



COMPARATIVE ANALYSIS OF INFORMATION SECURITY STANDARDS APPLICATION IN DIFFERENT IT SECTOR REGIONS

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Abstract: *The characteristics of the IT sector are, among other things, its global dissemination, as well as the interoperability of the Internet business models. These characteristics assume equality, uniformity of the following business concepts: work organization, business models, work technologies, work processes, communication and access processes, and human resource management. The IT sector, as a basic element of the information society, should be generally available and equally developed all over the world, as much as in highly developed rich societies as in developing countries, and also in underdeveloped countries of the world. Although the rate of growth and market expansion is a global phenomenon, what separates developed and undeveloped markets is the quality of the work done. One of the leading factors for achieving services/products of better quality is the respect of certain norms. Looking at the European Union (EU) region as a reference market with great IT potential, the prerequisite for joining the EU IT market is to meet the norms established in the EU. The growing IT market of Serbia requires harmonization with the EU IT sector, through the application of certain ISO standards, with the aim of free spreading beyond the borders of Serbia, primarily towards the EU market. The paper analyzes the process of harmonization of the IT sector of Serbia with the IT sector of the EU from the current implementation of the ISO standard perspective*

Keywords: *Information technologies, IT Standards, Norms, IT sector, EU IT sector, Serbian IT sector*

1. INTRODUCTION

The trends of development of modern society are directed towards the establishment of a state with a stable information-technological, economic and social system in which all prerequisites for development and international cooperation exist [1].

One of the basic drivers for the creation of such a system is the developed and standardised IT sector [2]. This paper analyses the standardisation process of the Serbian IT sector in terms of assessing the state of application of IT standards in Serbia compared to the application of IT standards in the EU.

The main aim of the research is to analyse the effects of application of IT standards in the IT sector of Serbia by means of comparison with the corresponding application of IT standards in the IT sector of the EU.

Specifically, the aim of our research is to analyse data related to the application of IT standards by software companies in Serbia compared to software companies from the EU, in order to find out to what extent these processes in Serbia and the EU are synchronised.

Information and communication technology systems are of special social interest, while standardisation processes improve the efficiency of information and communication technology systems [3].

Thus, research pertaining to the standardisation of information and communication technology systems represents the most modern research in the field of application of IT standards [4]. Starting from that fact, as well as from the notion that the IT sector integrates a whole series of elements essential for the development of any society, this research represents a contribution to areas that are directly or indirectly related to the development of the IT sector in Serbia, and therefore to the development of Serbia in general.

Expected contributions as well as possible application of research results are reflected in the following:

- perceiving new approaches, concepts, models and systems of application of IT standards and business of the IT sector,
- defining the functional dependence of IT standards and the IT sector,
- projecting the connection between IT standards and the IT sector,
- analysing the IT sector by observing the effects of the contribution and application of IT standards and
- acquiring new practical and theoretical knowledge in the field of application of IT standards.

2. ISO IT NORME

IT norms or IT standards are agreed rules by means of which functions are determined, i.e. desired or required characteristics of a certain product, process or service, in accordance with legal IT norms [5], [6], [7].

There are many different products in the world, as well as the processes that lead to their placement on the market. Any manufacturing process can in theory produce a quality product intended for the end user.

However, the user, apart from their own experience, does not have a neutral set of indicators with the help of which they could evaluate the safety, quality and value of the purchased product. In order to simplify and harmonise the evaluation process in a generally acceptable and comprehensible manner, norms or standards were introduced.

Owing to them, nowadays we can say with quite certainty how high-quality certain products or services are, that is, whether their quality justifies their price [8]. Accelerated technological changes are defined as the fourth industrial revolution leading to the so-called information society.

It requires the mobilisation of all segments of society in order to adapt to new forms of life and work, under the conditions of application of modern IT.

All this puts forward a whole series of demands for the global economy. One of the basic requirements is compliance with defined norms in the function of combining new and old aspects of business, communication, business systems, IT systems, etc.

Modern trends, which are a consequence of the application of modern forms of IT and the associated standardisation within organisations, enable far-reaching economic and social consequences.

The process of progress is spurred by technical standardisation among individuals, organisations, disciplines, and nations [9].

When it comes to IT standards, it should be noted that IT standardisation includes two elements. The first is the analysis of the IT system through the requirements of the standards of the given technical field.

The second presents an analysis of significant IT points created according to the defined requirements of the standards of a given technical area [10].

The International Organisation for Standardisation has initiated several projects to create a set of international standards for software product development [11] and published a number of international standards related to software engineering [12].

Furthermore, the European Commission presented a strategy for the development of IT standardisation for 2018 based on a study of the analysis of the state of IT in the EU for the period from 1995 to 2015 [13], [14].

This document highlights the special importance of monitoring and harmonising IT standardisation within the EU by the leading EU bodies in charge of development.

3. ANALYSIS OF RESULTS

The research presented in this paper is based on a sample consisting of 30 national and 30 foreign software companies from the EU.

The data were collected using electronic questionnaires compiled in two versions, in Serbian and English, which are in accordance with the technical requirements of the standard.

Processing of the obtained data and their comparative analysis was conducted with the aim of comparing the application of ISO standards in the IT sectors of Serbia and the EU.

The results of the survey, as well as the interpretation of the research results, are given below.

Through a comparative analysis of the collected responses referring to the application of ISO IT standards in the IT sectors of Serbia and the EU, we came to the following conclusions:

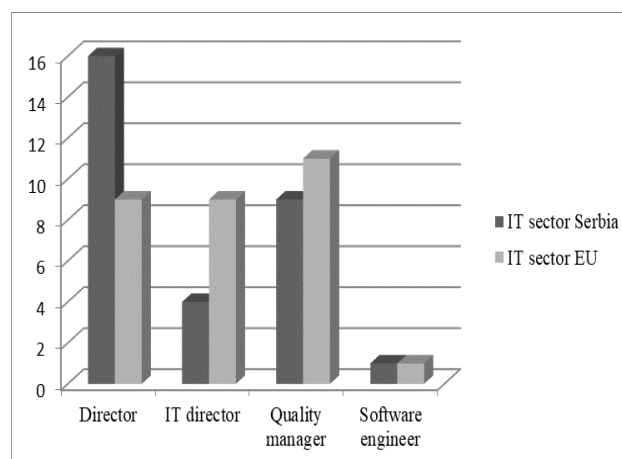


Figure 1. Distribution of the sample by workplace of respondents

Active participation in the electronic survey in the Serbian IT sector was mostly taken by directors, while in the EU IT sector this activity was evenly distributed between directors, IT directors and quality managers (Figure 1).

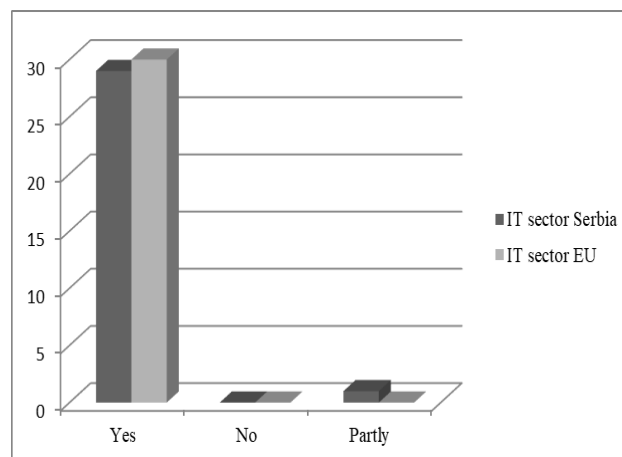


Figure 2. Answers the question
Do you invest in new technologies?

Investment in new technologies is equally represented in the IT sector of Serbia as in the IT sector of the EU (Figure 2).

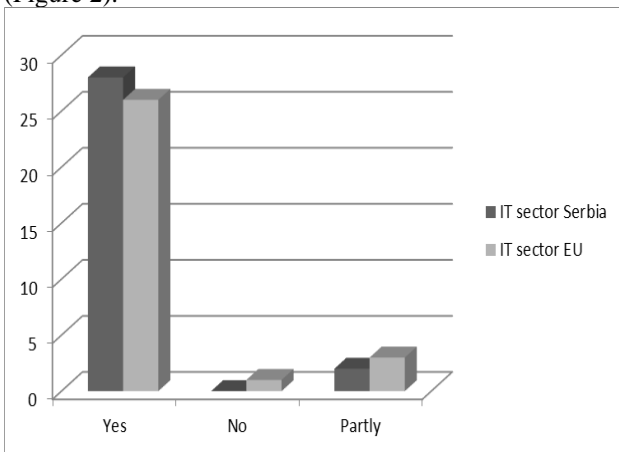


Figure 3. Answer the question

Are you familiar with ISO IT standards?

When it comes to knowing and adhering to ISO IT standards, the situation is similar both in Serbia and in the EU (Figure 3).

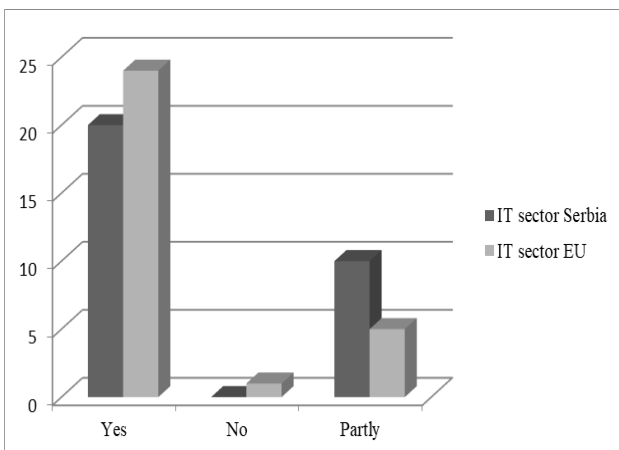


Figure 4. Answer the question

Do you adhere to the ISO IT standards?

Compliance with the requirements of ISO IT standards is less in the IT sector of Serbia compared to the IT sector of the EU. According to the results of the survey, the number of those who observe the ISO IT standards is significantly lower in Serbia, while, on the other hand, there are almost twice as many those who only partially comply with the requirements of ISO IT standards (Figure 4).

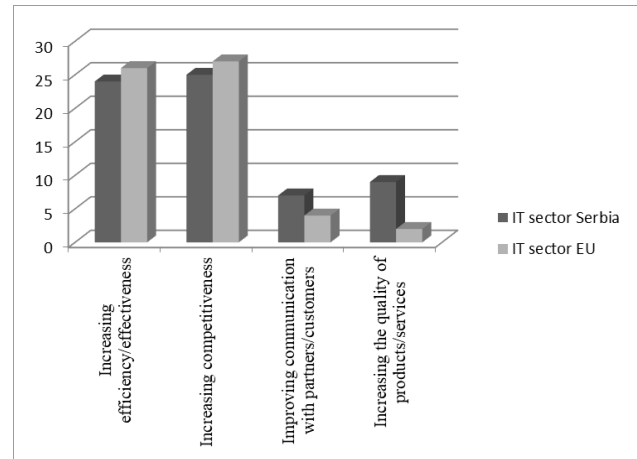


Figure 5. Answer the question

What are the motives for applying ISO IT standards?

The main motives for the application of ISO IT standards in the IT sectors of both areas are found primarily in increasing competitiveness and increasing efficiency/effectiveness, while improving communication with partners/customers and increasing the quality of products/services are much less prominent as motives (Figure 5).

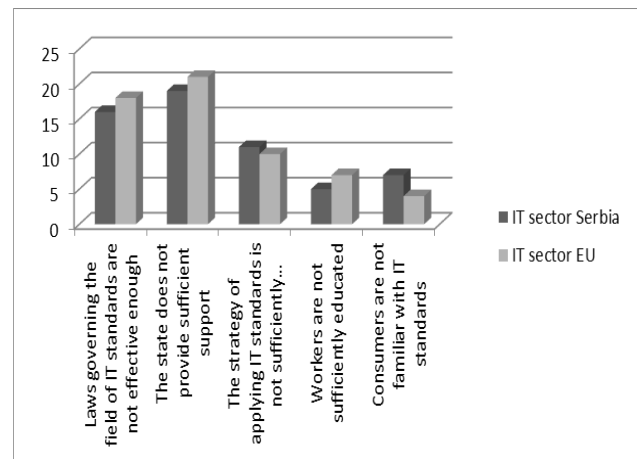


Figure 6. Answer the question

In your opinion, what are the obstacles to ISO IT standards application?

Obstacles to the application of ISO IT standards are proportionally expressed in the IT sectors of Serbia and the EU, where insufficient state support stands out in the first place, followed by the legal disorder in this area (Figure 6).

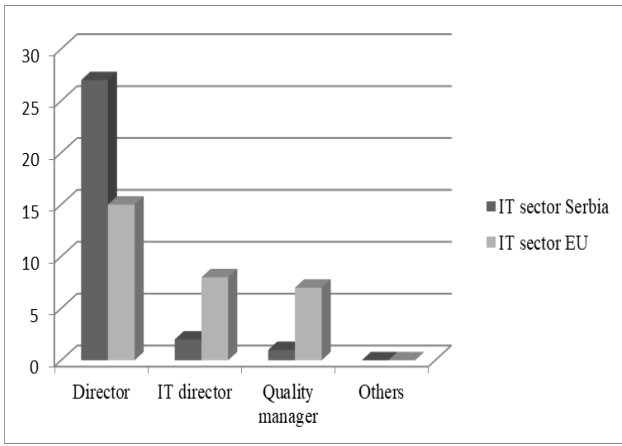


Figure 7. Answer the question Who approves investment in new business systems?

The approval of investments in the IT sector of Serbia is largely the responsibility of the director, while in the IT sector of the EU, in addition to the leading role of the director, the participation of the IT director as well as the quality manager is somewhat greater (Figure 7).

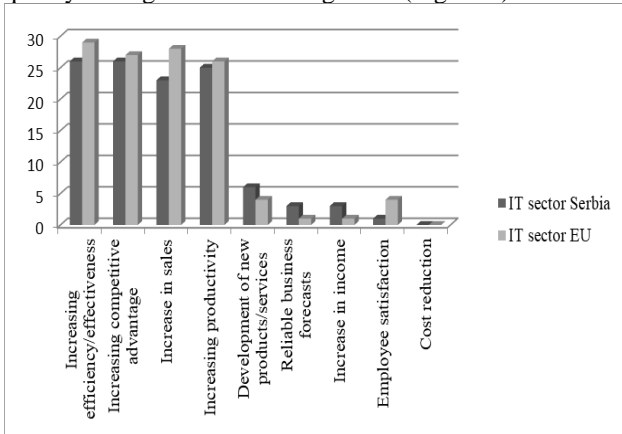


Figure 8. Answer the question

In your opinion, what are the benefits of ISO IT standards?

As for the basic benefits brought by the application of ISO IT standards, in both examined IT sectors, with very small deviations, the most prominent are the increase in efficiency/effectiveness, increase in sales, increase in competitive advantage and increase in productivity (Figure 8).

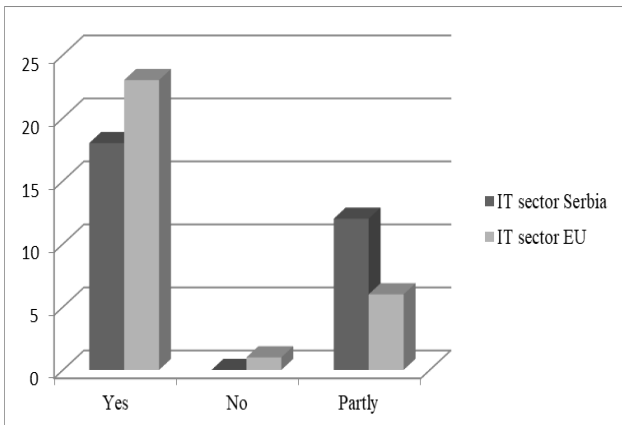


Figure 9. Answer the question In your opinion, do ISO IT standards affect business operation?

The opinion about the impact of ISO IT standards on business operation differs in the observed IT sectors. A positive response is more present in the IT sector of the EU, while partial influence as a response is more prevalent in the IT sector of Serbia (Figure 9).

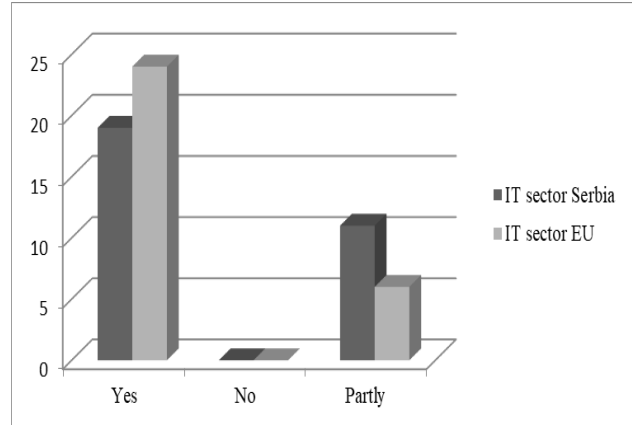


Figure 10. Answer the question

In your opinion, does the integration of (new) business systems and ISO IT standards bring positive business effects?

The integration of business systems and ISO IT standards in both IT sectors is characterised by positive business effects. The majority of respondents are unequivocal in their response, while a smaller number of respondents in both sectors believe that the impact of the integration of standards into business operation is only partial (Figure 10).

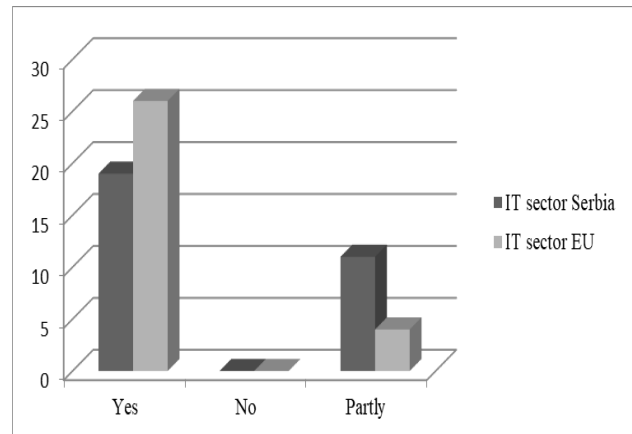


Figure 11. Answer the question Do you think ISO IT standards affect the efficiency and effectiveness of business operation?

The largest number of respondents in both IT sectors believe that the impact of ISO IT standards on the efficiency and effectiveness of business operation is great, while twice as many respondents in Serbia than in the EU opted for only a partial impact (Figure 11).

4. CONCLUSION

Based on the previous analysis, we can conclude that there is a certain conformity of the application of international technical standards in the field of information technologies in the IT sectors of the EU and Serbia, which indicates that the IT sector of Serbia is not lagging behind the IT sector of the EU in this business aspect.

Such conclusions speak in favour of the thesis of progress, growth and development of the IT sector of Serbia, harmonised with the corresponding sector of the EU, which is the first prerequisite for the free expansion of the market outside the borders of Serbia.

It is expected that this research, based on quantitative and qualitative results, will contribute to the creation of preconditions for the future greater application of IT standards in the IT sector of Serbia.

The results of the research can help to define new elements in the areas of business systems related to the implementation and application of standards in the IT sector of Serbia, based on experiences taken from the EU.

In addition, such or similar research contributes to the understanding of the importance and impact of the IT sector on the economic system of the Republic of Serbia.

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