KNOWLEDGE – THE INTELLECTUAL CAPITAL – ENTERPRISE ACTIVITY: INTERRELATION AND INTERCONDITIONALY

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Abstract: A necessary condition for achieving a balance in the state's domestic market and a sufficient condition for the growth of its economy is the knowledge potential of entrepreneurs. The success of business depends on the quality of the intellectual capital of the entrepreneur and employees. Under present conditions the best return of using the full intellectual capital can be achieved in a virtual market place. The state's investment in strengthening the market infrastructure is now becoming crucial to the functioning and development of the virtual market.

Keywords: enterprise activity, the intellectual capital, knowledge, small and medium enterprises, virtual market.

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1. Introduction

Global experience provides impressive examples of the results of economic development. They are reached by those countries whose economy is focused on the creation and intensive use of the entrepreneur's potential of knowledge. It is knowledge-based sectors of the economy today that generate a significant share of gross domestic product of the country. In this context, coordination between entrepreneurs who use their own intellect and intellectual resources of the staff and the state as a guarantee of the quantitative and qualitative reproduction of these resources is a necessary condition for the dynamic development of the society.

The aim of this paper is to look at the usage of the category of intellectual capital in modern knowledge-based economy, to show the intellectual capital and intellectual potential in today's business, with emphasis on the behavior in the virtual market. The object of research is the intellectual capital in the context of entrepreneur activities used information and communication technologies (ICT). During the research the following challenges are addressed: to get the theoretical background to the creation and development of the category of intellectual capital; to explore interactions of intellectual capital and entrepreneurship; to study the significance of information and communication technologies in the developing of the entrepreneur activities in virtual market place and the state's role in the promoting of this processes; to clarify the situation in the use of the knowledge potential of entrepreneurs and the virtual market infrastructure in the companies in the European Union

(EU) countries, especially in Latvia. The research continues the studies of intellectual capital and entrepreneurship interaction and conditionality by Professor G. Olevsky in the previous years (Olevskis 2007; Olevsky 2010). This paper analyzes the theoretical and methodological basis of the intellectual capital. Further intellectual capital is considered as a factor in entrepreneurship development, focusing on the business operation in the virtual market place. A separate part of the paper is dedicated to the market infrastructure as a virtual enterprise success condition; based on statistical data, trends analysis and a critical evaluation of the situation of infrastructure development and of use of the knowledge potential in Latvian enterprises are given The main conclusions are given at the end of the paper.

Large-scale use in the workplace and at home of revolutionary advances in information and communication technology has increased the qualitative transformation of the business. It is fundamentally important that modern ICT offers businesses and employees the opportunity to not only to become part of the technological processes, but also to generate new knowledge about these processes. As a result it led to the shift of focus in the functioning of the economic system, which was reflected in the transition from economy based on machines, to economy based on knowledge. Entrepreneurs operating in a knowledge-based economy above all are forced to look for ways to increase the potential of knowledge in their companies.

Knowledge potential of entrepreneurs and their employees finds its concrete expression in the intellectual resources of business. Intellectual resources of business form, in turn, the intellectual capital of the enterprise. Interconnection and interdependence between the knowledge potential, intellectual resources and intellectual capital have played a crucial role in accelerating the process of becoming a knowledge-based economy. In this case, with regard to the analysis of such a complex system as the economy, the knowledge can be determined using the approach proposed *by* B.–A.Lundvall and B. Johnson:

- I. Know what refers to knowledge about "facts". How many people live in New York, what the ingredients in pancakes are, and when the battle of Waterloo took place are examples of this kind of knowledge. Here, knowledge is close to what is normally called information it can be broken down into bits and communicated as data.
- II. Know why refers to knowledge about principles and laws of motion in nature, in the human mind and in society. This kind of knowledge has been extremely important for technological development in certain science—based areas, such as the chemical and electric/electronic industries. Access to this kind of knowledge will often make advances in technology more rapid and reduce the frequency of errors in procedures involving trial and error.
- III. *Know how* refers to skills i.e. the ability to do something. It may be related to the skills of artisans and production workers, but, actually, it plays a key role in all important economic activities. The businessman judging the

- market prospects for a new product or the personnel manager selecting and training staff use their know how. It would also be misleading to characterize know how as practical rather than theoretical.
- IV. Know who is a kind of knowledge developed and kept within the borders of the individual firm or the single research team. As the complexity of the knowledge base increases, however, co-operation between organizations tends to develop. One of the most important reasons for industrial networks is the need for firms to be able to share and combine elements of know how. Similar networks may, for the same reasons, be formed between research teams and laboratories (Lundvall, Johnson 1994).

Taking the above characteristics as a working description, in the following discussion we will assume that a knowledge-based economy is a system of economic relations, in which the knowledge potential of entrepreneurs is a necessary condition to ensure equilibrium in the domestic market of the country and a sufficient condition for the growth of its economy.

Market participants need knowledge for the following reasons:

- knowledge enables potential buyers of goods and services to decide on the deal from a position of maximum satisfaction of needs;
- knowledge can provide entrepreneurs with competitiveness adequate to the developed business strategy;
- market infrastructure specialists are able to carry out professional activities only having knowledge in a certain field (information services, banking, currency, etc.).

2. Methodological survey of the intellectual capital

Entrepreneurs focused on the preferential use of knowledge, in the second half of the twentieth century formulated social science inquiry on the scientific substantiation of the phenomenon of human intelligence in three main directions:

- 1. Economics, which had found its fullest expression in the research problems of intellectual capital.
- 2. Management, carried out by scientists and experts in the so-called knowledge management.
- 3. Technical and technological, focused on the studies of innovative production where routine (passive) disclosure of information sources is replaced with creative (active) use of ICT.

Methodological community of represented areas for scientific study of the role and place of human intelligence in business is obvious. At the same time, each of them has a distinct subject-specific. Thus, economically accented intelligence research usually tends to identify contents and forms of the practical implementation of intellectual capital.

The initial period of research on the problems of intellectual capital researchers (Hong *et al.* 2008) attribute to the 1990s. In 1991 L.Edvinson became the pio-

neer of the development of practical application of the intellectual capital in the business environment. He has developed special tools to assess the intellectual capital in one of the divisions of the company Skandia-Assurance Financial Services (AFS), which was named Skandia Navigator. With the help of the Navigator company Skandia AFS presented its objectives in terms of more concrete factors, and later these factors were measured at the level of individuals, groups, and activities at the corporate level (Landström 2005).

In 1995 the company Skandia AFS included in its market value also intellectual capital (the value of non-financial or intangible assets), along with financial capital (the cost of tangible assets of the company). In Skandia's view (Malhotra 2000) intellectual capital denotes intangible assets including customer/market capital; process capital; human capital; and renewal and development capital.

- Market Capital. In the context of the original model applied to market enterprises, this component of intellectual capital was referred to as customer capital to represent the value embedded in the relationship of the firm with its customers. In the context of national intellectual assets, it is referred to as market capital to signify the market and trade relationships the nation holds within the global markets with its customers and its suppliers.
- 2. Process Capital. National processes, activities, and related infrastructure for creation, sharing, transmission and dissemination of knowledge for contributing to individual knowledge workers productivity.
- 3. Human Capital. The combined knowledge, skill, innovativeness, and ability of the nation's individuals to meet the tasks at hand, including values, culture and philosophy. This includes knowledge, wisdom, expertise, intuition, and the ability of individuals to realize national tasks and goals. Human capital is the property of individuals, it cannot be owned by the [organization or] nation.
- 4. Renewal and Development Capital. This component of intellectual capital reflects the nation's capabilities and actual investments for future growth such as research and development, patents, trademarks, and start—up companies that may be considered as determinants of national competence in future markets.

A.Brooking published in a 1996 monograph has suggested three measurement models to help measure the value of intellectual capital. It identified intellectual capital as the combined amalgam of four components:

- 1. Market assets consists in the potential that an organization has due to intangibles related to the market that gives a competitive advantage like clients' loyalty, brands, distribution channel, contracts and advertisement.
- 2. Human–centred are composed by experience, creativity, solving problems ability, leadership, entrepreneurship, and management skills such as psychometric data and to perform under great stress.
- 3. Intellectual property is know how, trade secrets, trademarks, patents and design rights.

4. Infrastructure assets are technology, methodologies, corporate culture, hedging, data cases, communications systems etc. (Brooking 1996).

Two years later T.Stewart uses a different conceptual scheme and divides Intellectual Capital into three basic forms:

- A. Human Capital is the accumulated capabilities of individuals responsible for providing customer solutions.
- B. Structural Capital refers to the capabilities of the organization to meet market requirements. Unlike Human Capital, Structural Capital can be formally captured and embedded.
- C. Customer Capital points to the extent and intensity of the organization's relationships with customers. The three types are interrelated each one positively or negatively affecting the other.

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Structure of intellectual capital on K.–E.Sveiby is classifies into the three categories:

- 1. Internal structure consists of both the formal and informal culture within the organization.
- 2. External structure comprises the relationships between the organization and others such as customers, suppliers, brand names, trademarks and reputation.
- 3. Individual competence refers to people's capacity to act in various situations. It includes patents, concepts, models, databases and internal systems (Sveiby 1997).

In his conceptual model, Sveiby identifies three measurement indicators: growth/renewal, efficiency and stability for each of the three intangible assets (Sveiby 2001).

In the conclusion we shall refer to results of the analysis of a history of occurrence and development of researches of a problematic of the intellectual capital which was carried out by the Australian scientist Kwee Keong Choong. The study, says scientist, found that most publications still lack a theoretical foundation and practical usefulness and lack of in–dept study of intellectual capital categorization and reporting. Even the few that do, they are quite abstract or they talked about theories on too broad context that do not address how they relate to practical matters (Kwee 2008).

3. Intellectual capital as a business factor

Qualitative changes in economic environment did not affect fundamental aspects of the business. Modern entrepreneur can expect to receive income in excess of expenses, only through a thought out combination of skills and experience based on professional knowledge, including not only just labor, financial and material, but also the intellectual factors of business. A factor, however, is a Latin word mean-

ing "who / which acts". Therefore, the business factors can be interpreted as a necessary condition for the transformation of business ideas into real products and services, which form the market supply. The factor paid by entrepreneur takes the form of capital – money, material, information, intellectual etc.

Money capital for modern entrepreneurs, just like for their predecessors in the XVIII century, is a necessary initial condition of doing business. But keeping a stable position in the competition and, most importantly, the development of business entrepreneurs increasingly associate with intellectual capital. As a starting point for interpreting the intellectual capital one should clearly define the meaning of "intelligence." For this purpose we use the universal definition (Oxford Dictionaries) offered by experts-linguists: intelligence – is the ability to acquire and apply knowledge and skills.

If we accept this definition, the intellectual capital of the company can be defined as the knowledge, abilities and skills of the entrepreneur and the workers employed by them for business purposes. This means that the size of the intellectual capital of the company is directly dependent on entrepreneurs' costs to purchase the classic factors of production – labour force because the entrepreneur does not hire are abstract labour force, but concrete competent personnel – people who have the necessary business education and qualification, skills and experience. However, in this case, impersonating intellectual capital or the knowledge that the entrepreneur can buy in the form of software, licenses, patents, etc., are excluded. The acquired materialized intellectual capital can be interpreted as a derivative of the other forms of the classical factors of production – money capital.

The derivative nature of company's intellectual capital makes the analysis of processes of accumulation and use of knowledge in the field of entrepreneurship complicated. A person's ability to generate new knowledge makes the businessman recruit creative employees. This means that labour as a factor of business activity in the production process of the new value must always be "saturated" with the new knowledge.

Large enterprises have the ability to use the intellectual capital in all three above mentioned areas – economic, management, and technical and technological. Intellectual capital is considered by their owners, not only and not so much as a tool to improve competitiveness, but as a way to increase the company's market value. Businesses that sell their shares on the stock market, are highly motivated to create interest of potential buyers in acquiring them. Management direction of intellectual resources or knowledge management is also fully applied primarily at the corporate level because its implementation requires significant financial resources. Technical and technological direction, identified as innovative production, is not strictly "bound" to large enterprises. Nevertheless, the activity of corporations in the creation and development of ICT is one of the promoting motives of globalization.

Can small and medium enterprises (SMEs) use intellectual capital to the same extent as the corporation? It is obvious that the owners might not even try to implement in full the recommendations of knowledge management professionals.

Increase of the value of intellectual capital for SMEs is true in some cases – when trying to get a bank loan or by selling the company. But the development of modern technical and technological achievements and, above all, the opportunities offered by ICT for SMEs are vital.

For entrepreneurs in most EU member countries the prospects of business in a virtual environment are very favorable given the rise in the number of potential buyers. In 2011, more than three quarters of those aged 16-74 in the EU-27 (Eurostat 2012) had used a computer, while this share was 96% amongst those aged 16-24. The highest shares of those aged 16-74 having used a computer were observed in Sweden (96%), Denmark, Luxembourg and the Netherlands (all 94%), and the lowest in Romania (50%), Bulgaria (55%) and Greece (59%). In most Member States the share of young people who had used a computer was above 95%. According to the indicator "persons who have ever used a computer, % of all individuals" The Baltic States are closer to EU-27 outsider countries: Estonia – 80%, Latvia – 74%, Lithuania – 68%.

4. Market infrastructure as a condition for successful virtual business

Internet user, entering virtual market space, becomes both the buyer and the seller. The wish to sell a product or service makes the Internet user into an entrepreneur for a certain period. In case of successful sales experience users-sellers are quite capable to try their hand as entrepreneurs in the future. Entrepreneurs-buyers of goods and services for business purposes also use the Internet willingly. The attractiveness of the transaction in a virtual marketplace for entrepreneur can be explained primarily by the fact that both the buyer and the seller choose business the field of application.

However, not all SMEs, according to the Latvian statistics, manage to benefit from the opportunities provided by the World Wide Web (WWW) technology. Thus, in 2010, only 8.9% of the economically active Latvian enterprises employing more than 10 people sold products and services online (Central Statistical Bureau of Latvia 2011). And this is despite the fact that in 2011, broadband internet connection in Latvian enterprises with the number of employees 10 and more reached 89.6% (Central Statistical Bureau of Latvia 2012). This disproportion is explained by the fact that, on the one hand, the Latvian entrepreneurs – the potential Internet users have a workforce able to work with WWW technologies. This conclusion is also confirmed by Eurostat: in 2010, 21.6% of Latvian persons employed with ICT user skills in total employment, with the average EU-27 value of 18.5% (Eurostat 2011).

For the reference: for their enterprise ICT surveys, Eurostat (Didero *et al.* 2009) has operationally defined "Capabilities enabling the effective use of common, generic software tools (basic user skills) or advanced, often sector–specific, software tools (advanced user skills). Jobs requiring ICT user skills: ICT is an im-

portant tool for the job and is used to produce work output and/or used intensively at work (in day-to-day activities)".

On the other hand, a sufficiently high level of readiness of Latvian entrepreneurs to use the WWW technology confronts the lack of demand for their virtual services. According to the Latvian statistics in 2010, only 8.5% of total population (12.8% of Internet users) used Internet purchases. For comparison: 32.4% of Latvian total population (71.6% of Internet users) used Internet Banking (Central Statistical Bureau of Latvia 2012). Latvian residents use Internet Banking facilities actively even though they prefer to make purchases in the real marketplace. Taking into account this fact, it appears that entrepreneurs will be able to overcome the conservatism of Latvian buyers if they come into virtual contact with them in the course of payment to purchase goods or services. This means that a much larger number of online transactions can be expected as a result of building a virtual market infrastructure.

Market infrastructure, as is known, consists of material, technological, organizational, informational and legal economic entities that provide buying and selling of real and virtual goods and services. Market infrastructure institutions may be public, non-governmental and private, and can be divided depending on the market, which they serve. However, regardless of the ownership of the economic entity and maintained market, information component is an integral part of the market infrastructure.

Latvian example is an argument in favor of the fact that purchase of computers, software, recruitment of ICT specialists and Internet connection do not guarantee the entrepreneur normal operating conditions in the virtual marketplace. Internet services provided by banks, insurance companies, advertising agencies, etc. – these are just some components of a virtual infrastructure of the market, which will be used even with computers equipped entrepreneur having a certain monetary capital. In addition, it is not about paying for Internet services, but about the virtual market infrastructure development and maintenance through which businesses get access to the acquisition of such services.

The real goods market infrastructure – is a phenomenon that has existed for centuries and is based on the financial, legal and institutional support from the state. With regard to the virtual market infrastructure the state only creates "game's rules". The government institutions in countries as Latvia, do not have the experience and, most importantly, the budget for the development and maintenance of the virtual infrastructure. But just public funding is the main source of WWW technologies distribution in the economy dominated by SMEs. Along with the budget allocations to the development of a virtual infrastructure consolidation (cooperation) of entrepreneurs financial resources is very important.

WWW technologies have increased the level of "democracy" of the market infrastructure and contributed to the intensification of competition. The fact is that the Internet provides equal access to information about products and services to all potential participants of the real market. In addition, the virtual market, by definition, is a space where goods and services are bought and sold on the Internet. The range of supply of goods and services for a virtual customer is unlimited. The result is that the entrepreneur – active Internet user is able to successfully compete in the market regardless of the size of the involved resources. The emphasis on the use of WWW technologies in business makes the use of intellectual capital priority for large enterprises and for SMEs.

WWW technologies not only expand scale of the supply of goods and services, but also modify the rationality of entrepreneurs in reducing the risk of psychological barrier. The point is that even those entrepreneurs who cannot invest heavily in the promotion of their products, have prospects of increasing sales. For advanced entrepreneur risks of investing in the development of ICT is often much lower than traditional credit risk timely return on investment in business development. Cheap and effective communications network allows entrepreneurs to distribute production across different countries, while maintaining the organization and information contacts, as well as providing direct management of the goods and financial flows.

5. Conclusions

- The rapid distribution of ICT helped to accelerate the transition from an
 economy based on the machines to the knowledge-based economy. Entrepreneurs operating in an economy based on knowledge must look for ways
 to increase the potential of their own knowledge and knowledge of employees.
- 2. Entrepreneurs focused on the preferential use of knowledge, are interested in the studies of the specific use of human intelligence in the production, marketing and sale of goods and services. Economically oriented research of the human intelligence tends to identify contents and form of the intellectual capital.
- 3. Intellectual capital is a derivative form of labour force as a factor of production. Knowledge, abilities and skills of entrepreneurs and employees make the intellectual capital of the enterprise into a necessary condition for successful business.
- 4. For SMEs the formation's rate and scale of the use of the intellectual capital are determined by the owner's ability to adapt ICT in the business. However, not all SMEs, according to the Latvian statistics, can take advantage of the opportunities offered by the WWW technologies.
- 5. Intensification of business in the virtual marketplace is directly related to improving the quality of the virtual market infrastructure. Besides state funding in the development of the market infrastructure consolidation (cooperation) of financial resources is very important.

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