DAILY, WEEKLY AND ANNUAL PLANNING USING MS EXCEL IN THE SELECTED AIRPORT COMPANY

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My diploma work serves to inform a reader with the planning generally but to concrete air carrier and its planning capacity as well. Work describes air transport process itself and subsequently the activities associated with the ground handling also. Using MS Excel while planning, operating or controlling is demonstrated. In the next part Airport Kosice is analyzed. The last part explores a design of daily, monthly and yearly planning at Airport Kosice witch is creates in MS Excel.

Key words: plan, capacity, time, passenger

1 INTRODUCTION

State of aviation in this period is under great pressure because he is expected very much. Such changes shall be airfields companies prepare. These changes are faced with many problems that must be solved within a certain timeframe quickly and efficiently. Therefore, in order to have an airport company rapidly effective decisions while planning needs for his decision to have the facts. These facts are based on some form of information resources, which may result from a variety of devices applied

The aim of the thesis is the processing of information on the process of planning algorithms used daily, weekly and annual planning. Characterize the structure and content daily, weekly and annual plans of the airport company, input and output data, factors affecting the collection , processing and use of information for capacity planning subsystems operating aircraft , passengers and baggage at the selected airport company . Propose a way to use MS Excel to facilitate planning the necessary capacity of the individual sub-systems operator during the day , week and year .

2 THEORETICAL BACKGROUND

2.1 Planning

Planning can be described as a thought most suitable embodiment of the idea of future work by considering various alternatives for future action and decision corresponding to the most favorable path towards the achievement of relevant targets. Planning can be described as decisions about the future. Through which business processes are determined as a whole and also its individual components. Planning is actually the only such decisions not based on improvisation, intuition, but the rational mind-training.

2.2 Planning operations at the aerodrome

The basic obligations of airport management, associated with the operation of the airport is essentially defined the creation of an organizational strategy for future management in relation to operating assets parameters airport facilities, its arrangement, financial budget, environmental requirements and organizational structure. Through the planning system can define the needs of individual airports to the needs of communities in the region. Ensuring the operational capacity of the airport - Efficiency of movement of aircraft and passengers between airports is essentially dependent on two basic operational characteristics of the airport.[2]

Runway capacity - the capacity of the runway system is the rule limiting factor airport. The primary objective in determining runway capacity is an overview of what will be required when additional airport capacity. [2]

Capacity stands - One and the most important and frequently required aspects of planning and management capacity of the aprons are to ensure their efficient and effective operation in relation to the number of aircraft. Small area of the airport apron can become a limiting factor. [2]

Capacity interfaces airport - Sky Among the most stressed areas of airspace that in many cases the limiting factor for increasing the volume of air traffic at major airports include interface airspace - the airport. [2]

The capacity of the airport terminal - data, expressed in terms of throughput, which airport terminal while performing analysis represents. Although the terminal will be congresses at various levels (queues in the performance) and delays, but its capacity should also take into account the requirements for service levels. Los (Level of Service) that the terminal can provide in a given situation. As opposed to determining the capacity of a runway can be used where the laws of physics, is related to the capacity of the terminal congestion that can be tolerated for the situation. [2]

2.3 Transport processes such as transport and business passenger check

On air transportation process, we can speak of a summary of certain phases of passengers completed using air transport.[3]

Transportation to the airport and Information Systems - Transportation to the airport is no longer a direct part of the transport services offered by the airlines. However, it is appropriate; passengers in the departure place exactly not focus, to provide information necessary for timely arrival at the airport. [3]

Passengers on a flight - clearance process (check-in) passenger per flight is intended to ensure that embark be granted only to passengers who: [3]

- confirmed reservation and paid the corresponding fare on the flight concerned,
- personal, visa, health documents conforming to the requirements of the receiving State,
- the number, volume or mass of checked baggage matching payment of travel. [3]

Security control - air transport over time become one of the sought-after terrorist targets. To minimize the danger continue to become stricter rules regulating particular check baggage and passengers. There are fore set objects, substances and devices that may not be used in cabin (unchecked) baggage. [3]

Boarding - a call for a departure from the corresponding,, gate "is taken to passengers boarding pass and usually once checked their identity. After the automatic withdrawal data from a passenger boarding cards included in the final list of passengers in the event of any adjustment made in the assignment of aircraft. [3]

Output to the terminal, leaving the airport - a summary on arrival at the airport passengers leave the plane and moved into the airport terminal. Relocation takes place essentially three different ways on foot, through the air bridge (jetty, bridge) - major airports, aircraft close to the terminals. [3]

2.4 Activities for technical clearance

Timetable for technical clearance of the aircraft:

a) Arrival and stopping the aircraft main landing gear and the establishment of a wedge,
b) Pushed up the stairs / bridge - output is possible in four ways
c) Connect the auxiliary power source to the CPU to exclude the need for continuous use of the auxiliary power unit APU
d) Alight in parallel with the output and unloading luggage, unloading
e) Aircraft interior cleaning
f) Cabin service
g) Refuelling mobile means or hydrant system
h) Adding catering
i) Technical inspection of the aircraft
j) Extrusion aircraft (push-back)

2.4 Use MS Excel in planning, management and control

In this part of the article will be devoted to the program called Excel, which is among the most widely used programs in economics, statistics and management. Excel is a powerful tool that is its weight comparable to special economic programs. It is these opportunities and the way to use them and add it to the forefront.

Excel is a spreadsheet program, through which it can create tables. The program itself can process entered data with automatic calculations. These automatic calculations make work easier, shorten working time. Excel is available 327 functions, which are divided into eleven categories. The tables can be used for functions statistics, mathematics, finance, and search databases. The data in the table is possible in many cases to work as a database where one row of the table is actually one data in the database. So functions of Excel are able to sort the database (by various criteria), also the filter (choose some for us the interesting part of the data.)

3 ANALYSIS CAPACITY UTILIZATION ON KOŠICE AIRPORT

Airport Kosice is the second largest international airport in Slovakia. Located in the catchment area which has the potential of over one million passengers, taking into awareness and our neighbours, we were able to count the number twice. Precise location of the Barca 3 km south of the city centre at an altitude of 230 m above sea level Area airport is 3.5 km ² and the total area of the terminal is 4456 meters, of which more than 3500 meters is reserved for passengers. The largest aircraft able to land at the airport are Boeing 767 Airbus A300. Airport capacity is 800,000 persons per year, respectively. thousand people per hour.

3.1 History of Airport Kosice

History of Aviation in Kosice has more than one hundred years: June 14, 1906 were residents of the eastern Slovak metropolis first opportunity to see how the sky rising balloon filled with gas . In 1910, in a beautiful over (now part of Kosice) held the first air show , which was introduced three aircraft . Kosice is a milestone for May 5, 1924, when the Czechoslovak State Airlines (CSA) opened a line from Bratislava to the eastern metropolis because the old airport has failed to comply with more modern aircraft , began in 1950 in the area for Barca with the construction of the current airport . Three years later, was put into operation a runway length of 2,000 meters, taxiways and apron . In the years 1974-1977 the runway extended by 1,100 meters. In 2001 began the construction of the new terminal ,which opened in 2004 and in 2005 was awarded the title Construction of the 2005th In 2004 a company was formed Airport Kosice - Airport Kosice , as to which in 2006 entered a strategic partner . In 2007, the expanded apron , thus increasing the number of stands .

3.2 Plans on Airport Kosice

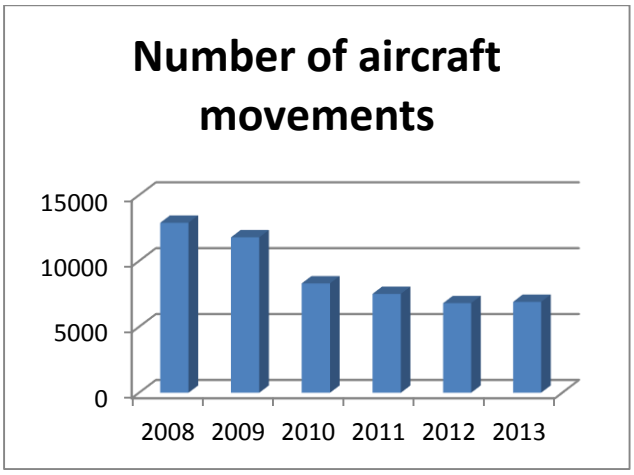
After some time the Kosice airport managed to the end of 2013 to fulfil a plan to create new contracts with another solid carriers such as Wizz Air. It truly is a new wind in the sails respectively wings because this airport since 2008, which deeply marked the history of not only this airport beginning of the economic crisis, the airport reported enormous decline in the number of passengers.

The airport itself notes that since the opening of the route in September 2013 to March 2014 was between Kosice and London carried more than 30,000 passengers who enjoyed the comfort on board the Airbus A320. The component connection is operated five times a week during the summer 2014; the rate has increased to seven flights per week.

Offer destinations Kosice airport should continue to expand. Leadership is so dissatisfied with the successful merger with the metropolis of Great Britain. Announced are other possible points, which opened this airport and residents doors to the world. Management of the airport is therefore going towards Germany, later perhaps to Italy and France.

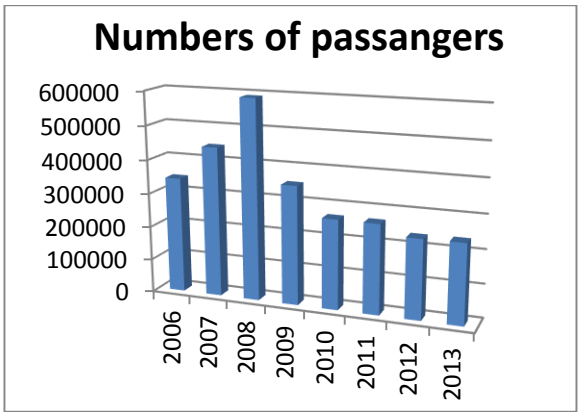
3.3 Capacity and demand for railway systems

Airport Kosice is the second largest international airport in Slovakia. Asphalt runway: 3,100 meters long and 45 meters wide have parameters that allow the operation of almost all transport and cargo aircraft. The airport is equipped with a radio navigation light and locking devices including meteorological for operating under low visibility (II Cat. ICAO). Apron Apron 1 is for 6 aircraft and Apron 2 for 2 aircraft.



3.4 Terminal and terminal capacity utilization

For the treatment of passengers is designed terminal T2, which is connected to terminal T1.Together represent a single-storey, air-conditioned, wheelchair hall building with two-story canter section. In 2003, the general aviation terminal became operational. After almost four years of construction was on 21.12.2004 inaugurated the new terminal building, which was SSL investors. The total area of the terminal is 4 456 square meters, of which more than 3 500 square meters is for the travelling public. For passenger is available 8 check-in counters, which are equipped with Gaeta, this time introducing a system Palo. Maximum hourly capacity of the terminal is 720 passengers (360 arrival at /360) and target capacity number of passengers could be up to 700,000 per year. As the technical and safety aspects also terminal meets the European and international criteria. Kosice is prepared after the accession to the Schengen area to separate passengers bound for EU Member States and beyond EU.



3.5 SWOT analysis Kosice airport

Strong side	Weak side
• Catchment area and prospects in the region • Connection to public transport • Modern airport infrastructure suitable for different types of aircraft and passengers • The ability to create your own directly to fund development	• High fees when compared to the competitors • Incomplete plans for the implementation of cargo for freight • A small number of primary lines in major centres in Europe • Limited funding for marketing activities

Opportunities	Threats
▪ Interest in the development of the airport and to local government ▪ • The growing Asian market at the level of local government ▪ • Slow and gradual global economic recovery and increasing interest in air transport ▪ The growing interest in irregular aviation ▪ Increasing investor	▪ High competition airports and transport companies, particularly in low-cost transportation ▪ United Airlines caution when opening new destinations and regular lines ▪ Expanding capacities airport Vienna and Budapest Airport ▪ Development of

interest in the establishment and development of enterprises in the region	the airport in Rzeszów

3.6 Daily, weekly schedule of flights

When we do not change throughout the year consists of a sample of one day or week. At the airport Kosice use the services of the regular carriers Czech Airlines, Austrian Airlines and Wizz Air. Connecting these companies tend to cities like Prague, Bratislava, Vienna and London. On each day of the week are the exact flights model classical daily plan to be on other days precisely on Tuesday, Saturday and Sunday minor changes more accurately loss flights. Daily operational plan for the maximum load of the day of departure:

1. Link OK 979 departure 4:55am S: Prague D: Czech airlines L: AT4

Plan : start at 3:30 , 2 check-in, gate D open at 4:25, average number of passengers 20-40

2. Link OK744 departure 5:05 S: Wien D: Austrian airlines L: DH4

Plan: start at 3:30 , 2 check-in , gate A open at 4:35, average number of passengers :20-40

3. Link OK 961 departure at 8:35 S: Prague via Bratislava D: Czech airlines L:AT4

Plan: start at 6:35 , 2 check-in , gate D open at 08:05, average number of passengers – 15-60

4. Link W6 7673 departure 11:25 S: London D: Wiz air L: A320

Plan : start at 9:25am , 2 check-in , gate G, open at 09:25, average number of passengers 140-165

5. OK 742 departure 15:15 S: Wien D: Austrian airlines L: F70

Plan: start at 13:15, 2 check-in , gate A, open at 14:45, average number of passengers 30-75

6. OK973 departure 15:20 S:Praha D: Czech airlines L: AT7

Plan: start at 13:30, 2 check-in , gate D open at 14:50, average number of passengers - 20 - 55

7. OK 967 departure 20:10 S: Prague via Bratislava D: Czech airlines L:AT4

Plan : start at 18:10 , 2 check in, gate D open at 19:50, average number of passengers 20-40

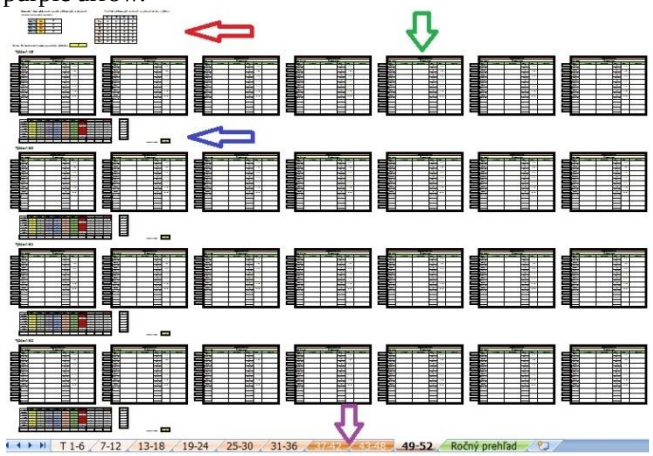
4 DEVICE DESIGN IN MS EXCEL FOR FACILITATING PLANNING THE NECESSARY CAPACITY DURING THE DAY, WEEK AND THE YEAR

In this part of the thesis will be devoted to the description I created a device which should help to time-efficient planning in the selected airport company. The advantage of this device is its simplicity, efficiency and function based on MS Excel. Package MS Office is located on almost every computer and actual application and dissemination of this device is not at all difficult. There is no need for special installation and operating instructions are not required great knowledge of the program.

This utility is directed to the transparent processing of daily, weekly operational plans, which provide an annual report to the Kosice airport. Applying the device it is possible at other airports provided certain amendments.

4.1 Device as a whole

Device is intended to more transparent preparing their daily operational plans. Where the day will store information about these plans and then the data will be drawn. Some statistical observations will help to further capacity planning for a certain period. Improve the transparency of individual days and weeks. Device as a whole is made up of various planning days you see a green arrow and planning table showing the week the blue arrow, which are mutually interconnected. Each week, there is, of course, seven days and six weeks, those present in a single season. Each period has its own evaluation, the table is shown with a red arrow. The complete device is 9 similar periods in their merger creates an image of one year. Period are shown in Fig purple arrow.



4.2 The individual parts of a device

The daily chart one of the essential elements of this device is a day more accurately the table with which is realized the collection of information. This model daily schedule lists all lines that fly over the period. The table for each line written information about the name line, top clearance, gate and scheduled time of departure of the aircraft.

Head of the window lists the changes in column 1 or leave vacancy. This way marked routes to fly that day. Another point is the inclusion of his name in bowling, which asks the head changes. Likewise is in boxes for check-in agents and Gate Agent. The last thing is to enter the number of passengers who have flown on a given day

in a given line. Such attendance table will help to better outline requirements for individual days.

	DENNÝ OPERAČNÝ PLÁN					
	Deň: Pondelok		Vedúci zmeny:			
	Linka	CKI AGENT	GATE AGENT	GATE	Odlet	Počet PAX
1	OK 979			D	4:55	
	ST 3:30			ST 4:25		
1	OS 744			A	5:05	
	ST 3:30			ST 4:35		
	OK 961			D	8:35	
	ST 6:35			ST 8:05		
	W6 7673			G	11:25	
	ST 9:25			ST 9:25		
	OS 742			A	15:15	
	ST 13:15			ST 14:45		
	OK 973			D	15:20	
	ST 13:10			ST 14:30		
	OK 967			D	20:10	
	ST 18:10			ST 19:50		

Weekly table for the second essential element in this device consider a weekly table which collects information inscribed on a daily table. From this information antics certain graphic and numeric variables.

Týždeň 1	OK 979	OS 744	OK 961	W6 7673	OS 742	OK 973	OK 967	Linka	Linka	Linka	Poč. PAX
pondelok	x	-	-	-	-	-		-	-	-	0
utorok	-	-	-	-	-	-	-	-	-	-	0
streda	-	-	-	-	-	-		-	-	-	0
štvrtok	-	-	-	-	-	-		-	-	-	0
piatok	-	-	-	-	-	-		-	-	-	0
sobota	-	-	-	-	-	-	-	-	-	-	0
nedeľa	-	-	-	-	-	-	-	-	-	-	0
Poč. PAX	0	0	0	0	0	0	0	0	0	0	

SPOLU za týždeň: 0

This table is compiled each horizontal and vertical lines each day of week. Stained shelf demonstrate the availability of lines in each day. Furthermore, there are summaries which add up the number of passengers handled in a given week. The number of passengers handled during the week of the horizontal lines and the number of passengers for the day vertically. In the lower right is a complete summary of passengers handled per week.

Functions and calculations of days between tables and table function first week is confirmation of the flight line in the daily plan is, write the number 1 in the cell. This step causes the week in the table will change sign on a given day for a given line from "-" to "x" in the formula = IF (? = 1, "x" if (? = 0, "-"), which is applied to each cell in the table week. this function is used to confirm the scheduled flight for the day. Additional features are summaries that cumulate the individual numbers of passengers handled. practical design of these recorded values can be observed in the figure below.

	DENNÝ OPERAČNÝ PLÁN					
	Deň: Pondelok		Vedúci zmeny:			
	Linka	CKI AGENT	GATE AGENT	GATE	Odlet	Počet PAX
1	OK 979	Jan, Peter	Zuzana, Jana	D	4:55	50
	ST 3:30			ST 4:25		
	OS 744			A	5:05	
	ST 3:30			ST 4:35		
	OK 961			D	8:35	
	ST 6:35			ST 8:05		
1	W6 7673	Zuzana, Jana , Peter	Jan, Pavol	G	11:25	150
	ST 9:25			ST 9:25		

	DENNÝ OPERAČNÝ PLÁN					
	Deň: Utorok		Vedúci zmeny:			
	Linka	CKI AGENT	GATE AGENT	GATE	Odlet	Počet PAX
	OK 979			D	4:55	
	ST 3:30			ST 4:25		
1	OS 744	Zuzana, Jan	Pavol, Peter	A	5:05	25
	ST 3:30			ST 4:35		
1	OK 961	Peter, Jana	Pavol , Zuzana	D	8:35	35
	ST 6:35			ST 8:05		
	W6 7673			G	11:25	
	ST 9:25			ST 9:25		

Týždeň 1	OK 979	OS 744	OK 961	W6 7673	OS 742	OK 973	OK 967	Linka	Linka	Linka	Poč. PAX
pondelok	x	-	-	x	-	-		-	-	-	200
utorok	-	x	x	-	-	-	-	-	-	-	60
Poč. PAX	50	25	35	150	0	0	0	0	0	0	

SPOLU za týždeň: 260

Indicator status and utilization summaries for the period - In this table, there is a clear set of information that can be found at the beginning of each sheet. The table is divided into the number of weeks in that period and describes the number of passengers for individual weeks. Another feature is an indicator of the state of occupancy. The indicator shows the state where the number of passengers in relation to the possible capacity in standard and a sign OK ". Brand, STOP "reports that we approach the capacity ceiling of the terminal. This function is performed by a logical formula where that week limits capacity 11 200 clearance. Limit the capacity of a given airport company may be adjusted according to their estimates for the period.

Ukazovateľ stavu vyťaženosti a počtu odbavených cestujúcich :

(Ok - hodnota v norme , STOP - hraničná hodnota)

T1 -->	OK	200
T2 -->	OK	0
T3 -->	OK	0
T4 -->	OK	0
T5 -->	OK	0
T6 -->	OK	0

Celkový počet pasažierov za toto obdobie: 200

To the right of this variable is a table of summaries which shows the number of passengers for the day of week to week. Using this table it is possible to observe changes in demand for individual days.

	T1	T2	T3	T4
Po	0	0	0	0
Ut	0	0	0	0
St	0	0	0	0
Št	0	0	0	0
Pl	0	0	0	0
So	0	0	0	0
Ne	0	0	0	0

Table passengers for the full year are the last device in this table is a table that contains the number of passengers for each week throughout the year. This again gives a complete overview of the changes in demand during the year. To his right is a summary passengers per year.

Ročný prehľad odbavených cestujúcich za jednotlivé týždne :

T1	0	T14	0	T27	0	T40	0
T2	0	T15	0	T28	0	T41	0
T3	0	T16	0	T29	0	T42	0
T4	0	T17	0	T30	0	T43	0
T5	0	T18	0	T31	0	T44	0
T6	0	T19	0	T32	0	T45	0
T7	0	T20	0	T33	0	T46	0
T8	0	T21	0	T34	0	T47	0
T9	0	T22	0	T35	0	T48	0
T10	0	T23	0	T36	0	T49	0
T11	0	T24	0	T37	0	T50	0
T12	0	T25	0	T38	0	T51	0
T13	0	T26	0	T39	0	T52	0

Celkový počet za rok: 0

4.3 Use a logical improvements

Device itself is not complicated is almost simple and easy to use. In its simplicity, it can draw up a long-

term vision of capacitive load on certain days on the particular routes . The same is true when looking at the picture of each week . This information and the collection will serve many decisions when planning new routes and their ranking in the timetable . From the result we can also evaluate each line and the associated interest of passengers on the frequency and the like. The result of such a use of this device would be a general overview of the changes, numbers, numbers and the like. Statistical data obtained in this way can have great value in planning future steps that many a waiting airport company. As a further advantage, I see that this utility can adjust and improve his image and request the necessary information to be able to implement this program. So far I have met with similar tables only on paper, which are based in folders on the shelves . This method does not have the clarity and some extras calculation is time-consuming and confusing. Therefore, I think that the use of such devices excel not only hurt anything to improve already established system of daily organizational planning which determines actually the whole year. Logical improvements that device I would consider automating each individual adjustments. Is the automatic application of new routes from various days to weeks? This utility can be saved to the selected security of Internet cloud, which should be accessible to all permits only on condition that they have internet access so everyone would be able to edit the contents of the device from different places.

5 CONCLUSIONS

In this article I describe the essence of the work of planning, the division, the ways and methods by which the plans in the enterprise. They are use of strategic thinking and camping tactics in decision making. Mentioned is the need and the importance of controlling the planning process . This work characterizes the overall picture of air issues about themselves transport processes connected with them and ensuring the necessary capacity, activities for technical clearance and the actual planning of all activities . Among the latest theoretical basis I have included the use of MS Excel in management planning and control. In the analytical section describes the general information , the capacity of the individual parts and plans for selected airports in Kosice . In this section are presented the SWOT analysis of the airport .

The last part of this thesis is dedicated to the device in MS Excel. Utility specializes in effective daily, weekly and annual planning. Important factor was the fulfilment of targets beyond the theoretical, analytical and practical level, I met my discretion. The actual planning of the airport is in fact consuming activity so I decided to simplify it.

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