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## **COMPETENCES, INNOVATIONS AND INTERNATIONALIZATION AS THE KEY DEVELOPMENT FACTORS OF NETWORK ENTERPRISES**

### **Summary**

On the basis of the analysis of the subject literature and in particular empirical research the paper presents the analysis of the impact that major changes in the surrounding of enterprises in the form of knowledge-based economy, increase of innovation requirements, including the development of the model of open innovations and globalization have on the formation and development of network enterprises. On the other hand, the analysis regards the impact of network enterprises on the competitiveness of the entities functioning in their frameworks by means of the development of competences, innovativeness and internationalization. The conclusions presented in the elaboration imply that the formation of the structures of network enterprises ought to be viewed as the sign of the adjustment of economic organizations to the changing conditions of the surrounding. The concept of a network enterprise ought to be developed as the new paradigm in management sciences because within its frameworks it is possible to explain better the main changes related to the functioning of a modern enterprise.

**Key words:** competences, open innovations, internationalization, network enterprise, cluster

**JEL Classification:** D85, L10, L14, P13

### **1. Introduction**

In the 21<sup>st</sup> century there may be observed considerable changes in the business surrounding of enterprises owing to which economic organizations (enterprises) need to change the way in which they are functioning. Among others, it is indicated that the

so-called “new economy” has three attributes. It is informative owing to the key importance of information as the determinant of productivity and competitiveness. It is global because economic processes have global character either in direct or indirect way by means of links in the networks of enterprises. Finally, it is in the form of a network since in the new historical conditions the achievement of productivity and competitiveness takes place in business networks [Castells, 2013, pp. 109-110]. More frequently observed assumptions regard the formation of discord between the present theory of management and the actual state of economy [Grudzewski, Hejduk, Sankowska, Wańtuchowicz, 2010, pp.19-20]. The necessity to create new paradigms was noticed firstly by Drucker who claimed that “it is high time to rethink these assumptions (the main paradigms of management – Authors) and try to formulate new assumptions which will become the basis of the development of both theoretical and practical aspects of management” [Drucker, 1999, p. 14]. Among the present trends in the management sciences (the purposefulness of which is undermined by Drucker) there is the assumption that there “is or ought to be one ideal structure of an organization”. Instead of upholding this unrealistic assumption Drucker postulates that management experts ought to explore, develop and test in practice “organizations that most effectively meet particular requirements” [Drucker, 1999, p. 14].

In the light of the necessity to change the paradigms of management it is worthwhile to notice the prevailing concept of an enterprise (the source of which may be found in the classical microeconomics, as a closed entity - “a certain black box”) the external relations of which are maintained within the frameworks of market connections. It appears to depart from the economic reality even more visibly. In accordance with the key assumptions of microeconomics, an enterprise faces two major decisions: the selection of the production volume and the selection of the price level [Varian, 1995, p. 380]. Real enterprises have never functioned in practice just as they are viewed in an exemplary and simplified way in microeconomics. However, presently the pressure of the external competitiveness factors that have impact on enterprises is so large that the adjustments lead to considerable transformation of fundamental elements in the functioning of enterprises and result in the necessity to create a new paradigm of an enterprise – network paradigm [Czakon, 2012, p. 28]. In particular, the lines between enterprises are becoming blurred and the so-called network enterprises are established. The formation of such structures may be considered as the sign of adjusting economic organizations chiefly to three major contemporary trends of external type, namely: growth of knowledge-based economy, the increase of innovation requirements and, in particular, the development of the model of open innovations and globalization. These processes compel enterprises to constantly improve their competences, develop high level of innovativeness and operation within the frameworks of global markets, i.e. the process of internationalization.

The aim of the paper is to assess the dependence between the listed crucial processes in the surrounding (the development of knowledge-based economy, the popularization of the model of open innovations and globalization) and the formation of network enterprises and to show the impact of network enterprises on the competences, innovativeness and internationalization of the individuals participating there.

The aforementioned objective refers mainly to the analysis of the sector of small and medium-sized enterprises (SME), yet some conclusions may regard also large economic organizations. There are 6 specific hypotheses:

- H1. The development of knowledge-based economy imposes the formation of network enterprises.
- H2. The model of open innovations implies the formation of network enterprises.
- H3. The globalization compels the formation of network enterprises.
- H4. The operation of network enterprises (for example clusters) is conducive to improving competences in their specific units participating there (single enterprises).
- H5. The operation of network enterprises, for example clusters, is conducive to the increase of innovativeness of particular units participating there (single enterprises).
- H6. The operation of network enterprises, for example clusters, is conducive to the increase of internationalization of particular units participating there (single enterprises).

The specific character of the paper implies the verification of research hypotheses on the basis of the subject literature and good practices from clusters.

It may be assumed that the development of particular economies in the global reality is not possible, excluding the cooperation relations between enterprises. Thanks to the close relation of organizations particular entities that are united in a certain network may derive a number of benefits from this fact, for example by improving their competitiveness in the supra-regional and super-national perspective. The background for the deliberations made in the paper is the dynamic process of the development of cluster structures in Poland at the beginning of the 21<sup>st</sup> century, which may serve as the example of the development of various types of networks.

## **2. A network enterprise**

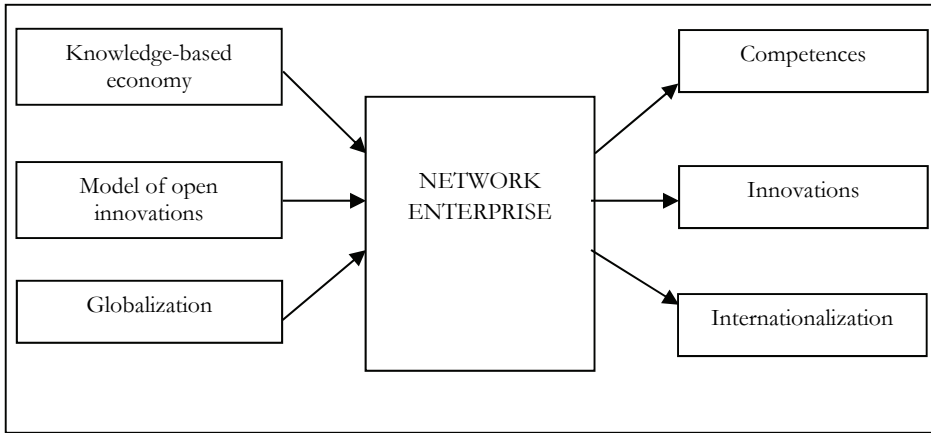
It is more frequently believed that in present conditions both the achievement and the maintenance of competitive advantage takes place not so much on the level of single enterprises, but rather on the level of networks. Thanks to various forms of cooperation going beyond the purely market relations the entities participating in the network by means of putting their resources together achieve competitive advantage. Competitors also become involved in the cooperation relations, as the consequence of which the key dimensions of competition regard the competition between networks, not between enterprises. Instead of discussing a model of a chain in creation of values it is necessary to notice a model of network for creating values. The concept of the transition to network societies (not only in the economic dimension) is propagated by M. Castells, who claims that “networks constitute the basic material from which new organizations are either formed or will be formed” [Castells, 2013, pp. 296-297]. In the context of the business activity Castells emphasizes that “in the conditions of the rapid technological

change, networks (not enterprises) became the actual operational entities” [Castells, 2013, pp. 296-297] and further on defines a new organizational form characteristic for the global information economy – network enterprise that “emerges through the interaction with organizational crisis and change and new information technologies” [Castells, 2013, p. 203]. Castells offers the following definition of a network enterprise – “a particular type of an enterprise with the system of measures created in the intersection point of autonomous systems of objectives” [Castells, 2013, p. 203]. The Author explains that the network components are at the same time autonomous and dependent on the network and may constitute the elements of other networks. A network enterprise is an organizational form of informative global economy. The dominance of enterprises of this type may be explained by the fact that they are capable of creating and transforming information and knowledge, may display considerable flexibility and be highly innovative. Since these properties are the characteristics of a new economic system they must be reflected in the characteristics of the dominating organizational form of conducting economic activity. As Castells explains: “network enterprise materializes the culture of global information economy: it transforms the signals into goods by processing knowledge” [Castells, 2013, p. 203].

In Polish literature network enterprises are described, among others, by W. Czakon and S. Łobejko. The latter author indicates that the contemporary economy is undergoing transformation into global network economy based on three pillars: knowledge, innovation and networks [Łobejko, 2010, pp. 10-11]. The author creates a model in which the major role (as the factor activating the processes of transformation) is ascribed to the scientific and technical advancement that leads to the formation of global network economy. It implies that scientific and technical advancement, including especially information and communication technologies from the turn of the 20<sup>th</sup> and 21<sup>st</sup> century, as well as socio-economic changes, cause major changes of methods, ways and forms of conducting economic activity enabling the formation of network enterprises. In accordance with this approach, it may be generally observed that it has the character of the macroeconomic explanation of the formation of network economy. Meanwhile, the authors of this elaboration focus on the microeconomic dimension in which the formation of network enterprises is considered the response to the increasing challenges of the surrounding – the challenges that may not be responded by single entities and, in particular, by small and medium-sized enterprises. Among the major external factors causing the formation of network enterprises there may be isolated: the development of knowledge-based economy, the popularization of the model of open innovations and progressive globalization. The answer to these challenges is the formation and development of network enterprises. On the other hand, one may assume that the functioning of network enterprises is conducive to the increase of competences, innovativeness and internationalization of particular units participating in it (individual enterprises) (Graph 1).

GRAPH 1.

## Model of development factors of a network enterprise



Source: Own elaboration.

In the literature devoted to the subject it is difficult to find a universal definition of a network enterprise. Owing to the diversified forms of cooperation the authors concentrate on forming the classification of a network [Pomykałski, Błażlak, 2011, pp. 129-137; Łobejko, 2010, pp. 213-233]. However, in the context of the aim of the paper it is necessary to concentrate on the essence of a network enterprise itself. S. Łobejko offers his own definition of a network enterprise as “a relatively stable grouping of separate specialized units or enterprises that cooperate in accordance with the principles of market where traditional hierarchical structures of management were replaced by the horizontal structures based on the relations between partners existing in various organizational structures and located in varied geographical areas” [Łobejko, 2010, p. 52]. Meanwhile, K. Perechuda defines a network enterprise as “(...) a set of economic entities that in a legal sense are independent and realize various enterprises and projects coordinated by an integrating enterprise that has the distinctive crucial and fundamental competence” [Perechuda, 2007, p. 55].

It appears that for the purpose of this elaboration it is possible to adopt the aforementioned general and at the same time universal definition of a network enterprise formed by M. Castells. In the paper a network enterprises will be understood as a system of measures formed at the point of intersection of the segments of the autonomous systems of objectives, yet the network components are at the same time autonomous and dependent on the network, but may be the elements of other networks. In this perspective a *network enterprise* is a dynamic and flexible organization that is constantly changing its configuration depending on the aims of particular participants and especially depending on changeable requirements of the surrounding. Therefore, while making reference to K. Perechuda, one may assume that a network enterprise is a group of enterprises, but there is not need to have one integrator. An example of such network enterprises may

be a cluster perceived in a classical Porter perspective as the geographical concentrations of interrelated enterprises, specialized suppliers, entities offering services, enterprises functioning in similar sectors and related institutions (for example, universities, normalization units and branch associations) in particular areas that both compete and cooperate [Porter, 2001, p. 246]. The listed network enterprises may adopt the form of a cluster that is particularly integrated around the leasing enterprise or network broker (e.g. Danish model), as well as a model where authority is dispersed (Italian model). Therefore, in this elaboration a cluster will be considered as a special case of a network enterprise.

### **3. Competences versus the development of network enterprises**

#### **3.1. Knowledge-based economy**

Knowledge-based economy (KBE) is based on “creating, absorbing, transferring and using knowledge in a more effective way” [Bojewska, 2013, p. 9] by organizations, enterprises and physical persons. KBE is the economy based on human capital, but its main assumption is the management of economic processes and effective management of human resources [Skrzypek, 2011, p. 270]. The essence of competition in KBE is the rate of creating innovative solutions in the sphere of products, services, business processes or organizational models. Knowledge and innovations, which are so essential in economic growth, become particularly important in knowledge-based economy, the achievement of success requires considerable changes in the management manner at each level: of a country, region and an enterprise [Skrzypek, 2011, p. 10]. Owing to the formation of knowledge-based economy the approach to enterprise management is changing. Organizations aiming at becoming the creators of innovations and increase their competitiveness level in order to compete better with foreign enterprises, are forced to create configurations with partners planning to achieve their mutual aim thanks to cooperation. The relation between knowledge-based economy and network enterprises also works the other way - clusters participate in the formation of KBE. Network enterprises support the exchange of knowledge between the network participants as well as between the participants and the R&D sphere [Dzierzanowski, Rybacka, Szultka, 2011, p. 27].

It is better to term the knowledge used in practice on particular position as competences. The level of competences is crucial for achieving the aims of the enterprise, and a network enterprise especially in the literature there are many definitions of competences, but in almost each of them three elements are mentioned, i.e.: knowledge, skills and attitudes [Kossowska, Sołtysińska, 2002, p. 14]. Some authors (among others: D. D. Dubois, W. J. Rothwell, A. Sajkiewicz and H. Król) believe that competences include also personality features, intelligence and temper. However, according to G. Filipowicz [Filipowicz, 2016, p. 46] during the discussion regarding competences these factors ought not to be taken into consideration because these characteristics are

relatively stable and may not be changed easily, whereas competences may be developed [Filipowicz, 2016, p. 46].

Competences ought to be considered on various levels, i.e. it is possible to discuss the competences of employees or entire organizations. S. Łobejko suggests the division of knowledge creation, including the competences of a network enterprise, into three levels:

- individuals – particular employees;
- internal task groups (teams);
- cooperation with enterprises in a network [Łobejko, 2010 p. 148].

The crucial importance of competences in the shaping of competitive advantage results from the fact that they conform to the so-called VRIN criteria. They are at the same time valuable (V), rare (R), non-imitable (I) and non-substitution (N) [Czakon, 2012, p. 93]. While there are no doubts regarding the values of competences, there may appear doubts with regards to the criterion of being rare. Descriptive knowledge (*know-what*) is available for everyone but the competences composed of knowledge resulting from experience (*know-how*) are definitely characterized as rare. A similar situation occurs in case of the criterion of non-imitation. The competences including descriptive knowledge may be copied (technological processes, procedures), while knowledge resulting from experience is difficult to copy [Olko, 2014, p. 41]. While discussing competences one ought not to use the term ‘universal competences’ because the value of each resource of an enterprise, including the competences, can be proved by its usefulness for the organization. Therefore, one may assume that the value of competences depends on the individual needs of enterprises [Olko, 2014, pp. 40-41]. Network organizations are usually established on the basis of the complementary character of the competences of the organization’s participants and resources, making thus use of the synergy effects [Bojewska, 2013, p. 71].

Competences also have other characteristics that are particularly useful in case of network enterprises. One of these characteristics is the fact that competences are inexhaustible because their value does not decrease with the time passing by, on the contrary, the value is still increasing. Owing to this the exchange of competences between the participants enables the development of the competences by each of them. Another characteristic is their synchronicity. They may be used in several places at the same time and by many people, thanks to which in the exchange of competences none of the organizations finds difficulty with using them. Competences also display the characteristic of synergy – by connection of them the added value is disclosed [Bojewska, 2013, pp. 148-149]. These features contribute to the fact that sharing of competences with particular participants of the network brings positive effects for each participant. However, from the practical point of view networks enable organizations having access to the resources of competences that do not need to be developed on their own, thanks to which they do not have additional costs but at the same time these competences are crucial for the development of an enterprise and for coping with increasing [Palmen, Baron, 2016, p. 14]. Additionally, organizations being the participants of networks may focus on the development of special competences that have impact on the creation of competitive advantages.

The review of the literature enables positive verification of the hypothesis H1 which implies that the development of knowledge-based economy imposes the formation of network enterprises. However, it is necessary to underline the role played by network enterprises in the formation of knowledge-based economy.

### 3.2. Competence management in networks

In the discussion on network organizations it is necessary to focus not only on the competences of employees, but also on the competences with reference to the entire organization. In the management of network organizations it is impossible to decide in the name of participants which competences of an enterprise they ought to develop and in what way in order to contribute to the development of their organization and thus also to the development of the network. However, while making the so-called competence map it is possible to suggest for the network participants which competences will be most beneficial from the strategic point of view. Thanks to the competence map it is possible to attempt to find new members with competences that are essential from the perspective of the sector that comprises the organization's network. A competence map is a standard instrument that supports the process of knowledge management in network organizations [Olko, 2014, p. 43]. The map is most frequently created as a table including all the competences that are essential from the perspective of the network sector. All members specify whether they have a certain competence and when they do not have a certain competence they declare whether they would like to have it. A competence map ought to be distributed among all the members of the network so that they knew whom they should address when there arose the need to supplement the competence.

As the example of competence exchange among the participants of a specific type of a network organization – cluster there may be quoted the exchange of technological competences in the Metal Processing Cluster. As specified in the Cluster Benchmarking Report, in Poland in this particular cluster “within the frameworks of the project ‘Clusters as the condition of the effective development of Polish-Lithuanian order’ there was formed “self-training” system where knowledge and experience are shared, especially as regards technologies (the so-called silent knowledge, which is particularly difficult to achieve in business activity), between cluster enterprises belonging to the “Group of Advanced Cooperation” in the cluster” [Pławgo, 2014, p. 77].

Another example of developing competences among participants of a cluster is Świętokrzysko-Podkarpacki Energy Cluster. Its active participants are universities: The School of Economics, Law and Medical Sciences in Kielce, Kielce University of Technology. While using their competences the aforementioned universities participate in the creation of analyses that are necessary for the cluster's development. “The research regards: solar, water, geothermal, geothermic and wind energy as well as the energy potential of biomass. Furthermore, the research was supposed to analyze the hydro-geological potential and the possibilities of both the occurrence and usage of geothermal waters in Świętokrzyskie province. Another research regarded the possibility of



the development of wind power system. In both cases the research reports are pioneering, the first elaborations of this type in the region” [*Rozwój klastrów...*, 2012, p. 17]. Owing to these elaborations the cluster’s enterprises may be competitive not only on the Polish market, but also on foreign markets.

By means of the exchange of competences within an organization network enterprises become more competitive, learn from one another, which considerably reduces the costs that are, among others, related to trainings for employees. The exchange of competences ensures also their stable development because a certain competence used in other conditions may bring completely different effects. An individual employee is the carrier of hidden knowledge, whereas the possibility of free transfer of this knowledge among employees of various organizations contributes to the constant development of their creativity which, in turn, creates innovations.

On the basis of the subject literature and good practices of Polish clusters it is possible to positively verify the hypothesis H4 which implies that the operation of network enterprises (e.g. clusters) is conducive to improving competences in their particular entities (individuals and enterprises).

## **4. Innovations as the determinant of development of network organizations**

### **4.1. The model of open innovations**

The challenges of the contemporary global economic system compel enterprises to seek sources of innovations within the frameworks of the so called “model of open innovations”. This model implies a certain requirement of economic entities to use the external sources of innovations in the path to seeking, finding and matching ideas with their own ideas, R&D works and also cooperation with other entities (among others, universities, research institutes, other entrepreneurs) [Chesbrough, Appleyard, 2007, pp. 57-76]. The model of open innovations is not supposed to be conducive to the negation of individual pro-innovative efforts, but it is meant to enhance the acceleration of internal innovation processes and is intended to increase their chances of being used on the market [Chesbrough, 2003, p. 18; Chesbrough, 2006, p. 1]. As the concept’s author H. Chesbrough explains, after years of verifying the theoretical and practical research the model of open innovations it is purposeful to manage knowledge transfer in an organization while using both monetary and non-monetary mechanisms in accordance with the adopted innovation strategy and business model [Westa, Salter, Vanhaverbeke, Chesbrough, 2014, pp. 805-811]. It results, among others, from the fact that knowledge-based economy, which is characterized by considerable dispersal of this knowledge and capital, makes it necessary to reinforce the resources of a single organization by external resources [Kowalski, 2013, p. 107]. Hence KBE compels particular enterprises to cooperate with other entities in each stage of creating innovations.

The model of open innovations is inscribed into the so-called interactive models of innovative processes. In this perspective the most important source of innovation is not knowledge itself, but the links between various entities having certain types of

knowledge, while interactive learning is perceived as the most important element of an innovative process [Lundval, 1992, p. 9]. Open innovations regard chiefly the organization of the process innovation in another way, by adjusting new organizational solutions such as crowdsourcing and using a wide spectrum of incentives and motivations as well as diversified groups of entities in order to contribute to the enterprise's innovative process [Tucci, Chesbrough, Piller, West, 2016, pp. 283-288]. The author of the model of open innovations uses the words of one of R&D managers to draw the following conclusion: "Prior to the implementation of the model of open innovations a laboratory was for us the entire world. Thanks to the application of open innovations the world became our laboratory" [Chesbrough 2017, p. 38].

The review of literature enables positive verification of the hypothesis H2 which implies that the model of open innovations implicates the formation of network enterprises.

#### 4.2. Innovation management in a network enterprise

W. Vanhaverbeke formulates the following thesis: enterprises participating in clusters are more inclined towards using systems of open innovations to a larger extent than other enterprises [Vanhaverbeke, 2006, s. 205-219]. Clusters constitute the effective response to the presently observed dispersion of knowledge and capital where an innovative activity does not depend only on the internal resources of an enterprise, but on the skilful combination of knowledge, skills and activities of various entities [Kowalski, 2010, pp. 246–262]. The capacity of implementing innovations in the context of increasing the competitiveness of the entire cluster and its particular entities will be affected by a number of factors such as: the quality of resources and the level of competences of human resources of the cluster or mutual trust of the cluster entities in difficult and frequently long-lasting processes (which is particularly important in case of innovative processes) [Citkowski, 2014, pp. 58-68]. The free exchange of knowledge between partners (which is based on mutual trust) enables actuating the network of relations in clusters and reinforcing the involvement of these partners for co-development. It may also contribute to the formation of new creative products and services in order to construct a unique and difficult to imitate combination of individual and joint strategic resources that enable the achievement of relatively stable competitive advantage on both the domestic and international scale [Moszkowicz, Bembenek, 2016, p. 114].

The research on the analyzed issues that is conducted on both the national and global scale is the evidence of the usefulness and efficiency of clusters, among others, in the realization of the model of open innovations [Vrande et al., 2009, pp. 423-43; Lichtenthaler, 2008, pp. 148-157; Dodourova, Bevis, 2014, pp. 252-271; Santos, 2016; Achiche, 2012, pp. 151-160; Huang, Rice, 2013, pp. 85-120].

For example, the research conducted by M. Kowalski implies that in 33,43% of the analyzed enterprises the participation in clusters resulted in the introduction of innovations of various types. [Kowalski 2012, pp. 103–142]. The fact that the organizational proximity in networks, also in clusters, is the stimulant of cooperation and innovativeness (including organizational) is confirmed by both the literature and empirical study conducted by

P. Klimas [Klimas, 2014]. Simultaneously it is necessary to show that empirical research also confirms that innovations of organization and marketing type increase the possibilities and inclination of enterprises to introduce either new or improved products or services [Mothe, Thi 2010, pp. 313–332].

The first experiences of clusters in Poland indicate also that the search for innovative solutions within the frameworks of networks for a single enterprise may contribute to the realization of innovative projects with the participation of several or more than a dozen entities. It was possible thanks to the previous mutual relations between organizations; the subjects of the discourse between organizations were, among others: technological processes, search for new solutions in terms of products, processes, organizations or marketing. As the example of such phenomena may serve the innovative (on a global scale) Triffid project realized by several members of the Metal Processing Cluster. Triffid is a robot that will visit greenhouse drops and make measurements, analyze the cultivation by dosing proper fertilization, moisturizing and the temperature. This will be the flagship of the Metal Processing Cluster because its numerous members will be involved in its preparation of production. The realization of the project requires scientific cooperation with Białystok University of Technology in order to work on the mechanical structure of the robot and with the University of Białystok as regards the biological research [Citkowski, 2017].

Another essential innovative effect of cooperation within the frameworks of a cluster is a line of lingerie *Silver collection* – realized by the Podlachia Lingerie Cluster. The innovative character of this collection is related to the usage of a unique fabric with silver ions placed in the polymer fibers [Rozwój klastrów..., 2012, p. 13].

On the basis of the literature, empirical research and good practices of national and foreign clusters it is possible to positively verify the hypothesis H5 which implies that the functioning of network enterprises (for example, clusters) is conducive to the increase of innovativeness of particular participating entities (individual and enterprises).

## 5. Internationalization of network enterprises

### 5.1. Globalization versus the competitiveness of small and medium-sized enterprises

From the point of view of the analysis of the challenges connected with globalization for the SME sector it appears that it is necessary to focus on the economic approach to defining globalization. J.H. Dunning defines it as the process that “(...) integrates international creation of the added value of enterprises (...) in such way that the success of one enterprise is closely linked with its foreign production and marketing activity” [Schmidt, 1996]. Globalization takes place in two forms:

- as surface integration – the integration of markets by means of the trade of services and goods and (or);
- as intensive integration – i.e. integration of production processes by the international production of goods and services.

Globalization is visible mainly in the increased correlation between markets and production. Yet, one may observe that the role of intensive integration has been increasing since the 1980s. Stoner et al. believe that from the perspective of an organization globalization denotes the awareness that in business the international point of view (not the local perspective) should be taken into consideration [Stoner, Freeman, Gilbert, 1999, p. 137].

Changes in the conditions of competition may constitute considerable hazard to the enterprises from the SME sector. National producers that so far could avail themselves of the privilege related to the strong protection of the domestic market are not facing the necessity of direct competition with foreign competitors. These are large international enterprises characterized by better reputation and lower costs which are the results of the economies of scale and degree and result from the possession of the global supply system that enables finding cheaper and better sources of resources. The accelerated diffusion of technologies, the integration of capital markets, the reduction of the costs of information and transport as well as the liberalization of trade barriers lead to the extension and intensification of global correlations. It leads to the transition of the way of organizing many industries from small independent producers to large distribution chains created for mass audience. These trends may indicate the reduction of the role of SME or even cause their disappearance in the global world of mutual relations. Small and medium-sized enterprises as well as large enterprises respond to the challenges related to the globalization by entering the structures of network enterprises.

In the light of the understanding of the essence of the phenomenon of globalization and its impact on business entities, including especially small and medium-sized enterprises, it is possible to confirm the validity of the hypothesis H3 which implies that globalization leads to the formation of network enterprises.

## 5.2. Network enterprise versus internationalization

Many authors draw attention to the role of internationalization as the efficient responding strategy adopted especially by small and medium-sized enterprises in the face of external challenges. For example, A. Michna and R. Sękowska on the basis of the conducted research on the process of internationalization of the SME sector formulate the following opinion: starting international cooperation is conducive to the improved effectiveness of SME and gives the chance to survive in the turbulent surrounding [Michna, Sękowska, in: Matejun, 2010, p. 314]. The authors quote numerous empirical studies of internationalization processes, for example of the Spanish or Malaysian SME sector. The research of this type shows that cooperation with the competitors from the surrounding enables crossing the barriers of internationalization. In the aforementioned research on Malaysian enterprises in particular it was shown that the internationalization of SME largely depends on the extensive network of relations. An important role is played by the relations between SME and both scientific and research institutions or other partners from the business surrounding [Michna, Sękowska, in: Matejun, 2010, pp. 321-322]

In Poland the problem of factors that determine the exportation activity is analyzed by N. Daszkiewicz [Daszkiewicz, 2008, pp. 11-21]. Daszkiewicz has observed that the exportation activity is strongly correlated with the enterprise's size and with the cooperation actions that enhance the exportation possibilities. In the light of the study of the internationalization processes it is possible to conclude unequivocally that shaping of relation links with the surrounding entities – the formation of network enterprises – contributes to successes in foreign expansion and to the improvement of economic results achieved by small and medium-sized enterprises. Owing to this scientists attempt to make detailed analysis and assess what types of relations and with which entities are most beneficial from the perspective of internationalization. Such research was presented, among others, by Ł. Matys in the book „Sila powiazan sieciowych w procesie internacjonalizacji a wyniki przedsiebiorstwa”. [Matys, 2013] Matys notices that the results achieved by enterprises are influenced in the most beneficial way by the development of strong network links with the purchasers and suppliers on foreign markets. What is important here is the creation of strong relation links that have, among others, the social character. Such conclusion shows that for the internationalization process it is necessary to establish network enterprises crossing the national borders.

The impact of network enterprises in the form of clusters on the internationalization of small and medium-sized enterprises is beyond all doubts. However, interestingly there were identified links in the processes of internationalizing transnational corporations (TNC) with the internationalization of economic clusters. In the conclusion of the research concerning the research on the internationalization of economic clusters M. Ślepko indicates that in the present technological and economic conditions the international competitiveness of corporations is to a major degree shaped in an integrated manner, while using own resources and skills as well as those formed in many entities and places in the world. It is emphasized that knowledge (as the strategic resource of TNC) is used and developed with the participation of many corporation units as well as independent innovative entities: enterprises, laboratories and research institutes, universities etc., which function (as it may be stated) in trans-border innovation networks in accordance with the model of open innovations [Ślepko, 2012, p. 216].

On the basis of the aforementioned empirical research it is possible to positively verify the H6 hypothesis which implies that the functioning of network enterprises (for example, clusters) is conducive to the internationalization of particular entities (individual and enterprises) and interestingly enough, it regards not only the SME sector, but also transnational corporations.

## 6. Conclusion

On the basis of the subject literature and aforementioned empirical research the authors of the elaboration have confirmed that changes in the surrounding of enterprises in the form of growth of knowledge-based economy, the increase of innovation requirements and, in particular, in the face of the development of the model of open inno-

vations and globalizations lead to the formation and development of network enterprises. On the other hand, the functioning of enterprises within the frameworks of such structures affects their competitiveness by increasing its major factors, namely: competences, innovativeness and internationalization. The concept of a network enterprise ought to be developed as a new paradigm within the frameworks of management sciences because owing to this it is possible to explain better the main changes related to the functioning of a modern organization. It is worthwhile to elaborate on the research issues related to the functioning of network enterprises, including economic clusters also due to the fact that they may provide direct recommendations for managers or economic policy – supporting the capabilities of increasing the competences, innovations and internationalization of enterprises.

### **The authors' participation in the preparation of the article**

Boguslaw Plawgo, PhD, Professor of the University of Białystok – development of the research concept, making a research analysis, developing results, data collection and literature analysis, preparation of the introductory section (theoretical), formulation of the summary – 33,3%

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Monika Garwolińska, MA – development of the research concept, making a research analysis, developing results, data collection and literature analysis, preparation of the introductory section (theoretical), formulation of the summary – 33,3%

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