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The Impact of ICT on Public and Private Sectors in Lithuania

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The role of information and communication technologies (ICT) has been growing in the economic and social life recently. Information and communication technologies are one of the basic priorities of research and development (R&D) in the information society. In recent years, analyses on the impact of ICT on business and economic environment have been widely addressed by policy makers, technology developers, and science and business societies more and more often. Studies of the socio-economic impact of ICT cover a wide spectrum of questions. The Institute for Prospective Technological Studies (IPTS) defines five important thematic trends in ICT research: macroeconomic and social conditions for ICT-based innovations; ICT, organizational changes and transformation of work processes; the social dimension of ICT; political instruments related to ICT development.

In the case of ICT-related research, different visions by information society of what ICT is and what role it should play in directing research. Although variety of positions exists, ICT socio-economic impact remains one of the most often discussed issues. The spectrum of problems defined by IPTS shows that the impact of ICT is important both at macroeconomic and microeconomic levels as well as on social and political processes affecting all economic subjects' activities.

Consumers and producers form private sector and government – public. ICT development has conditioned the fact that ICT is used by all economic entities in their activity. ICT creates opportunities for an economic entity and transforms its methods and techniques of activity simultaneously.

Evaluating the impact of ICT on business, it is necessary to indicate that the implementation of ICT-enabled solutions is related to both internal and external factors. The implementation of ICT does not only mean acquiring certain software; it also affects different processes of the enterprise. The enterprise has to be able to change, because the implementation of ICT requires primarily transformations inside the enterprise.

Changes conditioned by ICT are closely related to the impact of ICT on consumers. One of the main impacts of ICT is the capacity "to move people to the centre". In this context the European Union declares a possibility "to move every citizen, home and school to the digital century; create literate Europe in digital systems supported by business culture ready to finance and develop new ideas; ensure that the process is socially comprehensive, creating consumer reliance and enforcing social cohesion". This includes efforts like the development of e-learning, e-government, e-health, etc.

Usually e-Government is defined as the usage of ICT to provide public services (therefore, it is closely related to an administrative management unit); however, ICT-enabled solutions are also applied at various administration levels – international, national, regional or local. The application at the local level is related to the concept of e-City. The concept of e-City is based not only on the provision of information, but also on the possibility to include citizens into the life of a city more actively and mutually usefully. E.g. digital technologies (remote network systems, internet and mobile technologies) are used to facilitate the process of decision-making for public institutions, improve public policy in local communities and transform relations with citizens, business and other public institutions.

Keywords: *ICT, economic subjects, ICT impact, e-business, e-government.*

Introduction

In 1960s a famous modern management theorist Peter Drucker stated that knowledge has become the basis of modern economy after the shift of society from the commodity economy to the knowledge economy. Nowadays it is also often stated (Castells, Karunaratne, 2003) that people have developed into a society, where knowledge and organization are first and most important creators of welfare.

However, knowledge itself is not enough to create economic welfare: knowledge has to be productive, besides, it is important that newly created products would be accepted in the market, since only an invention accepted by the market can be identified as an innovation.

The role of information and communication technologies (ICT) has been growing in the economic and social life recently. Information and communication technologies are one of the basic priorities of research and development (R&D) in the information society. Approximately 30% of the budget of research and development, both national and private, is allocated to ICT research and development in industrial nations.

The information and communication technologies sector is developing rapidly. Development trends show that the sector is not only the main stimulus of global business, but also an important part of the global industry[1,2].

1 *Information Technology Outlook* 2004, OECD

The revenue of the global ICT sector has increased from 1,300 billion US dollars (in 1993) to 2,450 billion US dollars (2,044 billion euros). A structural analysis of the global ICT sector shows that the European ICT sector has huge preponderance in the context of global business (32% of the total global ICT sector). The European ICT sector has been constantly growing in recent years. Western Europe development trends of the recent ten years show that rapid and constant growth of telecommunication and information technologies sectors has greatly slowed down after the economic crisis of 2001. However, as indicated in the Communication from the European Commission (hereafter – EC) to the European Council, the ICT sector remains a very important part of uropean economy. On average, the European ICT sector grows faster than sectors as pharmacy or automotive industry, which are very important to European economy. The ICT sector also forms the best perspectives for job-creation.

In recent years, analyses on the impact of ICT on business and economic environment have been widely addressed by policy makers, technology developers, and science and business societies more and more often. Studies of the socio-economic impact of ICT cover a wide spectrum of questions. The Institute for Prospective Technological Studies (IPTS) defines five important thematic trends in ICT research (Verhoest, 2004):

- Macroeconomic and social conditions for ICT-based innovations.
- ICT, organizational changes and transformation of work processes.
- ICT and consumer behaviour.
- The social dimension of ICT.
- Political instruments related to ICT development.

Socio-economic research is usually inspired by philosophic and theoretic assumptions. Policy-oriented research is often normative, therefore different conclusions can be drawn from one notice, and none of them *a priori* will be more valid than another. In the case of ICT-related research, different visions by information society of what ICT is and what role it should play in directing research. Although variety of position exists ICT socio-economic impact remains one of the most often discussed issues. The spectrum of problems defined by IPTS shows that the impact of ICT is important both at macroeconomic and microeconomic levels as well as on social and political processes affecting all economic subjects' activities. Economic subjects can be defined as participants or groups of participants, which make economic decisions independently, form their own action programmes and implement them. Three main types of economic entities are identified in economic processes according to objectives and functions performed:

- consumers
- producers (business enterprises)
- government (public institutions)

Consumers and producers form a private sector and government – a public sector. ICT development has conditioned the fact that ICT is used by all economic entities in their activity. ICT creates opportunities for an economic entity and transforms its methods and techniques of activity simultaneously.

The impact of ICT on economic entities activities remains an important *scientific problem* theoretically, practically and politically. The assessment of results of ICT development and implementation is important in many aspects, i.e. local, regional, national, European and global. ICT development accelerates integration and conditions many processes like *e-business, e-commerce, e-health, e-learning, e-government, e-inclusion,* etc. These ICT-enabled processes determine competitiveness of both an enterprise and a country. In respect of economic entities, ICT has impact on all of them – enterprises, consumers and public sector (Winter,1999).

Considering the before-mentioned reasons, *the object of the research* is the evaluation of the impact of ICT on economic subjects.

The objective of the research is to determine methodological problems of the evaluation of ICT impact ICT on economic subjects in Lithuania.

The methods of research are systemic, logic and comparable analysis.

The impact of ICT on business

The use of ICT in enterprises and organizations in pursuance of improving work processes is one of the most important opportunities of the application of ICT. ICT has not only had the impact on many areas of manufacturing, services, information management, communications, etc., but has also become an established technology, used in management, work and communication processes. Granted that the efficiency of ICT may be doubtful in many areas of manufacturing and services, the importance of ICT is recognized when new enterprises and activity spaces are being established (Bailey, 1997).

ICT has changed and will further transform not only the nature of work and communications, but also the ways of organisation of enterprise and business activity. It is expected that this technology will eliminate the existing limits between economic relations and interaction, and will create new ways of communications, new types of market relations and will provide new opportunities to mobilize activities and expand spaces of interaction.

Evaluating the impact of ICT on business, it is necessary to indicate that the implementation of ICT-enabled solutions is related to both internal and external factors. The implementation ICT does not only mean acquiring certain software; it also affects different processes of the enterprise. The enterprise has to be capable of changing, because the implementation of ICT requires primarily transformations inside the enterprise (Adelaar, 2000).

Factors affecting the development of ICT

The application of ICT in different areas determines the origin of new phenomena. e-Business develops when ICT is used in business. The development of e-Business is

2 *Baltic ICT Market News* 2006 May.

a complex process[3], conditioned by different political, economical and social factors. In pursuance of revealing the development of e-Business more thoroughly, it is purposeful to explore its infrastructural assumptions and legal regulatory documents (Damaskopoulos, 2004).

The conception of e-Business is related to commercial service provision using ICT. Both supply (enterprises willing to provide services) and consumers (enterprises and individuals) are important in e-Business. Talking about the readiness of consumers to "accept" electronic services, the situation is limited by two factors – technological (possession of personal computers and the internet access) and psychological and cognitive (willingness and ability to use them).

According to the data of the Department of Statistics of the Republic of Lithuania, in 2005 91.7% of manufacturing and service enterprises used computers. 85.2% of enterprises used the internet in 2005, which is approximately 5% more than in 2004. Medium-size enterprises used the internet more than small enterprises in 2005 (97.7% medium-size and 100% large enterprises and 81.1% small enterprises). The majority of enterprises in Lithuania have websites. The main goals of enterprises when using websites are product management, catalogues and price lists, a convenient way to provide warranty and mobile services, digital products, etc. to their regular customers.

According to the data of the Department of Statistics in 2005, enterprises mostly use the internet banking and interact with public institutions via the internet. However, there is a limited number of enterprises selling products and services on the internet. This situation allows stating that enterprises are likely to use the ICT-provided potential for e-Government services; however, they remain passive in the area of e-Business.

The number of enterprises which bought or ordered merchandise or services on the internet grew only by 1.9% in 2004. Therefore, it has to be stated that the growth rate is very slow. Judging by individual industry sectors, in 2004 enterprises mostly bought postal and telecommunication services on the internet, and were least interested in buying other services. Hotels and restaurants were among the top sellers of services or products, while real estate and rental business ranked the lowest. In 2004 most orders in the "business-to-business" client category were placed in the field of trade, least – in cultural and sport activity and recreation organisation business. Most orders in the "business-to-business" category were placed in the trade field as well, while least – in real estate and rental business.

ICT can be used efficiently if it is trusted. Different safety problems become substantial barriers in the development of e-Services, e-Trade and other significant ICT-enabled areas. In 2005 58% of Lithuanians indicated that they encountered computer viruses (34% in 2004), 49% received junk mail (26% in 2004), 9% faced a problem of breakage into computer networks (9% in 2004). In pursuance of creating an attractive e-Environment, ICT consumers require safety tools and explicit information on their usage.

According to the data of the Lithuanian News Agency ELTA, a more rapid growth of e-Business is expected in the Baltic States in 2006-2007 than it was in 2005. After a great decline in 2000 – 2002, e-Business is gradually recovering, as indicated by the growing profitability of e-Business enterprises and the growing prices of shares of e-Business companies. It is forecasted that in several years the volume of e-Business will increase from the current 4 – 5% to the global average of 15% in the Baltic States.

The development of e-Business in the political context is closely related to the development of information society and knowledge economy. Analyzing different legal documents, it has been noticed that e-Business is not distinguished; however, documents related to processes of the information society and knowledge economy stimulate the development of e-Business.

In the State long-term development strategy of Lithuania and Long-term economic development strategy of Lithuania by 2015 (2002) it has been planned that the information technology and telecommunications sector will be one of the main (underlying) sectors in the economic structure of the state and will effectively stimulate the development of other sectors of Lithuanian economy. Paperless information technologies will be legitimated in the areas of state government, business, trade, services, finances, etc. State regulation will ensure safe data usage, while the state information economy (register, cadastres and information systems) will be integral and open. Lithuanian economy will integrate into economic, digital and knowledge space of the EU, where globalization processes are growing rapidly. The economy will develop mostly by adjusting to the processes, and will profit from them. The development of information systems has been planned as one of the trends of the long-term health care system development strategy during the implementation of the health system reform. The development of information services has also been planned as an individual instrument in the *National development plan.*

The intended instruments for the development of the information society have been adopted by the Government of the Republic of Lithuania in the *Plan of implementation means of the program of the Government of the Republic of Lithuania for the period of 2004 – 2008.* It should be noticed that a lot of attention is given to the development of e-Services and their content in the "Lithuanian information society development programme for 2006-2008", which has been adopted in June 21st, 2006. These documents are closely related to *the Conception of National information society development* adopted in 2001.

The development of ICT in enterprises and the role of ICT in the internationalization process of enterprises

Nowdays traditional foundations of economics and methods of business organization based on these foundations have been changing radically. This revolution causes the growth of economy and welfare, changing not only business, but also politics and international relations.

The main processes of changes are based on the transformation of the material foundation of economic welfare

[3] *In this paper e-Business is approached in a broad sense, as trade between two parties (individuals or organizations) and other internal and external activities, performed using different technologies and electronic tools. The term eCommerce is used as a synonym for e-Business.*

into ideological-informational. In the traditional business model the foundation of a company is a powerful material basis, and the variety of assets conditions the diversity of business: manufacturing and distribution centres, financial institutes, hospitals and medical institutions, shops, telecommunication enterprises, cable television systems, entertainment centres, etc. Effective asset management requires combining forces to create and integrate activity of the enterprise in local and global markets: simplify relations between supplier and buyer, integrate with supply and distribution networks, standardize and improve business processes, improve general business characteristics and increase its effectiveness. Financial managers have concentrated on profitability at the capital level, profit from material investments, active turnover and other indicators of the effectiveness of enterprise management. Manufacturing concentration processes have also conditioned the consolidation of physical capital nationally and internationally, which is the result of the objective to increase the volume of production by reducing costs. In the last decade of the previous century companies were mostly seeking to find more effective ways for using circulating capital (in the areas of components, stock, supplies, the management of unfinished production and finished products), increase capital turnover, reduce operating costs, enhance the efficiency of executive systems, as well as increase demand and slow its life cycles. The main indicators of successful activity in the traditional business model are the level of productivity, stock turnover, capital efficiency as well as operating capital usage (Damaskopoulos, 2004).

Therefore, business models of many enterprises were created purposely or intuitively based on the concept of an enterprise as a pyramid: the foundation of an enterprise is physical capital, and the pyramid itself is designed to produce and sell merchandise or provide services. Under these conditions many enterprises sought to control as many elements of the supply chain as possible and synchronize processes in the "supplier-buyer" chain.

However, in the last decade of the previous century heads of large traditional companies were stating that market does not, however, pay back as much as it did before. Despite the concentration on the efficiency of process management, constant growth of business processes and feedback conditioned the fact that performance indicators of traditional enterprises have notably worsened as compared to enterprises which have successfully applied electronic business technologies in business processes. E-business appeared to be more mobile and versatile, and it capacitates a larger increase of capital. Basically, e-Commerce provides new opportunities using ICT: it facilitates and accelerates cooperation of interested groups, helps in creating new products or services, allows enterprises to improve relations with consumers, and provides them with useful information.

Commercial activity in electronic networks eliminates certain physical restrictions. Customers have access to the internet computer systems 24 hours a day, 7 days a week, and orders may placed anytime and anyplace in the world.

E-commerce offers new forms of enterprise organization as well as business management. Distribution of production via the internet helps avoid expenses, which occur from serving buyers and customers directly. Discontinued storage of supplies in-store reduces the demand of current assets.

E-commerce includes all types of intercourse related to national and international transactions conducted electronically: buying, selling, electronic auctions, electronic banking, electronic intermediation, supply, orders, advertising, consulting, different agreements and business collaboration.

The foundation of electronic commerce is properly prepared information. The relation of an enterprise with rapidly changing environment by using electronic instruments ensures performance competitiveness. It suffers less from globalization processes and integrates into the common market of the European Union more easily. The application of e-Commerce principles depends on the readiness of the buyer and seller to use modern trade and payment technologies, i.e. on the level of e-Commerce development in the enterprise. The activity of the seller is limited by technical financial potential, while the activity of the consumer is limited by conservativeness and psychological barriers in this sphere.

The transformation of enterprises from traditional business into electronic business is a long process. Each enterprise pursuing this kind of transformation passes certain stages of the development of business based on the usage of information technologies, information systems and intellectual capital. Models of e-commerce as one of the elements of e-business by several authors are provided further in the work in order to indicate the best model of the development of e-commerce. Based on this model, it will be possible to evaluate the development of e-commerce in Lithuanian enterprises and put forward proposals and recommendations for the development of e-commerce strategies.

Empirical research (Gatautis, 2005) on the development of e-commerce, carried out in Lithuanian SMEs, indicate that:

- E-commerce is applied by many Lithuanian enterprises; however, the process has just started.
- Based on the factors that have impact on the development of e-commerce indicated by C. Chan and P.M.C. Swatman, it was sought to find out which stage of the development of e-commerce Lithuanian enterprises are at according to each factor separately. The results have shown that in the field of the usage of e-commerce technologies Lithuanian enterprises are at the stage of "centralized e-commerce", as the internet-based e-commerce programmes are being used most widely. Being engaged in e-commerce, Lithuanian enterprises seek both costs reduction and competitive advantages, therefore they are at the development stages of "primary e-commerce" and "centralized e-commerce". According to the level of the implementation of e-commerce solutions, Lithuanian enterprises are at the stage of "centralized e-commerce". In making e-commerce solutions, Lithuanian enterprises pay most attention to consumers. According to this factor, they also are at the stage of "centralized e-commerce". The majority of enterprises which participated in the research indicated that IT consultants and specialists take

part in the process of e-commerce decision-making. This also allows assuming that the majority of Lithuanian enterprises are at the development stage of "centralized e-commerce". In summary, it may be stated that according to all the factors the majority of Lithuanian enterprises are at the development stage of "centralized e-commerce". In order to achieve a higher stage of e-commerce development, enterprises should intently revise their e-commerce strategies and objectives, select more efficient modern e-commerce technologies, and include highest-level managers, e-commerce specialists as well as all employees of the enterprise into the e-commerce solution-making, i.e. pursue as wide coverage of e-commerce solutions as possible not only in one enterprise, but also in all enterprises operating in the same industry.

- During the conduction of empirical research it emerged that the majority of respondents who participated in the research think that e-Commerce they implement is still at the lowest stage of "primary e-Commerce". As it was mentioned before, according to the e-Commerce development model by C. Chan and P. M. C. Swatman, the majority of Lithuanian enterprises are at the developmental stage of "centralized e-Commerce". Therefore, the fifth hypothesis stating that in the evaluation of the current level of e-Commerce development, pessimistic attitude influences the opinion of specialists, i.e. the current level of e-Commerce development is not evaluated properly, may be confirmed. This kind of an attitude may prevent from making proper e-commerce decisions, and an enterprise can be trapped in the current stage for a long time, because according to e-commerce specialists, it is too early to further develop e-commerce.

The empirical research allowed stating that according to the objectives of the usage of e-commerce (this has been indicated as the most important factor impacting the development) enterprises providing services have reached the highest stage of e-commerce. The majority of service enterprises indicated the pursuance for global coverage as one of the most important objectives of e-commerce usage; therefore, they can be ranked as being at the development stage of "global e-commerce". The development of e-commerce does not depend on the size of an enterprise: responses from enterprises of different sizes have equally distributed according to the stages of e-Commerce development (Gatautis, 2006).

ICT offers great opportunities for all enterprises, especially SMEs, looking for a place in the market for their products and/or services internationally. ICT may provide SMEs with inexpensive access to the international market and help overcome many internationalization barriers usually faced by small enterprises. Enterprises using ICT can be more competitive in international markets, and an extensive range of products and services and information accessible via the internet may be useful for them. In this instance the problem is that small and medium-size enterprises have been using these opportunities recklessly, however, they face different barriers using the internet.

First, it is necessary to define what internationalization is and how it affects enterprises, especially small and medium-sized. Internationalization is a process of development, when small and medium-size enterprises become more global in the course of time. The main factors of internationalization are expanded knowledge, experience, and trust which destroys cultural barriers and reduces threat related to further internationalization. Many authors describe this process differently; however they stick to the opinion that internationalization is a gradual process, which passes several stages, e.g. a disinterested enterprise, partially interested enterprise, exploring enterprise, experimental enterprise, experienced small exporter, and experienced large exporter).

Anyway it is necessary to understand that ICT is not a remedy for all problems; however, if used efficiently, it can be a very effective instrument assisting small and medium-size enterprises to overcome main barriers and accelerate the process of internationalization. E.g., main advantages gained by small and medium-size enterprises by using the internet for the reduction of psychological barriers, are strengthening of international knowledge, trust and responsibility for accessible global sources of information, requests and feedback from potential consumers on the website, etc.

Electronic business can simplify many operations: simplified export documentation by using electronic data transfer, electronic payments, export help on the internet, etc. By overcoming organizational barriers, the internet can help conduct market research, expand knowledge of international markets and culture, and reduce the dependence on traditional agents and suppliers via a created virtual network of partners. Market research reports may be excessively expensive, while the same information can be retrieved directly from an internet website for free or a small payment. The creation and proper presentation of an internet website may be used in solving problems of product appropria-teness/country market choice, which would enable small and medium-size enterprises to create global strategies of a market niche rather than strategies directed aside.

ICT is often identified as one of the most significant critical factors of internationalization. It is important to notice that there is no such success factor which could absolutely ensure efficient performance of an enterprise in foreign markets, as factors impacting export success are various and complex. However, there is enough empirical evidence to make general conclusions about factors, which can determine export success.

In summary it can be stated that ICT provides opportunities for enterprises to enter international markets, leave their usual business environment and move to new markets where cultural, legal and social systems are significantly different. What is applicable in one market may be illegal or inefficient in another. Therefore, enterprises should value and use "critical success factors" like finding of a "proper" foreign agent or distributor, creation and maintenance of efficient collaboration with an agency/distributor, large export share, international cognition, knowledge and orientation, etc. in their strategies.

An enterprise can control these factors, however, there

are other important aspects impacting enterprise performance, which cannot be influenced or changed by an enterprise, and this fact has also to be taken into account. Possession of a personal computer, computer literacy, internet access and governmental regulation, language (an enterprise can decide on the number of languages of its website) and cultural differences are among unchangeable factors.

The impact of ICT on consumers

Changes conditioned by ICT are closely related to the impact of ICT on consumers. One of the main impacts of ICT is the capacity "to move people to the centre". In this context the European Union declares a possibility "to move every citizen, home and school to the digital century; create literate Europe in digital systems supported by business culture ready to finance and develop new ideas; ensure that the process is socially comprehensive, creating consumer reliance and enforcing social cohesion". This includes efforts like the development of e-learning, e-government, e-health, etc.

Because of the ongoing rapid ICT penetration into all spheres of everyday life, ICT has become one of the main resources for all Europeans. Europe aims at reforming the current information society into the "knowledge (knowledge-based) society" and at emphasizing the expectation that ICT will increase human and social capital. The knowledge society is expected to create more opportunities (e.g. new employment opportunities, easier access to public services and more intensive inclusion of poor citizens or regions), as well as new threats like digital divide, growing differences of life standards and health risks at the same time.

Briefly, as formulated by the European Union in this political discourse, the importance of the consumer is crucial for ICT policy. Not only people are "transferred to the centre", but also the demand to include *all* Europeans and allow them to benefit from the information/knowledge society is emphasized.

The above-mentioned facts prove and accentuate the demand to include (future) consumers into the process of creation of a future society where ICT will contribute to economic and social welfare, quality of life and cultural variety. Consequently, the consumer is regarded as a crucial factor and active participant of innovation processes at least theoretically. In this regard socio-economic research with the objective to apprehend the role of consumers in innovation processes is particularly important.

The main fields of ICT and consumer behaviour research are: (i) apprehension of the role of the consumer in innovation processes related to ICT; (ii) apprehension of the implementation, spread and recognition processes of socio-economic ICT, and (iii) apprehension of the impact of socio-economic ICT development on consumers.

The following changes caused by ICT development can be defined:

- Consumer needs have become more complex while consumers themselves have become more demanding.
- Trademark management has changed radically.
- Distribution channels have become virtual.
- Payment process has become virtual.
- Markets have become global.

The developed ICT infrastructure has created new environment for the operation of enterprises. The meaning of consumer has grown significantly, and unique environment features have conditioned many changes of consumer behaviour. Both ways of interaction between consumers and enterprises and consumer behaviour have been changing because of the ICT development.

New forms of interaction conditioned by ICT

Internet societies that have emerged recently because of ICT aim at satisfying new needs. In 1980s the predecessor of the internet ARPANET (Advanced Research Project (Agency Network)) was used by a group of scientists who tried to communicate electronically. In 1990s academic communities accelerated the development of the internet after the National Science Foundation linked North American universities together. People realized that internet communities are capable not only of satisfying many traditional needs of communities and individuals; it is also possible to exchange information and interests in the unbounded space (members can be hundreds of miles away from each other) and at unlimited time (communication is possible at any time of the day). The notion of interactivity on the internet allowed individuals to expand boundaries of a traditional community.

The history of the creation of virtual communities started in 1993 – 1994 when commercial activity began developing on the internet. At that time hardly any individual communities with their own traditions and manners existed on the internet. Many commercial enterprises operating on the internet started offering different communication services to consumers. Businessmen and marketing specialists began noticing different perspectives offered by the internet. Internet trade was not as successful as it had been forecasted before, however advertising on the internet was very profitable. Consumers did not necessarily have to buy advertised merchandise on the internet, as they could find them in stores. It became very important not to lose old customers and to attract new ones on the internet. Therefore, different enterprises aimed at gathering loyal customers and created communities on the internet to achieve the aim. In this case an electronic community can be perceived as a group of clients of an enterprise. It was relevant for enterprises that consumers would visit their websites and use their services on the internet, therefore they offered free services and encouraged consumers to cluster into communities.

The conducted empirical research on virtual communities allowed revealing several important factors, conditioning the development of virtual communities in Lithuania:

- The majority of consumers do not consider themselves to be community members, however, many of them think that virtual communities exist.
- The main reason why consumers do not participate in the activity of virtual communities is the "absence of point". This allows stating that virtual communities in Lithuania are at the stage of the beginning of development, as consumers do not see the benefit of a virtual community.

- Many consumers agree that members of virtual communities have to be in a special relationship. This shows that respondents treat clustering into virtual communities as a specific activity which has to be based on the creation of special relationships among community members.
- The major part of the consumers' also agrees that virtual communities help members achieve their goals which they cannot achieve individually. This proves that the respondents realize the importance and potential of virtual communities, which could be an incentive for the formation of virtual communities.
- According to many consumers, a member of a community has to perform assigned functions or observe the activity of a community; however, it can be stated that community members are inclined to accept and value ideas and work of community leaders.
- Determinant factors, uniting community members are interesting information and common interests of a community. It may be stated that communities of this type are the most attractive to users of the internet in Lithuania. Assessing the assumptions of value creation in communities, many respondents think that value has to be created by an administrator of a community.

After generalizing the results, it can be stated that virtual communities are only at the primary stage of development in Lithuania. The consumers acknowledge the importance of virtual communities; however they are mostly passive participants. The majority of the consumers profit from the results of the activity of a community; however, they avoid active participation in the activity. On the other hand, it has to be noted that virtual communities are not an unknown and incomprehensible phenomenon for consumers in Lithuania, which creates conditions for the growth and development of communities.

The impact of ICT on consumer behaviour

Academics (F. R. Kardes, G. Parson, R. R. Dholakia, J. F. George, J. L. Joines, C. H, Park, K. Sheehan) who explore peculiarities of consumer behaviour in virtual environment acknowledge that a change in behaviour appears in new environment; however few authors specify differences of consumer behaviour in real and virtual environment.

Usually demographic criteria are used in the research of consumers in virtual environment, and psychographic features are used if more comprehensive studies are necessary (B. Sheehan A. G. Parson, R. R. Dholakia, J. F. George, J. L. Joines, C. H. Park). However, the current level of the investigation of the matter shows that *research has been conducted in one psychographic aspect and results are not organized according to consumer behaviour in virtual environment.* Therefore, a deeper *theoretical* research on consumer behaviour in virtual environment which would generalize the data of empirical studies is advisable.

Features of interactivity typical to ICT reveal new aspects of consumer behaviour. The interactivity factor has an impact on consumers and the process of buying: merchandise as a sales object gains new features because of the specificity of virtual environment, and consumers are constrained to adapt to the new features. Therefore, it can be stated that the origin and features of merchandise in virtual environment condition certain peculiarities of consumer behaviour.

Assessing the impact of ICT on consumer behaviour, it is worth noticing that the impact is ambivalent: on the one hand it prompts consumer activity in virtual environment, while on the other hand it also decides passivity. In empirical studies authors (G. Parson, R. R. Dholakia, J. L. Joines, and C. H. Park) explore factors, stimulating consumer activity in virtual environment from different angles. Usually factors are analyzed by dividing them into personal, social and economic in research. Factors like convenience, anonymity, opportunity of interactive control, etc. are considered personal. Communication with users having similar hobbies, pursuance of becoming a member of a group, etc. are identified as social factors, while reduced costs of information search and assessment, the quality of information, etc. are classed as economic factors.

Rapidly developing information technologies are penetrating into community life increasingly. The internet and computer-based communication relations have created a new social environment where members communicate constantly. Thus, different virtual communities and cities as well as other attributes specific to real social life – ways of spending leisure time, education forms, etc. form in this environment. On the other hand, *information technologies have also created opportunities for the spread of antisocial and criminal phenomena and processes.* An environment where primitive and traditional crimes are committed in non-traditional ways has been created (Banyte 2004, 2005).

Generalizing the empirical research on Lithuanian youth, it can be stated that activity is mostly stimulated by internal personal factors: *convenience and possibilities to find out particular information (news)*. A possibility to communicate on the internet also has a lot of significance on the decision of consumers to use the internet service. The gain in time factor prompts the respondents to use ICT-enabled services; however, compared to other factors, this factor is assessed moderately. The possibility to buy factor does not have any impact at all. Therefore, it can be stated that economic factors have the least impact on the behaviour of Lithuanian youth in virtual environment.

The factor restricting activity the most is a fear of possible computer viruses, as well as insecurity of personal information. Junk mail also has a negative impact on the respondents.

The impact of ICT on public sector

The impact of ICT at the national level

In recent years the concepts of government and administration have been transformed radically. Transformations were caused not only by growing requirements and expectations for ways of governing civil society to reflect modern methods of efficiency and productivity, but also the attitude that government should be more open to democratic control and accountability.

The above-mentioned processes of changes had a lot of impact on the activity of government. A lot of public

institutions have included the ICT dimension into their activities. Many authors state that e-Government ensures efficiency and democracy in a more economical way than it was forecasted before, and the application of ICT creates opportunities for government to modify the traditional compromise between these two objectives. However, new technologies allow moving still further. They help change the government by changing power and responsibility links between all participating parties – service providers and industry, public and private sector, and government and citizens.

Since the tenth decade *high expectations of cutting expenses* has been one of the main factors promoting e-Government in the Member states as well as other advanced economies. However, these expectations have not been met in reality. Sometimes it is possible to save at one level (e.g. costs of direct operations are reduced), while at other levels this kind of saving by reduction is impossible. As distinct from banks or budget airline companies, governments cannot refuse working with expensive "clients", especially if they are citizens who mostly use public services, e.g. the elderly, disabled, sick, poor or cast-off. Thereupon, e-Services do not replace the existing services but supplement them (Bogdanowicz, 2004).

During the first years of the 21st century many EU governments have been stating that costs will be saved practicably, and quality will improve when internal government structures and processes will be reorganized. This strategy is reflected in supply: corporate technological solutions are applied in government departments and agencies by integrating work processes, sharing data and information. Successful projects like e-Procurement and e-Taxation have been implemented.

On the other hand, a recent report on large IT projects in public sector in the United Kingdom indicates that the majority of them have been unsuccessful. Millions if not billions of pounds have been lost in this case. It is stated in the report that the culture of the public sector is not suitable for large IT projects. When the activity fails, usually no person (or even subdivision) is ready to commit responsibility or after-effects. The public sector usually accepts all systems, quality and price offered by suppliers; therefore, suppliers have no incentive to work better (Prisma, 2003).

Another difficulty related to the viewpoint of government restructuring is that it is often considered the euphemism of the dismissal of employees of public sector. In the United Kingdom *e-Envoy* faced this problem in 2002, when it was suggested that e-Government can reduce the number of public employees up to 20% in ten years. Until April of 2002 the number of public employees had been increasing by 1.6% annually in the United Kingdom.

However, several "success" stories like more accessible services of higher quality via communication with public sector or privatization and transfer of functions can be mentioned. However, the impact of such obvious "success" in a longer period of time neither financially (some authors state that privatization will finally result in higher costs because of the need of "additional" profit) nor evaluating the decrease of democratic responsibility has been revealed. A danger arises that a traditional ethos of citizenship and disinterested public service which is valued in the Member States and noticed in community performances and the attitude of public sector employees will degrade. In principle, the activity of government and e-Government should be coordinated only by needs of the society (citizens as individuals and groups, formal organizations and businesses) to which it serves. In order to implement this vision e-Government demand and supply should be analysed as shown in Pic.1, where the main elements of stable e-Government in Europe in several years are provided.

(Re)balancing government	
Demand – „front office" citizen interaction and services	Supply – „back office" administration
1. e-Services – services on the web oriented towards citizen life and business events ("do-it-yourself" or through helpers) 2. traditional services and channels – human, organizational and physical 3. e-Democracy – additional responsibility, openness, transparency, accessibility, participation, etc.	1. internal rebalancing of governmental processes – inclusion of knowledge management and data exchange into public administration 2. intermediate rebalancing of governmental processes – inclusion of knowledge management and data exchange among public administrations by crossing state borders 3. rebalancing of previous technology, organizations, processes, skills, thinking, etc.
Has to become bigger and better	**Has to become smaller and „smarter"**

Figure 1. Government rebalancing model PRISMA

It is most important that all Lithuanian public institutions have to participate in the development and implementation of e-Government projects. Supervision of provision of public services via digital channels, coordination and analysis of e-Government projects is crucial for the successful operation of e-Government initiatives. Changes related to the implementation of e-Government projects (modernization of public administration) are and will be very significant. Application of information technologies and use of their possibilities will strongly change our understanding about administration, ways and means of control, the ways of reporting the results and assessment of the efficiency of staff work. Changes of comprehension will strongly effect private and public institutions. Significant changes on both sides and on different levels should be carried out. Those changes should embrace personnel and information management, decision making issues as well as clients and their ability to function in conditions of new environment.

On the perspective of the financing period of 2007 – 2013, e-Government will remain one of the priorities. E-Government portal will be developed in two directions: development of infrastructure (to integrate state information systems and registries, ensuring their safety, and to ensure effective information exchange while delivering e-services) and development of e-services and content.

Unless e-Government remains the important priority in Information Society development in Lithuania, it is shaded by other priorities as well. The state organizations tend to implement e-Government services formally without motivation for better services. The services still remains more organization, but not user oriented (Gatautis, 2006).

The impact of ICT at the regional and local level

Usually e-Government is defined as the usage of ICT to provide public services (therefore, it is closely related to an administrative management unit); however, ICT-enabled solutions are also applied at various administration levels – international, national, regional or local. The application at the local level is related to the concept of e-City. The concept of e-City is based not only on the provision of information, but also on the possibility to include citizens into the life of a city more actively and mutually usefully. E.g. digital technologies (remote network systems, internet and mobile technologies) are used to facilitate the process of decision-making for public institutions, improve public policy in local communities and transform relations with citizens, business and other public institutions (Gatautis, 2004).

In these days of information telecommunication technologies e-City offers a potential model of open government, advanced democracy and efficient decision-making systems. ICT can help achieve the objectives like more qualitative provision of public services to citizens, a closer interaction between business and industry, a better access to information for citizens and more efficient work of government. The benefit may be different and long-term and can include less corruption, more transparency and trust, income increase, and (or) costs reduction.

The concept of e-City is not deeply explored theoretically or practically, however, many authors agree that e-City determines the governance (or e-Governance) of a city using ICT. In a broad sense e-City is comprehended as electronization of different services.

Usually the administration of e-City is intended to spread information, communicate and facilitate transactions of members of various communities of the city. This conditions the interaction among government, business and citizens, consultations, and participation in the governance of e-City, and creates opportunities for e-Commerce which allows enterprises communicate efficiently and attracts consumers closer to business. Because of e-Governance the interaction and internal relations between government and society can become friendlier, more convenient, clearer, more comprehensive and profitable. Internet, mobile or other technology enabled solutions creates premises for direct inclusion of citizens into the process of public decision-making by establishing better conditions for the development of social democracy.

In this regard the following main features are specific to e-City:

- Governance of e-City is a system of organizational structures, functions, processes and strategies for the administration of the city where ICT is used. This system supports and promotes efficient and productive interaction, communication and decision-making of the city based on partnership and local communities.
- e-City highlights opportunities and capacities of local government to affiliate with other organizations (IT enterprises, local communities and local business sector for better decision-making) and perform its direct functions.
- e-City is not an objective, bu rather an instrument to achieve objectives, i.e. it is result-oriented (including results and impacts of actions)
- the concept of e-City has to be perceived as a fundamental instrument for the change and modernization of government used to improve public assessment.
- Governance of e-City promotes communication and close relations among government, business, citizens and communities and aims at using the advantages of strategic partnership, communication and consolidation at the maximum. e-City and e-Governance are political directions, the success of which is determined by a constant advance and intensification of public value.

Two fundamental processes are necessary for the implementation of the concept of e-City:

- an efficient and effective coordinated structure and operation at all levels;
- efficient and effective e-Participation and e-Inclusion as well as communication and partnership in community life and institutions.

The following four features of the existence of a good e-City can be identified:

- advanced electronic public services;
- constant change and modernization of government;
- strong local democracy;
- strong support for the process of decision-making and public policy which increases the value of the community of the city.

Conclusions

The development of Information Communication Technologies (ICT) is closely related to its impact on the performance of economic entities. Opportunities created by ICT allow transforming the performance of economic entities by increasing performance efficiency.

The analysis of the impact of ICT on economic entities refers to the attitude that despite the impact of ICT on individual groups of subject entities - public sector, business enterprises, and consumers- the impact of ICT is complex. Changes occurring in performance of certain entities condition changes in performance of others.

The impact of ICT on business is often related to commercial service provision using ICT. This process is defined as e-Business (some authors refer to it as e-Commerce); however, the development of e-Business conditions the development of related processes like e-Government, e-Learning, e-Health, etc.

Success of e-Business as a process cannot be ensured by a company only by the acquisition and usage of software and equipment. Enterprises have to asses and reorganize internal processes like marketing, finances and planning as well. Unwillingness to assess the requirements caused by ICT implementation usually determines failure of enterprises in the market.

The main macroeconomic factors conditioning the development of e-Business as a process are infrastructure and political viewpoint of government. Assessing the situation of Lithuania, it has to be stated that despite the existing political understating, there is a lack of real support. Infrastructurally, enterprises have great opportunities to develop e-Business amongst them, however, opportunities to develop e-Business oriented towards a consumer are very moderate.

Empirical researches on Lithuanian SMEs show that these enterprises have not developed e-Business. Despite the fact that e-Business advantages are often emphasized, Lithuanian SMEs are only at the primary stage of e-Business usage.

ICT is one of the most important instruments for SMEs in the internationalization process of their performance. The implementation of ICT facilitates the access to global markets and creates opportunities to access new or additional market segments. The decision to expand into international markets is related to both controllable critical success factors and uncontrollable factors conditioned by ICT development in a selected market.

Changes determined by ICT are closely related to the impact of ICT on consumers. As a result of ICT development consumers become less loyal to merchandise and companies; and their needs (both perceptive and real) change rapidly. The main reasons of these changes are possibilities to access information and compare alternatives.

ICT development conditions changes in the public sector as well. The public sector adapts ICT in order to provide more qualitative services to business and consumers. In this context ICT is treated only as an instrument which allows reorganizing public business in order to provide services more efficiently. The implementation of ICT takes part at the national, regional and municipal levels. At the national level ICT is related to the increase of the efficiency of national services by transferring them into virtual space. Respectively at the regional and municipal level it is related to the notions of e-Region and e-City, defining ICT applications in spheres relevant to a city or region.

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Rimantas Gatautis

IRT poveikis viešajam ir privačiajam sektoriui Lietuvoje

Santrauka

Septintajame dešimtmetyje vienas iš žymiausių šiuolaikinės vadybos teoretikų Peter Drucker tvirtino, kad visuomenei perėjus nuo prekių ekonomikos prie žinių ekonomikos žinios tapo modernios ekonomikos

pagrindu. Šiandien taip pat dažnai teigiama (Neil Dias, Karunaratne 2003), kad mūsų visuomenė išsiplėtojo iki tokios, kurioje žinios ir organizacija yra pirmieji ir pagrindiniai gerovės kūrėjai. Tačiau siekiant sukurti ekonominę gerovę vien tik žinių nepakanka. Jos turi būti produktyvios ir svarbu, kad naujai sukurti produktai būtų pripažįstami rinkoje. Tik rinkos pripažintas išradimas tampa inovacija.

Pastaraisiais metais ekonominiame ir socialiniame gyvenime vis didėja informacinių ryšių technologijų (IRT) vaidmuo. Informacijos ir ryšio technologijos yra vienas iš pagrindinių tyrimų ir plėtros (R&D) prioritetų informacijos visuomenėje. Pramoninėse valstybėse beveik 30 procentų viso tyrimų ir plėtros biudžeto, valstybinio ir privataus, skiriama IRT tyrimams ir plėtrai.

Informacijos ir ryšių technologijų (toliau – IRT) sektorius sparčiai plėtojasi. Plėtojimosi tendencijos rodo, kad šis sektorius ne tik yra pagrindinis pasaulinio verslo stimulas, bet ir pats savaime reikšminga pasaulinės pramonės dalis. Pasaulinio IRT sektoriaus pajamos išaugo nuo 1 300 mlrd. JAV dolerių (1993 m.) iki 2 450 mlrd. JAV dolerių (2 044 mlrd. EUR). Struktūrinė IRT pasaulinio sektoriaus analizė rodo, kad Europos IRT sektorius turi didelę persvarą pasaulinio verslo kontekste (32 proc. viso pasaulio IRT sektoriaus). Pastaraisiais metais Europos IRT sektoriaus nuolat auga. Stebint pastarųjų 10 metų Vakarų Europos vystymosi tendencijas, matyti, kad po 2001 m. ekonominės krizės labai sulėtėjo sparčiai ir nuosekliai augę tiek telekomunikacijų, tiek informacinių technologijų sektoriai. Tačiau kaip pažymima Europos Komisijos (toliau – EK) komunikate Europos Tarybai, IRT sektorius Europoje išlieka labai reikšminga Europos ekonomikos dalis. Europos IRT sektorius vidutiniškai auga sparčiau negu tokie Europos ekonomikai svarbūs sektoriai, kaip farmacija ar automobilių pramonė, ir formuoja geriausias perspektyvas kurti naujas darbo vietas.

Pastaraisiais metais IRT poveikio verslui ir verslo ekonominei aplinkai tyrimus vis dažniau pasitelkia tiek politikos formuotojai, tiek technologijų kūrėjai, tiek mokslo ir verslo bendruomenės. IRT socialinės-ekonominės įtakos studijos apima platų klausimų spektrą. Ateities technologinių studijų institutas (IPTS) išskiria penkias svarbias temines IRT tyrimų kryptis:

- makroekonomines ir socialines sąlygas IRT pagrįstoms inovacijams.
- IRT, organizacines permainas ir darbo procesų transformavimą.
- IRT ir vartotojų elgseną.
- socialinį IRT matmenį.
- su IRT plėtra susijusios politikos instrumentus.

Socialinius-ekonominius tyrimus visada inspiruoja filosofinės ir teorinės prielaidos. Į politiką nukreipti tyrimai dažnai yra normatyviniai. Tokiu atveju iš vieno pastebėjimo galima padaryti skirtingas išvadas, ir nė viena iš jų *a priori* nebus labiau pagrįsta nei kitos. Su IRT susijusių tyrimų atveju svarbų vaidmenį, kreipiant šiuos tyrimus kuria nors kryptimi, vaidina skirtingos informacijos visuomenės vizijos, kokia IRT yra ir kokia turėtų būti. Šios vizijos pagrįstos teoriniais ir filosofiniais argumentais, pavyzdžiui, apie technologinės kaitos pobūdį, jos pasekmes ir visuomenės ar jos dalies gebėjimą formuoti jos kaitos trajektorijas. Teminės tyrimų kryptys arba mąstymo mokyklos apibrėžiamos kaip interpretacinės schemos, pagrįstos disciplinomis, teorijomis, metodikomis ir problematikomis, kurias nagrinėja atskiri tyrėjai, institucijos, jos analizuojamos konferencijuoses ar moksliniai žurnalai. Kai kurios tyrimų kryptys yra grindžiamos tik tam tikra teorija ar keliomis susijusiomis teorijomis, tuo tarpu kitos tyrimų kryptys yra tarpdisciplininės; jas apibrėžia problematika, kurią jos analizuoja.

Šiame kontekste reikia pabrėžti didelę IRT reikšmę ekonominių subjektų veiklai bei jų aplinkai. Kaip rodo IPTS išskiriamas problemų spektras, IRT poveikis svarbus tiek makroekonominiams, tiek mikroekonominiams, taip pat socialiniams ir politiniams procesams. Ekonomikos subjektais vadinami tie dalyviai ar jų grupės, kurie savarankiškai priima ekonominius sprendimus, sudaro savo veiksmų programas ir jas įgyvendina. Pagal siekiamus tikslus ir vykdomas funkcijas ekonominiuose procesuose skiriami trys pagrindiniai ekonomikos subjektų tipai:

- vartotojai;
- gamintojai (verslo įmonės);
- valstybė (valdžios institucijos).

IRT plėtra lėmė, kad jas savo veikloje naudoja visi ekonomikos subjektai. IRT suteikia ekonomikos subjektui naujų galimybių, kartu transformuoja jos veiklos būdus ir metodus.

Kaip rodo mokslinės literatūros analizė, IRT poveikis ekonomikos subjektams išlieka aktuali **mokslinė problema** tiek praktiniu, tiek politiniu požiūriu. IRT plėtros pasekmių vertinimas yra svarbus įvairiais aspektais – vietiniu, regioniniu, nacionaliniu, europiniu ar pasauliniu. IRT plėtra spartina integraciją ir lemia daugelį procesų: ***el. verslą, el. komerciją, el. sveikatą, el. mokymąsi, el. vyriausybę, el. įterptį*** ir t. t. Būtent šie procesai, kurių pagrindas yra IRT, nulemia tiek įmonės, tiek šalies konkurencingumą. Vertinant ekonomikos subjektų atžvilgiu, IRT turi įtakos visiems – tiek įmonėms, tiek vartotojams, tiek vyriausybiniam sektoriui.

Atsižvelgiant į iškeltas priežastis, autoriaus atliktų ***tyrimų objektas*** yra IRT poveikio vertinimas.

Mokslinių tyrimų tikslas – nustatyti IRT poveikį privačiam ir valstybiniam sektoriams Lietuvoje.

IRT plėtra neatsiejama nuo jų poveikio ekonomikos subjektų veiklai. Galimybės, kurias sukuria IRT leidžia gerokai transformuoti ekonomikos subjektų veiklą, padidinant veiklos efektyvumą.

Nagrinėjant IRT poveikį ekonomikos subjektams, remiamasi nuostata, jog, nepaisant IRT poveikio atskiroms ekonomikos subjektų grupėms - valstybiniam sektoriui, verslo įmonėms ir vartotojams IRT poveikis yra kompleksinis. Pokyčiai, atsirandantys vienų subjektų veikloje, lemia pokyčius kitų subjektų veikloje.

IRT poveikis verslui dažniausiai siejamas su komercinių paslaugų teikimu išnaudojant IRT. Šis procesas įvardijamas kaip e-verslas (nors kai kurie autoriai šį procesą vadina e-komercija), tačiau e-verslo plėtra sąlygoja ir susijusių procesų: e, vyriausybės, e. mokymosi, e. sveikatos ir kt., plėtrą.

E-verslo kaip proceso sėkmė negali būti užtikrinama tik programinės ar aparatūrinės įrangos įsigijimu ir panaudojimu kompanijoje. Įmonės turi įvertinti ir pertvarkyti ir vidinius procesus– marketingo, finansų, planavimo ir kitas veiklas. Nenoras įvertinti reikalavimų, kuriuos teikia IRT diegimas, dažniausiai lemia įmonių nesėkmę rinkoje.

Pagrindiniai makroekonominiai veiksniai, sąlygojantys e-verslo kaip proceso plėtrą, yra infrastruktūra ir politinės vyriausybės nuostatos. Vertinant Lietuvos situaciją, tenka konstatuoti, jog egzistuoja politinė samprata ir palaikymas, tačiau pasigendama realios paramos. Infrastruktūriniu požiūriu verslo įmonės turi dideles galimybės plėtoti e-verslą tarpusavyje, tačiau galimybės plėtoti e-verslą orientuotą į vartotoją išlieka nedidelės.

Empiriniai Lietuvos smulkių ir vidutinių įmonių tyrimai rodo, jog šios įmonės nėra išplėtojusios e-verslo. Nepaisant dažnai akcentuojamų e-verslo pranašumų Lietuvos SVĮ yra dar tik pradinėje e-verslo naudojimo stadijoje.

IRT yra viena iš svarbiausių priemonių SVĮ internacionalizuojant veiklą. IRT diegimai leidžia lengvai pasiekti globalias rinkas bei sudaro galimybes pasiekti naujus ar papildomus rinkos segmentus. Sprendimas plėsti veiklą tarptautinėse rinkose siejamas tiek su kontroliuojamais kritiniais sėkmės veiksniais, tiek su nekontroliuojamais veiksniais, kuriuos sąlygoja IRT plėtra pasirinktoje rinkoje.

Pastaraisiais metais IRT traktuojamas kaip svarbius veiksnys atsirasti inovacijoms įvairiuose verslo ar vyriausybės sektoriuose. Nors dažnai IRT diegimai siejami tik su techniniais sprendimais organizacijoje, organizacijos priverstos iš naujo įvertinti savo veiklos procesus ir modifikuoti juos taip, kad organizacija sugebėtų lanksčiai reaguoti į besikeičiančią aplinką ir aplinkos subjektus. Šiuo požiūriu IRT grįstos inovacijos sąlygoja organizacines inovacijas, kurioms reikalingas kompleksinis požiūris į įmonę bei ją supančią aplinką kaip svarbius inovatyvius procesus nulemiančius veiksnius.

Pokyčiai, kuriuos lemia IRT, neatsiejami nuo IRT įtakos vartotojams. Dėl IRT plėtros vartotojai tampa vis mažiau lojalūs prekėms ir kompanijoms, jų poreikiai (tiek suvokiami, tiek realūs) kinta labai greitai. Pagrindinės šių pokyčių priežastys - galimybė lengvai pasiekti informaciją ir palyginti alternatyvas.

IRT plėtra lemia ir pokyčius valstybiniame sektoriuje. Valstybinis sektorius adaptuoja IRT, siekdamas teikti kokybiškesne paslaugas tiek verslui, tiek vartotojams. Šiame kontekste IRT yra traktuotina tik kaip instrumentas, kuris leidžia reorganizuoti vyriausybinį verslą siekiant efektyviau teikti paslaugas. IRT diegimas vyksta keliais lygmenimis: nacionaliniam, regioniniam, municipaliniam. Nacionaliniu lygmeniu IRT siejamas su nacionalinių paslaugų efektyvumo didinimu perkeliant jas į virtualią erdvę. Atitinkamai regioniniam ir municipaliniam lygmenyje tai siejama su e-regiono ir e-miesto koncepcijoms, apibrėžiančiomis IRT taikymus miestui ar regionui aktualiose srityse.

Raktažodžiai: *IRT, IRT poveikis, ekonomikos subjektai, e. verslas, e. vyriausybė.*

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