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INFORMATION TECHNOLOGY: CURRENT AND FUTURE TRENDS FOR AIRLINES

Abstract: *this paper analyzes current state of information technology in airline industry and demonstrates future tendencies of IT used by airlines.*

Keywords: *airline's revenue, BI (Business intelligence), business innovation, CRM (Customer relationship management), ERP (Enterprise resource planning), information system, information technology, information technology trends, IT cost driver, IT infrastructure, IT investment, IT solutions for airlines.*

Аннотация: *в статье анализируется нынешнее состояние информационных технологий в авиатранспортной отрасли и определены перспективы их использования авиакомпаниями.*

Ключевые слова: *выручка авиакомпании, бизнес-аналитика, инновации в бизнесе, система управления взаимоотношениями с клиентами, система планирования ресурсов предприятия, информационная система, информационные технологии, тенденции развития информационных технологий, затратная составляющая ИТ, ИТ-инфраструктура, инвестиции в ИТ-технологии, ИТ-решения для авиакомпаний.*

An airline's main financial goal is to make a profit. Global and local economic crises have proved repeatedly again and again that only those airlines that are able to

make the most effective use of available material resources, build a competent personnel policy, and, most importantly, use the latest technologies to attract and retain customers and partners survive. Therefore, economic inefficiency and lack of business innovation hit businesses hard. But how exactly does this happen?

Firstly, problems may arise if the passenger flows, management of material resources, planning, and analysis cannot be processed by existing information systems. Secondly, related industries such as travel portals, hotel reservations, payment systems, car rentals, etc. should be integrated with the current IT systems in order to increase efficiency.

In the first case, there is a faster growth in the cost of additional staff, which reduces the efficiency of the business. Unfortunately for airline employees, IT, when applied responsibly, dramatically reduces the need for human participation in routine, critical, and high-speed business processes. And the second factor is the unfortunate disregard of modern trends that characterize consumer behavior in the information society. As a result, potential customers buy plane tickets and order additional services from a more advanced airline.

According to a global study by analysts from SITA, Air Transport IT Insights 2019, in 2017, on average, airlines spent 1.90% of revenue on information technology, and in 2018 – 2.89%. The figure for 2019 is expected to be approximately 2.91% with a significant increase in airlines' revenue. The study focuses on current trends that should be implemented in the form of IT services or applications by 2022. They are listed in the diagram below (fig. 1).

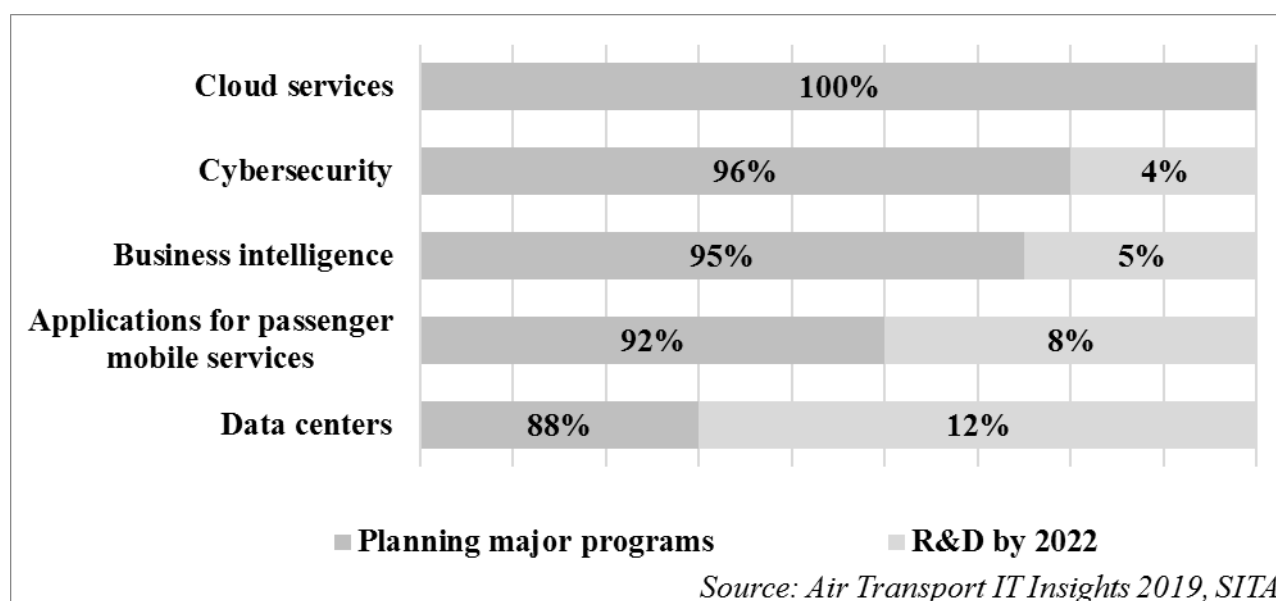


Fig. 1. Top IT investment priorities of airlines, % of airlines

As one can see, Cloud services, Cybersecurity and Business intelligence are now in the top three CIO technologies worldwide. Now they are implemented by the absolute majority of the surveyed airlines. And only a small percentage of airlines put implementing these information systems on hold and intend to conduct relevant research instead (R&D, Research and Development).

And what about the main IT infrastructure? Analysts say that airlines that are market leaders have generally finished building data centers and cloud platforms that run the basic ERP functionality. In addition, this infrastructure by default includes interfaces and software from service providers such as SITA, Amadeus, Sabre, ARINC, Worldspan, Galileo, etc.

Concerning complex IT solutions in the implementation process, there is still the need to bring the IT infrastructure in line with the requirements of regulators for safety, disaster tolerance, availability, etc. In addition, integration projects associated with a large number of mergers and acquisitions of airlines cause a lot of troubles for all parties involved.

It can be noted that the costs of complex IT solutions for airlines, following the growth of passenger traffic and aircraft fleet in recent years, are shifting to the countries

of the Persian Gulf and South-East Asia. Russian airlines are also in that group. Furthermore, Russian aviation is undergoing a process of consolidation, which is an additional IT cost driver associated with the need to integrate information systems.

One of the specific aspects of Russian airlines and airports is that most of them are largely state-owned. In this regard, some projects for integration with electronic trading platforms for placement of corporate purchases must be identified in accordance with Federal Law No. 223-FZ. This normative act regulates the procedure for purchasing certain types of legal entities.

Although not so long ago, airlines made serious investments in web-based services for passengers, such as flight search and online ticket purchase, today's reality dictates new requirements. The trend to increase the efficiency of airline and airport staff during the global spread of «smart» mobile devices makes business move forward very quickly. The current trends in mobile services development are shown in the diagram below (fig. 2).

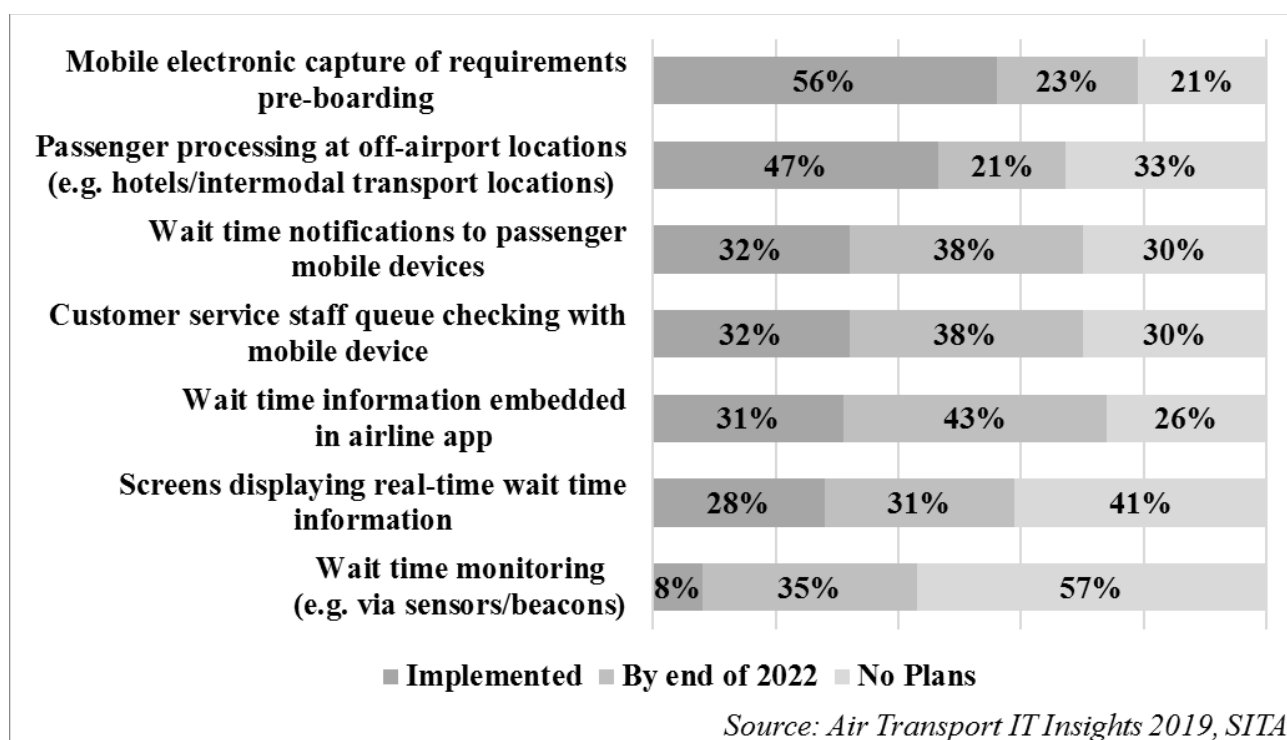


Fig. 2. Development of mobile services for passengers, % of airlines

The benefits of these features are quite obvious: information system will be able to replace a large amount of employees. And this means a direct budget saving and an increase in business profitability.

Another area where IT significantly increases the efficiency of airline's business is the automation of work processes both in the cockpit and passenger compartments, and on the ground. Tablets can save pilots from having to search for the necessary document in multi-kilogram bags filled with documentation and reduce the weight of the equipment. And flight attendants, for example, will be able to provide customized services to passengers based on the personal information that became available during booking transactions.

Thus, electronic flight bag (EFB) is very popular nowadays. For example, the Russian airline Transaero has received operational permission from the Federal Agency for Air Transport (Rosaviatsiya) to use an iPad as an EFB and has been doing it for a number of years. With this device and special software Jeppesen – Mobile FliteDeck Pro, pilots get quick access to flight maps and maneuvering schemes in the area of airfields around the world in electronic form on their tablets. A similar project was conducted at American Airlines. Each of the 8,000 iPads purchased by the company contained more than 24 million pages of documentation, and reduced airplane's weight by hundreds of kilograms. In monetary terms, the savings from this project amount to \$1.2 million per year.

In addition to the main services provided, airlines are also actively exploring additional revenue opportunities. But what else can they offer the passenger? The answer has already been found by the leading players in the industry. And it consists in collecting all sorts of information about the customers, their preferences and needs. Based on this data, it is possible to offer the passenger numerous personalized services.

But where can airlines get the necessary information? Modern information technologies are able to gather it from social profiles, search engine queries, tracking the person's visits to retail outlets and restaurants on the airport premises by using their mobile device, etc.

Then a specific offer generated by the CRM and BI systems can be sent directly to the passenger's smartphone, augmented reality glasses, or seen at the information kiosk where they will check in their luggage or pay the mobile operator's bill. In future, this customer will not be forgotten by marketers, and will regularly be offered services that are specific to them through social networks, mailing lists, and personalized passenger loyalty programs.

BI systems are also in demand in the back office of airlines for assigning flights, regulating the loading of airliners, determining the size of fares and the range of services. All these things need to be done quickly and in real time, but to do them, all IT systems must have end-to-end integration, which is typical only for advanced airlines. Among them, for example, is Russian Aeroflot, which due to implementing SAP, was able to use complete integrated functionality of the IT systems and in a fairly short period of time received a significant economic profit from the use of business analytics.

In conclusion, a brief analysis of trends in the development of information systems for airlines shows that the potential of IT in this area is far from exhausted. And this fact is well understood by the top management of airlines, which means that soon passengers will be offered new services, developed by the IT specialists of the field.

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