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RISKS OF RELOCATION OF IT INDUSTRY ENTERPRISES (ON THE EXAMPLE OF TRANSCARPATHIAN REGION)

In modern conditions, the IT industry is characterized by uncertainty and risk, which in turn affects the functioning of economic entities in this industry. Proper interpretation and clear understanding of the concept of risk helps to identify priority areas for its avoidance and / or leveling. The huge number of risks that have arisen under the influence of external and internal factors complicates the process of determining them. The object of research is the activities of IT companies. The subject of the research is the risks of relocation and functioning of IT business entities in martial law on the example of the Transcarpathian region. Nowadays, the Transcarpathian region is characterized by a large number of IT companies relocated to the region, which, in turn, led to the creation of an IT cluster in April 2022 – a community that will actively interact with other businesses, central and local government in order to meet the needs and uninterrupted activity of the IT community. The main goal of the cluster is to support the functioning of the IT business and thus the economic potential of Ukraine. The article examines the features of IT companies. The main types and characteristics of risks are considered and detailed. From the point of view of project implementation, it is determined that the most important types of risks are those that have a significant impact on the main parameters of the project, i.e. its costs, implementation time, volume or quality of manufactured products. The peculiarities of the activity of IT enterprises in the conditions of relocation are described. It is conducted a comparative analysis of office work and telecommuting, in particular, as well as there are identified and summarized the advantages and disadvantages of remote work of IT staff. Emphasis is placed on the fact that the accuracy of the assessment of the future situation will depend on the completeness of the definition of the types of risks, which will allow in the future to effectively choosing accounting methods for their management.

Keywords: *IT enterprise, business, risk, remoteness, accounting, personnel, the Transcarpathian region.*

РИЗИКИ РЕЛОКАЦІЇ ПІДПРИЄМСТВ ІТ-ІНДУСТРІЇ (НА ПРИКЛАДІ ЗАКАРПАТСЬКОЇ ОБЛАСТІ)

У сучасних умовах ІТ-індустрія характеризується невизначеністю та ризикованістю, що у свою чергу впливає на функціонування суб'єктів господарювання цієї галузі. Правильне трактування та чітке розуміння поняття ризику допомагає визначити пріоритетні напрями для його уникнення та / або нівелювання. Величезна кількість ризиків, які сформувалися під впливом зовнішніх і внутрішніх чинників ускладнює процес їх визначення. Об'єктом дослідження є діяльність ІТ підприємств. Предмет дослідження – ризики релокації та функціонування суб'єктів господарювання

ІТ бізнесу у воєнному стані на прикладі Закарпатської області. За станом на сьогоднішній день Закарпатська область характеризується великою кількістю релокованих до регіону ІТ-підприємств, що, у свою чергу, призвело до створення ІТ-кластеру у квітні місяці 2022 року - спільноти, яка буде здійснювати активну взаємодію з іншими суб'єктами господарювання, органами центральної та місцевої влади, задля забезпечення потреб і безперебійної діяльності ІТ-компанії. Основною метою кластеру є підтримку функціонування ІТ-бізнесу і таким чином економічного потенціалу України. У статті досліджено особливості діяльності ІТ-компаній. Розглянуто та деталізовано основні види та характерні риси ризиків. З точки зору реалізації проекту визначено, що найважливішими видами ризиків є ті, які мають значний вплив на основні параметри проекту, тобто його витрати, терміни реалізації, обсяг або якість виготовленої продукції. Охарактеризовано особливості діяльності ІТ- підприємств в умовах релокації. Здійснено порівняльний аналіз роботи в офісі та дистанційної роботи, зокрема визначено та узагальнено переваги й недоліки віддаленої роботи персоналу ІТ-підприємства. Акцентовано увагу на те, що від повноти визначення видів ризиків буде залежати точність оцінки майбутньої ситуації, що дозволить в подальшому ефективно вибрати облікові методи управління ними.

Ключові слова: *ІТ-підприємство, бізнес, ризик, віддаленість, облік, персонал, Закарпаття.*

General formulation of the problem. The economic activity of an IT company is prone to risks that can have a significant impact on the financial condition and financial results of its work. Internal and external factors – sectoral, legal, military, and others – should be noted as the causes of risks. Uncertainty is the main feature of the financial and economic environment that affects the occurrence of risk. Uncertainty in the field of IT means incompleteness and inaccuracy of information about the conditions of the IT business plan, the inability to accurately predict changes in the business environment, unpredictability in the actions of competitors. Operating in conditions of uncertainty and martial law is difficult to make management

decisions. That is why the issue of determining the risks of IT companies is so important, especially in terms of their relocation to the Transcarpathian region.

Analysis of previous research and publications. The following scientists dealt with the problematic issues of researching the risks of the IT sphere, such as: Bardash S.V., Lahovska O.A., Hrabchuk I.L., Onishchenko S.V. and Masliy O.A. Some aspects of risks were studied in the works of Zadorozhnyy Z.-M., Muravskyy V., Yatsyshyn S., Shevchuk O., Onishchenko I., Durayeva A., Hrihor O. and Prokopenko T. However, this topic is not sufficiently covered in scientific sources, due to the fact that scientific researches to determine the risks of relocation of IT companies are just beginning.

The goal of the article. The goal of the article is to study the nature and types of risks of IT enterprises in terms of their relocation on the example of the Transcarpathian region.

Results of the research. In general, risk is an opportunity, the probability of danger, an indeterminate situation in which the probabilities of both positive and negative events are determined. Uncertainty – the inability to obtain information characterized by a lack of influence on the change of the situation – uncertainty is not assessed by probability and minimization.

The IT industry is one of the highest priority in Ukraine. According to the State Statistics Service of Ukraine, in 2021, this industry grew by 36% and brought the country 6.8 billion US dollars of export earnings. This is an industry with 285 000 specialists [5].

On February 24, 2022, the Russian Federation launched a war against Ukraine under the slogan of a «special military operation» to protect Russia from NATO. Russian troops launched a ground, naval and air invasion, shelling Ukrainian cities and villages. In the current conditions, the issue of ending hostilities as soon as possible, resumption and stabilization of economic activity of business entities of all forms of ownership and spheres of activity becomes relevant. According to the International Monetary Fund, it is known that due to

Russia's military invasion, Ukraine may lose up to 35% of GDP, amounting to 565 billion US dollars of losses and they will increase [7, p. 73].

However, the Government of Ukraine is still trying to ensure the functioning of economic entities and is actively working on a plan to support the national economy. Due to the martial law, enterprises are being relocated to the Western regions.

Relocation means moving a business from one country to another. Another meaning of this word can be the relocation of all or part of the company's employees from one country to another or the relocation of business / employees from one place to another within one country [14].

Thus, the relocation of a business is a change in the location of the entity, the relocation of its employees (or a certain part of them) and production facilities to other locations to ensure continued operation. Currently, the issue of relocation of enterprises is very important.

It is noted that most representatives of the IT sector moved to the Transcarpathian region – 49%, while among others: 23.9% – manufacturing, 23.8% – services, including trade, 3.2% – construction [11].

The IT cluster of the Transcarpathian region was created in April 2022. Currently, the region is actively registering the resident community in the joint project «IT-cluster of the Transcarpathian region», which aims to ensure the functioning, economic support and comfortable conditions for IT businesses that have relocated to the Transcarpathian region or plan to move to this area in the near future.

Currently, 62.9% of all relocated enterprises have been re-registered in the region. Local authorities are developing mechanisms for relocating companies to the Transcarpathian region in record time and according to the most simplified procedures. As the evacuated business moved some of its employees, companies are looking for professionals among the local population [11].

On April 5 this year, 11 representatives of the companies that became its founders, merged to create the Transcarpathian IT Cluster. These are, in particular, representatives of PettersonApps, Astound Commerce, SoftServe, Sigma, Genesis, 4TEAM, Telesens, EPAM, Intellias, SQUAD, CANFLY. Mostly they are the top managers of the head offices. Nowadays, more than 30 000 business entities of the IT industry have relocated to the Transcarpathian region [4].

The main advantages of the IT cluster are the following: safe operation, the possibility of booking from mobilization, settlement of housing issues, support of talented youth, transformation of education, development of the IT community, improving innovation, logistics.

The gradual adaptation of the IT industry to martial law focuses the attention of relocated companies on a number of risks that are inherent in the IT sector.

According to A.A. Durayeva, risks have the following characteristic properties:

1. Uncertainty. Risk exists if and only if not the only one way development is possible.

2. Damage. Risk exists when the outcome could result in loss or other adverse effect.

3. The presence of analysis. Risk exists only when a subjective opinion about the situation is formed and a qualitative or quantitative assessment of the negative event of the future period is given (otherwise it is a threat or danger).

4. Significance. Risk exists when an event is of practical importance and affects the interests of at least one entity. There is no risk without belonging [6].

We agree with this position of the researcher, because these properties characterize the conditions of risk, regardless of its type and area of origin.

Bardash S.V. and Hrabchuk I.L. pay attention to the fact that «digital technologies affect the order of staff work, information processing, organization

of business processes, so companies, that are operating in the field of information and digital technologies, already have their own set of risks» [3].

Issues of risk identification in the field of IT (both for the whole field and only for IT projects), in particular in terms of their types, were raised in the works [1; 12].

Risk factors of IT enterprises, i.e. the conditions and circumstances under which the causes of risk are formed and which lead to negative consequences or adverse events, are divided into two groups related to the impact of financial and economic activities of IT enterprises:

- factors of the external environment:
 - level of state regulation of IT;
 - changes in legislation;
 - political situation in the country;
 - relations with investors, suppliers, customers, competitors;
 - natural and ecological conditions;
- factors of the internal environment:
 - directions of activity;
 - goals of the IT company;
 - organization of activities at the IT company;
 - staff qualifications.

Klyuchnikov V.O. divides the risks of the IT project into three major groups with their subsequent details:

- internal risks (specific to a particular enterprise) arising from the uncertainty of endogenous factors. Such risks may arise as a result of uncertainty about the availability of timely funding for long-term, capital-intensive projects, the adequacy of the organization's skills to implement the project, the availability of an appropriate organizational structure;

- competitive risks associated with the activity of the competitive environment. These factors correspond to uncertainties about the behavior of

competitors, their ability to quickly create an advantage by implementing innovative solutions or simply copying and improving the technologies being developed. Risk factors of this category reflect the probability of losing the feasibility of the project;

– market risks due to uncertainty of exogenous factors. All companies operating within the same segment are equally exposed to such risks. These include uncertainty about future demand (capacity, market saturation, activity of substitute products), business profitability, changes in legislation, and so on. First of all, such risk factors affect the ability of the IT company to realize the required amount of originally planned benefits [9].

Subsequently the scientists characterize the presented groups of risks, reveal their types and so on. Given the possibility of detailing the risks in each group and the lack of a clear indication, we do not think it is necessary to consider these species as separate.

Onishchenko S.V. and Masliy O.A. believe that «the group of risks associated with cybercrime should be singled out - hacking of devices, attacks on mobile devices and financial mobile applications as part of remote banking and payment systems, attacks on smart-contracts, etc., which directly affect the level of information security of the state and economic security as part of the national security» [13, p. 55].

In its most general form, the goal of risk management in an IT project is to increase the likelihood of a positive project implementation by reducing the likelihood of failure. This effect can be achieved by increasing the effects of positive risk and reducing the effects of negative risk. From the point of view of project implementation, the most important types of risks are those that have a significant impact on the main parameters of the project, i.e. its costs, implementation time, volume or quality of manufactured products. The risk of an IT project is that various factors may hinder the completion of the project within an agreed scope, deadline or budget.

According to the research, the IT company is under the influence of general (inherent in the activities of any entity) and specific (determined by the nature or characteristics of the entity in the industry) risks [10]. There is a relationship between the two specific groups of specific risks (Table 1). Thus, the presence of personnel risk in an IT company can cause quality risk for a particular IT project.

Table 1

Features of specific risks that characterize the activities of IT enterprises

Group of specific risks	Name of the risk	Risk characteristics
Risks of IT project	Risk associated with the execution time of the IT project	It is characterized by non-compliance with the deadlines of the IT project
	Risk associated with IT project costs	It is manifested in violation of the established budget of the IT project through the fault of both the customer and the contractor
	Risk associated with the quality of the IT project	It is characterized by errors in the implementation of the IT project, the ability to correct them and compliance with the objectives
Risk of organization and implementation of activities	Technological risk	It occurs due to errors in technical calculations, software failures, database loss
	Personnel risk	It is connected with the turnover of staff and the necessary high level of their training in this area
	Market risk	It occurs due to the instability of the economic situation and rapid changes in development forecasts
	Legal risk	It is determined by frequent changes in legislation and adjustment of directions of development

Source: summarized by the authors on the basis of [10]

We want to pay special attention to the risk of personnel, especially in martial law in terms of remote work. In the field of IT, specialists have specific requirements. When looking for an employee, many managers prefer professionals who have work and management experience in business. The age of such specialists is usually above average. It is much easier for an employee with experience in a managerial position to learn new technologies than for a technician to learn how to run a business competently. Information technology

changes very often, so any specialist needs additional training, but an employee who is well acquainted with the business has a sufficient basis for such training.

In modern conditions the growing cyber threats posed by hybrid conflicts around the world and the biological threats of the COVID-19 pandemic necessitate the introduction of biometric authentication of employees, which will transform the accounting and control of time worked, accrual of basic and additional wages [2]. However, the specifics of IT companies are largely due to the organization of their staff, in particular the possibility of remote work without loss of productivity.

Remoteness, in our opinion, is a great advantage for business development, which allows you to scale at a rapid pace. Thanks to the development of the Internet, the time for searching for clients and communication is reduced (there is no need to hold personal meetings, except in cases when you need to establish a partnership). After establishing contact, it may be necessary to study the customer's business to better understand the specifics of the activity. For these purposes, the participants of the IT project are sent to the production of the customer to whom the IT service will be provided. The benefits of remoteness are certainly hard to overestimate, but we must not forget that physical meetings will affect the speed of decision-making (in the case of personal meetings of business leaders) and product quality (in the case of personal business development by developers for better understanding). Remoteness also allows you to quickly get feedback from the customer and respond instantly to errors in the use of the IT product.

As for the remoteness of developers, it allows you to hire professionals from anywhere in the world, which, in turn, does not limit the search for employees in a particular area. This allows you to choose the best professionals, regardless of their location, which directly affects the ability of the IT company to scale quickly when needed (in particular, after receiving a profitable order, for which you need to attract more professionals). Thanks to the Internet and the

removal of language barriers, it is possible to establish fast and effective cooperation between all participants in the IT project, regardless of their location. Despite such significant advantages, a person needs to be among the team, and therefore human resources are forced to conduct team-building companies in order to establish closer social ties between employees. Staff burnout and staff turnover, which are due to the specifics of the activity, is one of the risks that are present in this area. The strengths and weaknesses of the distance are shown in Fig. 1.

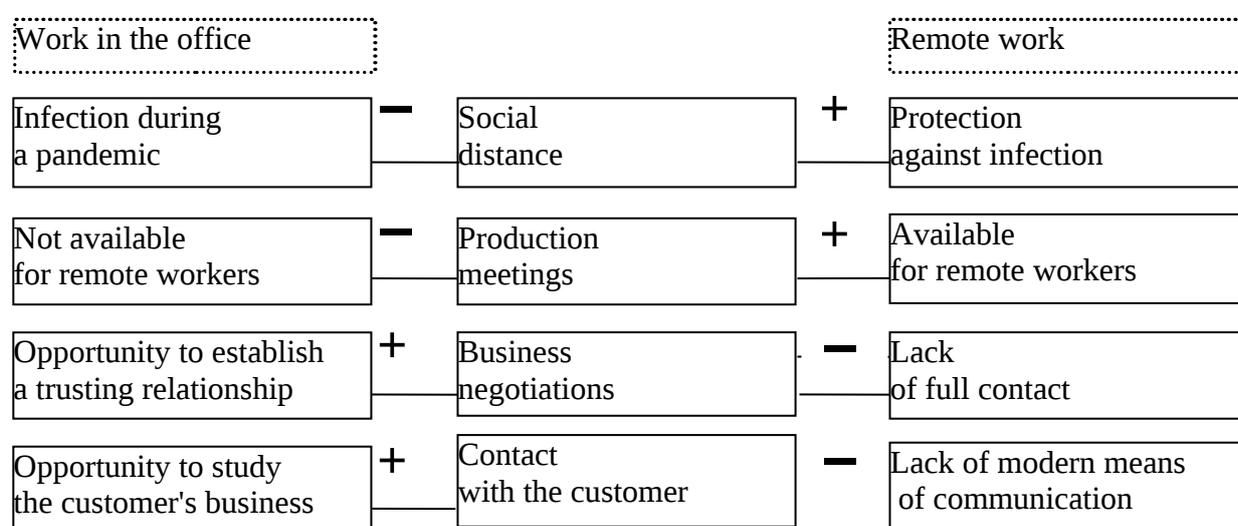


Fig. 1. Advantages and disadvantages of remote work in an IT company

Source: authors' own development

Disclosure of the main digital trends, as well as the essence of the basic concepts (IT service, IT product) that accompany the activities of IT companies and their features, allowed determining the characteristics of these companies in relocation:

- the presence of significant risks;
- lack of staff, high staff turnover;
- new requirements for accounting staff;
- unlimited scalability;
- insignificant share of material costs in the cost structure of IT services;

- need for a high-tech base, timely updating of hardware and software in accordance with the growth rate of IT;
- possibility of remote work of the employees without loss of labor productivity (Fig. 2).

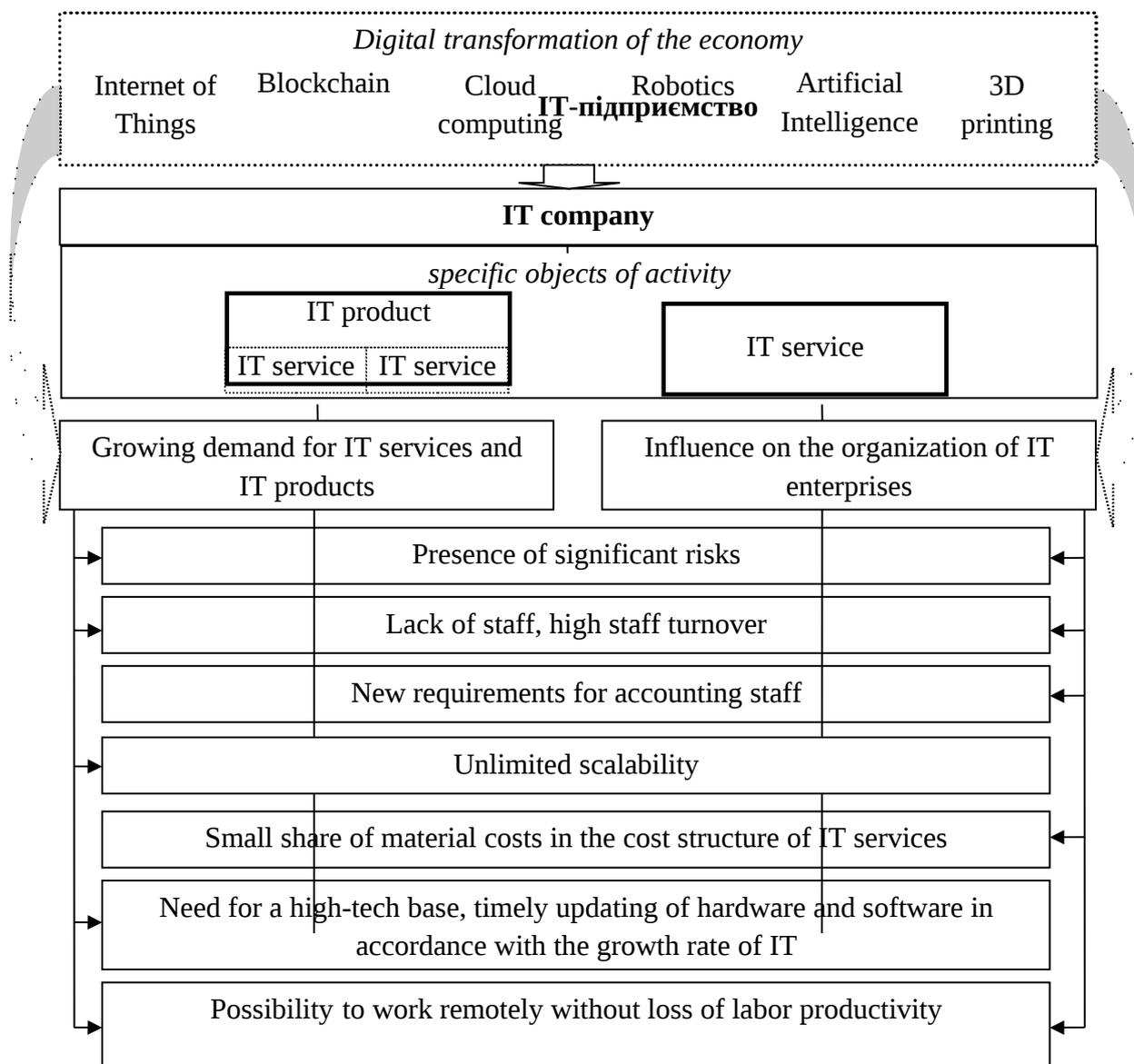


Fig. 2. Specific objects and characteristics of the IT enterprise, due to the specifics of the field and the impact of the digitization process

Source: authors' own development

Digital tools have improved the functionality of accounting departments by enhancing the nature of accounting information such as timeliness. This ensures the preparation of reports and analysis of transactions, which provide

management with an accurate representation of reporting transactions and the state of the enterprise.

The introduction of digital technologies allows you to process large amounts of financial information and quickly organize it. Systematization reduces the time spent on processing individual transactions that are important and necessary to close each reporting period. Reducing time costs and correspondingly reducing staff costs, including accounting, helps companies not only control their costs, but also increase the overall efficiency of the company.

In any case, IT companies must take into account the level of development of modern digital technologies, as they determine the development of the main activities of enterprises in this area, and affect the organization of the process, including accounting.

Thus, modern processes of digital transformation are crucial for the organization of accounting and analysis of IT enterprises. However, to reveal the features of accounting and analysis of IT enterprises, it is necessary to have a clear idea of the characteristics of such enterprises, which necessitates the justification of their characteristics.

At the same time, it should be taken into account that although the role of IT companies in implementing the digital transformation strategy is significant, the work to implement and adapt to the massive changes that accompany digitalization applies to all businesses.

The defining technology that contributes to the complete digital transformation of IT enterprises is the Data Center Infrastructure Management (DCIM). DCIM helps IT professionals prevent downtime, reduce maintenance, and extract data for machine learning (ML) and deep learning (DL) models to get the best results from operational data [8]. The digital transformation of the data center will not happen immediately, because this is not an easy issue.

When implementing their IT projects, IT companies have to deal with the problem of diverse and outdated (taking into account the rapid pace of

development of information and computer technology) infrastructure. These outdated hardware and software systems need to be coordinated and integrated with modern systems, protocols and platforms.

The accuracy of the assessment of the future situation will depend on the completeness of the definition of types of risks, which will allow in the future to effectively choosing accounting methods for their management.

In addition, IT projects require special competencies from the project manager, such as high project human resource management skills and knowledge of quality requirements when creating new software. IT professionals have a desire to grow and master new technologies, so learning becomes an important part of the incentive system for them. For an IT company, this approach provides significant savings and allows investing in the future. From the perspective point of view the most economical is the training of a specialist at the beginning of his activity, compared to the search for new specialists with a certain frequency.

Conclusions. IT businesses during relocation in difficult economic and political circumstances must effectively solve both tactical and strategic tasks, solve issues of accounting, resource planning, sales, which is impossible without the use of promptly provided analysis results based on a clear understanding of the concept of risk. The speed of change in IT business, the power of information flows, which daily pass through even small IT companies, nowadays are such that it is almost impossible to ensure the efficiency of business processes without the ability to manage risk. The prospect of further research is to determine the methods of risk management and the impact of the IT project on the efficiency of the IT enterprise as a whole.

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