 авг	5 авг	...	29 авг	30 авг	31 авг	Сумма
00:00-01:00						...				0
01:00-02:00						...				0
02:00-03:00						...				0
03:00-04:00						...				0
04:00-05:00						...				0
05:00-06:00	2	1	1	1	1	...	2	1	1	36
06:00-07:00						...	1	1	1	8
07:00-08:00						...				0
08:00-09:00						...				0
09:00-10:00						...				0
10:00-11:00						...				0
11:00-12:00	1					...	1			5
12:00-13:00	1			1		...	2			23
13:00-14:00			1			...	1	1	2	13
14:00-15:00						...				0
15:00-16:00	1	1	1	1	1	...	1	1	1	31
16:00-17:00						...				0
17:00-18:00	1			1	1	...	1			9
18:00-19:00	1			1		...	1			9
19:00-20:00	1	1	1	1	1	...	1	1	1	35
20:00-21:00	2	1	1	2	2	...	2	1	2	51
21:00-22:00						...				0
22:00-23:00						...				0
23:00-00:00	1	1	1	1	1	...	1	1	1	31

Fig. Determining the busiest day

As a result of the study, the following problems were solved:
1) analysis of the current state of Kurumoch airport was carried out;
2) airport schedule analyzed and processed;
3) the busiest day is determined;

3) the required number of service facilities (terminals) for passenger check-in at the «rush hour» is determined;

4) the required number of passenger service facilities has been calculated.

According to the analysis results, we can recommend to apply a blended method of distribution of flights between the check-in desks, as well as better planning of check-in sector operations.

References

1. Koltsov I.V., Romanenko V.A. Evaluation of the functional efficiency of the transportation service system at the regional airport terminal // Bulletin of Samara University. Aerospace engineering, technology and mechanical engineering. 2017. Vol. 16. No. 3. P. 55–64.