



# Non-Financial Risks of Introducing Information Systems into the Activities of Transport and Logistics Companies



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## ABSTRACT

Today, digital transformation is a priority vector for development of all economic sectors of the Russian Federation; at the same time, special attention in this context is paid to the transport and logistics sector due to its great importance for the country's economy. The implementation of information systems that meet modern requirements, as well as with added functionality, is one of the key components of work in the field of digital transformation of transport.

Most often, in this regard the attention is paid to financial and technological risks, while the influence of the human factor

is considered rather superficially. Hence, the need to examine the risks that are primarily associated with employees of transport and logistics companies, as well as the impact of those risks on digital transformation in general and on the process of implementing information systems in particular, to suggest ways to minimise those risks in the context of modern corporate culture. JSC Russian Railways, as well as PJSC Aeroflot Russian Airlines, are considered as examples of companies that have already implemented advancement within the digital transformation vector.

**Keywords:** transport, digital transformation, digitalisation, corporate culture, employee training, digital literacy, information systems.

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## INTRODUCTION

Well-developed information systems are a powerful competitive advantage in the conditions of the modern transport market, which not only ensure stable quality of products and services, but also demonstrate a certain level of development of the company.

Today, the concept of information systems is used everywhere. An information system (IS) is a set of interconnected instruments, methods, and personnel. Modern IS is an information repository able to enter, search, add and output data. This capacity distinguishes information systems from simple information repositories. Currently, information systems are used to solve a variety of problems and have become an important part of the routine activities of corporate employees.

Modern development environment of transport companies requires a global modernisation of the operated information systems. Currently, there are several key trends in development of internal information systems.

First, there are developments aimed at creating the most comfortable and user-friendly interfaces that can provide interactive access to data (even if the user has a low level of digital literacy).

Secondly, there is an increase in functionality of information systems that will allow flexible use of resources. Additional features added to information systems allow the user to maximally adapt resources to personal work tasks (for example, the ability to opt for a report format, adjust data detail, select the own data for a report with built-in formulas, send information to the user's mail).

It is worth mentioning the problem-oriented approach to development of information systems: the user must be able to quickly obtain the necessary data that will allow him to solve the user's specific problem. Another interesting trend of recent years in development of information systems is the addition of means of interaction with expert systems to achieve maximum quality of data provision and possibility to add settings and sources.

Thus, we can conclude that development trends tend to increase the efficiency of the user's work within the information system.

Today, the digital transformation of the transport industry is a priority at the state level: in July 2022, the Ministry of Transport of the Russian Federation published the relevant Strategy [1]. Many companies in the sector are implementing their own digital transformation strategies, based on the national goals of the Russian Federation. Among domestic transport leaders, such companies as JSC Russian Railways, PJSC Aeroflot have been implementing a full-scale digital transformation, LLC Avtodor-

Toll Roads has implemented relevant innovative projects. Of course, the list of companies that are actively developing IT technologies is much larger; in this paper, we focus on two recognised giants of the transport industry: JSC Russian Railways and PJSC Aeroflot. They have in common a rich long history, an established corporate culture and well-established business processes. The digital transformation of younger transport and logistics companies is not of such interest: they appeared during the period of active development of IT technologies, it is also easier for them to adapt to market changes.

First, it is important to mention the peculiarity of operation of information systems in JSC Russian Railways and PJSC Aeroflot: many of them have been implemented for a long time, respectively, have not been updated for many years, corporate employees have got used to working with a specific interface and certain system shortcomings. Modern technologies are characterised by rapid development, to which corporate systems must respond quickly. Reconstruction, updating of information systems, their reformatting shapes a significant step towards achieving the goals of digital transformation [2].

Thus, the largest Russian and European transport and logistics holding company, which is JSC Russian Railways, is implementing a Digital Transformation Strategy.<sup>1</sup> Within its framework, a comprehensive solution is provided: digital platforms that ensure effective interaction between two parties at once – the client and the employee. In addition, the Strategy of JSC Russian Railways provides for introduction of new information systems to optimise the work of employees. The attention of the Strategy is focused on innovations themselves, as well as on financial risks. Considering the Innovative Development Program of PJSC Aeroflot,<sup>2</sup> we can see that special emphasis is placed on the economic component, the impact on the company's position both in the Russian and in the global air carrier market.

As a rule, when talking about introduction of information systems, experts consider technical and commercial risks: changes in the technical infrastructure require large investments, and it is important for organisations to take into account the economic efficiency of projects. All the attention of the management that decides to launch a new

<sup>1</sup> Digital transformation strategy of JSC Russian Railways until 2025, 2019, 78 p. [Electronic resource]: <https://stf-nso.ru/upload/iblock/20c/4mam5vid0pqy0794x5w3pc0p47cp6xcy/ROMAN-RYUTIN.pdf>. Last accessed 13.04.2023.

<sup>2</sup> Passport of the innovation development program of PJSC Aeroflot, 2021, 61 p. [Electronic resource]: [https://www.aeroflot.ru/media/affiles/media/strategy/pasport\\_2022.pdf](https://www.aeroflot.ru/media/affiles/media/strategy/pasport_2022.pdf). Last accessed 13.04.2023.



information system is drawn to its desired effects. The described approach works for a variety of enterprises and a variety of information systems. Is it effective? Yes, since it attains the main goal – it introduces a new system into the activity of the employees of an organisation. The needs of the business and the vision of the task by the customer come to the fore. The risks of introducing information systems are considered from the point of view of non-fulfilment of the corporate tasks; however, the risks associated with introduction of an information system into the routine of each employee are limited, as a rule, to the framework of local solutions.

Besides, many research papers (e. g.: [4–9], etc.) consider and systematically link together a wide range of the tasks of corporate digitalisation from technical aspects of IS adoption, and changes in corporate culture to features of application of IS in customer relationship.

It is necessary to consider the problems that may arise during IS implementation directly in the team as digital transformation occurs directly at the workplace and is implemented by the employees. Their unpreparedness, stressful situation in the team, conditions of uncertainty negatively affect the success of implementation of corporate digitalisation strategies, also they can slow down their progress and make them completely ineffective.

Digital transformation is a transformation, first of all, of the participants in the process. Employees are the most important resource of any company: they are the ones who will use the implemented technologies [10]. Technology is at the service of man, but not vice versa. The digital transformation strategy aims to change the corporate culture and mindset of employees. A well-trained staff is the same competitive advantage of an organisation as a wide range of services or a user-friendly website interface. Thus, for JSC Russian Railways, implementation of information systems is not just an update of the technological architecture, but an important step towards a comprehensive change in the way business is done, optimisation of all business processes. The company requires a universal, high-quality, and comprehensive solution in the field of professional training of each participant in the life of the company.

The risks of implementing information systems as part of digital transformation are not limited to technological and economic ones; they really require special study and should be considered in the process of working on new IT products. At the same time, the focus of attention of immediate managers (whose employees will use new information systems) and specialists in development

and training of personnel should be directed to adapting the employees to the conduct of new business processes.

*The objective* of the study is to analyse the risks of implementing information systems associated with the human factor. It is important to identify possible problems that a company may encounter when introducing new systems into the routine activities of the organisation, as well as ways to minimise them. The problem is rather relevant because of large-scale changes in transport and logistics companies following the digital transformation of the sector and ubiquitous adoption of new information systems, as well as because of the features of the corporate teams.

The study applied general *methods* of scientific research.

## RESULTS

Since the study is devoted to the problem of non-financial risks of implementing information systems in transport and logistics companies associated with behavioural factors on the part of employees, it analysed the risks in this area. They were divided into «fears» (factors associated with the personal experiences of employees) and «features». Besides, the study outlined possible tools for their neutralisation considering the specifics of the transport and logistics sector.

### Fears of Employees

The first problem that needs to be covered within the framework of this topic is the fear of employees who encounter new technologies. There is an opinion in the society that robots and technologies can completely replace people. The rapid pace of information technology development, emergence of new professions and disappearance of others, replacement of manual labour and introduction of artificial intelligence scare employees. Employees are afraid that their qualifications will no longer be in demand, and they will lose their value as specialists.

The human problem in the labour market is not as new as it might seem. Change is inevitable and a person must adapt to it. If we turn to the example of JSC Russian Railways, then its employees are no exception: the start of digital transformation and a superficial reading of the text of the Strategy can sow a seed of doubt about the stability of employment.

Digital transformation can be perceived by employees as a tornado: a sharp change in the development vector of a stable functioning company, reformatting of work processes and a change in corporate culture. The changes that have

abruptly replaced almost centuries-old foundations are frightening and alarming: the question «what will happen tomorrow?» is in the air.

Such a reaction is due to insufficiency of commenting on the provisions and of information in general. Speaking about digital transformation, it is important to convey to employees exactly how their work will change, what systems will be replaced, and to approve the necessary competencies to perform job duties [11]. In conditions of uncertainty, there are risks of undermining the psychological climate of the team and the working mood. At first glance, this may seem like a big exaggeration, but it is not. Any changes are stressful for a person and the company is quite capable to significantly reduce it in very simple ways.

Employees not only do not want to take part in digital transformation but are afraid of its consequences. Fears do not appear without reason; they can be caused by a variety of factors. The phenomenon of fear in society is a vast topic for research in the field of psychology, and now it is receiving special attention as never before. The company's task is to minimise the impact of fears on the perception of digital transformation by employees, in particular, at the stage of introduction of new information resources. Let's define the main fears of employees:

1. Fear of losing a job.
2. Fear of continuous development of technologies (in particular, artificial intelligence).
3. Fear of lost relevance of qualifications.

### Human Factor Risks

An aspect requiring special attention is training of employees. In the context, training of employees is their level of information technology proficiency. Colleagues in the same department with the same job descriptions may have vastly different computer and desktop application skills. What determines the level of computer literacy of an employee? This is a combination of several factors at once [12]. First, it depends on personal interest: a person of any age can master programs, follow technologies, in a word – keep abreast.

What is the risk for implementing digital transformation?

The first risk is the difference between the existing computer skills and the experience of using it among employees. Of course, creation of information systems is designed to simplify the work, however, one way or another, it requires basic knowledge and skills.

The second risk is personal unwillingness of an employee to participate in the digital transformation of the company. It can be expressed in behaviour,

simple ignoring of innovations, attempts to return to old platforms. In this case, the new information systems will not be really effective, as they will not be used properly.

Let's summarise through listing main non-financial risks that need to be worked out with employees before introduction of new information systems:

1. Impossibility of mastering information systems due to low computer skills.
2. Unwillingness of the employee to work with new information systems, lack of motivation.
3. Rejection, insufficient training of employees of different age categories.

These risks and above-mentioned fears go hand in hand: there is a clear relationship between them. But the same relationship will help organise an integrated approach to work on changing the mood of employees and minimising risks.

### Corporate Risk Neutralisation Tools (example of JSC Russian Railways)

An example of practical implementation of approaches to risk neutralisation can be considered using the example of JSC Russian Railways.

Before working on the risks of implementing new information systems, it is important to identify key changes in the work of each employee and the entire organisation. How will the work of each employee change? What does the introduction of information systems mean for each employee personally?

Conventionally, changes can be divided into three categories: activity changes, informational changes, and organisational changes.

First, it is worth considering informational changes: they will become the basis for other two categories. How is the information space of the company's employees being transformed? For example, in the case of JSC Russian Railways, the systems being introduced affect the organisation of business processes in general, both on the part of technologists and on the part of users. In this regard, technologists need to know the system not only from «their» side, but also the capabilities, the interface of the user's personal account [13].

The second aspect is the increase in the amount of information available: despite the presence of the rights of the hierarchy of access levels, employees will be able to obtain more data than before. This is due to «saturation» of new information systems. How will this affect work? It will take increased attention to set up information filters, detailed and competent guidelines. Here, not only instruction and training will help, but also a developed «flair»: the ability of a person to



intuitively understand the system, its interface and assume the result of actions.

Activity change is a modification of an employee's routine. Here you can identify many positive aspects. Digital transformation is designed to minimise «paper» red tape and «chimes»: new information systems should solve these problems, which actually impose risks to slow down development of the entire company and «throw» it down a step. For example, within the framework of the Strategy of JSC Russian Railways, it is planned to digitalise and transform such areas as digital accounting, digital HR, digital procurement. For employees at all hierarchy levels, this means the need to adapt to the new way of doing business.

Organisational changes are inevitable in the context of digital transformation: this means creation of new divisions, working groups and positions. An important aspect of the work is building relationships between those who implement information systems and those who work with them. In addition, clear clarifications will be required regarding the areas of responsibility of each employee: who to contact with a problem that has arisen? Who can help set up access rights or deal with report formatting? To ensure smooth operation, it is necessary to create working documents, some cheat sheets that will guide the team in the new organisational structure and help to seamlessly rebuild processes.

These changes may not seem so global, but they can become an obstacle for every employee. However, they are important to consider when working on an information systems implementation strategy: these are weak points that represent risks and therefore need to be worked out.

Dealing with the fears of employees requires special attention: no matter how high-quality the technical training of employees is, the team may simply not accept the changes, which in the future will affect the efficiency of new information systems. It is important to carry out activities aimed at minimising fears and increasing motivation. First, these are detailed explanations regarding digital transformation: what changes await each employee and the company? Awareness of the need for digital transformation, as well as getting a job security guarantee, will help employees embrace the coming changes. It is important to carry out separate activities with those employees who, as part of their work activities, have not previously encountered information systems: those who do not have the required work experience and represent a special risk group. The purpose of preparing materials for them is, among other things, to get them acquainted with the terms, principles of work, and opportunities.

This stage should «balance» the general mood of the team and prepare for further learning [14].

The study of the previously considered risks of introducing information systems can take various forms depending on the specifics of the activities of a particular department, team and, of course, the information system. An extremely important aspect of employee training is increasing the level of digital literacy: working with new systems will require a basic understanding of functioning of systems, this will help them navigate dynamically developing information systems and new technologies in general [15].

The system of distance corporate training, one way or another, is present in many companies and, as a rule, is an actively used part of daily work, and it can be used for quality training. To draw up a training plan for employees, it will be effective to conduct a «slice of knowledge»: complex anonymous tests aimed at identifying points that require special study. This approach will show the real picture, as employees will not worry about the possible consequences in case of poor results.

To achieve maximum effectiveness of training and adaptation, it is worth considering compilation of personal development tracks, which will be prepared considering existing competencies, job descriptions, and test results [16]. Due to this approach, an individual development strategy will be formed, and the employee will receive relevant knowledge and skills: they must be applicable both within the framework of work duties and for personal development.

In the context of training and adaptation of employees to work with new information systems, feedback must be considered: training should be carried out in accordance with the requests of employees. It is necessary to give the opportunity to ask questions in a convenient format: anonymously or directly via mail. The data obtained will indicate aspects that require additional coverage, as well as will form a base of «questions and answers». Based on the answers received, it is necessary to adjust the learning content for its relevance.

Another event that needs to be carried out is getting to know the team involved in training employees, and exchanging contacts. It is important to qualitatively, but at the same time unobtrusively, introduce colleagues, identify the range of issues with which they can turn to one or another colleague – in a word, to establish contacts. This will be needed both in training and in daily work. The prepared methodological materials must be published for users: the common practice of creating a «knowledge base» will help to combine

useful documents in a single place, which an employee can access at any time [17].

## CONCLUSIONS

Working with non-financial risks is the key to the acceptance by employees of transport and logistics companies of innovations related both to introduction of new information systems and general changes regulated by digital transformation. Comprehensive work with the team will help to work through fears, relieve tension, and train relevant employees' soft and hard skills. In the context of digital transformation, full of uncertainty for each of its participants, it is necessary to establish strong corporate bonds between employees of different departments.

It is important to remember that digital transformation happens in the workplace of each employee. A comprehensive and large-scale work is needed to train and adapt employees, that will lay a solid foundation for further transformations in the field of digital development of the company.

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