Information Systems and Information Technology as Strategic Tools - Their Use in Albanian Business

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The use of IS/IT has became strategic, impacting the way organizations think and act, linking their inside and outside operations through their effective use. After looking at strategic uses in developed countries, it is worth studying how organizations in Albania use IS/IT in their business processes for succeeding in their respective markets. The aim is to identify how strategically do they use IS/IT. Applying mainly quantitative research through both secondary and primary data, a framework of studying the IS/IT use in Albania, as a developing country, shows that Albanian business have to use more in depth IS IT to benefit in a better way for improving their business processes.

Keywords: *IS/IT, strategic uses, business processes and management, effectiveness*

Introduction

Although information systems (IS) of some form or another have been around since the beginning of time, information technology (IT) is a relative newcomer to the scene. The facilities provided by such technology have had a major impact on individuals, organizations and society. As IT has become

more powerful and relatively cheaper, its use has spread throughout organizations at a rapid rate.

Information can now be delivered to the right people at the right time, thus enabling well informed decisions to be made. Previously, due to the limited information-gathering capability of organizations, decision makers could seldom rely on up-to-date information but instead made important decisions based on past results and their own experience (Galliers and Baets 1998). This no longer needs to be the case. With the right technology in place to collect the necessary data automatically, up-to-date information can be accessed whenever the need arises.

Today, most organizations in all sectors of industry, commerce and government are fundamentally dependent on their information systems. In the words of Rockart (1988) we can see that Information Technology has become inextricably intertwined with business. Different levels in the management hierarchy are now using IT where once its sole domain was at the operational level. The aim now is not only to improve efficiency but also to improve business effectiveness and to manage organizations more strategically. As the managerial tasks become more complex, so the nature of the required information systems (IS) changes – from structured, routine support to *ad hoc*, unstructured, complex enquiries at the highest levels of management.

IT, however, not only has the potential to change the way an organization works but also the very nature of its business (Galliers 1989). Through the use of IT to support the introduction of electronic markets, buying and selling can be carried out in a fraction of the time, disrupting the conventional marketing and distribution channels (Malone et al. 1989).

On a more strategic level, information may be passed from an organization to its suppliers or customers in order to gain or provide a better service (Cash 1985). Providing a better service to its customers than its competitors may provide the differentiation required to stay ahead of the competition in the short term (Holland 1998). Continual improvements to the service may enable the organization to gain a longer-term advantage and remain ahead.

Different articles often did more that describe what organizations had done: they considered how the advantage had been achieved and proceeded to suggest how any organization might analyze its business and

identify similar opportunities. In many cases, a tool or technique was described and substantiated by selected examples (F.W. McFarlan 1984).

Strategic Uses of Is/It in Organizations

The four main types of strategic system appear to be:

1. those that share information via technology-based systems with customers/ consumers and/or suppliers and change the nature of the relationship;
2. those that produce more effective integration of the use of information in the organization's value-adding processes;
3. those that enable the organization to develop, produce, market and deliver new or enhanced products or services based on information;
4. those that provide executive management with information to support the development and implementation of strategy (in particular, where relevant external and internal information are integrated in analysis).

Benjamin et al. (1984) divided the types of potential opportunity between those that focus on either the competitive market place or internal operations.

Within each, IS/IT can be used to improve traditional ways of doing business or to cause 'significant structural changes' in the way the company does business. Notowidigdo (1984) divided strategic information systems into:

- internal systems that have direct benefit for the company;
- external systems that have direct benefits for the company's customers.

A similar approach was adopted by Venkatraman (1990) in assessing how the strategic benefits from IT resulted from increasing degrees of business change (and risk!). He described three types of 'revolutionary' uses of IT, which require considerable transformation in terms of what the organization does or how it does it:

1. business process redesign—using IS/IT to realign business activities and their relationships to achieve performance breakthroughs;

2. business network redesign—changing the way information is used by the organization and its trading partners, thereby changing how the industry overall carries out the value-adding processes;
3. business scope redefinition—extending the market or product set, based on information or changing the role of the organization in the industry.

The four categories suggested above seem to cover many of the possibilities. Each of these types of strategic IS/IT application has different implications in terms of identification, planning and implementation (Sampler 1998).

Linking to Customers and Suppliers

The key people involved in the consideration of external linkage systems will be sales/marketing and distribution management at the customer end, or purchasing/receiving/quality-control managers at the supplier end. Applications of this kind require a strong drive from the sharp-end line management (Hamel 1998). Also, they are not entirely in the organization's power to control—since suppliers, customers and competitors may take the initiative at any stage—and obviously any such system will require the cooperation of trading partners. E-procurement and web-based ordering systems have enabled new, but low-cost linkages with customers and suppliers, some systems even permitting customers to track online the progress of orders.

Improved Integration of Internal Processes

To produce effective internal integration of information requires the organization to overcome some of the traditional barriers to successful IS/IT application: sharing information, reorganization of roles, etc. All of the relevant information about the customer and the organization's ability to deliver is required at the point of selling to make it effective. This is what organizations are seeking to achieve with the implementation of customer relationship management systems (CRM). Enterprise resource planning (ERP), on the other hand are configurable information systems packages

that integrate information and information-based processes within and across functional areas in an organization (Davenport 1999).

Senior management need to understand the organizational implications of this new information-based approach to the roles of people and departments, since reorganization will probably be required if significant benefits are to be obtained and any relative advantages sustained.

Information-based Products and Services

In using IT and especially the Internet, many organizations have looked to add more value to the tangible products they sell, by providing additional information-based' services. These can include online support, order tracking, order history, etc. Many of these initiatives focus on deepening the relationship with customers and suppliers. Others have moved their trading platform either partially or entirely onto the Internet (Kettinger et al 1994). Using e-procurement, companies permit their customers to 'empower' their employees to make purchases websites of non-core, low value, with them managing the total process, including establishing purchasing controls. These purchasing control rules cover specific pricing, spending limits, baring the ordering of particular products, cost codes, blanket orders, and order passwords.

MANAGEMENT IMPLICATIONS IN USING IS/IT IN BUSINESS ORGANIZATIONS

A second aspect of the analyses of our research base identifies some of the key factors that seem to recur frequently and underpin success. Few strategic information systems show all of the factors, but many show a number. Again, these factors are often at odds with traditional IS/IT approaches and show more commonality with business innovation.

External, not internal, focus: looking at customers, competitors, suppliers, even other industries and the business's relationships and similarities with the outside business world. Traditionally IS/IT was focused on internal processes and issues, but nowadays more and more benefits of using IS IT

are focused in the external relationship of the company with different business partners.

Adding value not cost reduction. Although cost reductions may accrue due to business expansion at reduced marginal costs, 'doing it better, not cheaper' seems to be the maxim. This is consistent with the requirements of companies to differentiate themselves from competitors— better products, better services—to succeed. Historically, IS/IT was seen as a way of increasing efficiency—doing it cheaper—and, while this is obviously important in any business environment, it is not the only way to succeed. This enables the company to coordinate harvesting decisions with inventory and transport requirements and match those decisions to market needs.

Sharing the benefits: within the organization, with suppliers, customers, consumers and even competitors on occasion! In many cases in the past, systems benefits have not been shared even within an organization, but used instead to give departments or functions leverage over each other. This reduces the benefits and does not allow them to be sustained. Sharing benefits implies a 'buy in', a commitment to success, a switching cost. Almost all of the examples involve sharing the benefits, with suppliers, customers, consumers and competitors, to provide barriers of entry to the industry.

Understanding customers and what they do with the product or service: how they obtain value from it, and the problems they may encounter in gaining that value.

Business-driven innovation, not technology-driven: the pressures of the marketplace drove developments in most cases. This tends to cast doubt on the idea of competitive advantage from IT, but, in practice, it means that new or existing IT provides or enables a business opportunity or idea to be converted into reality. The lead or the driving force is from the business, not necessarily, a traditional route to using IS/IT, which has often been driven by technology, pushed by the IT suppliers and professionals, not pulled through by the users. It is only relatively recently that the latest technology has become of interest to business managers. But the business issue does not

change: why take two risks at the same time—that is, a new business process based on new technology? It is a recipe for failure! Keen (1991) summed it up well by saying, 'Major failures in using IT are often based on much better technology and bad business vision. Successes come from good enough technology and a clear understanding of the customer.

Incremental development, not the total application vision turned into reality. Many examples show a stepped approach—doing one thing and building on and extending the success by a further development. To some extent, this is developing applications by experimentation but also not stopping when a success is achieved but considering what could be done next. This, again, is against the traditional notion of clarifying all requirements, defining all boundaries and agreeing the total deliverables of the system before embarking on the expensive, structured process of design and construction, freezing the requirements at each stage. Prototyping of systems obviously has a key role to play here.

Using the information gained from the systems to develop the business. Many mail order and retailing firms have segmented their customers according to the purchasing patterns shown by transactions and then providing different, focused catalogues or special offers. Product and market analyses plus external market research information can be merged and then re-cut in any number of ways to identify more appropriate marketing segmentation and product mix.

As discussed above, these factors, in general, imply different attitudes to the use of IS/IT than have prevailed in the past, implying that we need new ways of thinking about IS/IT techniques to uncover such opportunities, and then new approaches to managing these applications to ensure success. Another general observation can be made from these examples, by considering what actually produces the success—information technology, information systems or information. Technology itself is the 'enabler', which provides short-term advantage and the opportunity to develop new systems and to capture and use potentially valuable information. But, normally, competitors will be able to purchase the same technology, and any advantages could soon be negated. However, the new information systems that developed, utilizing the technology, could provide

advantages that may be less vulnerable to erosion by competitive copying. The potential gain will depend on how conclusively and exclusively the systems alter business processes and relationships.

In time, however, the existing competition or new entrants enticed into the profitable parts of industry could redefine the relationships by introducing alternative information systems. If the firm wishes to sustain its competitive advantage, it must use the information gleaned from its systems to improve its products or services—to match the requirements of the marketplace or influence its development.

By viewing IS/IT evolution another way, we can portray the management implications ascending from the basement of the business to the penthouse executive suite, from where strategic vision is possible and, more importantly, IS/IT can be incorporated into senior management's 'theory of the business' (Keen 1995).

King (1987) expressed concern that he saw 'evidence that the competitive advantage argument is beginning to be used excessively—primarily to rationalize projects that cannot otherwise be justified.' This causes the idea to lose management credibility. He noted that we must manage IS/IT and its various applications in accord with the type of contribution it is making—improving efficiency, effectiveness and/or competitiveness through business change—not elevate all aspects to a new and artificial plane of importance. But, of course, an organization cannot afford to ignore the strategic opportunities that IS/IT may offer, and, therefore, 'the potential of information as a strategic resource should be incorporated as a routine element of the business planning process, so that all managers become used to thinking in these new terms.' Earl (1992) supports the argument that focusing on the technology itself does not lead to its successful strategic application. He suggests that the most effective route to achieving strategic benefit from IS/IT is to concentrate on rethinking business by analyzing current business problems and environmental change—and considering IT as just one ingredient of the solution.

Important ICT indicators and Methodology of the study

Different countries haven different characteristics of development, especially in relations with the private sector, so they have different status and aims in using ICTs. Organizations particularly business ones show different behavior regarding use of IS/IT. Identifying and explaining this behavior would be possible only by using the right indicators.

In terms of ICTs, indicators may be classified in different ways (Sciadas 2005). A distinction can be made between demand and supply side indicators. Demand-side indicators are based on information collected from users of ICTs and supply-side indicators on information from service providers. One can similarly talk about macro and micro indicators. Macro indicators could be ratios of macroeconomic variables like total factor productivity, GDP and Investment. ICT investment divided by total investment in a country could be such a macro indicator (Miles et al 2006). An equivalent micro indicator would be the average ratio of ICT investments to total investment at firm level. A further distinction could be by users of ICTs: household indicators, individual indicators, business indicators, school indicators, health indicators, government indicators, trade indicators, ICT sector indicators, gender indicators etc.

An important distinction to keep in mind when considering ICT indicators is the one between access, usage and impact. Access indicators measure what people or businesses have in terms of ICTs or how many exist in a country. Usage indicators measure how and for what ICTs are being used by households, individuals, businesses or governments (Stork and Esselaar 2006) etc. Impact indicators capture the impact of access and usage on economic growth, employment creation, improvement in public service delivery on a macro level; and company performance, household poverty levels and social inclusion on a micro level, to give just a few examples. Impact indicators are usually derived from analysis of primary or secondary data. The access and usage indicators classified as core indicators are undoubtedly useful indicators of development. However, the information required to compute many of these indicators is not available for most developing countries (Lopes-Claros et al 2006), so secondary data are not useful in these cases, also in the case of Albania.

Since our primary purpose in this paper is to evaluate the ICTs and their use within organizations in Albania, we have to look mainly at use and access indicators, regarding them. Several important international organisations such as International Telecommunications Union, UN commission on development, World Bank and World Economic Forum, etc. After having a deeper look on them, we can see below the indicators used by UN Commission. The UN Statistical Commission has endorsed in 14 Mar 2007, a core list of indicators on information and communication technologies (ICT), grouped into four categories:

- Technology infrastructure and access;
- Access and use of information and communication technology by households and individuals;
- Access and use of information and communication technology by businesses;
- Information and communication technology sector and trade in information and communication technology goods.

We must focus now at the third point above and see which are these indicators to continue with the development of the research means.

Table 1, to b placed here, is used to develop part of the questions of the business survey. 220 questionnaires are distributed throughout all the country, based upon the percentage of distribution of business organizations according to country administrative areas. The non-responsive ratio was less than 10 percent, because 200 out of 220 questionnaires were returned and analyzed. Business from different sectors and sizes answered the questionnaire. Therefore, 87 percent of the companies were small, according to the number of employees, 1-9 employees, 8 percent of the companies are medium in size, 10-80 employees, while only 2 percent are large companies with over 80 employees. This percentage reflects the ratio of companies in Albania, according to the data about business size. The percentage of companies according the sector is also distributed as following: 32 percent in financial industry, 20 percent in tourism, 15 percent in other services, 28 percent in production and construction, 5 percent are state owned companies or organizations. This distribution reflects the developing of the country. 61% of the companies has reported a growing demand for their products/services, while 39 percent reported a declining demand.

Percentages of business that use computers, Internet, LAN, or other information technology means are explained in the descriptive statistics. On the other hand, the relationship between different characteristics, such as business activity type and sector, business size according to number of employees, etc., and the behavior of the companies regarding IS IT is shown through the use of contingency test ($\chi 2$). The critical value for the probability $\alpha = 0{,}05$ are compared with the calculated values from the differences between observed and expected values. Expected values are calculated based upon the zero hypothesis that states these differences are only a result of the not as significant as to show about real differences in the population, so a real dependency between variables mentioned above.

Level of usage of ICT in Albanian Businesses

An important indicator of technology use in organizations is the number of computers. According to the questionnaire, it can be seen what is the percentage of the organizations that have at least one computer. As it can be seen by the Figure 1, to be placed here, this ratio is very high because about 98% of the organizations have at least one computer. So the basic technology is spread throughout the organization. But, is there anything more to say? The number of computers is only an initial indicator, as we mentioned before. In the questionnaire, there are questions regarding the quantity of computers related with the number of employees, but not only. Quality indicators are not left aside. Knowledge required from employees in ICT as well as trainings needed are analyzed hereafter.

Therefore, Figure 2, to be placed here, shows more about the use of computers in organizations. Only in 17,6% of the organizations, all the employs have computers, while 39% of them have computers only for operational level and around 43% have computers only for the managers. So, according to the number of employees that use computers in organizations, it can be said that:

1. a greater number of organizations have computers, but a lower number have computers for all the employees.
2. *the penetration level of technology is low*, there are still many organizations which can use computers in all management levels, *at least for job automation.*

Another indicator on technology use is the number of organizations with Internet connections. In Figure 6 is shown that there is a considerable number of organizations, 76 % of them, that have Internet access. The service of ISPs is one of the most required in Albania, nowadays. This indicator, on the other hand shows nothing about the quality of use of Internet as well as benefits of its use for the organizations. There is a need for more investigation from the functional point of view, why and how organizations use Internet services in improving its business processes, and what quality is required from them.

In Figure 3, to be placed here, the greatest part of organizations, around 41%, use the Internet for searching information, while a smaller part, around 28% use it for communication with third parties, 20% use it for communicating with clients and only 10 percent use it for internal communication. In fact, using Internet only for information search is a limited use from the point of view of organization and Information systems. Nowadays, Intranets and Extranets[i] are using the Internet as a universal communication platform, inciting more efficient relationships between organizations and their clients or business partners, without the need for specific software. Looking at the low percentage of the organizations that use Internet as a communication tool between them and clients as well as for internal communication, we can say that in most of the cases organizations would not benefit from the use of Intranets and Extranets. On the other hand, *it can be seen that the communication with third parties is important for the companies showing a focus on operational aspects of their businesses, relations with suppliers and government institutions. These relationships will be the first to incite more uses as well as the further raising of this market.*

The kind of connection is also showing the requirements of companies regarding quality of use of the networks. *The greater the speed required, the more organizations are looking forward to support important relationships and operations, specific and complicated, the most important is considered the speed of transmission regarding the exchange of data, information and knowledge.* From the Figure 4 it can be seen that 33% of organizations have a low speed Internet connection, 48% of them have medium speed of Internet connection, while only 17 % have a high speed Internet connection. It must be also said that low, medium and high speeds

have different measures than European countries or USA statistics. Anyway, in this study we refer prior exploratory studies regarding Internet Services and their capacities in Albania as well as organization systems requirements. If these speed standards in Albania are compared with those of e-business Watch[1] studies, the categories are very different, as a cause of a different phase in which Albanian ICT market is compared to European market. Another component of ICT use in organizations is networks. Organizations that have achieved the effective construction and use of the networks are in fact pursuing the right path to the creation of value. Which type of networks are the most used in Albania? Figure 5 shows that 21% of organizations use an Intranet, 29% have a LAN, 12,5% are using a WAN, 10,5% are using an Extranet and 27% are not using any network at all. As we can see from the figures, there is a considerable percentage of organizations that are not using networks, as well as, the greatest part is using a LAN, that is in Local Area Network, limited in a small, company building area. This means that there is still a lot to be done in regard of adding value to their product through ICT and IS.

Web presence is one of the media to ensure a long relationship with clients, suppliers or other stakeholders of the organizations. Little difference exists in the percentages of organizations with or without a presence in the World Wide Web, 52% the 48%, in favor of organizations with a Web site. These figures show that there is much more to be done for the organizations understand the benefits of using this World Wide Web. In fact, the use of web sites from organizations in Albania is limited in most of the cases to a simple publicity media, giving information and inciting potential clients, but not exploiting all the potential that a web site could give. In fact Web-sites of Albanian organizations are often nice but not functional for the visitors. They also have little or no e-commerce features. Therefore, they really do not contribute in on-line communication between buyers and sellers, giving them little value.

The discussion now tries to find out, not only the knowledge of respondents about the benefits of using ICT in organizations, but above all, their perceptions on the benefits in organizations. In the Figure 7, it is seen that benefits that are evaluated most on average, are the raise in efficiency,

[1] Telecommunication market study in Europe 2007

information about control and report and the raise in client value. As we can see from the graphic, the average evaluations for these features are respectively 4,4; 4,2 and 4, in Likert scale from 1 to 5 according to the importance in the organization. The other three elements, popularity and image, opportunity to create competitive advantage and the impact in costs, are considered less valuable in average. Even though, for all the characteristics the mean estimation is more than 2,5, which is the mean of the Likert scale, which shows that they are all considered important and all the respondents perceive the impact of ICT in their organizations, regardless whether it really bring benefits to them.

Another indicator in this regard would be the number of companies that have IT department. From the Figure 8 it can easily be seen that a smaller number of companies have IT department in comparison with those which do not have one. The figures are respectively 38% and 62%. In fact, organizations with an IT department are those, which can afford this department through their operations and consider its presence as necessary. Since this percentage is actually low, there may be place for changing attitudes if companies perceive ICT role as important in their organizations.

After the descriptive statistics that show the state of the important indicators for Albanian companies, we can take e deeper look in the relationship between variables. Table 2 shows the calculations about contingency test as well as the critical values. From the figures, we can see that there is no relationship between company size and the use of ICT represented by variables such as Internet usage, Website presence or computers within the organization. While there is a relationship between type of activity and the existence of IT departments within companies, or sector type and type of nets used. On the other hand, there is also a relationship between sector demand and ICT use.

Conclusions and Recommendations

Information systems and Information technology have become an important element of modern organizations. The aim of using technology has changed a lot over the years. Now it is important not only to improve efficiency but also to improve business effectiveness and to manage organizations more strategically, through IT use.

Strategic uses of IT include the ability they give to companies to:

- Link to Customers and Suppliers
- Improve Integration of Internal Processes
- Market Information-based Products and Services
- Improve profitability

Managers can improve a lot of their work focusing not only to internal operations of their organization, but also to external environment. IT can be used to add value, not only to reduce costs, as well as to share benefits with other actors interested, such as customers and suppliers and third parties. Companies can understand customers and their needs a lot better through the help of IT. Even if we can say that IT /IS are more important for the entire organization, the innovations should business-driven, not technology-driven, helping so business processes to improve company profitability and goal fulfillment. So the information gained from the systems must be used a lot more to develop the business.

Companies in Albania are not exactly in the same situation about technology use. They are eager to invest in technology, and have a relatively high dispersion of technology, but problems arise with employees and their skills to use technology. They also use technology more for information search or communication, mainly outside organizations through public lines and Internet, while only few organizations use IT for adding value to their product/service and improve their operations and business processes, in favor of profitability. The benefits of using IT in Albanian organizations are limited in organizational efficiency, especially with cost savings, in most cases. Less used are IT for improving relationships with customers or fronting competition and building competitive advantage. Strategic uses of IT are far from being the usual Albanian case.

The characteristics of the companies that affect the usage level of IT are mainly the type of sector and the demand for products/services in the sector. These characteristics would be a good incentive when talking about improvements in using technology.

So companies should construct there IS and choose the appropriate IT elements depending on the sector they are exercising the business. This will help also understand better their customers and business processes to be reviewed in order to benefit fully from the use of IT in organization.

Table 1: ICT indicators

ICT indicators	Classification	Source
Proportion of businesses using computers and the Internet Proportion of employees using computers and the Internet Proportion of businesses with a Web presence, an intranet Proportion of businesses receiving orders over the Internet or placing orders over the Internet Proportion of businesses using the Internet by type of access Proportion of businesses with a local area network (LAN) Proportion of businesses with an extranet	Demand side Access indicator	Business survey
Proportion of businesses using the Internet by type of activity	Demand side Usage indicator	Business survey

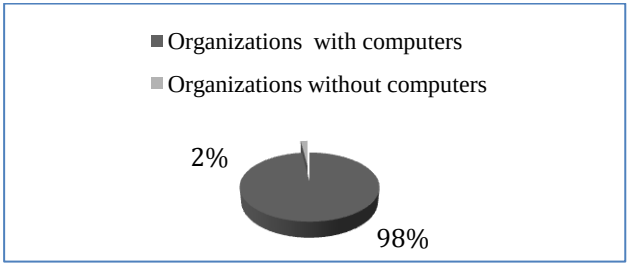

Figure 1: Percentage of organisations with computers

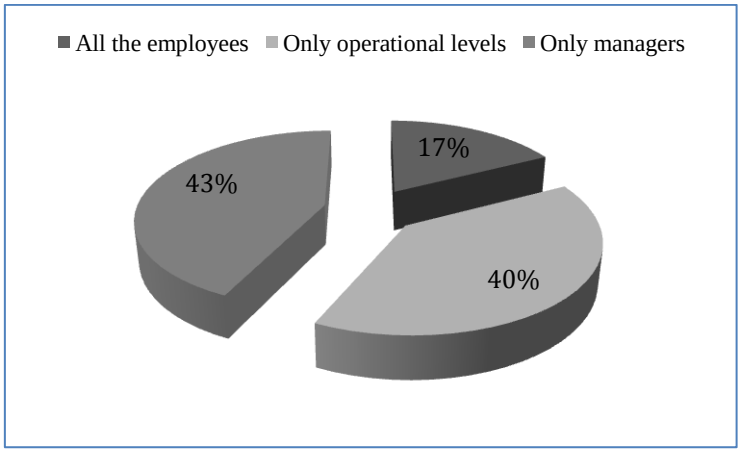

Figure 2: Percentage of companies according employees with computers

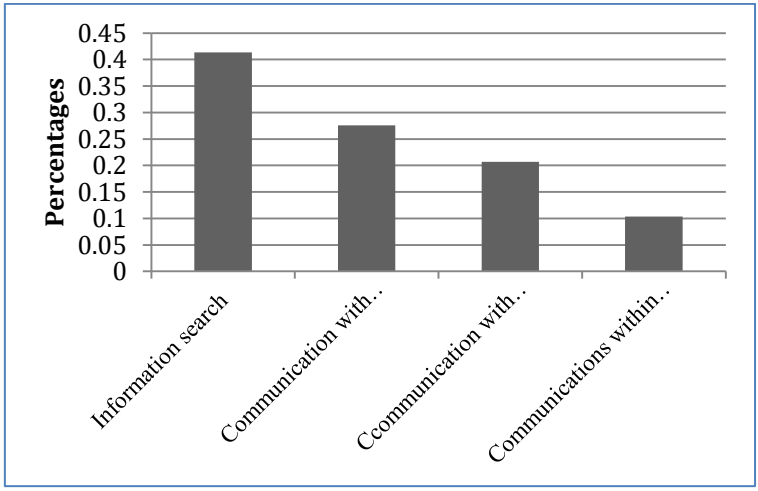

Figure 3: Internet use in organizations

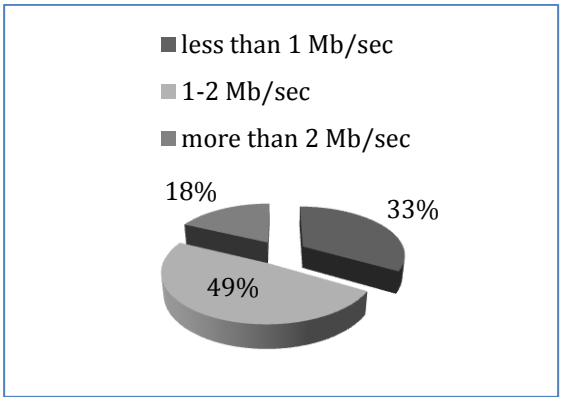

Figure 4: Percentage of companies according to type of Internet connection

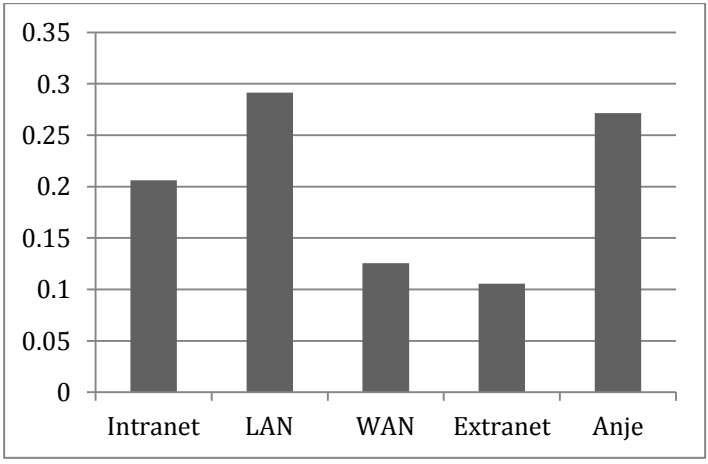

Figure 5: Percentage of organizations according to types of networks used

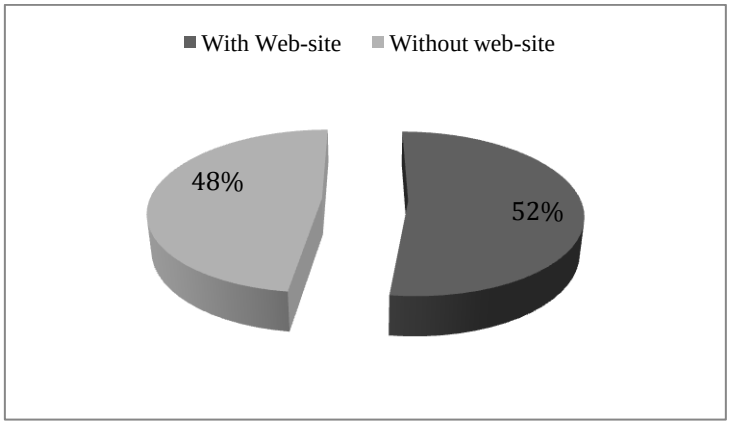

Figure 6: Organizations with web site

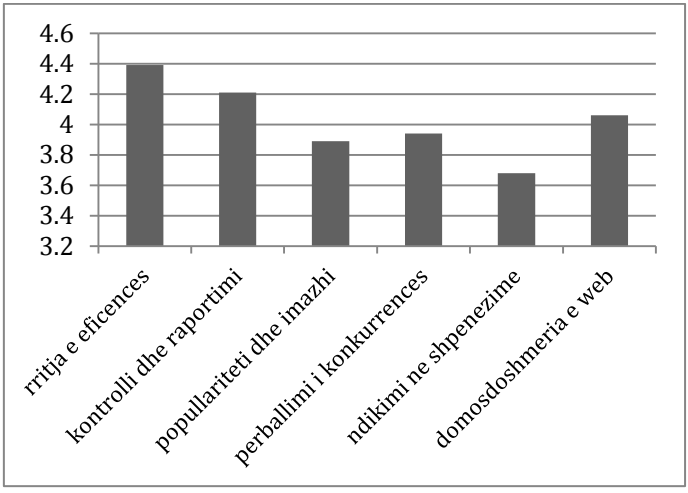

Figure 7: Perception of benefits of IS/IT in organizations

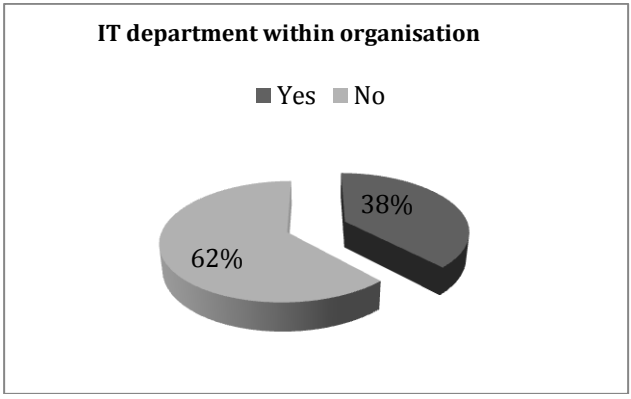

Figure 8: Percentage of companies with IT department

Table 2: Relationship between ICT use and company characteristics

Variables		χ2 value	χ2, Critical value according to type of error α	Hypothesis Ho
Hypothesis Ho: There is no relationship between independent (column 2) and dependent (column 1) variables				
Employees with computers	Company size	1.11	12.59	Accepted
IT Department	Sector type	6.6	5.99	Rejected
Types of Networks used	Sector demand	7,01	5,99	Rejected
Internet usage	Company size	2.95	16.92	Accepted
Types of Networks used	Sector type	4.32	9.49	Accepted
IT Department	Sector demand	6,93	5,99	Rejected
Types of Networks used	Sector type	8,59	7,81	Rejected
Website	Company size	4.5	7.81	Accepted
Website	Sector type	0.06	5.99	Accepted
IT Department	Company size	3,25	5,99	Accepted
Website	Sector demand	9,43	7,81	Rejected

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