

# Application of E-Business in Modern Operation of Public Companies in Serbia

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## Abstract

In today's modern business environment, e-business is gaining stronger role and application. External and internal electronic communication become everyday unavoidable part of business processes in many organizations, regardless of their activity and size. This study is an attempt to examine the efficiency of e-business application in public companies in Serbia. Basis of the research were the employees in public companies in Serbia, in the region of Srem. The purpose of the paper consisted of the identification of familiarity with significance of e-business, as well as the level of efficient application of Internet technology in present conditions of Serbian public enterprises' functioning. Research and analysis of the results obtained have indicated that besides solid familiarity of employees with the significance of e-business, the current functioning of electronic communication does not provide full support to the operation of public enterprises in Serbia. The facts that Serbia is a country in transition and that market liberalization largely reflects itself on public services' operation, point out to the significance of subject research. Scientific information obtained by research on the title subject could be purposeful to the management of public services in Serbia, as well as other countries in transition.

**Keywords:** E-Business, Internet Technologies, External and Internal Electronic Communication.

## 1. Introduction

Rapid and permanent development of technology has opened new frontiers and possibilities for organizations. E-business has created a driving force for the creation of new business phenomena, which require efficient and effective functioning and rapid response to opportunities and challenges in a changeable environment. Creating the communication and value delivery for consumers through e-technology have created new forces in marketing functions of many organizations.

E-business can be described as new business logic that exists in the world without borders. It refers to a broader definition of electronic commerce, because, besides covering e-commerce, it implies and includes internal processes such as productivity, knowledge management and human resources (Turban et al., 2008).

E-business does not only imply the adoption of new technologies. It also implies and requires the change of practice in dealing with customers and suppliers, change of the way in which products and services are delivered to buyers, change in skills of the staff necessary for support to e-business, namely, the change of complete business practice. Accordingly, e-business means new possibilities for reorganization of previous business towards the creation of marketing strategy that is required by modern environment and market.

This paper, through empirical research, tries to determine the way in which Internet technologies are applied in e-business of public enterprises in Serbia. Starting with the fact that Internet provides special possibilities to enterprises to make their business strategies more effective, in the sense of market research and product development, increase of sale, more efficient communication with consumers and public, orientation of this work is on the identification of the extent to which current use of Internet technologies and e-business contribute to the development of competitive business in public enterprises in Serbia. In this paper, we present the analysis of the previous use of Internet and application of e-business and we formulate a conceptual framework with proposals to make them more efficient.

## **2. Aim of the Paper**

Choice and dealing with problems on the title topic was initiated by current way and quality of providing the services by public companies in Serbia. The turmoil of transitional period, embodied in instability and bad organization of public services and companies, haven't passed Serbia by. Within the majority of public services and companies, the inefficiency is manifested. Uniform policy within all parts of organization, high level of centralization and lack of the need for adjustment to users' needs is evident.

In contrast, liberalization and deregularization of the market have fostered the emergence of new operators and distributors in the fields in which public companies in Serbia were monopolists and they still have a dominant role. By observing the communications in recent years, we can see the evident expansion of a large number of operators in mobile telephony, providers of ADSL services, as well as cable television. "Serbian Post" experiences increasingly frequent attacks in many segments of its business, which has contributed to the decline in payments. In addition, parcel and postal service have gotten a great competition in newly-established companies for distribution of packages and parcel posts. There have been a few years since there are several suppliers and providers of gas in the market. In recent years, with the emergence of a growing number of banks, in "Serbian Post" there is a noticeable decrease in payments. It has been spoken at large about the sale and privatization of "Electric power industry of Serbia" in order to increase its competitiveness and efficient operation.

All of the above-mentioned points out to the loss of domination and monopolistic status of the majority of public companies in many segments of business. In order to survive and be efficient in the new environment, these companies need to focus on modern ways of operating, i.e. modern marketing and management principles. One of them is the application of e-business. As much as the application of the principles of modern e-business and communication is important in external marketing today, it has the same role in internal marketing as well. In other words, besides the efficient electronic communication with the users and other external stakeholders, the same communication between the employees within a company is necessary.

Pursuant to the afore-mentioned, the purpose of this paper consisted of identifying the efficiency of application and functioning of Internet technology in the service of e-business in public companies in Serbia. Subject research was realized through the analysis of the familiarity level of employees with the significance and advantages of e-business in modern business environment, as well as determination of the extent to which Internet technologies are efficiently used in the function of e-business. In that way, we got the picture of how much is the public companies in Serbia are willing to accept contemporary challenges of e-business, both through external and internal marketing.

## **3. Literary Review**

During the last few decades, the economy is rapidly transformed from its traditional bases to the new, information-based economy. Changes in market conditions such as globalization, technological progress, competition, customers' awareness, change in demographic factors, force the companies to be more oriented towards the business over the Internet (Chakraborty & Ajoy, 2004). In such an environment, the work moves from the creation of material goods to information flow through value chains (Basu & Kumar, 2002). Electronic communications facilitate information exchange, reduce costs, save time and resources, improve customer service and generally improve business relations (Lancioni et al., 2000).

Internet is much more than another distribution channel; it also represents a new business model. The appearance of business through Internet has brought a set of challenges for the coordination of activities in the supply chain. Therefore, it becomes obvious that e-business represents a new game on the market field, which the marketers need to take into account (Ratnasingam & Pavlou, 2003).

E-business can be defined as the management of relationships, electronic data interchange, collaboration, communication and the establishment of workflow processes with business partners, customers, employees, and other business agents, as long as these tasks or processes are performed by electronic means (Meroño-Cerdan & Soto-Acosta, 2005).

Today, organizations frequently integrate Internet technology by redesigning business processes in a way in which they make their competitive advantages stronger (Phan, 2003). Through e-business, they use Internet, Intranet and Extranet, both for the purpose of placing new products and services and for gathering the necessary information, or for consultant's services. In that way, Internet technologies, besides benefits for the companies, enable the customers to gather the information about the availability of a desired product or service, assessment of its performances, as well as the possibilities of negotiating about additional benefits related to that product or service, in an effective and efficient way (Zinchan, 2002).

In accordance with the above-mentioned, e-business has a pervasive impact through all the fields of organizational structure, starting from procurement and sale in the field, through a series of its business processes to internal administration and coordination (Wu et al., 2003). Vlosky (2000) indicates that electronic communication facilitates the information exchange, reduces business costs, saves time and resources, improves customer service and generally improves business relations. A very similar view was presented by Zhu and Kraemer. They believe that possibilities of e-business affect the strategic initiatives of companies towards the use of Internet for the purpose of information exchange, facilitation of transactions, improvement of customer services and strengthening of integrations with suppliers (Zhu & Kraemer, 2002). Spreading the information and ideas through e-business additionally enables the companies to adjust their marketing strategy (Varadarajan & Yadav 2002), as well as to improve the customization of products and services in accordance with specific customers' needs (Kiang, Raghu, & Shang 2000).

In addition, by observing the benefits that the organization obtains, e-business enables finding the appropriate partners, through reduced costs and expanding the access to supplier and clients throughout the world (Lefebvre & Lefebvre, 2000). Higher availability and choice of partners eliminate uncertainty and dependence (Gopalkrishnan, 2001). The presence of a great number of suppliers enables the choice of an appropriate alternative, which minimizes the production costs of a particular product or service.

However, rapid growth of e-business imposes a growing need for employees that possess appropriate knowledge and skills in the use of Internet tools (Brin, 1999). Therefore, e-business requires digital training of employees for transactions and other processes within the company that include information systems under the control of organization (Laudon & Traver, 2010).

Rapid development of e-business in the environment also implies the increase of the significance of internal marketing's role (Harris & Charles, 2007). Accordingly, Damanpour (2001) considers that the factors related to marketing strategy, such as cooperation, knowledge exchange and top management's commitment, have a vital significance for the success of e-business. Intranet, as an information space that supports the cooperation and information exchange between the members of a particular organization, develops in a more stronger and rapid way from year to year (Karlsbjerg et al., 2003).

Among all positive sides of intranet, Jacoby and Luqi (2005) focuses on business aspects, such as agility, better decisions, greater creativity and new possibilities. Horgan (2007) lists several specific advantages that are provided by a well-implemented intranet: better and faster and just-in-time approach to information, knowledge exchange, common interface, the ease of publishing, exchange and learning, support for virtual teams, shorter time of entering the market, better access and linking with already-existing data, linking with clients of internal systems, new business opportunities and occasions.

Tools such as intranet, extranet, Internet, assist in the creation of environment for good electronic communications. However, the presence and engagement of managers in such processes also has a very important impact to the above-mentioned. Sirota, Mischkind and Meltzer (2006) consider that employees may largely be demotivated if their managers forward only basic information through intranet, instead of understanding the real needs of employees for the information about what takes place in their organization. Today, the ability of an organization is mirrored in efficient use of the employees' knowledge, who actually create, exchange and use that knowledge.

#### **4. Methodological concept of research**

##### *4.1 Goal and tasks of research*

In accordance with theoretical framework about the significance of e-business in modern business and having in mind the current position of public companies in Serbia in their business environment, the research goal consisted in examining the attention that is paid to the application of efficient electronic communication within these companies.

Designed like this, research goal was focused on two tasks:

- Identification of opinions of the employees in public companies in Serbia concerning the significance and influence of e-business on the efficiency of business.
- Determination of the extent to which current application of Internet technology and electronic communication is efficient within public companies in Serbia.

#### *4.2 Sample, research method and applied method of statistical data processing*

Sample of respondents consisted of the employees in public companies in the territory of Srem region. The research included 164 respondents from 6 dominant public companies: "Serbian Post", "Serbia Gas", "Electric power industry of Serbia", "Telecom Serbia", "Srbijašume" and "Srbijavode". Depending on the number of employees, it was taken care of the presence of the respondents from each public company in percentages, as well as the choice of respondents in percentages in relation to the gender, age, years of service, education level and functions that they have in public services.

As the most optimal instrument for subject research, the questionnaire that consisted of two groups of questions was used:

- First group of questions referred to the attitudes of employees in relation to the significance and role of e-business in today's modern business.
- Second group of questions, based on the content, had the task to generate the information in relation to employees' attitudes regarding the efficiency of application and previous functioning of Internet technology and electronic communication within public companies in Serbia.

Testing the validity of questionnaire as well as the results obtained was realized through several analyses and data processing. On one hand, the respondents' answers were observed and analyzed through the attitudes as wholes. However, on the other hand, through the prism of criteria groups, the determination of similarities and differences in opinions and attitudes among the employees regarding the efficiency of application and previous functioning of electronic communication within public companies in Serbia is enabled.

Having in mind that it is about categorical data, prior to data processing, there was data scaling so that the following procedures and analysis could be applied afterwards:

- The characteristics of employees' responses were determined by the application of cluster analysis.
- By MANOVA (multivariate analysis of variance) analysis, it was examined whether in a group as a whole there are differences in responses.
- By ANOVA analysis (univariate analysis of variance), the differences in responses for each individual question were examined.
- By discriminant analysis, the existing differences obtained in previous analysis were expressed quantitatively, through coefficient of discrimination, after which the most frequent answers for the belonging questions were identified.

By the statistical methods applied, besides obtaining a general attitude of employees regarding certain issues, the difference between the criteria groups was also analyzed. Such results, tested on the basis of discriminant analysis and coefficient of discrimination are stronger in comparison with the simple testing of questionnaire's reliability, because they provide accurate measure of difference and distance of features between the criteria groups.

## **5. Research Results**

The concept of questions contained in the questionnaire, had the task to generate two types of information that are relevant for the goal and tasks of research.

### *5.1 Attitudes of employees regarding the significance and impact of intranet on business efficiency*

Primarily, the employees in public companies in Serbia were questioned about the impact of e-business on the efficiency of modern business. For this part of research, the set of 7 questions was used: "Application of information technologies influences the development of new products and services", "E-business contributes to more efficient business", "The application of e-business contributes to a better and more intimate relationship with customers", "The application of e-business implies significant changes in business strategy", "E-business contributes to more efficient organizational marketing", "Well-organized internal electronic network has a significant impact on the exchange of knowledge and information among the employees", "Internet technologies can be relevant mediators in the education of employees", "In e-business, the role of intranet is equally important as the role of extranet".

Answers in the questionnaire were of a closed type and designed on the basis of Likert scale, which means that the respondent had a choice between five answers offered: “I completely agree”; “I mostly agree”; “I am hesitant”; “I mostly disagree”; “I completely disagree”.

Analysis and processing of responses regarding the significance of e-business in modern business environment has shown that 57% of respondents believe that it has a great impact on the efficiency of business processes. 37% believes that modern electronic communication partially influences the business efficiency of a company, while 6% believe that e-business has a small impact on business of an organization (Figure 1).

<Figure 1 about here>

So, the answers to such questions have determined three groups of opinions and attitudes of employees, which have simultaneously been a basis for the formation of criteria groups significant for further analyses.

### *5.2 The extent of the present efficiency of e-business's functioning within public companies in Serbia*

The second part of the questionnaire was aimed at examining the efficiency the application of Internet technology and electronic communication in the operation of public companies in Serbia. In order to obtain as detailed and as precise as possible information about this issue, the group of 12 questions was formed, and the responses are firstly analyzed as the attitudes of employees observed in the whole group. Data shown in Figure 2 express, in percentages, the responses and attitudes of the respondents as a group for each question:

<Figure 2 about here>

By analyzing the data shown in Figure 2, it is obvious that the largest number of respondents believe that previous application of e-business has made the operation of public companies in Serbia more efficient and that the relations with users have improved.

Somewhat different percentages are obtained in case of the availability of information about users: 28% of respondents believe that the access to necessary information about users and their requirements is frequently created through e-technologies, 53% see this as a periodical occurrence, while 19% believe that e-technology rarely helps in gathering the necessary information about users.

Regarding the relation between e-business and marketing strategy of the company, the largest number of respondents has said that there is a partial impact of e-business on marketing strategy (61%), as well as that previous application of e-business has partially affected the enrichment of company's marketing mix (54%).

Examining the use of internal and external Internet resources within the company, the greatest number of respondents (46%) believes that internal resources are used very little and that the external are partially used (49%).

Observing the application of intranet for the purpose of education and training of employees, 73% of respondents believe that this type of education does not exist. In addition, 78% of respondents believe that the existing design of intranet does not support the exchange of knowledge and information among the employees.

As for changing and innovations of intranet and extranet portals of the company, 74% of respondents consider that employees are not involved in those processes, while 23% of them believe that the employees are occasionally consulted in relation to those issues.

By analyzing the attitude of management towards the efficient intranet application, we have concluded that 26% of respondents believe that management give their full support to the efficient functioning of intranet, 42% see it as partial, while 32% think that the necessary managerial dedication and support do not exist. In addition, by observing the question whether the managers use the intranet for information and notifications distribution, we have seen that 14% of respondents believe that this type of communication between managers and employees is frequently used, 53% believe that such communications are periodical, and 33% of respondents experiences them as rare.

### *5.3 Characteristics of responses of the three criteria groups*

After the presented analysis of the answers of respondents as a group, by the application of MANOVA, ANOVA and discriminant analysis, the same data were tested through three criteria groups and thus the similarities and differences in respondents' opinions were determined. The first criteria group consisted of respondents who believe that e-business plays a major role in the efficiency of business; the second criteria group included those who consider that e-business has a partial impact, while the third criteria group consisted of the respondents who believe that e-business has a small role in efficient operation of an organization.

In order to examine whether there are and what are the differences in respondents' answers to the questions analyzed, the multivariate analysis of variance is applied (Table 1.):

<Table 1 about here>

As the value obtained is less than 0,05, i.e.  $p = 0,009$ , it was determined that there is a significant difference in responses between three criteria groups.

In order to identify the questions in case of which there is a difference determined, the univariate analysis of variance was applied, by which, according to the same parameters as in case of MANOVA analysis, each question was separately analyzed. The data presented in Table 2 indicate that there is a difference in responses of the employees and managers in cases of the nine questions.

<Table 2 about here>

In order to determine size differences in the responses given, the discriminant analysis was applied (Table 3.):

<Table 3 about here>

From the given Table 3., it can be observed that the greatest difference in responses is in the opinions regarding the impact of previous application of e-business on marketing mix (coeff. 0,347), as well as employees' opinions regarding the role of e-business in the generation of information about the users (coeff. 0,337). The greatest similarities in answers between the criteria groups were identified in the responses regarding the role of intranet in the exchange of information and knowledge among the employees (coeff. 0,015) and its role in education and training of employees (coeff. 0,010).

Data and parameters obtained through the coefficient of discrimination have served as a basis for determining the most frequent answers by the belonging questions in both criteria groups (Table 4.):

<Table 4 about here>

## 6. Discussion

New business e-environment makes the organization abandon the traditional ways of operation. Technological progress largely influences the speed of making business decisions, which implies the need for a growing use of e-business tools. It also implies both the creation and expansion of efficient external electronic communication with consumers, as well as strengthening the internal communication among the employees. In modern business environment, the success of management and managers depends on their speed in adjusting and abilities of efficient use of e-business.

Subject research was aimed at determining the attitudes of employees in relation to the impact of e-business on the success of the companies in modern market conditions, as well as the identification of extent to which Internet technology and electronic communication are efficiently used in the operation of public companies in Serbia.

When examining the opinions and attitudes of employees regarding the significance of e-business, we can see that the majority of respondents (57%) understand the importance of e-business in today's turbulent market environment. In addition, a large percentage of respondents (37%) have expressed a partial acceptance of the significant role of e-business.

By investigating the efficiency of e-business functioning within public companies in Serbia, the data obtained have shown that the largest number of respondents believes that previous application of e-business has improved company's operation, as well as that relationships with users are improved. In addition, the largest percentage of respondents believes that previous functioning of Internet creates a partial impact on company's marketing strategy.

However, almost a half of respondents believe that current application and functionality of intranet do not represent a true support to company's e-business and that its use is small. They support this attitude through opinions that intranet is slightly applied for information and knowledge exchange among the employees, and it is rarely used for the purposes of education and obtaining the information about users. In the same way, they consider that previous application of e-technology does not provide a full support in gathering the necessary information about users' requirements.

Opinions regarding the engagement of managers and their support to more efficient of electronic communication in the highest percentage range from average satisfaction to extreme dissatisfaction, which was expressed by one third of respondents.

Analysis of the same issue, but through the prism of criteria groups, has generated the data that indicated the similarities and differences in answers of respondents by criteria groups: I criteria group was represented by respondents who see e-business as a significant factor of business in today's environment, II criteria group was represented by respondents who believe that e-business has a partial impact, while in the III criteria group there were respondents who believe that e-business has a small impact on modern business (Figure 3.).

<Figure 3 about here>

What is common to all three criteria groups are the attitudes of respondents in relation to the level of utilization of intranet's capacity. Dominant opinions in all groups are that present functioning of intranet does not provide the exchange of information and knowledge between the employees, and that its capacities are not used for education and training of employees. Therefore, they consider that the utilization of internal Internet resources is very small due to the present functioning of intranet. In addition, common attitude of all criteria groups is that employees are not included in designing of e-portal, nor are they consulted in relation to that.

Close attitudes of the respondents from the first and second criteria group were expressed in responses that have been related with the role of management in support to e-business. They believe that there is a partial support of management in increasing the efficiency of e-business, as well as that managers occasionally use possibilities of intranet for distribution of various information to employees. As opposed to these attitudes, the respondents from the third criteria group consider that management and managers do not give sufficient support to the efficient functioning of e-business.

Similarities in opinions of the second and the third criteria group were expressed in a few questions. They believe that previous practice of e-business has partially influences more efficient operation of the company and, in the same way; the relations with customers were improved. However, current functioning of e-business has no implications on the marketing strategy of the company. There is a partial utilization of external Internet resources. In contrast to them, the representatives of the first criteria group believe that current functioning of e-business has partial implications on marketing strategy, as well as that it affects more efficient company's operation and closer relations with clients. In addition, they believe that utilization of external Internet resources is small.

Besides the mentioned similarities, there were opposite opinions and attitudes of employees in case of a few questions. While the respondents from the I criteria group consider that e-technology is a support in collecting the information about users, as well as that the application of e-business has affected the enrichment of marketing mix, the respondents from the II criteria group consider that e-technology provides a partial support in the generation of information and that previous application of e-business has no impact on the enrichment of marketing mix. In contrast to the above-mentioned, the respondents from the III criteria groups believe that e-technology does not help in gathering the information about users, and that previous e-business practice represents partial support in enrichment of company's marketing mix.

The presented analysis and opinions of employees regarding the significance of e-business, as well as the efficiency of the use of Internet technology within public companies in Serbia, were a basis for summarizing the data related to the set research tasks.

Employees in public companies in Serbia largely believe that previous e-business had a positive impact on both the company's operation and its image and closer relations with users. However, a greater part of respondents does not see previous practice of e-business as sufficiently strong to imply changes in the company's marketing strategy.

Great part of respondents has expressed their dissatisfaction through a negative or mediocre opinion regarding majority of questions that referred to efficiency of the company's extranet and intranet. Segmentation of responses by criteria groups has indicated that there are a lot of similarities in respondents' attitudes, regardless of the group which they belong to. Data in Table 4., as well as Figure 3., indicate that respondents had rather homogeneous opinions in relation to the poor utilization of both extranet and intranet within the company. There are certain varieties between the groups in opinions about the extent of utilization of intranet and extranet by some segments, but mediocre satisfaction or dissatisfaction with the same is mostly dominant. In addition, the dissatisfaction of respondents regarding their isolation and absence from the processes related to the creation and designing of various e-portals present on intranet and extranet of their companies.

All the above-mentioned indicates that there is a satisfactory level of employees' awareness of the significance of e-business for the success of the operation of public companies in Serbia. However, this research has determined that current e-business functioning is far beyond what could be called efficient. Small utilization of e-business capacity and insufficient utilization of extranet, in most segments where they should be relevant, point out to inadequate design and lack of focus on the same. Therefore, company's management should deal with this problem in order to overcome the gap between contemporary requirements and challenges that are imposed by business environment and adequate response in the form of efficient functioning of e-business.

Observing the recent past, present and anticipating future trends, it becomes clear that focus on the e-business grows stronger. As an instrument for satisfying the needs of employees in the sense of information and knowledge exchange and other forms of cooperation, its position and significance within the organization permanently grows. We should not forget that extranet and intranet are as good and purposeful as they serve their users. The organizations that accomplish

this task show the comprehension of significance and effect of well-organized and designed electronic communication as a part of the overall strategy of e-business.

In this case it implies the change of previous approaches and practices in designing intranet and extranet portals, as well as the change of entire management's approach in the processes of creating efficient e-business, which will allow the involvement of employees in those processes. By their ideas, proposals, suggestions and criticism, the employees can largely contribute to the creation of such intranet and extranet concepts that will be adaptable to all users.

On one hand, the employees in the first lines of sale can largely contribute, by their ideas, to the creation of extranet portal that will increase the closeness with external clients and thus, it will increase the exchange of the necessary information. On the other hand, designing intranet portals that would support and encourage the exchange of information and knowledge among the employees in various ways, would represent a great support to innovation processes within an organization. This also implies the frequent change of interactive educations, which would increase the level of expertise and education of employees.

In addition, the managers are expected to be true leaders in adaptation to the new channels of external and internal communication. If the managers are able to adapt to modern e-business environment, through the use of tools such as Internet and intranet, it is expected that the other employees will accept such a trend in order to find desired information and to make better business decisions.

All the above-mentioned would contribute that e-business gets its real role and significance in modern business of public companies in Serbia.

## **7. Conclusion**

Numerous literature points out that e-business today represents a significant factor of the success of an organization and as such it finds its place in basic principles of modern business, regardless of the size or activity of organization.

Liberalization and deregularization of the market in Serbia have implies the entrance of competition in most industries where public companies were monopolists until recently. In order to survive in a newly-established market environment, these organizations are forced to change previous practices completely and to adopt modern business principles that, among other things, imply the efficient application of electronic business and communication.

Purpose of the paper on the title topic was reflected in examining the success of e-business application in public companies in Serbia. Research, as well as the results obtained, indicates that the existing design and application of e-technology are not at the level required by efficient application of e-business. Alienation of the employees in the creation of the structure of intranet and extranet portals, poor support of top management and insufficient activity of managers, lead up to the poor efficiency of e-communication both with external clients and between the employees within a company.

The above-mentioned indicates that current application and efficiency of e-business in public companies in Serbia is not at the level that its function should provide and at the same time it indicates to the necessity of changes in its design through:

- Involvement of as greater number of employees so that they could be a part of the team that creates applications on the portal of the company, through their opinions, suggestions, criticism.
- Managers' support and active participation in efficient creation of external and internal portals, as well as efficient application of all the offered applications.
- Creation of an internal portal, where the free exchange of information and knowledge would be possible among all employees, regardless of the organization part to which they belong.
- Full engagement and support of top management in the creation of an efficient e-business.

The results and suggestions obtained can be seen merely as a starting point in planning and successful realization of efficient electronic communication, and opinions attitudes of employees are seen as a necessary help in establishing an adequate design of e-business in public services in Serbia.



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Table 1. Significance of the difference in attitudes between criteria groups of respondents

	n	F	p
MANOVA	12	4.837	0.009

Table 2. Significance of the difference in attitudes between criteria groups by the questions asked

Question	$\chi$	R	F	p
Previous application of e-business has made the company's operation more efficient	0.264	0.257	2.447	0.048
By introducing e-business, relations with users are improved	0.282	0.291	3.217	0.026
E-technology provides an access to information about the users	0.497	0.432	6.320	0.000
Previous application of e-business has affected the enrichment of marketing mix	0.490	0.510	12.186	0.000
Application of e-business implies the changes in marketing strategy of an enterprise	0.397	0.432	12.639	0.000
Innovations on e-portals are done in cooperation with employees	0.248	0.249	1.821	0.130
The extent of the use of external Internet resources within the company	0.295	0.269	4.292	0.016
The extent of the use of internal Internet resources within the company	0.281	0.245	3.498	0.034
Intranet enables the possibility of the exchange of information and knowledge among the employees	0.169	0.171	1.050	0.374
Intranet is applied for education and training of employees	0.190	0.193	1.343	0.265
There is managerial support for more efficient functioning of intranet	0.327	0.328	4.171	0.008
Managers use the intranet for distribution of information to employees	0.408	0.406	5.416	0.001

Table 3. Coefficient of difference in respondents' attitudes between criteria groups

Question	Coeff. of discr.
Previous application of e-business has affected the enrichment of marketing mix	0.347
E-technology provides an access to information about the users	0.337
Application of e-business implies the changes in marketing strategy of an enterprise	0.244
Managers use the intranet for distribution of information to employees	0.172
There is managerial support for more efficient functioning of intranet	0.101
Previous application of e-business has made the company's operation more efficient	0.058
By introducing e-business, relations with users are improved	0.054
The extent of the use of external Internet resources within the company	0.030
The extent of the use of internal Internet resources within the company	0.028
Innovations on e-portals are done in cooperation with employees	0.022
Intranet is applied for education and training of employees	0.015
Intranet enables the possibility of the exchange of information and knowledge among the employees	0.010

Table 4. Difference in characteristics of respondents' answers between criteria groups

Question	Coeff. of discr.	Most frequent answers of criteria groups on the basis of the impact of e-business on modern business		
		High	Partial	Small
Previous application of e-business has affected the enrichment of marketing mix	0.347	YES	NO	Partially
E-technology provides an access to information about the users	0.337	YES	Partially	NO
Application of e-business implies the changes in marketing strategy of an enterprise	0.244	Partially	NO	NO
Managers use the intranet for distribution of information to employees	0.172	Occasionally	Occasionally	NO
There is managerial support for more efficient functioning of intranet	0.101	Partially	Partially	NO
Previous application of e-business has made the company's operation more efficient	0.058	YES	Partially	Partially
By introducing e-business, relations with users are improved	0.054	YES	Partially	Partially
The extent of the use of external Internet resources within the company	0.030	Small	Partial	Partial
The extent of the use of internal Internet resources within the company	0.028	Small	Small	Small
Innovations on e-portals are done in cooperation with employees	0.022	NO	NO	NO
Intranet is applied for education and training of employees	0.015	NO	NO	NO
Intranet enables the possibility of the exchange of information and knowledge among the employees	0.010	NO	NO	NO

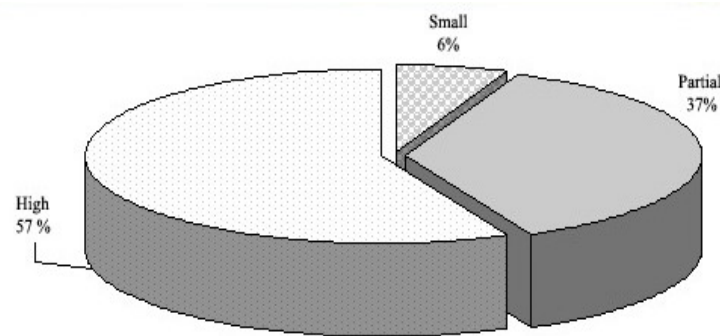


Figure 1. Significance and impact of e-business on business efficiency

QUESTION	Responses expressed in percentages		
Previous application of e-business has made the company's operation more efficient	38%	58%	4%
	YES	partially	NO
By introducing e-business, relations with users are improved	47%	38%	15%
	YES	partially	NO
E-technology provides an access to information about the users	28%	53%	19%
	frequently	periodically	rarely
Application of e-business implies the changes in marketing strategy of an enterprise	26%	56%	18%
	YES	partially	NO
Previous application of e-business has affected the enrichment of marketing mix	24%	54%	22%
	YES	partially	NO
Innovations on e-portal are done in cooperation with employees	3%	23%	74%
	YES	partially	NO
The extent of the use of external Internet resources within the company	33%	49%	18%
	high	partial	small
The extent of the use of internal Internet resources within the company	7%	47%	46%
	high	partial	small
Intranet enables the possibility of the exchange of information and knowledge among the employees	4%	18%	78%
	YES	partially	NO
Intranet is applied for education and training of employees	6%	21%	73%
	YES	periodically	NO
There is management support for more efficient functioning of intranet	26%	42%	32%
	YES	partially	NO
Managers use the intranet for distribution of information to employees	14%	53%	33%
	YES	periodically	NO

Figure 2. Efficiency of the application of e-business and Internet technology in public companies in Serbia

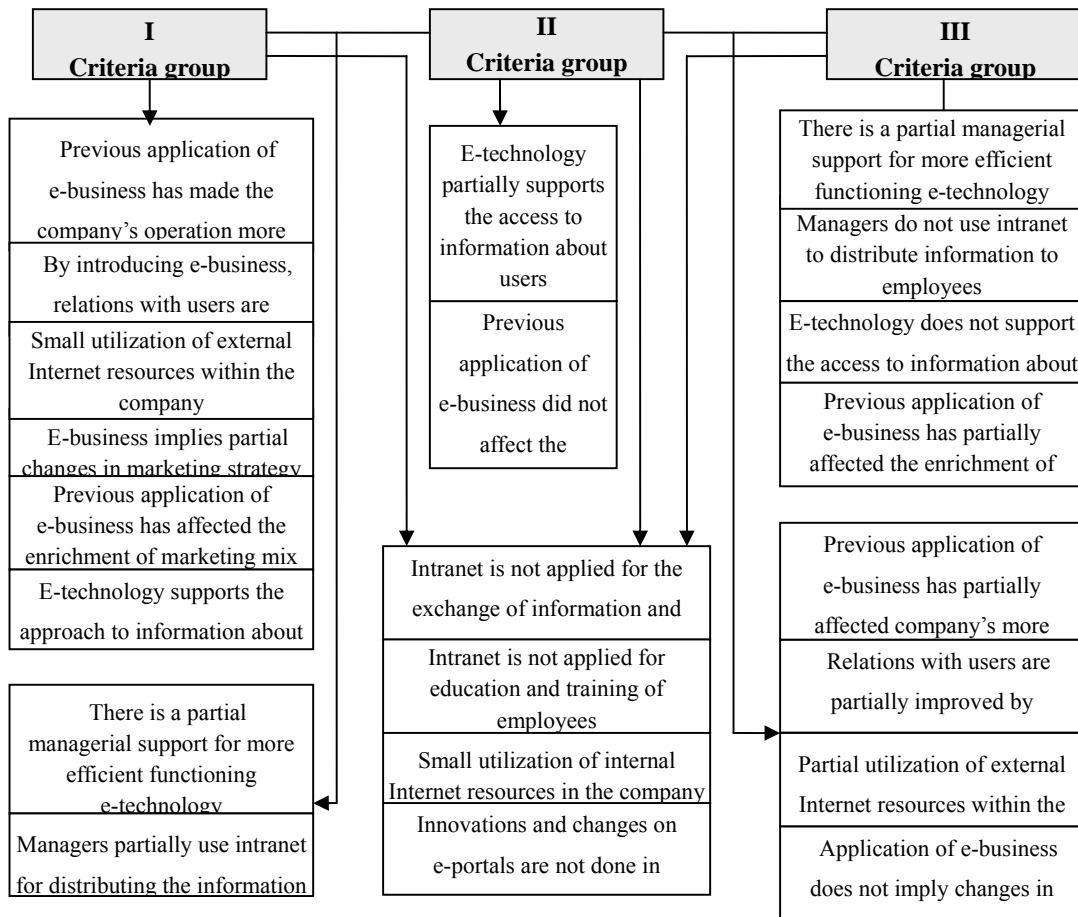


Figure 3. Attitudes of employees regarding the efficiency of e-business application – by criteria groups