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Change Management Aspects in Developing the International Airport "Avram Iancu" Cluj-Napoca, Romania

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Abstract – The International Airport "Avram Iancu" in Cluj-Napoca, Romania (AIAI) is a public organization, the second important international, and the first important regional airport in the country. This position must be preserved in the competition with the national and international airports but also as regional airport having "around" other five regional airports at a radius of 180 km. To implement goals and a change management process, an agreement was made to be conducted a PhD research activity to identify the pillar elements together with the possibility to identify new financial support. This paper presents the first steps on this demarche. The identified directions and "resources" and the target (3 million passengers) might be fulfilled by listening the "master voice", the passengers. As long as the success criteria are typically unidentified, the performance measurement must start with an imposed reference (needs or wishes) that becomes a critical factor for success. The implementation progress must be monitored and the end-users feed-back to be consider for the project recalibration (synthetic), by redefining the success criteria and for the project effective control of objectives (analytic). The change triggering factors (CTF) and critical success factors (CFS) for identifying the need of change and the right moment for action within the change management are very important to achieve the established goal.

Keywords: change management, project management, public organizations, critical success factors (CSF), change triggering factors (CTF).

I. INTRODUCTION

The International Airport "Avram Iancu" in Cluj-Napoca (AIAI) is a public organization. During the last 10 years, AIAI suffered multiple changes in order to provide the public (passengers and accompanying persons) with adequate and sufficient services in a continuous evolving environment and within a highly competitive situation. In Romania, AIAI is the second important international, and the first important regional airport. This position must be preserved in the competition with the national and international airports, but also as regional airport having "around" other five regional airports at a radius of 180 km: Sibiu (SBZ, 45.4709°N – 24.0508°E/ 460m) at 170 km and with a runway of 2630m; Tg-Mures, (TGM, 46.4674°N, 24.4238°E/ 294m), at 90 km, with a runway of 2000m; Baia-Mare (BAY, 47.3930N, 23.2759E/ 184m), at 150 km and with a runway of 2150m; Satu-Mare (SUJ, 47.4212°N, 22.5308°E/ 126m), at 180 km and with a runway of 2500m; Oradea (OMR, 47.0131°N, 21.5409°E/ 142m), at 150 km and with a runway of 2100m.

The changes were necessary so the number of passengers rises from about 30.000 to nearly 3.000.000, as presented in Figure 1. Only in the first quarter (Q1) of 2017, the passenger traffic increased with almost 60% (over 516,000 passengers), compared with the same period of 2016, in the condition that aircraft's movements increased only with 55% (over 5,000), with new operators and charter destinations.

For the first time in the history of Cluj airport, in 2010 it was registered the passenger heaving the number 1,000,000. In 2011, Cluj Avram Iancu International Airport reached once again the number of 1,000,000 passengers. In 2012, there was a decrease in the airport traffic, due to the economic crisis, the bankruptcy of the airline industry and the competition with the neighboring airports.

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In these circumstances, it was achieved a 24% traffic increase comparing with 2008, the beginning year of the economic crisis. The year 2013 meant for Cluj Airport an increase of 11% of the total number of passengers, comparing with 2012, exceeding the number of 1,000,000 passengers by the end of 2013. Continuing the positive trend of increasing the number of passengers who choose to fly from Cluj Avram Iancu International Airport, in 2014 the threshold of 1,000,000 passengers was reached since November. The new destinations and the continuous concern for high quality services have created premises for an increase of 14% in passenger traffic in 2014, comparing with 2013 when there were registered 1.18 million.

In 2016, Cluj Avram Iancu International Airport exceeded 1 million passengers registered during the entire year, celebrating passenger with the number 1,000,000 in August, due to the strategy of development of infrastructure airport and due to extension of route network, reaching about 1,880,319 passengers until the end of the year. For 2017, it is estimated a record traffic between 2.7 and 3 millions passengers. From 1996 until 2016, Cluj Avram Iancu International Airport registered high growth rates of passenger air traffic. This increase was determined by an effective and efficient management, by the adoption of marketing strategies that generated the development of air traffic and attracted new air operators on Cluj market (Tarom, Wizz Air, Lufthansa, Vueling, Lot Polish, Blue Air, Turkish Airlines). In addition, at the Cluj Avram Iancu International Airport there are three airlines that operate international cargo transport: Silver Air, ASL Airlines Switzerland and RAF- Avia.

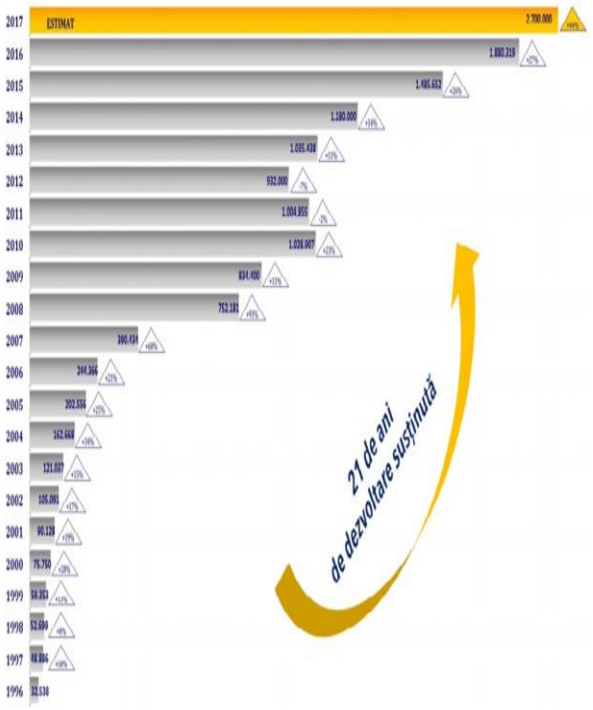

Figure 1. Sustained development by the passengers' traffic evolution [1]

But the most significant increase is recorded at the cargo transport, where the data shows an increase by 79% at over 825,000 tones.

Situated in the middle of Transylvania (about 7,000,000 inhabitants), Cluj-Napoca International Airport, is one of the Europe modern regional airport, the second one in the country, regarding the number of passengers embarked/disembarked, after Bucharest "Henri Coandă" International Airport, and therefore comparable with similar cities like Geneva (12 mil. passengers) or Stuttgart (9 mil. passengers).

The AIAI recorded the first 1 million passengers / year in 2010 (Figure 2).

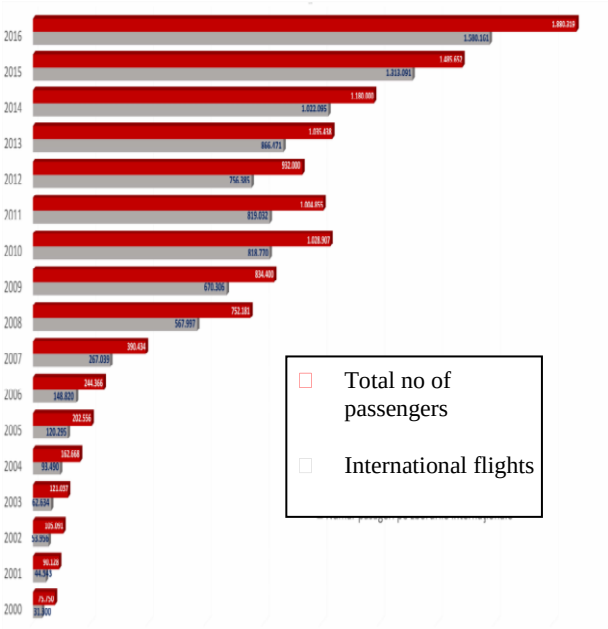

Figure 2. Passengers traffic evolution on AIAI (2000-2016) [1]

The destinations offered by the Cluj Avram Iancu International Airport to passengers are varied, given fact that there are up to 43 domestic and international destinations to 20 countries of destination in Europe and the Middle East, operated by Tarom, Wizz Air, Lufthansa, Lot Polish Airlines, Blue Air, Turkish Airlines and Vueling. Passengers can fly around the world, because the airport is connected to major European hubs. Therefore, from Cluj-Napoca can currently fly to Brussels South Charleroi (Belgium), Dubai (UAE), Basel Mulhouse Freiburg (Switzerland), Paris-Beauvais, Nice (France), Munich, Dortmund, Cologne, Nuremberg, Memmingen, Berlin Schonefeld, Frankfurt Hahn, Karlsruhe-Baden-Baden, Hamburg (Germany), Budapest (Hungary), Tel Aviv (Israel), Venice - Treviso, Rome - Ciampino, Bologna, Milan - Bergamo, Bari (Italy), London - Luton, Liverpool, Doncaster Sheffield, Birmingham (UK), Dublin (Ireland), Eindhoven (Netherlands), Zaragoza, Valencia, Madrid, Barcelona, Alicante, Malaga (Spain), Malmo, Stockholm Skavsta (Sweden), Warsaw (Poland), Billund (Denmark), Istanbul (Turkey), Bucharest, Timisoara and Iasi (Romania), Bratislava (Slovakia), Malta (Malta) and Larnaca (Cyprus). To all these destinations a series of holiday

destinations are added, operated by Aegean Airlines, Air Bucharest, AtlasGlobal, Blue Air, Corendon Airlines, Ellinair, Freebird Airlines, Pegasus and Tarom. Therefore, charter flights on 2017 are as follow: Rhodes, Heraklion, Corfu, Zakynthos, Thessaloniki, Chania, Santorini, Skiathos (Greece) and Antalya (Turkey).

The next necessary changes are related to the local possibilities (revealed by studies) and the digitalization requirements (implementation of information systems - IS).

As part of a larger study, the aim of this paper is, to identify change triggering factors (CTF) and critical success factors (CFS) for the Change Management (CM) in the Cluj-Napoca International Airport development IS projects.

The starting point is the developing plans that until now achieved no investments approval:

- A new cargo terminal, more justified after the recent increase by 79% of the cargo transport;
- Extension of the embarking and disembarking platform, imposed by the increasing number of passengers;
- Achievement of the Bravo runway, after Alpha, imposed by the number of take off and landings (over 8/hour) and the necessities for aircrafts parking;
- Extend the actual runway from 2,100m to 3,500m, to support also transcontinental flights;
- A new control tower;
- Extend the cars parking capacity;
- A modern access to E576 road.

It may be seen that all proposals regards the infrastructure. When such a public organization (institution), that for 20 years is under direct coordination of the County Council, is faced with changes and change management (CM) decisions, contemporary change management theories should be investigated, being sometimes contradictory.

In this process, the academic expertise is combined with decision maker's opinion, technical specialists' capabilities, and marketing representatives, in order to compensate the lack empirical evidence and politically promoted unchallenged hypotheses.

This is an ideal case; currently public organizations are confronted with the need to implement changes to existing processes, often connected with transformation that takes place in public management and infrastructure, together with staff training and management. In the literature are more often consider the failures ([2] as Roy Ashekenas state ([3]): "As you are sure to have noticed, change has become a "way of life", with "change management" being a recognized discipline for 30 years now. Despite significant investment and literature on the subject, most studies still show how 60-70% failure rate for organizational change projects – a statistic that has stayed constant from the 1970s to present."

In the AIAI usual Change Management activities the focus is on what topics (activities) will be accepted by the County Council to be implemented, how to plan better for the implementation of changes, how to bust the efficiency of the selected activities and how to overcome employee resistance.

Strengthening its position as one of the most important airports in the Eastern Europe, providing air links worldwide through safe and quality services it is the mission of AIAI.

II. EVOLUTION

The external, academic expertise is, and will be, focused on the Change Management (CM) modelling and simulation tools and structures that intends to keep any declared change effort under control, having as primary goals: (i) to identify how new carriers may start to operate from Cluj-Napoca in attractive economical conditions for both partners; (ii) how the public services (in the first stage Public Food Services – PFS) can be extend and made more profitable and last but not least the profitable maintenance and service activity. The efficiency, opportunity and employee resistance overcoming will be treated considering the balance between CTF (change triggering factors) as elements that alarms about a request and CFS (critical success factors) as elements that must be implemented for leading to the problem solving.

In order to achieve this goal, different scientific methods and techniques have been considered, especially a critical and quantitative analysis, digital and IT numerical solutions for control, optimization, statistic evaluation, and decision making.

The extensive practical experience, combined with case studies and the literature analysis where essential for the semi-structured interviews and questionnaire generation and for the scenarios elaboration. Change requires significant investments. From the triad Quick – Good – Cheap, we have to decide which 2 out of 3 we would like to offer and which 2 out of 3 we would like to use in our approach.

Chinese have over 30 signs and sign combination for change, mostly as a group of two signs combining the:

Danger & Opportunity


standard


simplified

Danger and opportunities are not matter that are considered first. Even "ignoring" for the moment the safety and the crisis management within the AIAI areal, it is god to know that a successful change requires context sensitive approach and therefore the imagined Projects for AIAI are planned to guide the

research in order to guide the organization readiness to deal with changes:

- New players as fly companies
- Attractivity of AIAI for fly companies
- New player as Services deliverer

Nowadays, the change and the change management are designed in form of a Project. Planning a project, as a change, involves selected methods in managing resources. A clearly documented change management may better project the process map and the resources allocation decisions and monitoring.

The managers creates a representation of the situation that they identify with the change and creates their "capability" to manage their time, their resources and their subordinates using an effective communication ([4]), (crucial, as the powerful leverage in building consensus) through the IT instrumentation & Information System.

By creating and planning the research activity in smaller shares an incremental framework is created to better ensure the management and the success of the research activity and to benefit in early stages from any positive result, regardless if the activity is driven by a single person or by cross-functional teams.

Once defined the business goal the mathematical and modeling methods are to be selected and this will indicate how to figure out the work and what obstacles may stay (or are staying) in the way. This is an established framework that defines also (implicitly) the responsibilities for each level of participants.

The project will be a clear solution provider based on: a necessity, a method and validate measurable result. The project can be used a self standing component or as a scalable and/ or incremental component in a larger project.

In order to be validated and used the project development and implementation needs a complete collaboration of the end-users. The clear needs definition and redefinition, the elaboration of the roadmaps and methodology requires the end-users consultancy and participation. A blindly follow of an initial plan or theoretical methodology will not create the value that embrace the required change and lead to the goal. Therefore, this is the value of the research by offering support in the change management process to start from less information in the early stage but being able to consider the critical success factors to select the most convenient methodology and, during the process, to continue with new data gathering and use the right change triggering factors to support the processes adaptivity according with the goals.

III.START UP PHASE

As long as the success criteria are typically unidentified, the performance measurement should start with an imposed reference (needs or wishes) that becomes a critical factor for success. The implementation progress must be monitored and the end-users feed-back to be consider for the project recalibration (synthetic) by redefining the success criteria and for the project effective control of objectives (analytic) and here are important the change triggering factors (CTF) and critical success factors (CFS) for identifying the need of change and the right moment for action within the change management. Unfortunately, the literature is not very generous in providing examples in identifying or adapting these factors.

The starting point of defining critical success factors are the organization already identified critical factors. To reach the first horizon desire (3,000,000 passengers), we should consider little or none infrastructure investments, or employees training. The only available measures are the area of logistics management. Therefore, the change management must be oriented on this type of change.

The identified direction and "resources", the target may be fulfilled by listening the "master voice", namely the passengers. The end users satisfaction is not only a precondition for successful change definition, but also as a condition for the change implementation in form of projects.

The projects forms is easier to be understand by the end-users and in the same time are easier to be planned, proposed and financed.

The end-user satisfaction is not fully felt until they see (in a convenient horizon of time) that their opinion matters. That could be considered as a training process for all the involved participants in research and lead to a methodology that may enables a quickly overcome the communications bottlenecks, diminishing the resistance and offering the enhancement of a real and useful information flow.

A better access to consistent, timely, and accurate data, in the initial phase, improves the organization ability to be informed about the necessity of a project and latter, if any changes in data occurred, about the project evolution.

This is a crucial point where digitalization may be integrated, the lack of integration made impossible to have quick access to information indispensible for functioning and monitoring of operations and caused an ineffective flow of information between the public organizations, researchers, financing institutions and the end-users. Uncooperative systems add difficulties in monitoring expenditures and fund allocation, finally to have an objective view over the results.

The academic expertise conducted to a concurrent change management as applied parallel engineering for the project implementation. As a must, is the AIAI representatives and the end-users participation in a series of activities that promote the clear definition of each project goal and, successively lead to the accomplishment of the main goal of this research.

Started as a PhD stage, this research is looking for a proper funding in a coherently worked-out schedule, as an important study that contribute to the AIAI and the Cluj-Napoca city development in three ways by the identification of CSFs and CTFs; definition of the project topics to work on; and assisting the AIAI representatives in the change management process.

Up to now, the research process gathered primary rough responses at questionnaire initiate for the: (i) identification of the CFS; (ii) selection of the CTFs domains; and (iii) start of four projects for the modeling, optimization and decision making process. The aim of the four projects is to indicate the practical issues and the consequently effect for the project success, and the foreseen evolution after the change implementation and exploitation with a possible 'best practices' dissemination and the elements that may be considered for future works.
Next are presented some preliminary data from the started projects.

A. New players as fly companies

Project No. 1, used volunteer students to distribute over 200 questionnaires in the AIAI public area, within a preselected aircrafts movement interval. The gathered data are now in a data processing phase.
The data collection was made in parallel with an optimization model elaboration. In this scenario is consider that an important increase in the number of passengers in 2017:Q1 (60%) was made also based on increasing number of the aircraft's movements (55%). To continue the increasing trend there are two options: (i) the operating companies will bring more aircraft in connection with AIAI, or (ii) attracting (in profitable conditions) new carries.

New carriers on AIAI?

Considering the estimated gain and knowing how much AIAI must pay for a license operation cost it is a matter to optimize the change conditions for having a new operator.
As simple as it seems, there are actually five different possibilities that actually leads to a risk management based on estimated profit.
The most risky situation is that having the 3 million passengers target to avoid the opportunity analysis and to invest in new operation licenses to increase the passenger number in any conditions. A second scenario is to hire an analyst that will estimate the success chances with a certain lower investment risk (the academic expertise may enter in this category). Third, based on the AIAI evolution history to make a self estimation of the success chances for a minimum profit (or, no gain but no loss either) still having as result the increase of passenger number. Fourth, consider the opinion of partner airports regarding the investment and the gain opportunities. Finally, a last option is to avoid to attract any new flight carrier, remaining at the existing transporters increase interest, but having no economic loss.
For the second scenario, a mathematical model was made where variables adjust the results at actual existing conditions.
At the given data for 2017:Q1, the result in running the elaborated model, offers three solutions showing first in which situation the loss is ensured 100% and for gaining situation how much could be the gain in respect with the risk (lowest risk and higher risk), but having a gain in both situations.

B. Attractivity of AIAI for fly companies

Project No. 2, derives and complete Project No 1.

How attractive is the AIAI?

If no efforts are made to attract new operators, how attractive is AIAI for them to invest and how much are willing the existing ones to remain?
These two questions make the core of Project No. 2. Considering that pool of passenger is the similar for all fly companies, three major elements are selected to put into evidence the attractivity of AIAI, having an important impact over the fly companies' profit: the landing costs, the services costs, and the advertising costs.
These three components are chosen because they represent permanent and most important expenditures on the airport and nevertheless they are negotiable with the airport management.
Therefore, each of the three costs may vary between a minim and a maxim. One end is the limit of profitability for the airport the other one for the fly companies, each one being willing to reach the other limit. As expected, the result is in between.
Using a combination of different mathematical methods, a digital model was elaborated. This model is using the Nobel Prized Leonard Hurwicz optimality rule, the Laplace balanced optimism rule, and the Savage rule combined with statistics results.
The result depends on which side of the barricade you are. In our case the AIAI interest are served, and the obtained results are interesting showing that if AIAI is made attractive for the operating fly companies, the gain will be greater than having a new fly company attract to operate from Cluj-Napoca and with very low risks. Otherwise (no attractive airport and no new attracted fly companies) the gain will decrease with 2/3 of the actual value, in one year.

C. New player as services deliverer

Project No. 3, is address to the services companies that would like to operate on AIAI. In this project, again there are two groups of different advantages and a group of negotiable elements.
On one side a services provider have the access to 3,000,000 passengers in a very concentrated area, so is a different type of business management that must be consider in order to access as many clients as possible and on multiple segments of interest.
On the other side is AIAI that wants on optimum management of public spaces to have a larger profit from rent and event organizations, and better services for passengers and accompanying persons (as consumers and potential passengers).

The AIAI mission is to strengthening its position, as one of the most important airports in the Eastern Europe, and providing as many as possible air links worldwide through safe and quality services. Moreover is the vision for AIAI to become from far the most important regional airport in the country, with multiple high standard services for airlines, for passengers and for other users of services.

Again, the academic expertise may lead to mixed conclusions. Like in any research approach, the client (the funding body) interests must be served through the expertise. One research model is dedicated to the public spaces management and attractivity for services providers. In the providers' attractivity chapter, we consider services from the "AIAI part" that forms a different modeling approach that includes parameter of service activities, legislation, certification and energy management. An additional business plan support must be also included.

The Project No 3 is actually under construction; the entire research program is no more than six month old. For this project a deeper analysis in the Public Food Providers Services industry was made and will continue, considering: classifications, required facilities, provided quality, type of products, supply regulations, staff selection, cleaning, water, energy and electricity supply, consumption and supply cycles, opening hours and preparatory elements regarding safe and security, with opening for services and facilities in emergency cases.

IV. CONCLUSIONS

At this very moment, the research achievements start to be reflected in the AIAI activity. In October 2017, Lufthansa celebrated 50 years of presence in Romania and nine successful years in Cluj-Napoca (the Cluj-Napoca - München connection opens the connection with the largest Lufthansa Hub, Frankfurt).

A discussion over the research findings is necessary and concludes, considering the actual study's contributions and limitations that the research work starts well.

Definitory for the research activity is the need to split and distribute different task in the projects. That ensures already a better tasks control and results valorization.

The concurrent change management enable the single members and/or cross-functional teams' activities.

The parallel engineering of the projects enables the activities modeling and the implementation of the available IT capabilities.

The AIAI representative's involvement together with the end-users participation; as well as the stream of future work will be based on the research funding identification.

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