Introduction

The conditions of shifting from industrial and post-industrial stage of development towards the stage of information society require restructuring the whole life of individual people, the society, as well as production and service companies, and institutions. It stems from the necessity to change the economic basis thoroughly so that the fundamental role is played by science, while the economy is based on knowledge. Failure to adapt to the new civilization challenges carries a risk of negative consequences associated with social exclusion of many people and the downfall of business entities – a result of lowering productivity and introducing new work organisation principles with the usage of IT systems. In place of traditional production, management and social communication systems, the new – based on IT networks – production, service and management organisation systems take shape, contributing to improvements in efficiency of operation. The new conditions make knowledge an expensive product, sometimes difficult to achieve: facilitating modernization, as well as adding to the quality and competitiveness of products and services offered. Therefore, this complex subject matter is gradually receiving more attention of numerous scientific disciplines, which reflect upon it from different points of view.

The articles in the present volume, in which special attention is directed to the functions of industry and services in the development of a knowledge-based economy, attempt at referring to the main and current research trend. They include works pertaining to general problems of the role of industry in shaping the new economy and examples of chosen industry branches and business entities representing industry and services.

These research issues, particularly current and relevant for industrial geography, are introduced by considerations on modelling the role of industry in the shaping of a knowledge--based economy (Z. Zioło). Special attention is given to a model presentation of the place of industry and services in a national economy, as well as mechanisms of implementing innovation in industrial operation. Shaping a knowledge-based economy and its innovativeness require heavy expenditures, which is illustrated by the presented expenditure values of global corporations allocated for research and development, and their diversified spatial concentration. Alongside the development processes, global division of labour is changing, consequences of which can also be negative, e.g. in the form of restricting the size of labour market (J.T. Hryniewicz). Rationalization of the process calls upon common European industrial policy so as to curb on the detrimental effects of shifting from the industrial to knowledge-based economy. These issues are further elaborated on in the article dealing with priorities of industrial policy in the European Union, its transformation in chosen European countries and a presentation of the assumed integrated approach to it (M. Ulbrych).

In the processes of economy transformation, conditions of the development of particular branches of industry change as well, among which energy supply resources play a significant role. This matter is considered in the articles on the prospects of utilizing shale gas resources in economy (A. Pach-Gurgul), functioning of bituminous coal mining and actions for taking advantage of IT, remodelling institutional implications and the educational development for the sector (A. Heder, M. Tkocz). The new development stage is also marked by emergence of new branches of industry, including biotechnology (S. Dorocki, M. Boguś; M. Borowiec). It is characterized by a very diversified level of concentration, both in the global and national space, which is due to the level of sophistication of new technologies, as well as the opportunities to make use of by and large cheap labour stocks, e.g. in Poland. The change in conditions and the shaping of new spatial structure is also typical of the existing branches of industry. Their manifestation can be found in remodelling of spatial structure of fish processing industry in Poland (P. Czapliński). An important factor for the development of a knowledge-based economy is implementation of technological progress in the military industry (P.L. Wilczyński). It is associated with the necessity to search for new materials and technological constructions in order to improve the quality of combat equipment and enhance methods of command. The processes of restructuring national industry and changes in respect of the development also affect regional structural transformation. This issue is illustrated with the intensity of structural changes in industry in chosen voivodeships (A. Mrozińska). The betterment of technology, under the influence of scientific development, takes place in different sections of national economy. An example of that is mastering new technologies in developing construction industry of energy-efficient houses, which enable lowering investment and running costs via energy saving (M. Płaziak).

Particular industrial companies exert a significant influence over the development of an economy and implementation of new technological features by adapting to new knowledge--based economy conditions in accordance with microeconomic goals (T. Rachwał; G. Maśloch; D. Janczewska). Recognizing consumer preference is of great value in the functioning of the businesses (A.I. Szymańska). An important role in this respect should be assigned to the quality of environment that creates certain development conditions via implementation of economic policy instruments related to the trends of knowledge-based economy growth. A partial illustration of this issue presents an analysis of companies of Małopolska region in terms of R&D expenditures and utilizing structural funds (D. Murzyn).

Implementation of innovative technological solutions is required by the principles of intensification of competition also on the global scale. It refers especially to the automobile industry, which, as shown by an analysis of the development of the industry in Argentina, essentially follows growth trends similar to the ones in the global space (M. Wójtowicz). Acceleration of that type of development is achieved also by specific governmental policy, the purpose of which is to stimulate modern development processes in areas on lower levels of economic development. Such actions lead to changes of industry structure in particular countries and regions, which is illustrated on the example of Turkey relative to Euro-pean Union countries (D. Ferudun, P.L. Wilczyński) and “Titanium Valley” in Russia (A. Burnasov, M. Ilyushkina, Y. Kovalev, A. Stepanov). An important factor in the new

conditions speeding up the development at a certain stage might be services, also on the territory of countries on a lower level of development but possessing sufficient labour stocks (A. Wróbel) or having an appropriate level of qualification and modern equipment for points of service (S. Dorocki, A. Świętek). Contemporarily, a special role in the development of particular entities is also played by legal advice services (B. Patkowski) and advice related to the implementation of project management systems (J. Strojny). The volume is concluded with reflections pertaining to the substance of knowledge as a factor for the development of industry and services (T.T. Brzozowski).

We are aware that the present articles are on different levels of advancement and that they constitute an illustration of chosen issues related to the implementation of knowledge-based economy principles, especially within the scope of industrial operation and services. We will be grateful for constructive criticism, which will enable us to explore the problems further on the grounds of geographical sciences.

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