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ORGANIZATIONAL CULTURE OF INNOVATIVE COMPANIES

Summary. The era of globalization and the knowledge-based economy have created new challenges for management. Innovation has to be developed faster and more effectively. The determinants supporting an innovative economy and innovative enterprises need to be analyzed. One of the leading determinant being organizational culture.

The organizational culture impact on innovation is important, although it has not been examined in the macro context very well. The paper tries to fulfill the gap by presenting a comparison of pro-innovative indicators as well as the organizational culture of selected countries. One of the key areas of analysis in this paper is to identify the influence that cultural differences have on innovation.

The aim of the study is to identify factors underlying the innovativeness of countries and regions, those well-developed and those less developed as well. The analysis will be performed taking into consideration characteristics which differ among European and Asian countries and the United States of America. The analyses will be performed on the basis of the indices and data collected in the Global Innovation Index. The work will also present an analysis of the influence of corporate culture on innovativeness.

Keywords: organizational culture, business culture, pro-innovative culture

KULTURA ORGANIZACYJNA INNOWACYJNYCH PRZEDSIĘBIORSTW

Streszczenie. Celem artykułu jest wskazanie wpływów kultury organizacyjnej na innowacyjność przedsiębiorstw. Zaprezentowane zostaną wyniki Globalnego Indeksu Innowacyjności oraz wartości kulturowe w wybranych krajach Europy, USA i Tajlandii. Zidentyfikowane będą związki wartości kulturowych z innowacyjnością.

Słowa kluczowe: kultura organizacyjna, kultura biznesu, kultura proinnowacyjna

1. Introduction

In the era of globalization, present sources of economic growth such as relatively low labour costs, availability of cheap resources or favourable geographical location are insufficient. It is necessary to search for new sources of competitive advantage, and developmental tendencies in highly developed countries show that the only way to guarantee permanent development is to build up a competitive advantage based on knowledge and innovation. Moreover, it is believed that innovativeness is a multidimensional phenomenon which should not be perceived merely as a linear transition from research activities to launching a new product on the market.

Innovation was introduced into formal economic growth models in 1957 by Robert Solow, a professor at MIT. He was awarded a Nobel Prize in Economics for this and related work in 1987. Solow defined growth as the increase in GDP per hour of labour per unit time. According to theory, innovation gives a chance to increase the competitiveness and economic growth of a country.

There is a view that a factor which influences the innovativeness of an organization is organizational culture[1]. Since organizational culture influences employee behaviour, it may lead them to accept innovation as a fundamental value of the organization and to feel more involved in the business[2]. Consequently, the literature considers organizational culture to be one of the factors that can most stimulate innovative behaviour among the members of an organization. Furthermore, we suggest that different organizational cultures will be required depending on the innovation models in various countries. Regarding organizational culture, there is agreement in the literature about its importance for innovation[3].

There have been some attempts to separate cultural differences from other environmental differences in research[4] but their overlap in most models for cross-cultural comparisons remains

[1] Carmeli A.: The relationship between organizational culture and withdrawal intentions and behavior. "International Journal of Manpower", Vol. 26, No. 2, 2005.

[2] Hartmann A.: The role of organizational culture in motivating innovative behavior in construction firms. "Construction Innovation", Vol. 6, No. 3, 2006.

[3] Chang S.C., Lee M.S.: The effects of organizational culture and knowledge management mechanisms on organizational innovation: An empirical study in Taiwan. "The Business Review", Vol. 7, No. 1, 2007; Lau C.M., Ngo H.Y.: The HR system, organizational culture and product innovation. "International Business Review", Vol. 13, No. 6, 2004; Martins E., Terblanche F.: Building organizational culture that stimulates creativity and Innovation. "European Journal of Innovation Management", Vol. 6, No. 1, 2003; Mumford M.D.: Managing creative people: Strategies and tactics for innovation. "Human Resource Management Review", Vol. 10, No. 3, 2000; Obenchain A., Johnson W.: Product and process innovation in service organizations: The influence of org. "Journal of Applied Management and Entrepreneurship", Vol. 9, No. 3, 2004.

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problematic[5] in that economic systems and culture are part of the same circle; this would imply that there is no need to separate local environment from culture. However, this assumes that political and economic structures and systems in a country arise from a consensus – then these could be seen to represent an articulate part of national culture.

As culture represents or expresses values, behaviours and attitudes, it is important to understand cultural differences in order to understand which management methods will work, and how to develop innovation.

There are many manifestations of cultural differences. These are evident in national and regional differences in style, taste, family relations, government structures etc. There is also evidence of differences in working methods and business organisation from one country to another: German co-determination, Japanese management methods etc. The following are a few examples of definitions and methods used to compare cultures.

Hofstede[6] defines culture as "collective mental programming of human mind which distinguishes one group of people from another. This programming influences the patterns of thinking which are reflected in the meaning people attach the various aspects of life and which become crystallized in the institutions of society".

Hofstede's method of analysing culture was derived from a survey of work values conducted at IBM between 1968 and 1973. The four dimensions concerned attitudes to authority, group membership, risk and competition versus co-operation. Later work led by Bond at the Chinese University of Hong Kong added a fifth dimension: Confucian dynamism[7]. The basis of this model is that the dimensions can be measured and compared. The dimensions represent a system of values which are related to behaviour, management practices and methods of organising systems. Schein[8] disagrees with these methods – he replaces values with 'basic assumptions' which are both taken for granted and non-negotiable. Schein does not agree that cultural assumptions (or values) can be broken down and measured by a survey method.

In the era of globalization, present sources of economic growth such as relatively low labour costs, availability of cheap resources or favourable geographical location are insufficient. It is necessary to search for new sources of competitive advantage, and developmental tendencies in highly developed countries show that the only way to guarantee permanent development is to build up a competitive advantage based on knowledge and innovation. Moreover, it is believed that innovativeness is a multidimensional

[5] Hofstede G.: An American in Paris. "Organization Studies", Vol. 17, No. 3, 1996.
[6] Hofstede G., Hofstede G.J., Minkov M.: Cultures and Organizations: Software of mind: Intercultural Cooperation and its Importance for Survival. McGraw-Hill, London 2010.
[7] Bond et al.: (The Chinese Cultural Connection) Chinese Values and the Search for Culture-Free Dimensions of Culture. "Journal of Cross-Cultural Psychology", Vol. 18, part 2 (June), 1987.
[8] Schein E.: Organizational Culture and Leadership Jossey Bass, San Francisco 1992.

phenomenon which should not be perceived merely as a linear transition from research activities to launching a new product on the market.

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2. Research methodology

The research focused on the comparison of five countries: Poland, Slovenia, Thailand, Ukraine and USA. These countries were not selected randomly; they were selected for the variety in values, the variety in dimensions of innovation, as well as to represent the triad variety throughout the America, Asia and Europe. The comparative analysis was performed based on the following: the Global Innovation Index and Hofstede Culture Index.

The following research methods were used to achieve the above mentioned aims and to possibly acquire objective results of the study:

1. Specialist literature studies.
2. Quantitative studies based on questionnaire research.
   The selection of the research group was purposeful and the studies were addressed at IT enterprises in Poland as a representation of an innovative sector of industry. After performing pilot studies and a verification of the research tool, the proper study was organized among 101 IT companies, including a total of 415 managers and specialists. In order to analyse the study results acquired from the questionnaires, the following statistical methods were used: quantitative analysis, the analysis obtained interdependencies and multiple regression.
3. In order to organize the data from the research, an MS Excel spreadsheet was used.
4. Statistical calculations were performed with the help of the CSS Statistica 6.0 program.

2.1. National innovation system

Innovativeness is one of the factors which have an essential effect on the level of economic competitiveness. Innovation capacity has been widely acknowledged as a critical

force to national economic growth for developed countries[9]. Competition and innovation are important for countries in building up their innovation capability as they provide possible pathways to accelerate the process of technological catch-up as well as to sustain productivity growth and competitiveness[10]. Clearly observed differences among particular countries at the level of innovativeness of their economy provided us with an impulse to analyse the agents conditioning their degree. Conditionings concerning the development of innovations are determined by economic, cultural, social and technological factors which are characteristic of individual countries, economies or regions. Although it is commonly argued that countries need to innovate in order to grow and achieve success, it is important to known which factors determinate innovation. Innovation capacity can be defined on a micro (company) level or on a macro (national) level.

National innovation capacity may only be considered via a properly functioning national innovation system (NIS). The term was coined by C. Freeman and developed in the following years[11].

In OECD countries, NIS was standardized and analysis of technology performance and policies has traditionally focused on inputs (such as expenditures on research and development and the number of research personnel) and outputs (such as patents)[12]. The national innovative capacity framework seeks to integrate three perspectives regarding the sources of innovation: ideas-driven growth theory, microeconomics-based models of national competitive advantage and industrial clusters, and research on national innovation systems. While these perspectives contain common elements, each highlights distinct drivers of the innovation process at the national level[13].

An innovation system is a network of organizations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organization into economic use, together with the institutions and policies that affect their behaviour and performance[14].

National innovative capacity is not the realized level of innovative output per se but reflects more fundamental determinants of the innovation process. Differences in national

[9] Nelson R.: National Innovations Systems: A Comparative Analysis. University of Illinois at Urbana-Campaign's Academy for Enterpreneurial Leadership Historical Research Reference In Enterpreneurship, 1993; Porter M.E.: The Competitive Advantage of Nations. Free Press, New York, NY 1990.

[10] Porter M.E.: Clusters and Competition: New Agendas for Companies, Governments and Institutions, On Competition. Harvard Business School Press, Boston, MA 1998.

[11] Lundvall B-Å. (ed.).: National Systems of Innovation: Towards a Theory of Innovation and Interactive learning. Pinter, London 1992; Nelson R.: National Innovations Systems: A Comparative Analysis, University of Illinois at Urbana – Campaign's Academy for Enterpreneurial Leadership Historical Research Reference In Enterpreneurship, 1993; Edquist C. (ed.): Systems of Innovation: Technologies, Institutions and Organizations. Pinter/Cassell, London 1997.

[12] OECD, 1997.

[13] Stern S., Porter M.E., Furman J.L.: The Determinants of National Innovative Capacity, Working paper 7876. Cambridge, Massachusetts, National Bureau of Economic Research, 2004, p. 4.

[14] World Bank, 2006.

innovative capacity reflect variation in both economic geography (e.g. the level of spillovers between local firms) as well as cross-country differences in innovation policy (e.g. the level of public support for basic research or legal protection for intellectual property (IP)).

The actual output of innovation in terms of new goods and services or improved processes is already captured in the gross domestic product (GDP) and the National Income and Product Accounts (NIPAs). The amount and type of investment that lead to innovation, however, are not captured. This type of information is needed to improve our understanding of economic growth[15].

2.2. Measurement of innovation

For a national innovation system the relationship between innovation inputs and outputs seems crucial. Countries and market agents aspiring to strengthen innovation performance must be efficient in transforming innovation inputs into innovation outputs.

In order to measure national economies' innovation, attempts at standardization utilizing various definitions and data collecting methods have been in progress. Numerous organisations such as OECD, Eurostat, Statistics Canada, Statistics Sweden, INSEAD and World Intellectual Property Organisation (WIPO) have developed guidelines for the development of innovation indicators.

It is also noteworthy that there exists no perfect set of indicators applying to innovation policies. However, such indicators constitute a useful tool for making international comparisons. The innovation index could also help assess what a country ought to do in order to boost innovation, resulting in fostering economic growth and stimulation of the creation of new workplaces. Furthermore, the innovation index highlights policy challenges – national policies to craft new national innovation strategies. However, conditionings will not replace analyses aiming at establishment of correlations and causal dependencies.

Due to its influence upon economic progress and competitiveness, innovation is a fundamental phenomenon both for developed and developing economies. Innovation is more complex and multidimensional and the level of innovation is not solely influenced by R&D expenditures, which constitute one of the many conditionings.

Innovation is important for driving economic progress and competitiveness – both for developed and developing economies. Many governments are putting innovation at the centre of their growth strategies. There exists awareness that the definition of innovation has broadened – it is no longer restricted to R&D laboratories and to published scientific papers. Innovation could be and is more general and horizontal in nature, and includes social

[15] Rose S., Shipp S., Lal B., Stone A.: Frameworks for Measuring Innovation: Initial Approaches, A. Working Paper #06, Athena Alliance, Science and Technology Policy Institute, 2009, p. 1.

innovation and business model innovation as well. It is seen as crucial for inspiring people, especially the next generation of entrepreneurs[16].

The GII[17] model includes 141 economies, which represent 94.9% of the world's population and 99.4% of the world's GDP (in current US dollars). The advantage of the study lies both in the number of countries the study encompassed and the amount of statistical data collected and applicable to a more in-depth analysis in the present paper. Moreover, the GII helps to create an environment in which innovation factors are under continual evaluation, and it provides a key tool and a rich database of detailed metrics for refining innovation policies[18].

As regards to the Global Innovation Index 2012, countries such as Switzerland, Sweden, Singapore and United Kingdom occupy leading positions.

In order to evaluate the influence of economic factors upon the level of innovation, countries of various sizes and level of development were selected. The USA, Poland and Slovenia were selected from among high income economies, Thailand from upper-middle economies and the Ukraine from low-middle economies[19]. The Global Innovation Index for the selected countries was presented in Table 1. Individual categories can be scored 0 to 100.

Table 1

Global Innovation Index ranking for studied countries

Country	Rank	Score (0-100)
United States of America	10	57,7
Slovenia	26	49,9
Poland	44	40,4
Thailand	57	36,9
Ukraine	63	36,1

Source: Authors' own study based on data from the Global Innovation Index 2012.

The Global Innovation Index (GII) relies on two sub-indices, the Innovation Input Sub-Index and the Innovation Output Sub-Index, each built around pillars. Each pillar is divided into three sub-pillars and each sub-pillar is composed of individual indicators, for a total of 84 indicators. The data used in the report are 35% from 2010, 21% from 2009.

[16] The Global Innovation Index 2012, Stronger Innovation Linkages for Global Growth, edited by Dutta S., INSEAD and the World Intellectual Property Organization (WIPO), 2012, www.globalinnovationindex.org/gii/main/fullreport/index.html, p. 4.

[17] The Global Innovation Index 2012, op.cit., p. 6.

[18] The Global Innovation Index 2012, op.cit., p. 4.

[19] Categorisation as regards to the value of income was conducted by World Bank Income Group Classification (April 2012).

3. Organizational Culture Indicators – Macro Context

In Hofstede's original research, data was collected from a large multinational business corporation (IBM) with subsidiaries in 64 countries. This initial structure consisted of four individual cultural value dimensions.

The first one is *power distance* (PDI). According to Hofstede[20], power distance is the extent to which the less powerful individuals in a society accept inequity in power and consider it as normal. In high power distance cultures, individuals respect their superiors and avoid criticizing them, while in low power cultures, it is acceptable to challenge superiors, albeit with respect. The second dimension is *individualism versus collectivism* (IND), reflecting the degree to which a society views its members as individuals or as group members. In individualistic cultures, individuals are mostly concerned with their own interests, while in highly collective countries, they are not defined by their own actions but rather the group' actions. The third dimension is *masculinity versus femininity.* The first one is described as cultures where the dominant values are expected to ambitious, assertive and competitive, while in feminine cultures there is a dominance of values such as "friendly atmosphere, position security, and physical conditions[21]. The last dimension is uncertainty avoidance presenting the degree to which people in a culture generally prefer structure to risk[22]. Societies high in uncertainty avoidance feel anxious by situations that are unstructured, unclear and unpredictable, while cultures low in this dimension are reflective, less aggressive, relatively tolerant, and unemotional.

The fifth dimension was added by Michael Harris Bond[23] and was originally labeled *"Confucian dynamism".* It refers to time orientation on life and work. With the long one there is the preference for delayed reward versus the instant one. The most recently[24] proposed three new dimensions: Exclusionism versus Universalism, Indulgence versus Restraint, and Monumentalism versus Flexhumanity.

[20] Hofstede G.: Culture's Consequences: International Differences in Work-Related Values. Sage, 1980.
[21] Hofstede G., Hofstede G.J, Minkov M.: Cultures and Organizations: Software of mind: Intercultural Cooperation and its Importance for Survival". McGraw-Hill, London 2010, p. 281.
[22] Hofstede G.: Culture's Consequences: International Differences in Work-Related Values, Sage, 1980.
[23] Bond et al.: (The Chinese Cultural Connection) Chinese Values and the Search for Culture-Free Dimensions of Culture. "Journal of Cross-Cultural Psychology", Vol. 18, part 2 (June), 1987.
[24] Minkov M.: What Make us Different and Similar: A New interpretation of the Word Values Survey and other cross-culture data. Klasika i Stil Publishng House, 2007.

Table 2

Organizational Culture of counties

Country	**PDI**	**IND**	**MAS**	**UAI**	**LTO**
Poland	68	60	64	93	32
Slovenia	71	27	19	88	-
Thailand	64	20	34	64	56
Ukraine	very high*	low*	low*	Very high*	-
USA	40	91	62	46	29

Source: Hofstede G., Hofstede G.J., Minkov M.: Cultures and Organizations: Software of mind: Intercultural Cooperation and its Importance for Survival". McGraw-Hill, London 2010, p. 255-258; Sitko-Lutek A.: Kulturowe uwarunkowania doskonalenia menedżerów. PWN, Warszawa 2004.

Summing up there are three culture models – the European one containing Poland, Slovenia and Ukraine, the Asian – in which Thailand is contained, and the American – with the USA. They are closely connected in terms of innovation preferences and building a competitive advantage. Cultural values limit the innovative approach in the European model through two dimensions: high power distance and resistance to change expressed by high uncertainty avoidance.

There are also internal differences between the researched counties – Slovenia very much favours the collective approach, which helps to stimulate proactive projects.

The Asian model represented by Thailand supports innovation in terms of long term orientation and patient, systematic, and even life-time approach to innovation. It allows to receive systematic results.

The basic support for innovation in the American model seems to be high individualism and low uncertainty avoidance. It stimulates the activity of employees and openness to change.

A cultural values review shows that the organizational culture of each country influences the specific innovation model applied in particular region. It is very important to identify it in order to focus on the supporting ones and reducing the barriers.

Although shaping organizational culture is a difficult process due to its complexity, the knowledge of this fact requires that management takes into consideration existing cultural factors in the implementation of proper operational solutions.

4. Summary

One ought to remember that when discussing the innovativeness on of an economy, the general state of technical development of a country is a function of three main actors (science, industry and government). The level of innovation depends largely on their involvement and the results of their activities.

Summing up there are three culture models – the European one containing Poland, Slovenia and Ukraine, the Asian – in which Thailand is contained, and the American – with the USA. They are closely connected in terms of innovation preferences and building a competitive advantage. Cultural values limit the innovative approach in the European model through two dimensions: high power distance and resistance to change expressed by high uncertainty avoidance.

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A cultural values review shows that the organizational culture of each country influences the specific innovation model applied in particular region. It is very important to identify it in order to focus on the supporting ones and reducing the barriers.

In order to boost economic development, increasing the level of innovation seems crucial. The increase is only possible when conditionings exerting influence on it are clearly defined. The analysis indicates that the level of innovation is influenced both by economic and social conditionings presented in the paper. The analysis indicated that countries with higher scores in the Global Innovation Index 2012 exhibit a higher level of economic development.

It is noteworthy that innovation rankings constitute a yardstick and a benchmarking tool for innovation performance across countries. These tools enable for the observation of activities undertaken by individual countries, adoption of worked-out solutions and introduction of changes in innovation policies.

5. Findings

It is clear that different business environments and cultural environments exist throughout the triad partners and it influences different innovation approaches to development.

There are national culture values strengthening and limiting innovativeness. Analysing organizational culture models – in Poland, Slovenia and Ukraine with their high power distance and high uncertainty avoidance can turn out to be barriers, in Thailand – long term orientation helps to build a lifelong innovative approach, and in the USA high individualism and low avoidance of uncertainty helps to generate innovations.

The awareness of the organizational culture values, both supportive and limiting, should be used in every day management and international cooperation.

The interrelations of organizational culture and economic phenomenon are of great importance not only for a certain company but also on the macro level, and it worth analysing the relations in more details. This points out to the need of further research focused on mutual influences analysis.

The analysis of the collected data indicates that countries with a higher score in the Global Innovation Index 2012 exhibit a higher level of regional development.

6. Research limitations and implications

The research and theory on cross-cultural comparisons is then limited to the acknowledgement that cultural differences exist. The models which have been created to evaluate the transferability or application of theory to a different culture can identify some areas in which problems may be expected but they cannot prescribe methods or techniques to be used in another culture. More intensive research which investigates how culture influence innovation on macro, micro and project level and what leads to effective innovation development in different cultures may lead to working out more useful models. At the moment any cross-cultural application must be made with great care.

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