Higher education in the era of global economy

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Abstract

The purpose of this article is to develop a new market economy model and model approach to the concept of higher education for the needs of the global economy. The proprietary new model of the market economy mainly includes: knowledge-based economy, sustainable development, use of network structures or social participation in the management process. In addition, in the processes of introducing radical changes in the enterprise, the use of time management (i.e. employing managers for special tasks) should be considered. The civilization and technological challenges that are posed to enterprises operating in the 21st-century economy cause the need for professionalism and specialized skills of employees, thus introducing challenges for science and higher education. In the original model concept of the concept of higher education for the needs of the global economy, innovative education in universities in the 21st century has been taken into account. The presented concept is based on modular education, dual studies, combining learning with practice through: innovation in didactics, management, or in relations with the social and economic environment of a university. The model contains the graduate profile for "Industry 4.0" - resulting from civilization and technological challenges. In connection with the above, modern organizations have to open up to new solutions, become more flexible and sensitive to signals coming from the market, and above all to learn to perceive problems from different perspectives and demonstrate readiness to introduce changes in the management process.

Keywords: higher education; global economy; business

1. Introduction

Rapidly changing environment-related conditions have posed challenges as to devising new management systems. The complexity of modern companies’ operation enforces the necessity to possess some multi-discipline commitment, as well as more comprehensive knowledge referring to organisations and their employees (Herman 2006; Boyett Boyett 2000).

The management in the 21st-century has adopted a new trend based on one’s ability to cope with continuous changes. The change is the only stable and durable thing in today’s economic world. Contemporary organisations act like networks based on their virtual integration, interdependence and massive care for a customer (Jamali 2005). People are treated as capital assets of organisations and as one of the most essential resources for gaining a competitive advantage (Carnall 2003).

Thus, the modern management of organisations should be based on:
• teamwork,
• continuous learning,
• execution of projects in compliance with one’s own expertise,
• smooth communication,
• integration and co-operation,
• partnership with customers,
• innovativeness.

Managers of the 21st-century enterprise should act as intermediaries, creativity catalysts, innovation advocates and promoters of concepts of learning (Dźwigoł 2014). Hierarchy flattening within organisational structures brought about their greater responsibility, and weakened the controlling (Matejuni Szymańska 2013). Managers are perceived as pillars and architects of organisation’s competitiveness, as those who unite people, opportunities and resources, avoiding, at the same time, any risks (Chapman 2001).

Using a non-hierarchical model of the enterprise allowed organisations to focus their attention on processes, products, services and customers (Dźwigoł 2014). Work should be organised around ‘mini-enterprises’ within a given institution, and not on the basis of fulfilment of defined functions. There are emerging virtual teams and their main business functions are outsourced (Czarnecka Sulimowska-Formowicz 2017; Staples Cameron 2004; Zhou Gifford Ratakonda Westerwick Engel 2014). Their operation is propelled particularly by the following factors:
• growing domination of flat or horizontal organisational structures,
• emergence of an environment which requires interorganisational co-operation,
• transformation of employees’ expectations as to organisational participation,
• durable shift from production to services and knowledge-based work,
• growing globalisation of trade and corporate activities– Murphy.

In the 21st-century enterprise, the essence of surviving and being competitive is founded on reduced dimensions of the organisation (so-called downsizing). With reference to the foregoing, the management methods need to, for the sake of organisations and by means of their method-related potential, identify, diagnose and design occurring challenges.

There exists an agreement as to elaborating unequivocal criteria pertaining to research processes within the management science, and to enhance the identity of the scientific discipline in question (Dźwigoł 2015; Jokieli 2006). However, one should emphasise that issues within the framework of the discipline have interdisciplinary character and demand to have recourse to other scientific disciplines. Management science requires appropriate aptitude and skills, such as (Nogalski Rutka 2007):
• insight and sense of observance pertaining to practice,
• communication skills,
• good command of methods pertaining to social research and operational modelling,
• vast knowledge referring to disciplines and branches of science,
• practical experience in terms of management,
• personal contact with practical aspects.

With more and more aggressive globalisation, and rapid and continuous changes in the market, it becomes necessary to develop other approaches towards the management process, which approaches will allow for the shift from the short-term growth policy to the sustainable long-term policy.

The civilizational and technological challenges that are posed to enterprises operating in the 21st-century economy trigger the need for professionalism and specialized skills of employees, thus
introducing challenges for science and higher education. There appears a need to create a new conceptual model of higher education, evolving around needs of global economy, taking into consideration innovative education at universities in the 21st century.

With reference to the foregoing, the aim of this article is to develop a new model of market economy and an exemplary approach of the concept of higher education related to the needs of the global economy.

The aim was supported by the following research questions:

PB 1. How to manage companies, taking into consideration the 21st-century challenges of civilizational and technological characters?

PB 2. What education system should be adopted in order to broaden competencies of managers as to innovativeness of companies and economy?

PB 3. What management concepts and methods should be applied to make the companies’ operation more flexible and to facilitate introduction of changes in the enterprises?

**How to manage, with a consideration given to civilizational and technical challenges of the 21st century?**

Due to new challenges and new problems triggered by the economic reality, the companies have been subject to different research studies. This triggers a demand for knowledge on processes and conditions for their transformations, development, as well as tools and management methods in the era of ‘new economy’ (Borowiecki Czekaj 2010).

It is necessary to shift from linearity (Skrzypek 2010) (a process runs in an even and continuous way) to networking (Kisielnicki 2017) (entities feature a great level of independence within decision-making process, promptness and independence, greater quality of products and more effective management).

Contemporary organisations need to be willing to accept new challenges, learn how to analyse problems from various perspectives, become more flexible and sensitive to signals coming from the market, as well as be ready to introduce changes within the management process. Development of one’s own innovativeness, combined with professional management of resources, are a key factor in the knowledge-based economy (Olszak Głód 2018).

![Figure 1. Model of innovative, knowledge-based economy. Source: Pająk 2016.](image)

In order to make the management through innovations effective, the company’s top managers need to meet the following conditions (Drucker 1974; Kivila Martinsuo Vuorinen 2017):

- they should be certain that innovations are necessary in order to be successful in the market. Furthermore, they should foster development drives by stimulating and supporting creative and pro-active employees,
they should create an organisation-friendly atmosphere which encourages changes,
they should be open to new ideas of technical and technological improvements, while challenging stereotypes,
they should encourage employees’ resourcefulness and creative innovations, while dismissing conservatives and passive people.

In modern companies it does not suffice to enhance the performance when needs occur. One should enhance the company value by constantly improving operational areas of the company, namely resources and functional sub-systems, as well as by diagnosing competences. A sustainable enterprise means an enterprise which cooperates with its environment. Its proper development will depend on changes to the organisational culture, supported by Information Technology. Changes occurring in our environment trigger necessary actions aimed at creating a new model of market economy.

While developing a new model of market economy, one needs to consider:
knowledge-based economy,
sustainable development,
use of network structures,
social participation in the management process.

While introducing radical changes to the company, one needs to consider the employment of interim managers (hiring managers to perform particular tasks).

![Figure 2. New model of market economy. Source: own elaboration.](image)

2. Knowledge-Based Economy

The Knowledge-Based Economy doctrine was established in 1990s. It is a type of economy where knowledge is created, adopted, transferred and used in a more effective way by companies, organisations, natural persons and societies, resulting in a more rapid growth of economy and society. The development involves a more intensive application of knowledge and experience; the said development may be faster than any other development as it generates a more rapid technical and organisational progress, make use of well-educated people and apply, in a more effective way, human
resources and production capital. One can distinguish the following indicators of the Knowledge-Based Economy (Skrzypek 2011):

- there occurs a shift from the economy based on production of goods to the service-oriented economy,
- there are a growing number and a bigger influence of professional and technical workers,
- the information society evolves around knowledge and information,
- scientific research and development, combined with blended science, technology and economics are a key to the information society,
- methods of intellectual technologies are developed.

Despite the fact that Knowledge-Based Economy can boast its numerous positive features, one needs to consider the following threats related to it (Makulska 2012).

- a dynamic technological advancement can result in a widening gap between underdeveloped countries and more technologically advanced ones,
- there appears a risk that should other countries fail to absorb worldwide technological achievements, the developing countries may be additionally marginalized,
- inequalities as to the performance and level of economic development in various countries may be perpetuated by the diverse quality of organisations,
- uniformization of products and services may result in the market monopolization,
- it is suspected that the digital gap may be widened, separating the countries with no resources and skills necessary to make use of modern technologies from the remaining countries,
- there may appear growing disproportions as to the use of technologies,
- over the time, the division between sectors applying modern technologies and those that cannot make use of the said technologies is getting bigger and bigger,
- countries’ spatial structure is dispersed between regions that are equipped with modern infrastructure and properly qualified human capital and the regions deprived of them,
- integration of highly developed countries, supporting one another in implementing new technologies, may bring about a wider gap between the rich countries and the remaining ones.

3. Sustainable development

The management refers to professional activities, based on the newest knowledge, specific trade-related skills, the application of rational, behaviour-related methods as well as techniques (Cha Newman Winch 2018). It is a resultant of various features, including emotional intelligence, regarded as essential for behaviours, attitudes and lifestyles of managers (Miroński 2013).

The sustainable development, i.e. the continuous development is an economics doctrine, advocating the maintenance of a certain level of living, as allowed for by the current civilizational advancement (Berdo 2006), contrary to ‘Malthus’ Iron Law of Economics’ (Bartkowiak 2010). At the present civilizational level there is room for sustainable development, i.e. such a development under which the present generation’s needs can be fulfilled without depleting the chances of future generation to satisfy their own needs (Borowiecki Siuta-Tokarska Kusio 2018).

At present one can notice that the human civilisation has achieved a maintainable level of wellbeing, provided that resources are managed in a proper way. This economy model favours developing, in a proper and conscious way, relations between the economic growth and care for environment (not only the natural one, but also artificial environment created by people) combined with quality of life (including human health). The sustainable development doctrine aims at achieving social solidarity, by, namely: economic and environmental effectiveness of enterprises. The
effectiveness depends, among others, on a strict account of production costs, encompassing, in a sophisticated way, external resources (Tietenberg 2003).

4. Use of network structures

A network structure is a structure used in modern organisations which decided to get rid of traditional organisational solutions and introduced new management ideas. The said organisations operate on the basis of work and networking management. Nowadays one can notice that more and more companies opt to shift from the organisational structure that flourished in the industrial era into the network structure (Belz Krzemiński 2014).

The reason for such actions is a disintegration of traditional organisations, their replacement by big or smaller dynamic organisations consisting of, for example, associations of independent employees or entities. Such bodies are characterised by considerable independence as to decision-making process, speed and higher quality of products, as well as more effective management (Mikołajek-Gocejna 2011).

Working in the networking system requires from the managers to be ‘highly capable of synthetizing scattered informative materials’ (i.e. how to share your expert knowledge with the others, how to update and refresh the knowledge in order to reduce the project performance times), to be able to establish non-formal connections within the company, to be highly capable of controlling the circulation of information in the organisation, and to create and supervise activity-related boundaries for teams or individual workers (Sułkowski Sikorski 2014).

The networks appear as a result of changes arising from the development of IT networks and of perceiving the organisation’s environment in a new way. It is also triggered by blurred boundaries between the company and its environment, which is typical of intelligent and virtual organisations (Mikołajek-Gocejna 2011).

The appearance of such a structure is an evolutionary phenomenon, instead of a revolutionary one, since people, while creating new intellectual values, have been for many years sharing information, communicating with the view of making their findings available and reaping benefits from values elaborated by the others. Intensified co-operation with external partners from other institutions or countries allows to establish direct connections between the interested parties, which brings about the synergy effect. The network consists of co-operatively connected, self-managed entities, focussed on processes.

In case of learning organisations, the structure is based on a network of autonomous or self-managing teams. On the other hand, in case of intelligent organisations there is no hierarchical subordination, the organisations are based on roles and are dependent on the execution of processes. The closest environment consists of interested parties, connected with the given individual and interconnected by means of relationship networks.

5. Social participation in the management

The participation is understood as an involvement of employees in the process of taking decisions related to the organisations’ operation and their contribution into the organisation management process. The drive to participate in the management process corresponds to the self-fulfilment needs of more and more qualified employees of modern organisations (Chyłek 2011).

The 21st-century organisations are expected to be innovative, ready to change and adjust smoothly, while the said actions are determined by qualified managerial staff and their proper co-operation with subordinates. The more experienced, competent and committed the employees are, the more probable the success of the company is (Chyłek 2011).
Participating in the management process allows the employees to feel responsible for the company’s results and fate. Their behaviour and commitment is strictly connected to their increased creativity, which, on the other hand, improves the development capabilities of the entire organisation.

Benefits of social participation in the management process:
- opportunity to consider various points of view during conflicts,
- better analyses of problems,
- finding more effective solutions,
- opportunity to avoid ill-considered steps which cause problems,
- dealing with issues being beyond the scope of one’s duties,
- acquiring new knowledge and experiences,
- reducing fluctuations,
- improving the quality, or enhancing the productivity.

6. The use of interim management

Changes occurring in the environment pose new challenges to executives. It is thus necessary to find answers to the most fundamental questions about a new way of working. In the 21st century one needs to construct a new paradigm, based on new principles of company’s operation, referring mainly to remodelling of the management structure, principles of data gathering and more effective use of resources.

Interim management is a notion having numerous interpretations and definitions (Payne 2009; Tabernacka 2009; Stewart 2002) – it is a temporary handing-over of the company or its part to be managed by a selected interim manager, in order to introduce changes in particular or all areas of its activity (Dźwigoł 2016).

Factors that determine the occurrence of the said management concept are as follows: a growing pressure from the competitors’ side, a growing influence and role of consumers, a growing role of innovations, or changes occurring in the economic and business environment of companies. On the other hand, among factors that hinder the development of the interim management one can name: lack of information and lack of awareness that such a solution exists, high risk that needs to be accepted by both sides.

What education system should be adopted to enhance the competencies of managers in order to promote innovativeness of companies and economy?

There is a strong connection between science and practice. The connection results from the fact that scientific research is always or to large extent triggered and carried out as a result of an occurrence of a problem or phenomenon in the real world.

Creating a new trend of organisational development encompasses cognitive and descriptive rules, shared by both scientists and managers, to describe the organisational reality, as well as principles to formulate cognitive and pragmatic methods, combined with competence-related guidelines for managers (Dźwigoł 2016). The new reality requires that employed managers have specific competencies and clearly stated tasks, necessary to fulfil determined goals.

Managing is a normative branch of science which needs to fulfil the conditions of effective and successful operation of the company, the branch which should be subjected to the economic practice and find a practical solution in it (Gołąbiewska 2013). Should the condition be not met, science as such may be regarded as purely academic or as a second-class science.

When comparing educational systems of some domestic and foreign universities, one can draw principal conclusions as to the educational systems, namely:
- a considerable number of majors and subjects,
lack of specialisation – orientation in a given area,
lecturers lack in practical experience,
subjects are disconnected from the economy and labour market,
lectures evolve around theories, are deprived of practical examples,
a small number of majors and subjects delivered in English,
very low internationalisation (it is impossible to assess the impact of other cultures),
very low quality of published works (lack of research and verification of elaborated methods, techniques, tools and models in practice),
a small number of dual studies programmes.

Figure 3. Module of dual education. Source: Europa 2020, Polska 2030.

Educational model that shifts the centre of gravity from teachers to learners, where schools are places of learning instead of students’ being taught by teachers. Its main features are:

- project methods (learning by conducting projects),
- synectics methods allowing learners to develop concepts on how to solve problems, and to verify their ideas,
- other methods focused on learning through performing tasks acquired from the real professional life.

Dual-study programmes is an innovative educational project, combining a simultaneous acquisition of academic knowledge and practical experience. Universities fulfil their mission through a diverse and rich educational offer, adjusted to present and future needs of local and regional labour markets, addressing the expectations of employers. Furthermore, the students are learning skills of trade and professional qualifications sought by the labour market.
Figure 4. Dual education – at technical universities and universities of economics. Source: own elaboration.

The civilizational and technological challenges that are posed to enterprises operating in the 21st century economy cause the need for professionalism and specialized skills of employees, thus introducing challenges for science and higher education. There appears a need to create a new conceptual model of higher education, evolving around needs of global economy, taking into consideration innovative education at universities in the 21st century.
Figure 5. A conceptual model of universities as a place where pro-innovation attitudes are shaped. Source: own elaboration.

Higher education perspectives:

1. Innovativeness in didactics – new courses of studies, specialisation-related technical means and educational technologies, methods and methodologies of running classes, lectures based on practical cases, increasing the number of dual studies and module educations schemes.

2. New structure of classes – encouraging students to self-study and promoting reasonable assessment criteria (practical module carried out in companies within the scope of dual-study programme), subjects adjusted to labour market and industries, increasing the number of faculties and subjects in English.

3. Innovativeness in management – simplifying the organisational structures of universities. Independent organisational entities, treated as fully autonomous as far as education quality, resource management, co-operation with the environment and internationalisation are concerned; reducing the number of faculties and subjects, emphasising specialisations, Horizon 2020.

4. Innovativeness in contacts with social and economic environment – participating in developing a flexible labour market and development strategies, modelling, sharing economy, silver economy, promoting internationalisations, intensifying co-operation with national and international institutions and companies (agreements on student and researcher exchange programmes).

What management concepts and methods should be applied in order to make the company’s operation more flexible and to facilitate the introduction of changes to the said company?

New organisational forms are a result of better and better adjustment to changes and the environment. J. Brilman distinguished four main strategic axes of the most favourable adjustment (Brilman 2002):

- shifting from the engineers’ products to products of marketing specialists, i.e. understanding preferences of clients and providing clients with faster, better and cheaper services,
- consolidating the requirements of simultaneous engineering and project management (it is necessary to be able to develop together),
- making the company stronger by reinforcing its strongest professional specialisations and capitalising on abilities in the learning companies,
- co-operation with suppliers by means of establishing conditions for real partnerships (developing abilities to co-develop based on partnership).

It should be emphasised that transformations of organisational forms originate in the replacement of the bureaucratic system by the high-performance system. The new approach became widespread in 1980s. The approach involves creating teams of employees where each employee has the greatest possible freedom to act (Grudzewski Hejduk 2002). The team is responsible for a certain scope of activities in the business process, whereas employees are expected to initiate improvements to this end. The second important change is the growing popularity of virtual jobs (Grudzewski Hejduk 2008).

While observing current changes, Clarke and Clegg put forward a typology of new organisational forms, based on trust and sustainability (Clarke Clegg 2000). They refer to the ability of self-recreation, change management, communication and building of relations.
The organisation, in order to stay afloat in the changeable and competitive business environment, needs to undergo a constant process of self-development. This condition is vital for further existence and development, it is an element of daily operation. The organisation should be: intelligent, flexible, critical, open, creative and innovative, capable of constant transformations, while maintaining the right direction and goals. The considerations so far have shown that the organisations should act as integrated self-regulating work systems, starting from individual workstations, to work teams, to the whole networks of work-related processes. The best effects can be achieved thanks to establishing structured organisations around products, processes, services and clients. The work should be organised around mini-enterprises in the institutions. At the same time, the employees’ responsibility should be structured, not according to functions (e.g. marketing, accounting, production), but according to divisional schemes, connected with a given product or service – i.e. the application of the project-management method.

Within the scope of organisation management, some techniques, methods or concepts within the frames of ‘modernity’ are subject to some trends. It is not a reasonable idea when scientists and practitioners follow the trends. However, it does not alter the fact that in the global economy there appear ‘valuable’ concepts related to the organisation management, namely (Nogalski Ruka 2007):

- sustainable development and sustainable enterprise,
- responsible business, partnership,
- flexibility, adaptability of behaviours and organisational solutions,
- intellectual capital and knowledge,
- entrepreneurship.

Continuous changes occurring in the environment, the fixed and hierarchical management system oblige us to create a new paradigm based on new guidelines, principles and operating rules of the enterprise.

To construct an enterprise of the future, one needs to remodel the management structure, principles of data gathering, and more and more effective use of resources (Malara 2006). Enterprises’ survival and development are determined by (Nogalski Ruka 2007):

- ability to stay ahead of changes,
- focus on function processes,
- adjustment of management methods to new fulfilment conditions,
- effective management of the process of change, focus on creating effective attitudes or behaviours of employees,
- focus on creating effective processes.

Modern enterprises mean achieving skills to operate in the world of uncertainty and continuous, dynamic and leap changes. What does the notion of a ‘modern enterprise’ mean nowadays? What is now perceived as a tradition, used to be viewed as a novelty (Zieniewicz 2007).

Taking the foregoing into consideration, any conditions and management concepts in the new market economy should focus on, mainly:

- sustainable development,
- network management,
- project management,
- transfer of knowledge, mergers, take-overs and strategic alliances,
- intellectual capital management,
- flat organisational structure,
- interim management,
- social participation in the management process.
7. Summary and conclusions

In contemporary enterprises, the organisational structure leaves bureaucracy and hierarchy behind, economic processes run within the inter-organisational networks. Enterprises are established temporarily for execution of given projects, where a particular emphasis is put on the concepts of the following organisations: intelligent, virtual, organic (network and cluster-related) and relation-related (Czakon 2007).

The application of the above-mentioned concepts requires to develop one of the most essential resources of the enterprise, that is knowledge. The knowledge refers to everything that employees know about the operating rules of the enterprise. Sound knowledge management, and selection of the most necessary information for the enterprise will contribute to the achievement of a competitive advantage. In the process of development of a new organisation one needs to take into account some of its operation-related factors, namely: on internal and external conditions, staff aptitude: that is on everything what means entrepreneurial activities.

The management science needs to concentrate mainly on issues connected with the creation of virtual, flexible and innovative organisations. ‘New managers should learn how to be coaches, team-players, human resources administrators, visionaries, leaders and entrepreneurs’ (Longenecker Aros 2002). Coining new notions and concepts in the management sciences is an attempt to seek assumptions for a new paradigm which would be able to meet expectations of a new reality. L. Sułkowski (Sułkowski 2006) describes the condition of the modern management knowledge as a sort of a ‘jungle’ of various concepts, whose life-cycle is gradually shortened. As a rule, latest concepts do not rely on long-term research but on one innovative idea. The concepts are quickly disseminated and easily forgotten.

‘Management is a normative science; it should formulate principles for effective and efficient operation of the organisation, perform auxiliary functions towards economic practice, finding in it its practical application. Leaving this requirement unsatisfied makes that science is vulnerable to allegations of being too academic or second-class’ (Nogalski Rutka 2007).

Companies of the future need to make a greater use of innovative resources in their operation, system of production and management. The enterprise’s activity should therefore be based on short-term undertakings which, although using the same accumulated capital, take on different forms, have recourse to external resources and services provided by the entities operating in the company’s environment, instead of the ones operating inside the company (Dźwigoł 2014).

The integration of intelligence and awareness does not just mean achieving new opportunities, it also refers to implementing them into a new context of the mind’s creative processes. Their development can be an important element of transformations related to this new philosophy of the enterprise management. The knowledge management system should be regarded as a systematic process of creating, organising and disseminating the enterprise’s intellectual capital.

The knowledge area in the organisation should be separated, useless information should be eliminated, while only valuable, i.e. utilitarian knowledge should be an underlaying foundation of analyses carried out by top managers. The intelligent organisation, i.e. life-long learning organisation is a management idea based on knowledge which is extended and made available to the company with the view of achieving additional effects (Grudzewski Hejduk 2002). Information flows in such systems depend on systems-platforms and IT tools which are practically designed and organised, to the same extent, at particular levels of management by top managers. It does not matter whether the work is performed by senior, middle managers or ordinary employees. It means that rational activity of the entire staff is, in the said moment, the best choice. Thus, creating strategies, including goal-related strategies is far from an easy task. In modern business world, goals of companies are
becoming more and more complex. One is now witnessing an evolution of work, so as to make it more autonomous and create more flexible forms of works. A good example is production, as the latter should be based on an assumption that all production units consequently fulfil process-related standards in given time. A client and his/her guidelines determine the activities performed in the entire production system (Grudzewski Hejduk Sankowska Wańtuchowicz 2010; Krzakiewicz Cyfert 2017).

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