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Optimum Utilization of Information Technologies in the Business and Operation Related Activities of Air Carriers

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Utilization of information technologies in transportation of today is reaching extremely high levels in practically all the areas of the air transportation process involved. The extent to which information technology is made use of may vary with air carriers, but it can be stated that no air carrier operating at least a single regular line can do without information technologies. As for modern and larger airlines, information technology is present in all managerial, business-related and operational processes. The level of economic gain provided by these technologies, however, depend on the choice of individual systems, their compatibility as well as the company´s capability of making use of system functionality and outputs.

Keywords: Information system, information technologies, air transportation, air transportation process

Introduction

The notion of „information technology" (further only „IT") is understood as the unity of technical means (hardware), program tools (software), including background in methodology and know-how, all that serves for collection, processing, retrieval, transfer and presentation of information. It does not only mean technical provision but also methodology, development and making up information systems.

In a wider context, an information system (further only „IS") is understood as a system providing information necessary for management. And, in a narrower context, it denotes a system of programs for data handling.

The IS parts are made up of personnel, hardware and software. The three elements ensure collection, transfer, processing, distribution, storage, selection and presentation of information for managers so that they could perform their jobs in all the components of the managerial system".

(Pappová, Vágner, 2013)

Currently, IS is widely understood as an automated information and communication technology, an integrated entity of hardware, software and data in which personnel (peopleware), operating the IS, has an important role to play.

IT systems of air carriers, airports, air traffic control centers and various independent providers (e.g. GDS) must be capable of mutual communication and cooperation on a global scale and in real-time. (on-line). In view of the huge number of airports, airlines, air traffic control centers and companies providing aircraft and passenger handling and mostly those IT manufacturers working for transportation, high level of standardization is inevitable. The basic principles have been established primarily with the organizations that are members of the IATA and SITA.

Implementation, operation and modernization of the IT poses high demands on investments, consequently, it is necessary to seek solutions that enable their optimum utilization.

What is understood by optimum utilization of the IT in the business- and operation-related activities of air carriers?

It can be stated that the task entails the best-possible use of the IT available, in favor of providing maximum support to the processes with the aim of fulfilling company goals efficiently.

1. System integration

The notion of „integration“ means joining and interlinking (unifying and merging) separate parts (of systems) into a single unit.

System integration represents an approach to the development and operation of IS/IT with respect to minimization of risks and maximization of the effects obtained when using the system. It is a process that interconnects mutually independent systems so as to ensure communication among them. The aim is to create and permanently maintain the integrated IS, while making optimum use of the potentials of the available IT to ensure maximum support for the company goals. An integrated IS enables solving more complex tasks than individual ISs can do on their own.

Optimum use of the IT in an air carrier is possible only when the individual systems are capable of mutual communication and cooperation at a level, and are able to provide the users all the necessary information, whenever and wherever. Consequently, it is important that conditions for proper functioning of the systems be established.

System integration represents joining various IS into a compact software infrastructure so as to satisfy the information needs by optimum use of modern technologies. Therefore, if in position to invest financial means into IT development, an air carrier should devise a strategy for establishing an integrated IT system that can make use of the services of and system integrator (supplier) that will ensure complex and high level connectivity and compatibility among the individual systems and technologies. Such a strategy is meant as the basic step in building IS towards achieving optimum functioning and utilization of the potentials offered by the IT.

2. Audit of the IS

Audit of the IS is a process during which ensure overall mapping and evaluation of the status quo as regards the IS, while, suggesting solutions towards elimination of system deficiencies. Its goal is to provide qualified information (suggestions and concrete

solutions), on the basis of which, one can achieve optimum utilization of the IS, to meet business plans and carry out everyday company activities. Audit is understood as the verification of every aspect of the IS involving hardware-, operation- and application-software, the related licencing agreements, data protection and security, organization of information handling etc.

Audit is aimed to offer the company qualified information (proposals and concrete solutions) the application of which enables optimum utilization of the IS while acting in accordance with business plans and fulfilling day-to-day company activities.

The main task of the audit is to evaluate the risks and the potential threats to the IT field as well as assess the optimum and efficient use of the IS/IT.

For air carriers to make best use of the IT system it is necessary to verify their proper functioning in terms of quality, speed, security and reliability, all that in via an audit. There are firms that offer audits to be focused on specific areas of the IT. The best solution is to perform a comprehensive audit that involves verification of the correctness of the processes being run in terms of technology, system and information. Such an audit helps reveal the existing concrete deficiencies and problems, which prevent complex IT from functioning at a required level. Based on the audit results, the company having just been verified is able to suggest and develop a solution to eliminate the deficiencies found. Adopting and performing the suggested measures should help achieving the required level of IT to ensure its proper utilization.

3. Outsourcing of the IT

„Outsourcing“ means assigning certain activities to external suppliers, which thereby represents the opposite of offering additional activities. In principle, outsourcing is used when an airline company has came to realize that some of its can be carried out more efficiently by a specialized company. It is the followed by signing a contract of delivery with the suppliers to purchase those activities. Frequently, big firms have subsidiaries of their own (taking care of handling, catering, aircraft maintenance or services and IT development), but completely independent companies may also be involved that can provide services e.g. security, catering and IT.

As the principal activity of air carriers involves provision of air transportation services, entrusting IT to an outsourced company ensures permanent development of the IT, allowing for them to fully concentrate on their main focus of activities.

Airlines make use of outsourcing in various areas of activities, e.g. reservation systems, those of accounting, transport management, operation systems (air traffic, flight deck staff planning), ground vehicles maintenance, administrative systems, all that help them in achieving efficiency and maintaining their competitive edge.

In view of the scope of outsourcing, the options available involve:

- Full-scale outsourcing – an all-round care for the field of IT, including provision of hardware and software.
- Partial outsourcing - outsourcing of selected IT services such as system integration, external administration of servers and the computer network etc.

When choosing the supplier of outsourcing, it is advisable to obtain as much information regarding the quality of the services provided by the given company and references as well. In view of an airliner, the

decisive factor in choosing the provider of outsourcing is the level of sufficient security and availability of the data.

4. Strategy of the IT

Preparation and the development of information strategy is important in view of the efficient functioning of the IS. The strategy of the IT is determining the goals, which are to be attained in the field of informatics.

The effect of computerization of the separate processes and data volumes that have to be exchanged in various formats among the separate entities taking care of information, selling, reservation, handling and other operation-related activities made it inevitable to establish a strategy that will fully respect the basic principles as follows:

- internal compatibility of the IT systems and possibility of integrating them,
- flexibility in designing an interface and harmonization with the systems of other (allied) air carriers, airports, GDS or further partners,
- featuring modular concept that enable adding further modules and functionalities without no need for extensive changes in programing and development,
- reasonable financial costs of implementation and operation of the individual systems.

Rated among the principal goals of the strategy in the field of IT are:

- providing optimal support to company goals and processes taking place with the help of IS and technologies,
- ensuring connection between company information strategy and the overall, global strategy of the company,
- need for finding optimum use of the potentials of new IT,
- need for establishing priorities and sequences for solutions and minimization of risks,
- applying the latest trends in the development of IT regarding company strategy,
- interlinking planning of the IS and technologies with company (strategic) planning,
- working out a mechanism of checks for the implementation of these plans,
- setting up an architecture as a certain framework for further analyses, suggestions and integration of the individual applications,
- implementing a comprehensive and integrated IS/IT along with systematic formation of the necessary information infrastructure.

When devising a strategy, it is necessary to solve the fundamental issues as follows:

- How long has the strategy been solved?

The fundamental goal of IS/IT management does not only consist in developing a document, but achieving positive change in the field of IS/IT. Management of the IS/IT is a continuous process within which development of the strategy is one of the important milestones. During the interim period covering the time between ending the development of one version of the strategy and starting with the drawing up of a new version of the strategy, it serves as a basic document for strategic decisions.

Already during this period of time, the contents of strategy is being modified, both for recording changes that have taken place and completing the strategy in those parts, which during the main period of development have

not been given time, yet the need for them have later become apparent.

- Who is in charge of the strategy?

As a rule, development of a strategy is assigned to a team of top-level employees, IT specialists and external consultants. It is not proper to have strategy devised exclusively by an external firm. The main reason to it is in that strategy must change the genetic information of the company concerned. These changes cannot be achieved simply by handing over a multi-page document.

Ideally, when the selected team has about 6 up to 8 members and it is headed by an information manager or, if not available in the company, by one of the specialized directors of the company in charge of informatics.

- In what details is a strategy to be solved?

It must always hold that IT strategy covers the entire company, all its localities, branch offices and areas of activities. Otherwise, it could not ensure integrity of the IS/IT for the company as a whole. On the other hand, it must not go into extreme details, except for the part concerning planning of the IT. Information technology is developing at such a pace that any strategy describing future IT in details would turn out obsolete too early.

Consequently, detailed specification of the IT is to be dealt with in the concrete and individual projects planned subsequently.

- What is the horizon to which strategy is developed?

The planning horizon to which the strategy is suggesting an assumed state of the IS/IT is approximately two as much as three years.

- When and how is the strategy used?

Strategy is used particularly in company activities as follows:

- as a basis for developing an important document for system integration,
- for assigning the individual projects, their coordination and solution checks,
- for coordination of various projects being run parallel within the company. It is enabled by defining the individual mutual links between IS/IT projects and the rest of the projects of company development,
- by problem solvers (external or internal) assigned to the individual projects, introductory studies and further documentation must be lead (in terms of organization, economy and time) to make best use of the already developed materials within the strategy framework (today, one of the greatest problems of using IS),
- as a basis for checking the development of the information system (its contents, time-schedule, technological level, costs and effects).

- How often is strategy to be upgraded?

For the strategy to be successful, maintaining it topical is a must.

Changing strategy can be based on causes as follows:

- Changes in the external conditions (market, competition, advance in technology, new opportunities...),
- Changes in the internal conditions k (changes in internal competencies, in the management,...)
- Failing to succeed in achieving strategic goals (failure of the strategy...)

For IT strategy it holds that upgrade is to be made whenever company strategy is

changed. Evaluation should be made at least once in a year accompanied by strategy upgrading. The frequency of changes in the strategy, however, should not be too high as it could be taken as a proof of failure and even pointing out that the process has been set improperly.

When planning for the modernization, implementation and introduction of further IT/IS, or outsourcing some parts of the IT related activities, it is necessary to develop a strategy with the aim of achieving internal compatibility and proper functioning of the entire system.

Strategy forms the basis of fulfilling the pre-set IT plans within the framework of its optimal utilization. Similarly to other systems, that of the IT, for the reason of day-to-day operation, requires regular maintenance so as to ensure its uninterrupted running. Consequently, part of every IT strategy should involve planning for maintenance and checks for proper functioning and thereby making optimum use of the system.

Consistent approach to the development of IT strategy helps companies to stand their ground in the competitive environment and outlining the basic direction of building IS so that the information obtained serve managers for successful entrepreneurship and contribute to the competitive edge of the company.

Conclusion

Air transportation is increasingly interconnected in all its processes with the latest information technologies available. It is becoming an essential and global customer in the field of developing communication lines, software and hardware. Further improvement in profitability of the entire branch of industry is definitely related to the development of information technologies and the potentials in terms of optimum utilization.

The article was aimed to point out the potentialities in the optimum use of information technology for the business- and operation-related activities of air carriers.

Based on the fact it has been concluded that for an air carrier to make optimum use of its potentials offered by the available information technologies that ensure, it must ensure their proper cooperation. Within this framework, it is most important to develop an integrated system that ensures efficient communication of the various systems at a required level and simultaneously make optimum use of the potentials of available information technologies to ensure maximum support of company goals.

Operation of information systems with air carriers requires relatively high investments, organizational and operational difficulties. In order to verify a proper and efficient functioning of the entire IT infrastructure, a complex audit is appropriate to be carried out. On the basis of the audit performed, it is possible to reveal the contingent problems and system deficiencies, which prevent proper functioning of the system at a level that ensures optimum utilization.

High demand posed on management, conceptuality and fast changes in technology are causes to increasing costs of the information technology. Consequently, air carriers are seeking solutions that ensure availability of the latest information technology to support sales, while not exceeding costs of their implementation and operation. One of the possibilities is offered by outsourcing, where a supplier is entrusted with the entire field of information technologies or only those areas that cannot be provided by the air carrier himself (outsourcing of information system

administration or implementation of new technologies).

May airline plans regarding administration and development of information technology take whatever course, plan - strategy remains the basic means to achieve the stated goals. It is on the basis of a properly developed strategy that the field of information technology can be managed ensuring its optimum functioning and utilization for the purpose of achieving profitability and competitiveness, the ultimate goals of any air carrier.

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