

## IMPORTANCE AND APPLICATION OF INFORMATION TECHNOLOGIES IN COMPANY BUSINESS

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**Abstract:** The paper analyzes and investigates important aspects of the use and importance of information systems in companies in Bosnia and Herzegovina. Information systems play a key role in all aspects of business, from data and information management to process automation, communication and decision support. Information systems play an important strategic role in the business of an organization. Research on the use of information systems in Bosnia and Herzegovina companies can be of great importance for improving the quality of customer service, increasing efficiency, productivity, improving the competitiveness of the organization, the quality of decision-making and data analysis for the purpose of improving business, implementing new information systems in organizations, etc. The aim of the paper is to analyze, investigate and determine how often information systems are used in Bosnian and Herzegovina companies and present the level of use of information systems in use, their advantages and other things. For the purposes of this research, a survey was conducted for 81 companies in Bosnia and Herzegovina.

**Keywords:** information technologies, information systems, analysis of information systems, importance of information systems

### 1. INTRODUCTION

Information systems play a key role in companies' operations. They serve to collect, store, process, analyze and distribute data and information that are necessary for decision-making, process management and business activities. The strategic role of information systems in business refers to their contribution to the achievement of business goals and organizational strategies. Information systems can be key elements of strategic planning, development and management of an organization. Information systems play a key role in organizations, not only as tools for collecting, storing and processing data, but also as means to support business processes and decision-making. The role of information technology and information systems in organizations is becoming more and more important.

Today, IT is an integral part of every organization and provides many opportunities that improve the productivity, efficiency and competitiveness of organizations. Here are some of the key roles of information systems in companies, e.g. data and information management, automation of business processes – information systems enable the automation of business processes, which can save time and reduce costs, and also enable faster and more accurate processes. Maintaining communication, supporting customer relationship management, facilitating decision-making and increasing efficiency and productivity – information systems enable the reduction of paper work, process automation and faster access to information, which can increase employee efficiency and productivity.<sup>1</sup>

In short, information systems play a key role in all aspects of business, from data and information management to process automation, communication and decision support. They can be critical to a company's success in today's digital world. Information systems play a key role in decision-making in organizations. They provide managers with fast and efficient access to data, enable analysis and interpretation of data, and provide support for interaction with users and monitoring of organizational performance. All these advantages enable managers to make better decisions in the digital world and be more competitive in the market.

<sup>1</sup> Panian, Ž., Ćurko, K.: (2010). Business Information Systems, Element Zagreb, Zagreb, page 45.

As can be seen, information systems have a wide range of benefits for organizations, and their strategic role in the organization is crucial for the success and greater competitiveness of the organizations themselves. The paper deals with answering the following research questions:

1. Can information systems improve the efficiency and productivity of the company's operations?
2. What types of information systems are most represented in the business environments of the surveyed companies?
3. Do companies have benefits from using information systems in business environments?
4. What are the main recommendations for improving information systems by key respondents?
5. Do information systems have strategic importance in companies?

In the following sections, an overview of the literature is given, hypotheses are formulated, the research methodology is determined, the results are presented, and the conclusion of the paper is given at the end.

## 2. ROLE AND IMPORTANCE OF INFORMATION SYSTEMS IN ORGANIZATIONS

### ■ FUNCTION AND IMPORTANCE OF INFORMATION SYSTEMS

An information system is an integrated set of components for collecting, recording, storing, processing and transmitting information.<sup>2</sup>

Because information systems have enabled various human activities, they have influenced society. They accelerated the performance of daily activities, influenced the structure of organizations, changed the ways of supply and demand of products on the market, as well as the ways and understanding of work. Information and knowledge are a vital economic resource today.

The application of information technologies does not have the same importance for different business systems even when they have the same information subsystems implemented, that is why we have several types of information systems in practice, such as accounting information systems, ERP systems, decision support systems, expert systems, office information systems and others.

1. operational information system is a system on which the success of current business depends. In this case, the functioning of the company depends a lot on information technology, because the information system serves as a support for everyday work.
2. the information support system is useful, but not critical to the business success of the enterprise. In this case, the dependence of the company's functioning on information technology is small.
3. a strategic information system is critical for business strategy in the future, so it must enable the storage and rapid processing of a large amount of necessary data. In this case, the functioning of the company depends a lot on the application of information technology, as well as the business result of the company (eg booking tickets for transport).
4. the future information system could affect the success of future business, therefore the dependence of the functioning of the company on information technology is small, but the impact of information technology on the business result is great.<sup>3</sup>

### ■ OBJECTIVES OF THE INFORMATION SYSTEM

The objectives of an information system are different for different work levels. The most common division into three work levels is used: the performance level, the management level, and the decision-making level. The performance level is the operational level, at which core business activities are performed. These tasks are performed by the largest number of employees.

The main objectives of an information system in organizations can be:

1. Improving business efficiency – an information system can automate business processes and reduce the time required to perform certain tasks, thereby increasing business efficiency.
2. Increasing productivity – an information system can help employees perform their tasks faster

<sup>2</sup> <https://www.scribd.com/doc/64012520/1-Poslovni-Informacijski-Sistemvi-merged#logout>

<sup>3</sup> Klasić K. (1998). Models of optimization of information system structure, doctoral dissertation, FOI Varaždin, page 54.

and easier, thereby increasing productivity.

3. Better decision-making – an information system can collect, analyze, and present information about a company's operations in a way that allows management to make better decisions.
4. Increasing competitiveness – an information system can enable a company to respond more quickly to changes in the environment and to better adapt to changes in the market, thereby increasing competitiveness.
5. Better cooperation and communication – an information system can facilitate cooperation among employees and the exchange of information, thereby increasing efficiency and productivity.
6. Improving service quality – an information system can help a business provide better service to customers, which can lead to greater customer loyalty and increased revenue.
7. Reducing costs – an information system can reduce business costs through process automation, reducing errors, reducing paper costs, and reducing the need for manual labor.
8. Application of ISO ISO/IEC 38500:2024 – which provides guiding principles for the effective, efficient and acceptable use of IT in companies

### ■ IMPLEMENTATION OF ISO/IEC 38500:2024 IN ORGANIZATIONS

Governance of information technology (IT) continues to be a significant issue for governing bodies and senior management. The advent of digital ecosystems has transformed how organizations interact with customers and suppliers, offering both engagement mechanisms and channels for expressing dissatisfaction. The evolving landscape of information technology (IT) has fundamentally altered the operational models of organizations, allowing innovative approaches to service delivery. While some entities have thrived in this digital environment, others have been challenged. Organizations must adapt to remain competitive as digital technology advances, including cloud-based services and technologies like Artificial Intelligence and Blockchains. However, the organizational changes required to capitalize on digital opportunities are intricate and prone to failure. Many struggle to address the demands, lacking flexibility due to outdated technology solutions. Inadequate investment and a lack of understanding of actual costs further impede technology adaptation, jeopardizing efficiency and long-term viability. The increasing availability of data has offered increased opportunities. However, the vulnerability to system failures and data breaches poses risks such as reputational damage and regulatory non-compliance. ISO/IEC 38500 is the cornerstone of the Governance of IT standards family, based on the model and principles outlined in ISO/IEC 38500:2015.<sup>4</sup>



Figure 1: Phases of implementation of ISO 38500:2015 standards in organizations

### ■ RESEARCH ON THE USE AND IMPORTANCE OF INFORMATION SYSTEMS IN COMPANIES IN BOSNIA AND HERZEGOVINA

The paper analyzes and investigates important aspects of the use and importance of information systems in companies in Bosnia and Herzegovina. The strategic role of information systems in business refers to their contribution to the achievement of the organization's business goals and strategies.

<sup>4</sup> <https://www.committee.iso.org/sites/jtclsc40/home/news/content-left-area/News/iso-iec-38500-2024-information-t.html>

Today, information systems form one of the basic supports for companies around the world. Due to their exceptional role, numerous functions and development in practice, they can be understood as a basic resource in modern business. They improve the quality of business processes and business functions, their effectiveness and efficiency, as well as security and ease of execution. Accordingly, investing in information systems is considered one of the strategic investments and long-term justified costs.<sup>5</sup>

The literature on the importance of information systems in companies is numerous, as well as numerous analyzes and works that have been written and theoretically interpreted on this topic. More practical research on the topic of the use and importance of information systems in the business of companies in neighboring countries such as the Republic of Croatia, Serbia is much more, while there are fewer such researches in Bosnia and Herzegovina.

During the research of the literature, i perceived that the Agency for Statistics of Bosnia and Herzegovina conducts similar research related to companies and individuals and publishes it in its annual newsletter.<sup>6</sup>

The main problem of this research is the examination of the application, strategic role and importance of information systems in companies in Bosnia and Herzegovina, i.e. how and to what extent information systems are used. Investigate whether the use of information systems increases efficiency and productivity in the business operations of companies in Bosnia and Herzegovina. Also, the subject of research focuses on how information systems can improve efficiency, automation of business processes and productivity of organizational tasks in companies. The goal of this research is to analyze and understand how information systems can contribute to the strategic success of organizations, increase their competitive advantages and support their long-term goals. Analyzing this role of information systems can help organizations optimize the use of technology and better understand its impact on their business. Also, the goal is to examine, analyze and present the level and importance of the use of information systems in organizations and companies in Bosnia and Herzegovina through a questionnaire.

#### ■ RESEARCH HYPOTHESES

$H_0$ : Companies in Bosnia and Herzegovina largely use information systems in their operations

$H_1$ : Companies that use information systems are more efficient and productive in their operations than companies that do not use information systems

$H_2$ : Information systems play a strategic role in the automation of business processes in companies in Bosnia and Herzegovina, which enables better competitiveness on the labor market and better business decision-making.

$H_3$ : Companies have great benefits from the use of information systems, as well as an increase in the quality of services, a reduction in costs, better management of resources and a better position on the market.

The stated hypotheses will be tested and proven in this study using statistical tools for these purposes, and finally show the results and give a conclusion at the end.

## 2. ANALYSIS AND PROCESSING OF RESEARCH DATA ON THE STRATEGIC ROLE OF INFORMATION SYSTEMS IN ORGANIZATIONS AND COMPANIES IN BOSNIA AND HERZEGOVINA

#### ■ WORK METHODOLOGY

A quantitative form of research was used for the research, i.e. survey, which is also one of the most popular methods. Quantitative research enables focusing attention on numerical data, that is, they are research from which statistical analysis results. One of the basic features of quantitative research is asking identical questions to all respondents. It should be remembered that the value of the survey is limited. It provides accurate information depending on the honesty of the

<sup>5</sup> Pavlić, M., (2011). Information Systems. Zagreb: Školska knjiga. page 22.

<sup>6</sup> Agency for Statistics of BiH, [www.bhas.gov.ba](http://www.bhas.gov.ba), accessed 20.04.2023

respondents and their ability to answer the questions. Defining the goal, setting hypotheses and determining the sample of respondents, a questionnaire of 19 questions was drawn up. The survey was created in writing and online, using Google forms.

In order to examine the objectives, the research consists of a precisely designed survey questionnaire that will be conducted in certain companies in Bosnia and Herzegovina. The goal was to examine and investigate the views and opinions of key respondents on the use of information systems in companies responsible for the functioning and operation of the information system. In this way, we can gain an insight into the importance and role of the same in the business of the company in question. In the research, a survey questionnaire will be used as the main research instrument of 19 closed questions to be answered by the targeted respondents.

The online survey period is conducted in the period from June 2, 2023 to June 22, 2023. year, through an online platform created using the Google Forms tool (recording responses to an online survey in Form), but also possibly by directly meeting with key employees to complete the survey in writing. It is about the written and electronic collection of data and information about attitudes and opinions on a representative sample for a selected group of eighty one respondents (in 81 companies) aged 20–50. It is a questionnaire of written and electronic type of closed questions. Also, the survey is anonymous, simple and as concise as possible.

The plan was to examine the views of key users in 85 companies, while 81 companies returned a completed questionnaire for further analysis. Sekaran recommends that the questionnaire distribution method's response rate be greater than 10% to avoid sample bias and that at least 30% of responses be collected for analysis.<sup>7</sup>

### THE INSTRUMENT

Survey questions are weighted from 0–5 on a scale, and are mostly closed-ended. A survey questionnaire is an indispensable measuring instrument that is used to obtain input data for various analyses, the most common of which are those of a statistical nature. Questionnaires will be filled out by the key actors responsible for the information system, IT experts, executive directors and general managers of companies in order to get the best possible insight into the position and benefits of information systems. All items (except the demographic section) were evaluated using a five-point Likert scale, with 1 indicating strong disagreement and 5 indicating strong agreement. The research will be conducted on the territory of Bosnia and Herzegovina in certain companies, selected by random method. One company will be represented from each business activity, for example the field of telecommunications, production, trade, public administration, etc., so that all sectors of economic activity are represented and the sample is as representative as possible. When it comes to the geographical coverage of the research, organizations or companies located in any part of Bosnia and Herzegovina are represented.

### ANALYSIS OF DATA

The purpose of processing and analyzing the data obtained through the research is to extract the information necessary to obtain an answer to the question for which the subject research is being conducted. Statistical analyzes of all types of data are performed using various statistical packages. In this research, the statistical package IBM SPSS and, if necessary, the MS Excel Data Analysis tool package will be used. Modern data processing takes place electronically, which reduces processing time and the possibility of errors. It is important to know and carry out all phases of statistical research, so that the results are of high quality and precise, and their subsequent interpretation and analysis are correct. An important step in statistical research is to properly analyze and interpret the data presented in tables and/or graphics for the purpose of quality interpretation of the results.

<sup>7</sup> Sekaran, U., "Research Methods for Business", New York, NY: John, 2016, page 305.

The sample of 81 (eighty one) companies that will be surveyed is a sample of the population of all information systems used in companies and organizations in Bosnia and Herzegovina in various business sectors and activities. Respondents will give their opinions and views on the use and role of information systems in the company. A sample is a representative part of a statistical set on the basis of which the entire observed population is estimated.

The group will be selected in a targeted manner, namely IT employees in companies, then company executives and directors who can provide adequate answers to the survey questions. Data collection is of a primary type through a carefully designed survey questionnaire. After filling in the data, further statistical processing is accessed in the IBM SPSS tool. The plan is to electronically send a link for an online survey to 81 (eighty one) companies/institutions operating in Bosnia and Herzegovina from various business sectors (communications, IT companies, health, public administration, education, manufacturing companies, etc.) to fill out, but also in writing where it is possible to deliver the survey in question.

The first part of the survey questionnaire contains basic questions about gender, age, workplace, frequency and type of information systems used in companies, while the second part of the survey questionnaire (investigating the opinions of users to what extent they are satisfied with the information system, and whether the information system have influence in the company) in order to create a qualitative analysis based on the answers after the research.

The collected survey questionnaires were "prepared and structured" and all data were entered into IBM SPSS, where statistical data processing will be performed. After that stage, work is done on the grouping of the obtained data and their statistical analysis. A rating scale (1 – 5) was used in this research. The research used a stratified random sample for the target users.

### ■ PROCESSING AND INTERPRETATION OF RESEARCH RESULTS

The current study was conducted in companies on the territory of Bosnia and Herzegovina, in which 81 companies participated. When conducting research through survey questionnaires, the survey was filled out by 81 respondents in companies and institutions on the territory of Bosnia and Herzegovina. Out of a total of 85 companies to which the survey questionnaire was sent for implementation, 81 (95%) completed questionnaires were returned, that is, 81 companies participated in the survey. In the results of the research, emphasis is placed on the key questions of interest for the research. According to the collected data, men and women are represented, but most respondents are male.

Table 1. Display of respondents by gender

Questions: Respondent's gender	Frequency	%
Male	51	63
Female	30	37

Source: Author's processing in MS Excel (Data Analysis).

From the total number of surveyed respondents, the answer to the question "Job in the company" 81 respondents answered that they work as IT staff or 51%, 32 stated that they work as IS department managers, executive directors or 40%, and 7 respondents answered to work in the positions of directors or top managers of the companies that participated in the survey or 9%.

Table 2. Presentation of the results of the survey question Workplace in the institution

Total number of respondents	81	100 %
Number of IT staff who participated in the survey	42	51 %
Number of department heads, coordinators, executive directors	32	40%
Number of company directors/managers	7	9%

Source: Author's processing in MS Excel (Data Analysis).

Further, processing the results obtained in the research, we come to certain insights, namely: of the total number of respondents included in the research, 61 respondents or 75.3% with a positive answer that they use business information system services in their company every day in their business, 13 respondents use the information system three times a week or 16% of respondents,

and 7 respondents use the information system at work once a week. Not a single respondent answered that they do not use the systems at all or that they use them once a month. The above information is a good indicator of the frequency and need in working with information systems of various types, which directly confirms hypothesis 1. The values are shown in Table 3 and the percentage values are shown in Graphic 1.

Table 3. Frequency of use and needs for information systems

Total number of respondents	81	100 %	Average
The number of respondents who use the information system on a daily basis	61	75,3 %	
The number of respondents who use the information system three times a day	13	16 %	
The number of respondents who use the information system once a week	7	8,6%	
The number of respondents who do not use the systems at all	0	0%	
Number of respondents who use the systems once a month	0	0 %	4,6667

Source: Author's processing in MS Excel (Data Analysis).

Graphical representation 1. Presentation of responses from the survey on the frequency of use and need for information systems in companies in Bosnia and Herzegovina

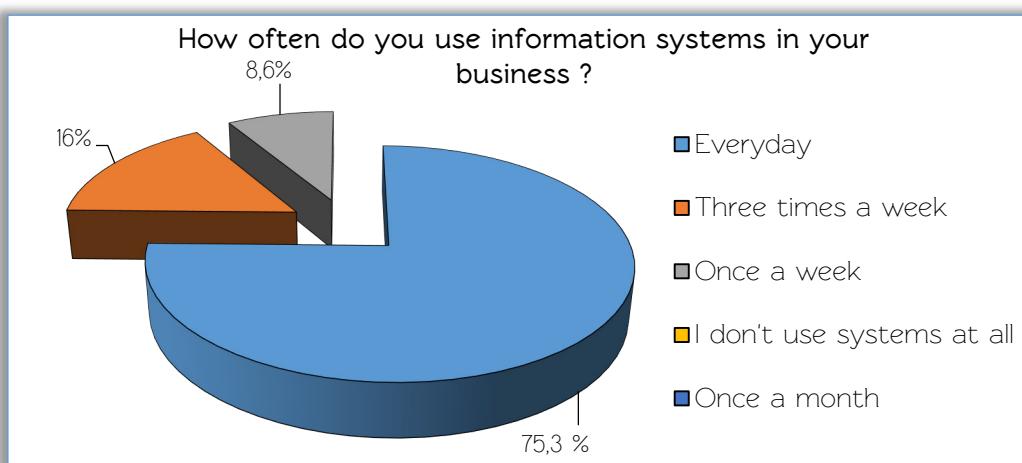


Figure 2. Frequency of use of information systems in companies in Bosnia and Herzegovina

Source: Author's processing in MS Excel.

Furthermore, through research, we came to the knowledge of the claim that information systems improve the efficiency of the company's or institution's operations. A large number of respondents, 46 (56.8%) completely agree with this statement, while 24 respondents (29.6%) agree with this statement, and we conclude that 70 respondents or 85% answered this question in the affirmative. Only five respondents or 6.2% answered that they partially agree with the stated statement. One of the hypotheses in the work was that information systems improve the efficiency and productivity of the company's work, which was proven in this presentation. The presentation of these claims is given in table 4. The hypothesis is confirmed because the result directly indicates the positive effect shown in table 4.

Table 4. Presentation of respondents' views on the claim that information systems improve the efficiency of the company's work

Total number of respondents	81	100 %	Average
I don't agree at all	0	0,0 %	
I partially agree	5	6,2 %	
I neither agree nor disagree	6	7,4 %	
I agree	24	29,6 %	
I completely agree	46	56,8 %	4,5432

Source: Author's processing in MS Excel (Data Analysis).

Through the research, we came to the realization through the attitudes and opinions of the respondents about the claim whether and how important information systems are from a strategic aspect in the companies we investigated. The answers are mostly positive. 74 respondents or (91 %) answered that they are important and very important (of strategic importance), while only 7

respondents answered that they are partially important. There were no other negative responses. The above answer helped us in the research on the given topic of the paper "strategic role of information systems in organizations" and the answer to one of the hypotheses of the paper. The display of all values of the results of this survey question are listed in table 5. Hypothesis 3 was directly confirmed from the answers to the survey question, because over 90% of the respondents answered positively to this question, which indicates a positive effect.

Table 5: Presentation of respondents' views and opinions on the strategic role of information systems in the company's operations

Total number of responses	81	100 %	Average
They don't matter at all	0	0,0 %	4,2963
Partially important	7	9 %	
We don't use systems in business (I don't know)	0	0,0 %	
Important	36	44 %	
Very important (of strategic importance)	38	47 %	

Source: Author's processing in MS Excel (Data Analysis).

Graphical representation 2. Presentation of respondents' attitudes and opinions on the strategic role of information systems in a company's business

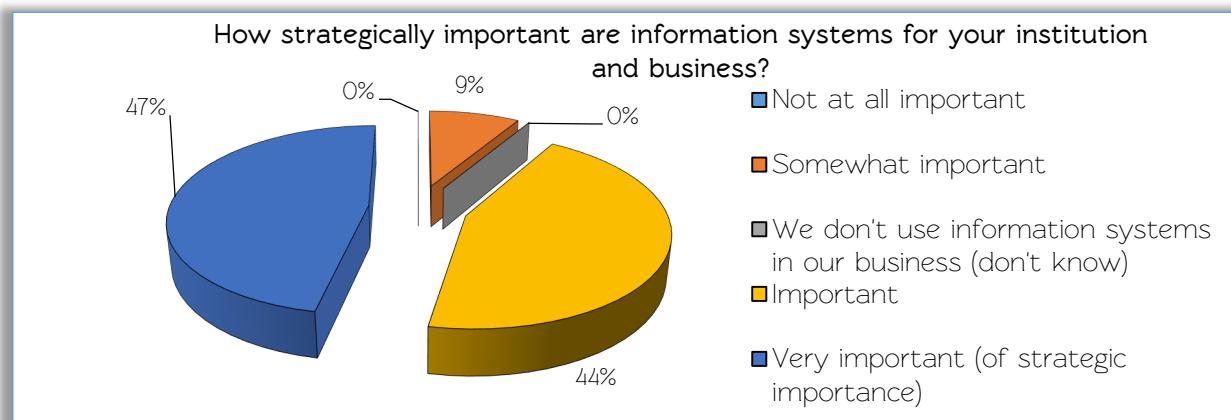


Figure 3. Degree of importance and importance of information systems in a company or institution

Source: Author's processing in MS Excel.

The result of the above question confirms research hypothesis 3 that information systems have a strategic role in the automation of business processes, which enables them to compete better on the market.

Through the research, we came to know through the views and opinions of the respondents about the main benefits of using information systems in the institutions and companies where they are employed. According to respondents, the main benefits of using information systems are faster and more efficient provision of company services (56.8%) and better communication with clients (58%) of responses. The presentation of all values of the results of this survey question are given in table 6.

Table 6. Presentation of respondents' views on the main benefits of using information systems (multiple options)

Total number of responses	223	%	Average
Improvement of efficiency and effectiveness	46	56,8 %	4,436
Faster and more efficient provision of services	46	56,8 %	
Facilitating administrative tasks	41	50,6 %	
Better communication within the organization/company	43	53,1 %	
Better communication with clients of our services/products	47	58 %	

Source: Author's processing in MS Excel (Data Analysis).

Since over 50% of the respondents of this sample answered positively, we also confirm hypothesis 4 stated at the beginning of this research study, which states that companies in Bosnia and Herzegovina have great benefits from the application or use of information systems in its business as well as a better position on the market.

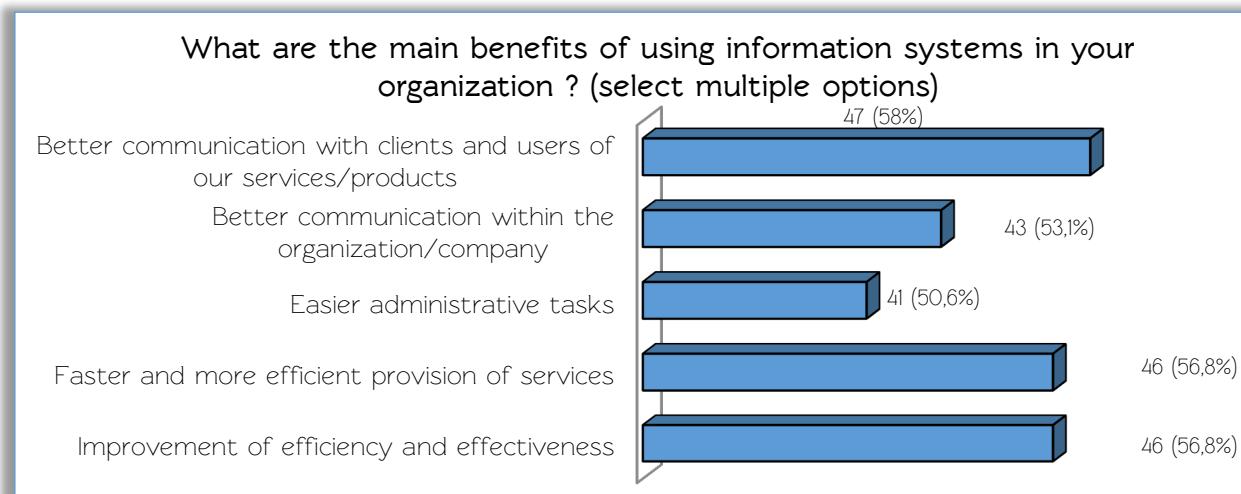


Figure 4. Presentation of respondents' views on the main benefits of using information systems

Source: Author's processing in MS Excel.

The data source for the tabular presentations of the above tables is the author's processing in the statistical program MS Excel (Data Analysis).

### 3. STATISTICAL ANALYSIS AND ASSESSMENT OF THE VALIDITY OF THE STATED RESULTS AND RESEARCH HYPOTHESES

Descriptive statistics describe data using numerical and graphical methods. Descriptive statistics analyze one variable and investigate the relationship between the parameters of the data distribution and its center or axis of symmetry.<sup>8</sup> Descriptive analysis tells us that the average use of information systems in BiH companies is 4.66 according to the opinions expressed by respondents in the survey with a deviation around the arithmetic mean  $SD = 0.63$  or 63%, and the smaller the  $sd$ , the closer  $x$  is to the data. Arithmetic mean and standard deviation range in the interval. The data are presented in Table 7.

Table 7. Descriptive statistics of the analyzed variables

Variable	N	Mean	Std. Deviation	Variance
Frequency of use	81	4.6667	.63246	.400
Efficiency	81	4.5432	.74245	.551
Productivity	81	4.4074	.70317	.494
Strategic position	81	4.2963	.85797	.736
Valid N (listwise)	81			

Source: Processing by the author in the statistical package SPSS 20.

Deviation around the arithmetic mean in this analysis is acceptable and we can take the arithmetic mean as valid for the analysis in this study.

#### ■ CORRELATION RELATIONSHIP BETWEEN VARIABLES OF STRATEGIC IMPORTANCE, EFFICIENCY AND PRODUCTIVITY OF INFORMATION SYSTEMS ON COMPANY OPERATIONS

The following table will present the correlation between the dependent and independent variables analyzed from the primary research in this paper.

Table 8. Correlations between the analyzed variables

		Business success of the company	Frequency and necessity of using information systems
Pearson correlation	The strategic position of information systems in companies	1.000	.460
	Information systems improve efficiency	.770	.848
	Information systems improve productivity	0.58	.790
Sample	The strategic position of IS in companies	81	81
	Information systems improve efficiency	81	81
	Information systems improve productivity	81	81

Source: Processing by the author in the statistical package SPSS 20.

<sup>8</sup> Vranešević, T. (2014). Market research in business management. Accent d.o.o.: Zagreb Wiley and Son, 2003, page 3.

The table will answer the question of how interconnected the variables are, then whether the dependent variable is in a linear relationship with the independent variables, with an error of the first type of 0,05.

There is a Pearson correlation between the variables. The coefficients of the analyzed variables range from 58% to 85%, which indicates relationships of medium intensity.

### ■ ANOVA TEST

In the following table, the Anova test was performed and interpreted for one-way analysis of variance (ANOVA) in the MS Excel Data Analysis tool.

Table 9. Anova test

Anova test: Analysis od variance with one variable factor (Single Factor)						
Groups	Count (N)	Sum of squares	Average	Variance		
Productivity	81	368	4.54	0.55		
Efficiency	81	357	4.40	0.49		
Strategic position	81	348	4.29	0.73		
ANOVA						
Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	2.47	2	1.23	2.08	0.12	3.03
Within Groups	142.543	240	0.59			
Total	145.020	242				

Source: Author's processing in MS Excel.

Variance is the average of the squared difference of the mean value, i.e. its measurement of the spread between numbers in a given data set being analyzed. The quotient of the average of the square and the residual gives us the value of the F test. Based on the sample size and the empirical value of the F test, we get a significance value of 0.12. The Anova test tests the dependent and independent variables in order to determine the relationship between said variables. The analysis showed that there is compatibility between the above variables and it is statistically significant. The hypothesis put forward in the paper has been proven because the coefficient of determination is significant, as it stands and is greater than 0.05,  $P = 0.12 > 0.05$ .

We tested whether there was a significant difference in the three variances. We obtained that the F test of three variances is 2.08 and found that there is no significant difference in the deviations of the variance of the dependent and independent variables. The ANOVA test showed us the analysis of the variance of the basic set in order to determine its interdependence, at least one independent variable with a dependent one, that is, that information systems affect the company's productivity and productivity on the company's strategic position.

We conclude that the analysis showed that there is compatibility between the above-mentioned variables and it is statistically significant. The null hypothesis in the paper is proven because the coefficient of determination is significant and is greater than 0.05,  $p = 0.12, p > 0.05$ .

Since  $F$  distribution  $> F$  value ( $3.03 > 2.08$ ), the anova test is significant. Information systems play an important role in the company, and affect the business.

### ■ ANALYSIS OF THE VARIABLE FREQUENCY OF USING INFORMATION SYSTEMS TO PROVE THE $H_0$ HYPOTHESIS

We examine whether there is statistical significance in the use of information systems in companies and to what extent they are used. The table 10 below shows it.

Table 10. Analysis of the variable frequency of using information systems to prove the  $H_0$  hypothesis

	N	Range	Minimum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std.Error	Statistic	Std.Error
The need to use information systems in companies/established in Bosnia and Herzegovina Valid N (listwise)	81	2.00	1.00	1.33	.632	.400	1.722	.267	1.712	.529

Source: Processing by the author in the statistical package SPSS 20.

The above variable shows the value of the standard error which is  $Std. error = 0.529 > 0.05$ , which confirms our  $H_0$  hypothesis about the significant use of information systems in companies, out of the 81 analyzed, almost 90% of companies use information systems in their work on a daily basis.  $H_0: p_2=0, N>81, H\neq 0$  which we reject and confirm the truth of the hypothesis ( $H_0$ ) that information systems are widely represented and used in companies in BiH.

#### 4. DISCUSSION AND RECOMMENDATIONS FOR FURTHER RESEARCH

After analyzing and processing the key questions from the research, it is recommended to expand the research to other statistical analyzes that are of key importance for the topic. Through the results of the research and the views of the respondents, various views and opinions of the respondents on the benefits, importance and recommendations for improving the information systems in use are presented. One of the main recommendations of the key actors who are responsible for the maintenance and analysis of information systems is regular maintenance and continuous improvement of information system functions through its improvement. The permanent development of new technologies has made it possible for some organizations to connect with their users through the use of information systems in different ways, such as faster service processing, decision-making assistance, gathering information on user satisfaction, and the like. These different levels of interaction between the organization and the users show that each organization is different and that the process of using information systems in each organization is different from the aspect of the institution's operations. Information systems are becoming a necessity for quality business.<sup>9</sup>

The development of modern information systems, with a special emphasis on the use of business information systems, implies that it is a process that is in constant development in the function of modernization, investment and continuous improvement of the business environment in the future and is of strategic importance.<sup>10</sup>

The obtained research results point to the fact that a quality information system has a strategic role in the company's operations and represents a quality support for operations. The support is reflected in the provision, presentation of the necessary, high-quality business and other information for the needs of management in the company, all with the aim of making the right business decisions, better and better services to clients and competitiveness on the labor market. By conducting research, it was concluded that a large number of companies in Bosnia and Herzegovina use modern information systems to a large extent in their operations. Management in companies in Bosnia and Herzegovina is not sufficiently familiar with the possibilities and benefits of applying and using modern information technologies in the company's operations, and thus they are deprived of quality and reliable information that would significantly increase the quality and speed of decisions made. The lack of financial support for investment in information systems and budget planning for the development and improvement of existing ones must be a task for the company's management, in order to be competitive on the labor market. Automation of the complete business system through ERP systems in large companies is necessary in the world today. All the hypotheses previously stated in the paper have been proven and confirmed through the analysis of the results in the paper.

It is recommended that information systems be audited frequently in the context of improving the quality of information systems and their working life.<sup>11</sup>

Also, the recommendation can be to improve the quality of information systems through examining the attitudes and satisfaction of its users, thereby increasing the quality of business information

<sup>9</sup> Doc. Željko Marčićević, Ph.D., Zoran Marošan, Ph.D. (2009): "Application of Information Technologies", Business School of Vocational Studies, Novi Sad, Perić Dušan., (2001): Informatics, Belgrade, strana 41.

<sup>10</sup> Prof. Ph.D. Branimir Stojković, Information – Communication systems, Clio, Belgrade, June 2009, strana 39.

<sup>11</sup> Spremić M., Security and revision of information systems in the environment of the digital economy, Zagreb, Faculty of Economics, 2017, strana 25.

systems. This would ultimately result in better business, and within them also financial and other performances.<sup>12</sup> For the further course of research, it would be good to do a factor and regression analysis of the key variables, where the related variables will be examined and even more precise answers will be given to some of the questions in this paper.

## 5. CONCLUSION

The conclusion of this paper is that information systems play a strategic role in the company's operations and represent quality business support. The support is reflected in the provision and presentation of necessary and high-quality business and financial information for the needs of management in the company, all with the aim of making the right business decisions. Conducting research, it was concluded that a large number of companies in Bosnia and Herzegovina use information systems in their operations. Management in companies in Bosnia and Herzegovina is not sufficiently familiar with the possibilities and benefits of applying and using modern information technologies in business operations, and thus they are deprived of quality and reliable information that would significantly increase the quality and speed of decisions made.

The lack of financial support for investment in information systems and budget planning for the development and improvement of existing ones must be a task for the company's management, in order to be competitive on the labor market. Through research, we perceived that it is necessary to regularly and continuously maintain the existing information systems in order to increase productivity in work. Through research, we came to the realization that over 80% of respondents use information systems at their workplace every day, which shows the frequent need for them and employees use them as a modern tool in solving their work tasks. Over 90% of the respondents answered affirmatively that information systems are of strategic importance for the business of the company or institution. Some of the main benefits, according to the respondents, are the improvement of efficiency and effectiveness, as well as better communication with clients or users of services provided through the information system. The information stored in the information system is one of the most important organizational resources in the institution. That is why it is necessary to manage it in an adequate way. For this purpose, various information systems are used, which represent a set of methods, procedures and resources designed in such a way as to contribute to the achievement of business goals. The indirect influence of information systems on management and management processes enables the creation of preconditions for faster and positive organizational changes, increasing the general level of knowledge of employees and the need for integration with the environment. Through research, we came to the conclusions that companies use one or more information systems for their business in order to automate business and be able to respond to the task in the time of the digital economy. The application and use of information systems in the institutions and companies of Bosnia and Herzegovina through the responses of the respondents in the surveys was shown at a significantly enviable level. Not a single company or respondent answered negatively that they do not use information systems at all in their business, which indicates a great need to use information systems in the work and business of companies.

A well-designed and high-quality information system can improve company performance, reduce costs and contribute to long-term success. Information systems also greatly change the organizational image of a company. The conducted research led to the realization that information systems play an important role, as a tool and necessity for quality and modern business operations of companies in Bosnia and Herzegovina. The research results point to the fact that a high-quality information system plays a strategic role in the company's business and represents quality business support. Companies have great benefits from using information systems in their

<sup>12</sup> Parker S. C., Thomas C., (1993), : Management Information Systems Strategy and Action, McGraw-Hill Education (Second Edition), strana. 89.

operations. All the mentioned hypotheses were confirmed in the paper. The management of companies in BiH is not sufficiently familiar with the possibilities and benefits of applying and using information systems in company operations, which indicates a greater need for better quality IT expertise.

Aligning IT activities with an organization's goals is vital in today's fast-moving tech world. The ISO/IEC 38500 standard offers clear guidance for IT governance, helping leaders manage IT effectively, with the proviso that companies in BiH use IT in their business but ISO/IEC 38500 has not been implemented to a large extent, because it is very important to use it in practice so that IT has a strategic role in the company and is positioned as an important factor organizationally. Although key respondents in companies responded positively to questions about whether IT is an important segment in their business, the implementation and introduction of the aforementioned standard would be an important step in another study of this type.

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