

METHODS OF OPTIMIZING THE ORGANIZATIONAL STRUCTURE OF AIRLINE

Monika Buková

This article focuses on the issue of optimizing the organizational structure and changes in the aviation business. Analyzes the basic theoretical background and illustrates the main factors that influence the evolution and formation of the optimal organizational structure of the company. The organizational structure is the structure elements of the organization – departments, divisions and relations between them. Its formation depends on the size and range of company, the methods of work dividing, competences and responsibility. Optimization can be defined as a process that aims to find solutions that are better than the current situation. It is the process of improving.

K e y w o r d s: optimization, organizational structure, airline

1 INTRODUCTION

Optimization can be defined as the process finding solutions that are "better" than the current state (already achieved or known). It is a process improvement that results may not be the optimal solution. It is the process of selecting the most suitable alternative from all possible.

Airports are very complex economic systems which operate under certain rules and regulations. It works in a given arrangement. These rules, arrangements have to be first carefully planned and precisely performed by organizational measures. Under the organization we understand on the one hand the process of establishing these rules of all business activities (structured) and on the other hand, the result of this process, it is means the sum of all the rules that work for the corporate management and subordinate bodies to implement all business processes. The result of the process organizing is formation organizational structure of the airport.

The object of the organization is a complete business operation, all main and sub business functions. In arranged company have to be everything organized. The result of organization process is company's organizational structure. Organizational structure can be defined as the set of all elements in the company and relations between them. These elements can be organized as efficiently as possible. Only efficient and optimally prepared organizational structure will have a positive impact on the company operations.

2. FORMULATION OF THE TASK

Optimization is the process of selection of viable processes leading to achieve the best result. Its aim is to find the best solution to achieve the best result. Simple words find the optimal solution. To define the optimization problem must be carefully describe its three key elements:

1. Decision variables, which are a numerical representation of possible procedures or withdrawals.
2. Target that we want to optimize. This target must be measurable, e.g. profit maximization or minimization of waste material.

3. Limitation, which represent compliance with certain rules imposing limits on the decision variables. An example of the capacity of the production lines, material or human resources, or budget limitations.

Optimization modeling requires prior precision processing of data - retrieving data from sources organizations; transform data into useable form, cleaning and repair of incomplete or conflicting data and their storage in data warehouses for central access. Often must be performed on the data further statistical analysis, data mining, forecasting and econometric modeling. [17]

On this basis of that, optimization is never isolated process, but builds on the previous sequence of steps through the processing of raw data, reporting to the descriptive and predictive analysis that can be performed accurately.

Various optimization methods can be divided into:

1. Mathematical Methods
2. Non-mathematical methods
3. Management of quality

2.1 Mathematical methods of optimization

A. Linear programming

Among the frequently used methods for optimizing production and other decision-making processes include methods of mathematical programming. Allow transform real processes into mathematical models and those subsequently resolved by a mathematical apparatus. Objectives and their determination are dependent on the process itself. These are optimization (maximization or minimize) criteria. These may be for example:

- Profit maximization,
- Maximizing efficiency equipment,
- Maximizing productivity
- Maximizing the amount of transported material,
- Minimization of production costs,
- Waste minimization,
- Minimization of kilometers, and others. [2]

B. Network analysis

Network analysis forms a relatively independent area application of basic knowledge of graph theory into technical and economic - planning complex actions

(projects), the implementation of which requires the completion of a number of interlinked sub-activities. These activities because of its character can have different relationship - independence, time sequence, the mutual conditioning, etc... [7]

The cornerstone of network analysis is a network chart, which is basically a mathematical model of the project. Is a means to illustrate the project and the activities which have to be carried out in the project and also expresses links between these activities.

C. Theory of inventories

Supplying represents a set of activities which aim is at the basis of knowledge of products, their marketing policy, the availability of material resources, and in relation to demand forecasts, prepare the most appropriate way of ensuring the supply of the main activities.

Inventories are an important and essential part of its asset structure and management in production, and also in distribution organizations. Inventories means that part of the applicable values that have been produced or purchased, but not yet consumed. [6]

2.2 Non-mathematical optimization methods

System Analysis and Synthesis

System analysis is an important phase in the development of systems thinking. Its general character is all that constitute a general methodological approach to the system, its explanation and understanding. Has a certain application aim, based on analysis of the system to come to his mastery, improvement, or improvement of its functions and etc... It is the starting point for a variety of other disciplines related to the exploration and the proposed system. Based on the assumption that the studied object is complex and has multiple linkages with the surroundings. System analysis is a discipline methodological character. The object of its investigation is defined by the system properties, regardless of its factual character. Object of examination of system analysis are therefore complex systems in diverse fields of human activity.

Systemic synthesis is a process in which the elements of the system are determined and their links so that the system exhibits the desired behavior. It is applied after a thorough analysis of the system and is based strictly on its conclusions. Its aim may also be to improve the existing system functions. Synthesis system does not always lead only to the definite solution in meeting desired behavior. Solution would therefore be optimized, that is adjusted to be the simplest structure while ensured the desired system behavior. A basic concept of system synthesis is merging structures subsystems. [9]

System approach is based on the following assumptions:

- Each system can be divided into logical subsystems or the elemental components.

- The various subsystems or elemental components have their own interface.
- It is possible to define relations between subsystems and primary elements.
- Activities that take place in the individual subsystems or elements must be considered with respect to their dynamics as part of a meaningful whole.
- The problems that exist in the system have a variant solution, while there exist the optimal approach. [9]

2.3 Quality management

Management of quality is an important part of production management, which ultimate goal is to satisfy customers with demand products, while ensuring the economic prosperity of the company. Quality management is a set of interconnected business, technical, economic, personal, informational, organizational, social and other instruments, which guarantee product quality. The quality of production is shaped in a multistep process and it is finalizing production management.

It is part of corporate governance. Its aim is the optimization of working practices or manufacturing processes, taking into account material and time resources, expected final product quality (defined as possible numeric parameter) and the expected further growth and development of the company. The basic tools of quality management include, for example. Collection of data about customer satisfaction, performance evaluation and reliability processes, the number of complaints from customers, statistics and others, leading to the improvement of corporate communication structures, professional business strategies, improves customer satisfaction, saving resources due to the introduction well-chosen standards. Quality Management should ensure that the company received requests for product quality and production, and development processes among the main priorities.

The basic aspects of current concepts of quality management include:

- focus on the customer (the user of the product or service),
- the introduction of teamwork,
- introduction of a system of motivation and reward quality and management,
- education and training of all employees [8]

3 ORGANIZATIONAL STRUCTURE OF AIRLINE

The organizational structure is a set of elements, respectively structural components and relationships between them. [16] Its job is to make the process of organizing as a relatively permanent arrangement. Element, structural component is a comprehensive part of the organization, it is department or workplace. Relations between them are informational links that help to realize information connection necessary for the coordination of realized processes.

Organizational structure can be seen as the internal pattern of relationship authority and communication. The optional organizational structure would be the structure that minimizes both, the sum of the production costs and the agency cost. [3]

Organizing and corresponding organizational structures are the foundations of modern management. It takes advantage of division of labor, ensures coordination of the necessary activities and good relationships of people who made it. By defining the powers and responsibilities of people involved in organized processes making easier the order, discipline and method of performed activities. The organizational structure has to comply with the need of to coordinate work teams in ensuring aims of airlines and to create favorable conditions for satisfaction and motivation for achieving good results of their work together.

Organizational structures are often defined and interpreted on the basis of systemic approaches, and as a set of elements and relationships between them. The term elements or structural units can be according to the levels included plant company, its divisions, departments, department, or other departments. Relationships between elements are information binding. Organizational structures on the one hand, take care about the differentiation of skilled and cost-effective implementation of the activities set circuit, on the other hand its ensures integration. [17]

One of the main reasons of the organizing is to create organizational structures that create conditions for effective work and cooperation of all employees. Creating an organizational structure is individual matter for each airport. There is no universal organizational structure that to ensure effective functioning. It has to be tailored to specific business and needs to be support for the implementation of corporate strategy.

4 CREATING ORGANIZATIONAL STRUCTURE

Creating organizational structure is a matter for each individual company. Must be "tailor-made" according to the particular situation of the company. Closely linked to business strategy. The organizational structure defines the functional roles and relationships in business processes which are the means for building strategies.

Defining the functional role means that it is determined who will be what to do in the business process, on what activities will be specialize and what will be the division of labor. Each activity represents a logical step in the process. Represents the smallest unit of work which has its time frame. In this process are determined the holders of activities. Those are the lowest organizational units. Each holder of activity has for fulfilling activities entrusted to it, responsibility. Size of responsibility resulting from activities in process status structure.

Through the division of competence are defined relationships between holders of different activities. Jurisdiction is coupling with vertical and horizontal converting organizational units in the organizational structure. Organizational structure becomes operational. [15]

4.1 Procedures for creating the organizational structure

During designing the organizational structures need to be considered that:

- there is no type models, which binding govern requirements for the structure and the substantive content or scope of services personnel, organizational structure should support the effective functioning of institutions and commensurate with its strategic goals,
- organizational structure should be simple, clear from terms of segmentation, hierarchy and communication links,
- organizational form should be a means of improving management, not its purpose. The own procedures of creating new or the adapted organizational structure will largely depend on the results (consequences) which management expect from the changes in organization.[19]

4.2 Rules for creating optimal organizational structure

Experts generally offer three rules for optimum organizational structure:

1. Span of Control: A manager should supervise close to the optimum number of employees. In administration, the span of control for an executive should be from five to nine persons, with seven being optimal. Fewer than seven and the executive may be underused.

More than seven or eight and effectiveness may be compromised. Resources may be spread too thin and inadvertently, hinder profitable performance. In the plant, a foreman can maintain control of up to 15 persons that each performs complicated operations; 50 or more that perform simple operations.

2. Proper Reporting Level: Employees whose departments have the greatest impact on profit should report directly to the owner. Typically, it's the heads of marketing, sales, manufacturing, purchasing and finance/accounting. For some companies, the head of engineering could be included. For others, quality control or risk management.

3. Management Insulation: The number of levels between the company head and the lowest level of supervision should be kept to a minimum. This is not just because it will reduce cost (fewer managers needed) but because layers erode the quality of information that flows from the front line to the top manager. The top manager depends on the flow of information to make wise decisions. In addition, it becomes more difficult for the owner to assess individual performance when multiple layers separate him or her from "the doers. [12]

5 FACTORS INFLUENCING THE FORMATIONS AND CHANGE OF ORGANIZATIONAL STRUCTURE

The effectiveness of the organization depends mainly on what kind of structure have, what are the processes in organizations, what management practices are applied, the extent to which organizational culture is supportive.

Factors influencing the formation of a new or change existing organizational structure are:

1. *The environment* - market environment, scientific and technical environment, inter-organizational environment, cultural environment. From characteristics of the market under terms of the formation of the company's organizational structure, we can highlight the following:

- Variability - The variability of the market is given by frequency change of partners, intensity of changes and irregularity of the changes. Depending on the variability differentiate static and dynamic market environment. The market environment is called dynamic if there are rapidly changing market relations of companies, buying and selling options, when customers have requirement for new products or modify the requirements for existing products and services. In a static environment, work well companies that buy long term and offer the same products and services, business partners do not change even after a long period, buying and selling conditions are invariably long term. In practice, the market environment is called static or dynamic, depending on whether the characters closer to one or the other.

- Complexity - the complexity of the market we can determine, depending on how large is the number of external factors that have to be considered when deciding. To what extent are these factors differently and how they are divided in different segments of the environment. Depending on complexity can distinguish simple and complex, difficult market environment. The joint effect of the variability and complexity determines the different degrees of uncertainty for the organization.

- Limiting force - may be from monopolistic position of competitor, from inadequate balance between demand and supply or from government restrictions. If there is the smaller number of customers and suppliers that company has, then the more intense must count with restrictive force. In companies that are largely dependent on the restrictive forces, we can note a high level of centralization of management, decisions.

2. *Characteristic features of the company* - after ensure compatibility with environmental conditions have to make sure that the organizational structure has been aligned with the characteristics of the company (that are not change in the short term). It is mainly dimension, process and information technology, origin, location of the establishing.

3. *Character of production and business activities of the company* - the kind of specialization, range of production, uniformity, stability and dynamics, an area in

which businesses operate - also importantly affects the organizational structure of the company. In this area is important mainly range of products and quality of production and services. It is required to maintain a good reputation and customers.

4. *The size and length of existence* - in principle, the larger company has more formal organizational structure and smaller company less formalized. Rapid changes in the size, growth rates and personnel policies are affecting the structure of the company. [4]

5. *Technology* - the technology of production and technological processes, which the airport uses.

6. *Characteristics of employees* - qualifications and personal assumptions, the ability to manage and lead employees, technology and administration. Management and the human resources of company significantly influence the character of organizational structure. The structure is also significantly influenced by the selection of employees and their ability to adopt the philosophy and strategy of management and to participate actively in its implementation.

7. *The main organizational structure* - is the basis for the creation of new structures. And may be modified only in certain parts or completely changed from the ground and thus, have to be created a new organizational structure.

8. *Business strategy* - one of the most important factors affecting the organizational structure of the company. Between the strategies and structures, there are certain relationships, which are reason why the importance of structures is crucial. Development and implementation of strategic decisions is a matter of people who carry certain assumptions, values, beliefs and norms. [7]

It is necessary to note that the above classification of factors influencing the organizational structure is not final and unchangeable. Airports have to constantly adapt to all new factor dynamically evolving business environment. For each company is important other of these important factors. Their listed order does not mean that the same is the order of importance and significance in business. Factors that are of high importance in one airport can have less importance in other airport or even completely meaningless.

6 CONCLUSIONS

The organizational structure of the company is perceived as a tool to achieve optimal strategic business aims. To this aims we can include achieving and maintaining a significant position in the market, meet the requirements of clients, withstand competitive pressures and ensure optimal use of needed resources. The major aims are the financial indicators, as is sales growth, high of profits, profitability, or value of the company.

Formation and shaping of organizational structures of the airport affect a number of factors. These factors may have either a positive or negative effect on the formation of these structures. The company should try to influence these factors and thus contribute to creating

the most ideal organizational structure. It should contribute to its effective functioning, and not least to make a profit which is the primary aims and main goal of any airline.

A correctly designed organizational structure and organization of the company has several benefits:

- the efficient allocation of responsibilities and competencies,
- more efficient use of corporate resources (investment, working capital, market position, production and product know-how),
- linkage the business direction with the sub-goals of business units and processes,
- minimize intra-company conflicts etc.

Problem of optimization and changes in organizational structure is very wide and diverse. Design an organizational structure that will be wholly successful and effective is almost impossible. Just to only small dissatisfaction of employees, conflict of any kind, envy, and organizational structure that on the theoretical level is optimal, will not work. The aim of the managers of airlines should be to propose such an organizational structure that would be as much as possible to assist in achieving the aims of the organization and last but not least, satisfy all its staff.

BIBLIOGRAPHY

- [1] BAČÍK, J.: Operačná a systémová analýza, Technická univerzita v Košiciach – Letecká fakulta, Košice 2009, ISBN
- [2] BEREŽNÝ, Š., KRAVECOVÁ, D.: Lineárne plánovanie, TUKE KE 2012, ISBN: 978-80-553-0910-1
- [3] DANTZIG, G. B. : Lineárne programovanie a jeho rozvoj. SNTL, Bratislava 1966.
- [4] DOBAK, M.: Organizačné formy a manažment. 2004. Budapešť, KJK – KERSZOV, 2004. ISBN 963 224 502 4.
- [5] EMMETT, S.: Řízení zásob jak minimalizovat náklady a maximalizovat hodnotu. Brno Computer Press, 2008.298 s. ISBN 978-80-2511828-3
- [6] HANTÁK, P. Problémy řízení zásob ve firmě TOP DRINKS s. r. o. Zlín. Univerzita Tomáše Bati ve Zlíně, Fakulta managementu a ekonomiky, 2008.
- [7] FIALA, Petr. Projektové řízení : modely, metody, analýzy. Praha : Professional Publishing, 2004. 276 s. ISBN 80-86419-24-X.
- [8] GAŠPARÍK, J.: Manažerstvo kvality a reinžinierstvo. CEMAKS STU. 2001. Bratislava.
- [9] KOVÁČ, J. Systémový prístup k projektovaniu a manažmentu výroby. TUKE KE, Strojnícka fakulta, 2010 Dostupné online: <<http://www.sjf.tuke.sk/transferinovaci/pages/archiv/transfer/16-2010/pdf/280-283.pdf>>
- [10] LAMBERT, D. Logistika: příkladové studie, řízení zásob, přeprava a skladování, balení zboží. Praha: Computer Press, 2005. 589 s. ISBN 80- 251-0504-0.
- [11] MAJTÁN, M. et al.: Manažment. 2003. Bratislava: Sprint, 2003. ISBN 80-8908-572-5.
- [12] Optimize your organizational structure to increase profit. In: The business owners advisor. RBC Bank. [online] 2009, vol. 4, no. 5. Dostupné online: <<http://www.rbcbankusa.com/tboa/file-325928.pdf>>
- [13] PETŘÍK, T. Ekonomické a finanční řízení firmy: manažerské účetnictví v praxi. Praha: Grada, 2009. 735 s. ISBN 978-80-247-3024-0
- [14] ROSINOVÁ, D. – DÚBRAVSKÁ, M.: Optimalizácia. STU: Bratislava. 2007. ISBN: 978-80-227-2795-2
- [15] SYNEK, M. a kol.: Podniková ekonomika. 1999. Praha, C.H. Beck, 1999. ISBN 80-7179-228-8
- [16] SEDLÁK, M.: Manažment. 2007. Bratislava : Iura Edition, 2007. ISBN 80-807-8133-8
- [17] Optimalizácia, SAS. 2013. Dostupné online: <<http://www.sas.com/offices/europe/slovakia/solutions/opt/>>
- [18] THOMASOVÁ, E.: Organizovanie. 2005. Bratislava, EKONÓM, 2005. ISBN 80-225-2095-0
- [19] VEBER, J. et al. 2007. Management. Základy – prosperita – globalizace. Praha: Management Press, s. r. o. 2007. 700 s. ISBN 978-80-7261-029-7.
- [20] Manažerstvo kvality. Wikipedia, 2013. Dostupné online: <http://sk.wikipedia.org/wiki/Mana%C5%BE%C3%A9rstvo_kvality>

AUTHOR'S ADDRESSES

Buková Monika, Mgr.
 Technical university of Kosice
 Faculty of Aeronautic
 e-mail: monika.bukova@gmail.com