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Global business networks and technology

1. Introduction

Dynamic changes driven by the development of information technology, globalization and liberalization inspire important changes in business management. Enhanced processes of integration in the global economy, the growing power of multinational corporations, the intensification and sharpening of the competition in taking shares in global market conditions demonstrate these changes. Global business networks offer new kinds of customer experience, open innovation systems, sharing and promise to mitigate risk. Unfortunately at the same time growing competitiveness of these networks forces firms to push new products through ideation, design, and manufacturing pipeline at a faster rate, encouraging greater focus on accelerated development and compressing timelines (Kach et al. 2012). Managing innovation becomes more complex and demands more attention (Gambaredella and McGahan 2010).

Focusing mainly on activities of multinational business networks operating in Poland the author describes selected aspects of gradual adoption of innovation management concepts in firms. The article provides with an overview of concepts described in innovation

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management literature during the last decade and of new concepts evolving of the technology.

2. Global technology

In 1989 Ph. Kotler stated that "The modern economic landscape is shaped by two factors: technology development and globalization"(Kotler 1999, p.18). Almost 15 years later Ph. Kotler acknowledges far bigger changes. "The post-industrial, vertically integrated, multidivisional firm is evolving into complex global business networks from the production end to the consumption end." (Achrol and Kotler 2012).

Dominant technologies changed but so did businesses. Global business networks change R&D, innovation and marketing paradigms. Further changes may come as traditional consumers move from consumption to sharing, shaping, crowd funding, producing and co-owning (Heimans and Timms 2014). This concept may seem new and unproven but even though many new business models will undoubtedly fail, some will survive to take over the market share of more traditional ventures.

The aforementioned factors are interrelated, and their stimulating effect on the organization development process should be considered in terms of synergy, since the development of technology stimulates the process of globalization.
Technology globalization is shaped by many factors of different origin, character, force and range of activity. The occurring factors can be grouped as follows:
- the development of technology through the development of the R&D field and the growing importance of technology transfer,
- the development of modern branches of production and services,
- the international competition, the growing demand for technologies from the globally competing companies,
- the growing importance of economic policies, including state innovation policies, regional policies and business policies.

Global business networks are an important source of innovations. They impact the development and diffusion of innovations thorough direct investments, licencing and implementation of their technologies in different environments. International corporations transfer innovations across national borders creating "global innovations". Academic institutions and small and medium size companies can also perform such activities but on a smaller scale. The term open innovation systems as described by Chesbrough (Chesbrough 2003) allow for:

- open purchase and sale of technology by corporations and
- use of internal and external paths to market.

The forthcoming revolution may be based on information flows between devices, systems and platforms. Many new products may result from unconstrained, mass information flows called the Internet of Things (Rifkin 2014). New products, services, business models and even organizational forms may appear as mass information flows connect customer needs and product offers. Entire industries are beginning to change as platforms such as Airbnb and Uber threaten traditional business models. Airbnb connects people seeking short-term accommodation with individuals offering accommodation in 190 countries and 34.000 cities. Currently it lists 800.000 offers.

Table 1. International innovation taxonomy

Category	Participants	Forms
International diffusion of innovation	National and international companies	Exports of innovative products and services. Production in foreign countries.
Global innovation	International corporations	R&D and innovative activities in many countries.
Open innovation	Corporations, SMEs, R&D centres, Independent Labs.	Boundaries permeable, innovations easily transferred inward and outward of corporations.
Internet of things	Devices, Systems, Platforms, corporations and non-profit organizations, individuals.	Permeable boundaries, access to technology and access to mass information flows.

Source: own study

Managing innovation (tab. 1) depends not only on trends in growing internalization, creation, use and spread of technologies, but also on new participants and innovative organizational forms. The technology globalization trend has become a necessity for international companies characterized by high competitiveness, since (Boutellier, Gassman, von Zedtwitz 2008):

- all over the world, the client has become more demanding, looking for cheaper and higher-quality products so the company must introduce innovations in such a way as to outstrip the changing notion of value for the client,

- the improvements in transport and communication have reduced the cost of transport and have made the international trade more effective,
- information technology transforming the world into one "information network", just like modern media disseminating supranational values, affect the creation of global innovations – global business – a global community,
- a need has arisen to learn from international experience and the spread of new technologies from one country to another has taken place,
- the competitiveness on the world market requires of new products and services are created and implemented fast, and at the possibly lowest cost. In this case, market coordination, the increasingly better recognition and taking advantage of the situation on many different markets are becoming more and more important, both for the supply and sales,
- advanced technology causes a rise in the cost of making new products-processes, which makes companies to increase the volume of sales to create a possibility of taking advantage of the scale effect to maintain competitiveness,
- in the global economy, international companies can realize and implement innovations where there is the best change for market success.

Hence the need for the constant observation of trends and for the determination of prospects of development directions of international companies, their R&D policy and technology transfer.

3. International companies

The distinguishing feature of international companies is that these companies transfer resources and have the right of control. The international flow of knowledge and capital takes the form of direct foreign investments of one country in another one.

International companies have a profound effect on the globalization of technology and the structure of the world economy. These companies (Narula, Zanfei 2005):

- determine the international division of labour, production, R&D, marketing and sourcing strategies,
- transfer technologies, management skills and financial capital,
- command over 80% of technology resources that are in the private hands,
- affect the regional restructuring by creating local institutions,
- possess a large negotiating potential to make direct foreign investments, especially in smaller countries.

The majority of organizations currently functioning in developed countries demonstrate three main challenges such as:

- globalization and the freedom of capital flow, which orients an company towards creating value for stakeholders,
- the maturity of the market, which results from competitiveness through effectiveness and innovations,
- the power of the consumer, which grows and indicates his expectations of participation in the creation of user experience.

This means that a review of market-oriented assets of a company is carried out in the context of their importance of creating value for shareholders. In the face of pressure of competitors in the conditions of globalization, both new technologies and the knowledge of a company open up new possibilities of creating value for shareholders. This is an approach that stresses that the goal of creating value for shareholders now recommends that management sciences deal with creating value for a company and value for shareholders.

In order to increase the capability of making innovations, an company must treat those as one of its strategic business processes and therefore, allocate appropriate financial and human resources to it. The business process is defined as a logical sequence of activities that aim at creating value for a company, its owners and clients.

Each company, irrespective of its size, can divide its business processes into three groups. The first concerns the strategic activity of the company (strategic processes), the second one determines activities that directly concern the clients (key processes). The third group of processes supports the first two and is referred to as supporting processes. An example of business processes of a company is shown in figure 1.

From the point of view of a company, technology entails introducing knowledge into all business processes from strategic to key ones to supporting ones, and to realize the above, a company must:

1. Determine which technologies are fundamental for its activity. The policy of a company consists in analysing products and technologies of competitors and global leaders operating in the same branch (among others, by participating in fairs, conferences etc.). In addition, a company should take advantage of local suppliers of knowledge such as universities or Centres of Advanced Technologies.
2. Draw up a strategic plan of introducing new technologies aimed at developing new products. A company has a medium- or long-term plan of introducing technologies resulting from the forecast requirements of the market. The execution of the plan is systematically checked, which enables all the necessary changes to be introduced.

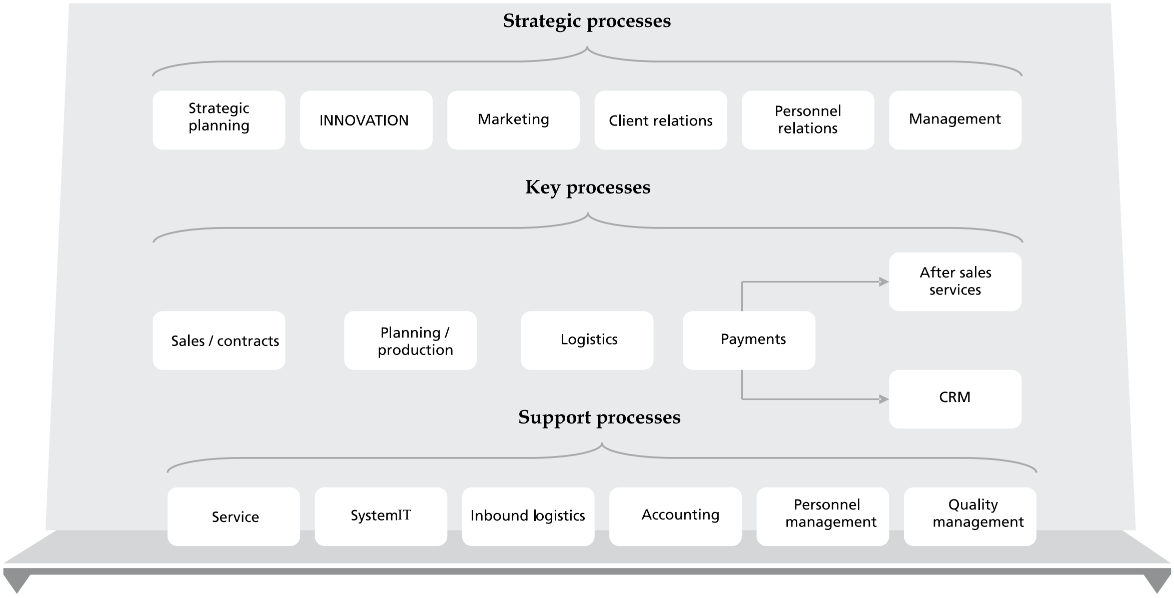

Figure 1. Main business processes in a company

Source: own based on: Davila T., Epstein M., Shelton R, Making Innovation Work, How to Manage IT, Measure IT and Profit from IT, Wharton School Publishing, 2005

3. Develop procedures related to doing R&D work. A company has information about the government's activities supporting innovations and actively participates in them. A company stays in contact with universities and Centres for Advanced Technologies but also has a clearly defined strategy concerning the areas of knowledge and technologies that should be developed within the company.
4. Manage knowledge. A company is aware that knowledge is a resource that can be transferred; therefore it has mechanisms and tools for the recognition, codification and accumulation of new knowledge. The knowledge of a company is accessible to all the employees, regularly updated and supplemented. A company is aware that the knowledge accumulated also means a competitive advantage.
5. Manage resources of intellectual property (patents, copyrights, registered trademarks, etc.). A company has sufficient knowledge about its resources of intellectual property and mechanisms that enable these resources to be protected. All the resources of intellectual property of a company are inventoried and priced.

The market economy, the essence of which is the maximization of value for the shareholders and acting to the satisfaction of the client constitutes the basis of management. Clients are satisfied if the product fulfils or surpasses their expectations at a price no higher than the value of the product or service. This pursuit of value for the client takes place in parallel with other processes aimed at the reduction of costs and the improvement in quality (ISO quality certificates), the improvement in processing processes/procedures and the corresponding systems as well as changes in the relations with clients (Miles 2005, p. 430). The client's satisfaction has its ultimate value, of course, only when it translates into an economic profit generated by the company and so the return on the investment in projects gained in money flows – the return exceeding the weighted average cost of the company's capital is realized. Thus, the strategy of taking care of the client must be reconciled with a financial approach to managing a company.

The relationship between economic growth, development of technology and the capital market is in fact nothing new. Yet, the application of this relationship in the allocation of assets in companies is now becoming increasingly troublesome, especially if the growing concentration of wealth in the hands of the "chosen ones" of this world is taken into consideration. In 2000 86% of the world's wealth was in the possession of 20% of its population. The trade of the top 100 companies accounts for more than 20% of the global trade, while the 10 biggest traders of the world are in control of 78% of the total export (Acharya 2000, p.3). In 2015, during the World Economic Forum in Davos Oxfam announced that according to their statistics in 2016 1% of the population will own more then the other 99% (Oxfam 2015). What is most interesting is that income inequality decreased at the turn of the century but started growing at unprecedented pace since 2008. Nowadays a problem arises, which is fundamental from the point of view of investors and investing in the light of such significant changes in the global structure of industry and trade; namely, the problem of seeking an answer to the question about the contribution of this type of development to the market effectiveness.

Focusing on the dialogue between the company and its client is a decisive factor in adopting market orientation by the company which, in turn, compels the company to quickly adapt the products offered to the changing needs of clients. These relations are enhanced by the participation of the interested parties in the distribution of the added value generated in the company. A company, which creates added value using its competitive advantage, should be able to keep part of this value in the form of profit that is later allocated for the company's development and growth. By transferring part of the added value to the contractor, the marketing activities aim at encouraging the suppliers and the recipients to cooperate and, above all, to remain loyal.

There is one condition that a company must fulfil to effectively manage the relations with its clients – to get to know their dynamic nature. It is necessary to study these relations; it is important to become acquainted with the factors that affect their strength and the manner of shaping. A company that is not threatened by new potential competitors or by substitute products and has great bargaining power in the relations with its clients will also have the greatest competitive advantage over its competitors.

Although boards consider the relocation of companies on the world markets, mainly with a view to the reduction of costs, Booz Allen (Booz 2005) has found that the essential reason for relocation was the need to acquire information about the client. The surveyed managers have stated that "the acquisition of information about the client on a new market" is much more important (3.02 points out of 4) than the elements of the cost advantage (2.46 points out of 4) or the proximity of the production site (2.25 points out of 4).

The necessity of adaptation to the requirements of the global competition forces organizations to acquire knowledge and introduce constant changes – innovations in marketing, innovations in finances, research and development; but above all, forces them to improve production and train employees. That is why managing and company requires integrated activities in the creation of value. The establishment of relations in management assumes the occurrence of interaction of different elements and feedbacks of information between the services: of research and development, marketing, production and finances.

Corporations registered in Poland operate R&D centres (eg. Grupa Adamed, Comarch, Grupa Kęty, Grupa CD Projekt, KGHM Cuprum, Dr Irena Eris, Pesa, Polpharma) and sell their products on domestic and foreign markets.

International corporations registered in foreign countries sell innovative products, produce innovative products and some even finance R&D centres operating in Poland (eg. ABB, Google).

Participation in open innovation systems is difficult to track.

Early initiatives related to the Internet of Things also start to appear but due to their nature the registration country of the platform seems to be of secondary importance to active participation of users offering and asking for goods and services. For example Airbnb lists more than 1000 offers from Warsaw, over 500 offers from Kraków and over 50 from Łódź. In other words tens of thousands of Poles participate and earn money by renting their accommodation through a global network. This platform permanently changed hospitality management. Another company (Uber) changed taxi services in some countries. Traditional approach to international or global companies changes as traditional corporate structures and processes altered. Clients invest their assets, set pricing for goods and services offered and receive compensation. Corporations manage information flows in these networks.

4. Conclusions

The creation and growing significance of global business networks led to the development of new concepts in marketing, innovation and management. Companies develop internal R&D initiatives, cooperate in networks and join or create open innovation systems. Suppliers, competitors and clients cooperate in networks to create better products, develop new business plans and share created value. Traditional approach to international or global companies changes as traditional corporate structures and processes are altered. Corporations focus on managing information flows. Data flows generated by the Internet of Things will increasingly alter our lifestyle and create new business opportunities. Unfortunately changes that seem to focus on sharing the value created in business are not sufficient to weaken the trends of uneven income distribution. Unprecedented increase in concentration of global wealth is questioning the effectiveness of newly created structures.

In the context of the increasing internalization of information, knowledge and capital flow as well as increasing global competition, more emphasis is placed on the strategic significance of national and regional efforts that should be encouraged by industrial policies, and thus strengthen the competitiveness of companies (Perry 2014; Capello & Caragliu 2013). The justification is that they not only rely on innovation and marketing but, more than ever before, on an effective model of business.

A company is perceived as one of organizations that are the most capable of adapting itself to the new global world if it is able to adapt its behaviour to new conditions by adopting integrated innovation management (Pomykalski, Pomykalski 2013).

Summary

Global business networks and technology

The current economic development changes the perception of technology innovation and business cooperation. Global business networks create very competitive markets characterised by constant innovation and dynamic changes. Further changes may come with growing involvement of active consumers and the development of Internet of Things. Focusing mainly on activities of multinational business networks operating in Poland the author describes selected aspects of gradual adoption of innovation management concepts in firms. The article provides with an overview of concepts described in innovation management literature during the last decade and of new concepts evolving.

Keywords: *global business networks, innovation, research.*

Streszczenie

Globalne sieci biznesowe a technologia

Rozwój gospodarczy w XXI wieku zmienia sposób postrzegania innowacji i współpracy przedsiębiorstw. Globalne sieci biznesowe tworzą bardzo konkurencyjne rynki charakteryzujące się innowacyjnością i zmiennością. Dalsze zmiany mogą być konsekwencją zaangażowania konsumentów w proces tworzenia produktu oraz rozwoju Internetu Rzeczy. Skupiając się na działaniach międzynarodowych sieci funkcjonujących w Polsce autor prezentuje wybrane aspekty zastosowania koncepcji prezentowanych w literaturze zarządzania innowacjami w ostatniej dekadzie oraz nowych trendów, które należy obserwować oraz badać.

Słowa kluczowe: *globalne sieci biznesowe, innowacje, badania.*

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