



BUSINESS PROCESS EFFICIENCY IN A DIGITAL ECONOMY

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ABSTRACT

In a digital economy, the flexibility and acceleration of business processes are more than relevant: if an enterprise does not use the capabilities of modern technology, does not adapt to the crazy pace and features of doing business, it will not be able to compete with those who already do this.

To be successful, you need to be fast and flexible: change not when there is an opportunity, but when there is a need. The digital transformation of business processes is aimed at ensuring that companies make decisions quickly, quickly adapt their work to the requirements of the current moment and satisfy the needs of customers.

The article explores the possibility of digital technology to improve the efficiency of business processes. The main features of the information-digital economy are highlighted, the main business processes of the enterprise and indicators of their

effectiveness are considered and analyzed and advantages of the digital transformation of business. The toolkit is proposed that helps to quickly adapt to the conditions of the digital economy, improve customer experience and accelerate business processes.

Keywords: Business Process, Digital Economy, Efficiency, Optimization

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1. INTRODUCTION

IT has become closely connected with the business world. Companies that intend to develop their digital capabilities, that is, the ability to generate business value, must participate in the simultaneous (re) design of both technological business processes and specific business requirements in order to succeed.

Digital transformation is radically changing the global business landscape. Business executives across virtually every industry use key leverage in digital transformation, including social platforms, mobility, cloud and analytics, to increase productivity and customer reach for their business. The adoption and use of such disruptive technologies at the right time and right place allows organizations to increase business flexibility, improve customer service and identify new business opportunities [1-3].

The digital transformation of the enterprise contributes to this thanks to advanced technologies, such as Big Data or Artificial Intelligence [4]. They are aimed at processing information flows, on the basis of which it is possible to make decisions, adapt offers to specific clients and predict their behaviour.

Despite the growing inclination towards the benefits that digital conversion provides, finding the right approach to using digital conversion in its true essence is still a challenge for many companies.

As technology advances, organizations across all industries face stiff competition. To survive in the market and remain competitive, organizations must embrace the digital age and identify ways to optimize internal business processes to reduce costs and increase revenue. Business process optimization can be implemented using business process management software [5-7].

2. THEORETICAL ASPECTS OF THE EFFECTIVENESS OF BUSINESS PROCESSES IN DIGITAL ECONOMY

The main features of the information-digital economy are its global nature and the operation of intangible benefits: ideas, information and relationships, network principles in coordinating markets and society.

In the digital economy, the world of subtle technologies controls the machines; the virtual world changes the behaviour of the real. It is these features that create new types of market and society. The technological basis of the digital economy is based on the discoveries of the fourth industrial revolution. Among them are artificial intelligence, distributed data, the Internet of things and for things, blockchain, mining centres, big data and cloud storage, digital platforms, 3D, and then 4D printing. To solve specific problems, the technological design of various systems is used.

The digital economy, growing on the basis of the information economy, can be defined as its continuation in a new quality after an unprecedented and disruptive technological breakthrough as a result of the fourth industrial revolution, which is characterized by a non-linear (exponential) speed of innovation diffusion, the depth and scale of penetration of digital technologies, and the strength of the influence of digital complexes and systems. Their application changes a lot in the way of thinking and decision motivation, i.e. not only in productivity but also in economic behaviour, in the principles of organization and operation of companies and the entire economic mechanism.

The technological achievements of the fourth industrial revolution had a serious impact on the business environment and its participants, who completely switched to the use of digital technologies, combining industrial technologies with digital ones. What does it consist of? Digitalization has influenced:

- firstly, on how to organize and conduct a business, its marketing strategies;
- secondly, to provide business with resources;
- thirdly, production and transaction costs (organizational, managerial, communication, expenses for obtaining, processing and storing information), which in the digital sphere are sharply reduced or even disappear;
- fourthly, on the network effect and economies of scale that is becoming global.

2.1. Business Processes of the Enterprise

A business process (process) is an aggregate sequence of actions for converting resources received at the input into a final product of value to the consumer at the output.

A business process is a stable, targeted set of interrelated activities (work sequence) that, using a certain technology, converts inputs to outputs according to certain rules using certain mechanisms (Fig. 1).

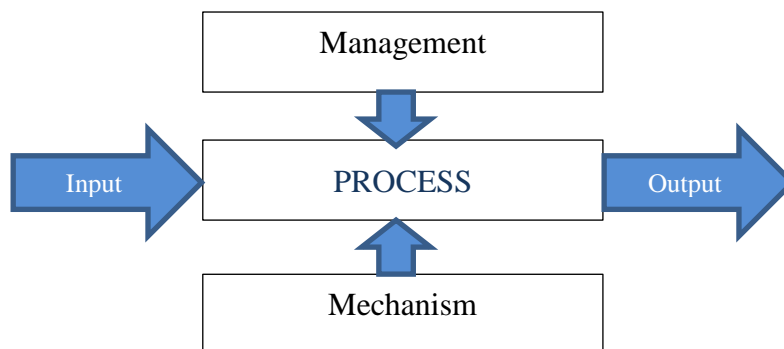


Figure 1 Process Description Scheme

The input of the process can be information (document), inventory or employee (usually, these are processes of the human resources department).

The output of the process can be all the same elements as at the input but already converted to a certain state as a result of the process.

Process control is usually information that defines the rules for converting inputs to outputs.

A processing mechanism is what converts an input into an output. The mechanisms, as a rule, are the employees (structural units) of the organization and the equipment on which they

work (machines, office equipment). The output of one process can be an input (control, mechanism) for another, or it can be used by a client of the organization (Fig. 2).

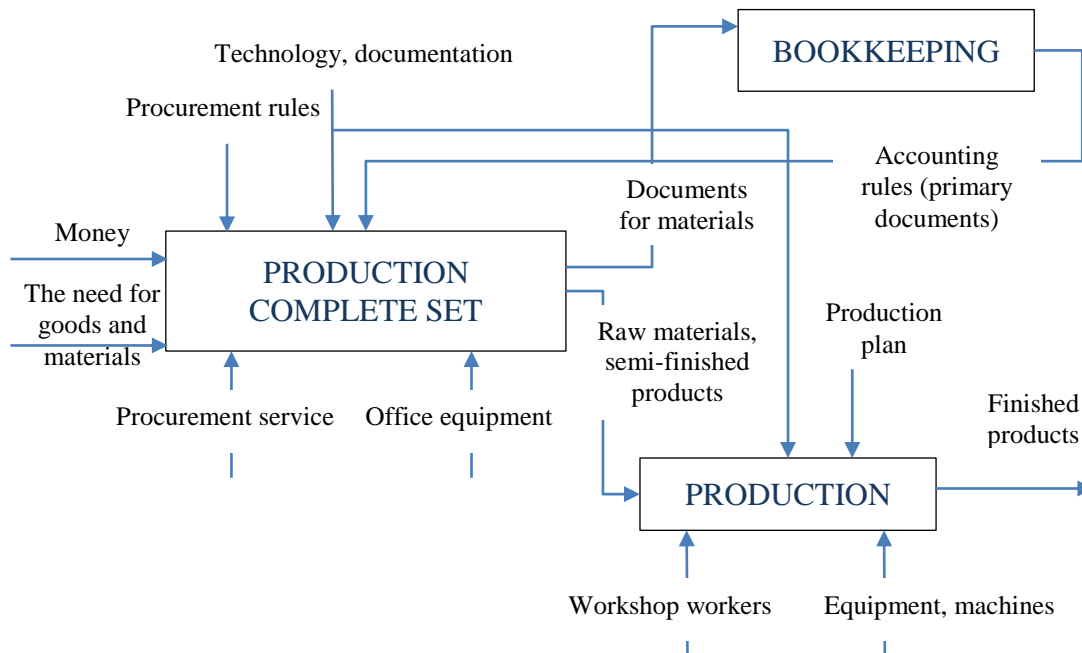


Figure 2 Process Interaction

Each process has an Owner - a person who has the authority necessary to organize work on the process and is responsible for the result of its implementation.

The creation of effective management systems for companies and organizations of a very different nature and field of activity is one of the most difficult tasks facing modern management. A universal methodology for creating such management systems does not exist, but it is possible to develop general principles for building business management systems. Among these best practices for effective management is the so-called process approach to management. Its essence is that in the practice of management and production activities, certain processes are distinguished with their subsequent management. To designate such processes, it is customary to use the term business process. An important factor in any business process will be its effectiveness, and the most important task of management is to constantly improve the performance of each business process.

In order to offer customers high-quality goods or services, the company must control the internal processes of their creation. Thoughtful and well-established business processes provide a high level of quality. The main task of management is to accurately determine the essential components of the process for its subsequent evaluation, optimization and development of implementation standards.

How can you choose the right process indicators? The choice will be facilitated if you identify the requirements of customers and conducted research on the components of a particular process that is associated with the most significant characteristics of a product or service.

2.2. Business Process Performance Indicators

One of the most important operational indicators and evaluation criteria of any company should be an indicator of the duration of the process completion cycle. The total duration of

the cycle is the amount of time that elapses from the moment the task begins to complete until it is completed. For example, the duration of a customer service cycle in sales is calculated from the moment an order is received from the client until the goods are delivered to the client, or the collected order is issued from the warehouse. To illustrate the importance of the time cycle of customer service, we can give a simple example - applying to the bank for a loan - the following situation is very often observed: almost a week passes from the moment the loan application is submitted to the bank with all the necessary documents, until they finally report the issue or refusal of its issuance, although in reality it only takes a few hours to collect and analyze all the data. Question: where was the rest of the time spent and is there a reserve for optimizing this business process and reducing the duration of the work cycle?

The indicator of the duration of the working cycle is very important not only from the point of view of internal calculation of cost but also from the point of view of its significance for the client. So, after calculating the duration of a cycle, performed slowly, which is, say, 50 minutes, it seems reasonable to set the task to reduce the procedure to 40 minutes. However, in this case, it may turn out that such "optimization" of a key performance indicator does not in the least increase the degree of customer satisfaction. Ultimately, only the customer can evaluate how good the cycle duration indicator is - he will either be satisfied with this indicator or not.

Analysis of the added value of the process. Any processes in the company can be divided into two components - one that adds value to the product, and one that does not increase its customer value. The criterion for increasing the component of adding process value can be used as a basis for optimizing the company's business processes. Moreover, this criterion can be selected as the determining principle for simplifying any business process. What is an analysis of the added value of a process? When a product (product) passes through the business process chain of a company, two things happen to its value. In the production process, the product absorbs the cost of labour expended on it, materials, energy, as well as other related costs. However, the added value of the product does not depend directly on these costs. The value of the product increases when adding to the product such qualities as functionality, aesthetics, a corporate brand and the like aspects important to the client. Ultimately, this will make it possible to sell it at a price higher than the total costs that were spent on the product, i.e. get revenue. The main problem of organizations is that the value of their product, expressed in the price at which the market is ready to purchase it, should be higher than the costs incurred by the organization.

Thus, the added value is a theoretical concept that expresses the ratio of market value to actual costs incurred for a product. The added value (AV) can be obtained from the formula:

$$AV = V_a - V_b$$

where V_a is the value after processing

V_b is the value before processing.

To evaluate business processes that add economic value (costs), on a separate business process, this added value can be expressed as a specific indicator. So, for example, let the brand marketing costs amount to \$ 10,000. By correlating this cost with the added value of the brand, you can evaluate the effectiveness of marketing. High overall performance of the company as a whole can take place only with sufficient efficiency of its individual business processes and, accordingly, of persons performing them.

The main indicators of the effectiveness of a business process include the following:

- Resource costs: time (cycle, duration, productivity, speed of order execution); material (expenditure of funds and materials, assets used in the form of receivables, stocks, etc.).
- The cost of marriage.
- The cost of training, training and professional development of employees.
- Efficiency of resource use per unit of output: equipment utilization rates; the utilization of resources, raw materials and materials; time spent on carrying out a unit of work or service.

From the point of view of financial evaluation, indicators of the cost of the process will be very important, i.e. expenses for the implementation of a single cycle of this process, as well as the assets used for its implementation. For example, a sales business process for selling in the amount of \$ 100,000 may require the use of resources in the form of accounts receivable in the amount of \$ 45,000.

The company must have in its arsenal several indicators that measure productivity in order to correctly use human and other resources. A performance indicator is generally the ratio of the result and the resources spent on achieving it.

Here are examples of performance indicators most commonly used by companies:

- sales per employee;
- profit per employee;
- the number of operations performed by one employee, etc.

The most difficult task is to choose the right standards and targets for evaluating performance. To evaluate the company as a whole, sales figures per employee are important, and at the same time, they are absolutely meaningless for assessing the state of affairs in the department.

Assessment of the measurement of a business process must be carried out from the perspective of the client. Typically, companies consider their business processes in the context of four separate categories:

- development of products and services;
- demand generation; satisfaction of demand;
- enterprise planning and management.

However, processes are what reflects what kind of work, where and when is being done, how it is being done. Therefore, it is necessary to consider their aspects and characteristics, the measurement of which will be important enough to evaluate a particular process.

These measurements can be divided into the following categories:

- quality;
- quantity;
- time;
- ease of use;
- money.

It is these five categories that will help you find the criteria for measuring the most important process milestones for success. When measuring efficiency, it is necessary to separately consider the components of the process itself. The process can be divided into input parameters, actions, output parameters, results. So, when it comes to the results of the process, it is necessary to determine the following criteria for the effectiveness of the process:

- whether the process leads to the desired result;
- how well the result of the process satisfies the needs of the recipient.

Moreover, the result of the process can be measured in units of quality, quantity, time, cost.

Relative process quality indicators include:

- indicators "plan / fact":
planned degree of defectiveness / actual degree of defectiveness;
planned number of complaints / actual number of complaints from clients of the process;
planned number of product returns / actual number of product returns;
number of emergency situations for the reporting period/number of emergency situations for the previous period;
- comparison with another process:
the degree of defectiveness of the product of the process / the degree of defectiveness of the products of the competitor's process;
availability of process complaints/availability of competitor process complaints;
- specific:
number of complaints / total number of customers.

3. RESULTS AND DISCUSSION

The strategy verified to the smallest detail, a professional team and motivated employees are a significant but incomplete part of the elements necessary for a successful business transformation. The digitalization system also includes special tools, in synergy with which qualitative changes are possible.

Based on the above studies, we offer an assessment of the effectiveness of business processes, which should be carried out in four projections: production, finance, personnel and the management system (Fig. 3).

Modern technologies make it possible to fully automate the calculation and monitoring of business process performance indicators. Market analysts increasingly gaining access to cloud software, the so-called SaaS

SaaS (software as a service; software on demand) is a form of cloud computing, a service model in which subscribers are provided with ready-made application software that is fully serviced by the provider. The provider in this model independently manages the application, providing customers with access to functions from client devices, usually through a mobile application or web browser.

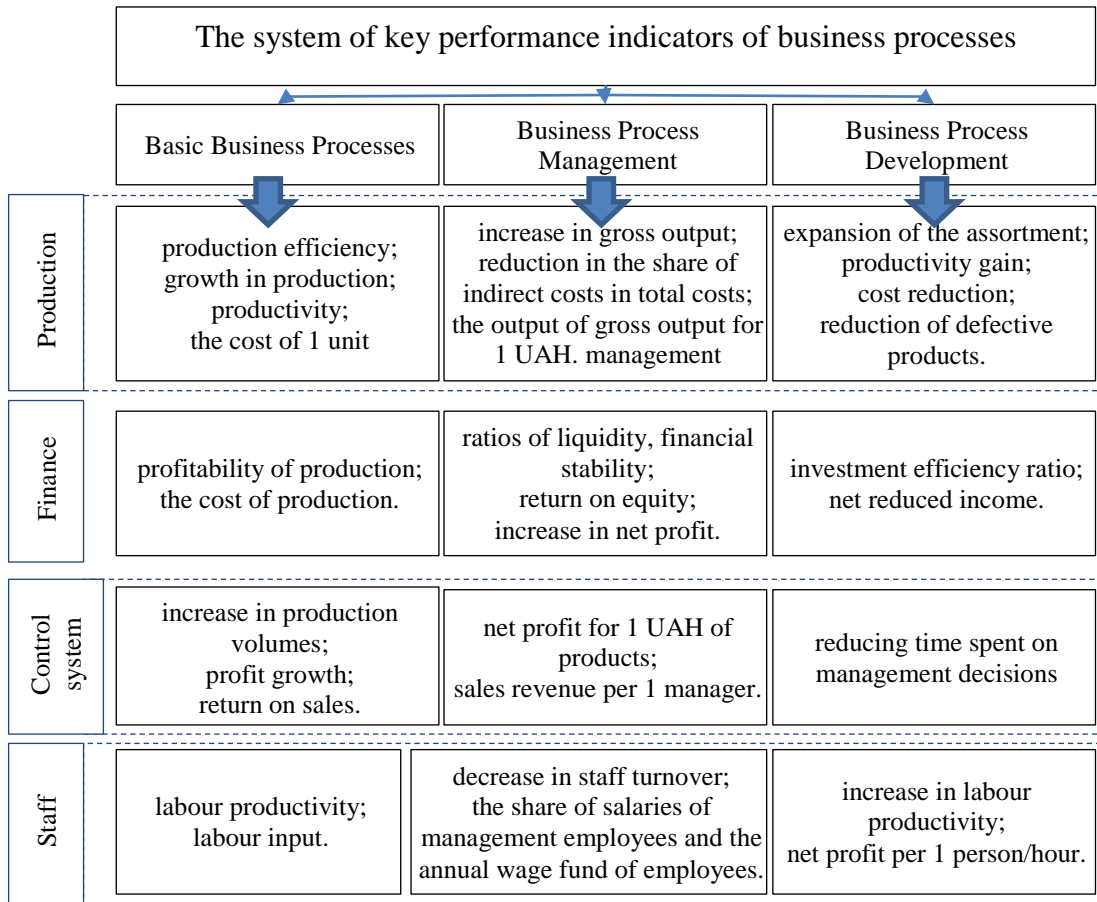


Figure 3 The system of performance indicators of business processes

The main advantage of the SaaS model for the consumer of the service is the lack of costs associated with installing, updating and maintaining the operability of the equipment and the software running on it.

In the SaaS model:

The application is adapted for remote use;

- multiple clients use one application (application is communal);
- payment is charged either in the form of a monthly subscription fee or based on the volume of operations;
- application technical support is included in the payment;
- modernization and updating of the application are quick and transparent for customers.

However, security-related issues limit the use of the SaaS model in mission-critical systems that handle sensitive information. On the other hand, the responsibility for information leakage on the part of the developer is usually regulated by the relevant agreements, and the likelihood of such a leak is often lower than when using your own internal systems.

There are a great many such programs (Fig. 4) that an enterprise needs to use to digitize many processes, especially to evaluate and improve the efficiency of business processes.

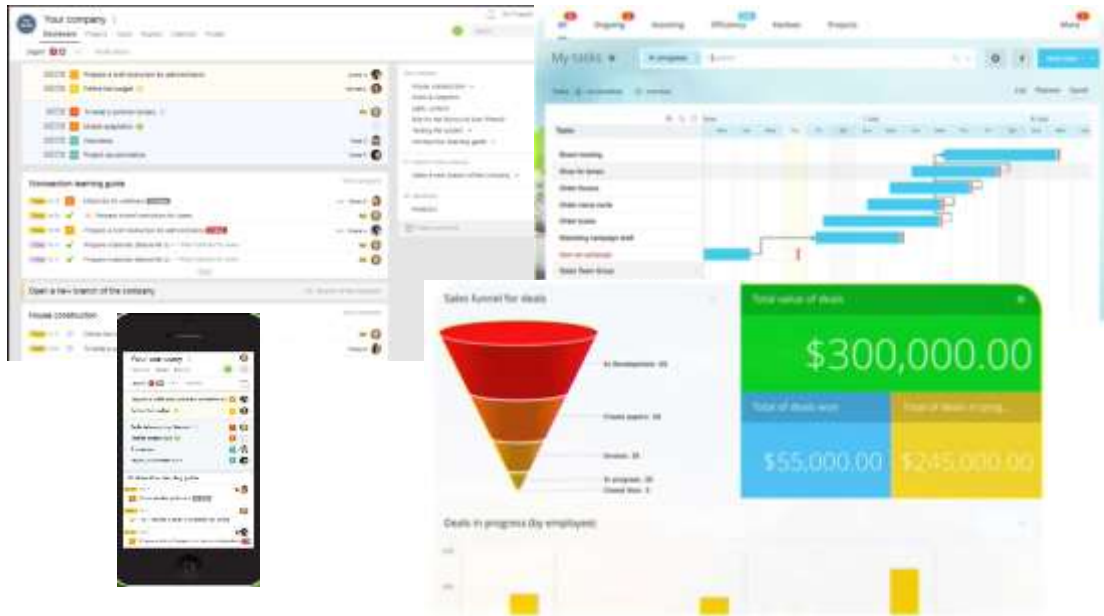


Figure 4 Variety of Business Process Efficiency SaaS

Modern technologies allow the company to use products that satisfy its needs as much as possible. Consider the impact of using SaaS in a real enterprise (Fig. 5-6).

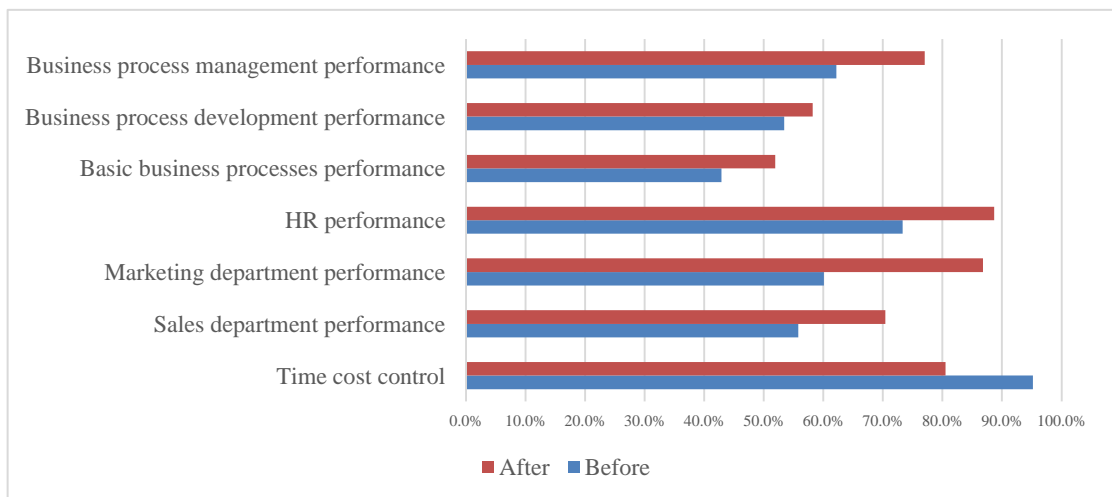


Figure 5 Direct influence of SaaS

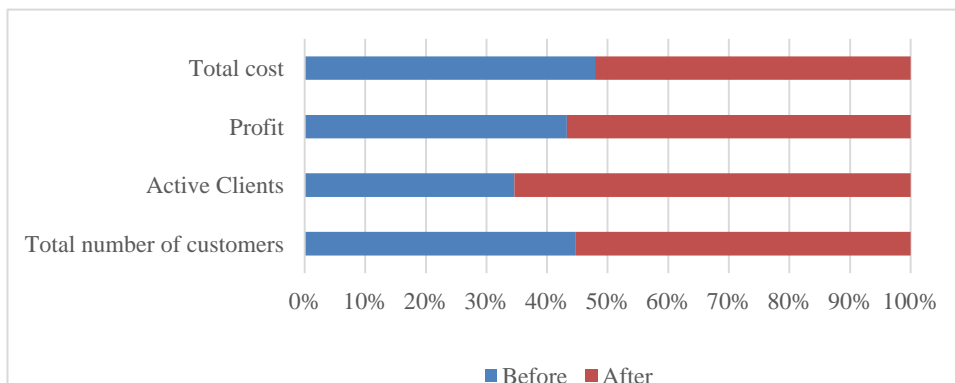


Figure 6 Indirect influence of SaaS

The graphs clearly show that absolutely all indicators (which the enterprise itself chose for introspection) show their growth. It is worth noting that the analysis was not carried out

immediately, but 6 months after the introduction of the use of the program. It took employees 3 months to study the program and get used to using it, and 3 months to display the first results.

It is worth noting that such indicators as employee satisfaction were not taken into account, staff turnover was not evaluated, but the software also had a positive effect on them.

Regarding the second chart, where the indirect effect on the efficiency of business processes and indicators was investigated, it is worth noting that costs increased in absolute terms, but in relative terms, they decreased from 80.7% to 67.0%, i.e. by 13.7%.

The study showed that the effectiveness of business processes could be viewed and evaluated from completely different sides - depending on the objectives of the assessment, the scale of the enterprise, the scope of activities and many other factors.

4. CONCLUSION

Information is a key resource in the modern world. Every second, humanity generates huge amounts of digital data, which not only occupy a place in storage but also help companies conduct business. To take full advantage of the available information, it is necessary to accumulate, structure and analyze it.

Digitalization has, to one degree or another, affected every industry, and this is only the beginning. Enterprises aimed at success and development are obliged to accept the challenges of the modern economy - only then can they become leaders. This is where the digital transformation will help them.

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