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**MEGATRENDS AND THEIR USE IN ECONOMIC
ANALYSES OF CONTEMPORARY CHALLENGES
IN THE WORLD ECONOMY**

**MEGATRENDY I ICH WYKORZYSTANIE
W EKONOMICZNYCH ANALIZACH WSPÓŁCZESNYCH
WYZWAŃ W GOSPODARCE ŚWIATOWEJ**

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Summary: The objective of the article was to perform a literature review to analyze the use of megatrends as an analytical framework in various areas of economic and social discourse. Following SALSA methodology, the scope of the research covers peer reviewed articles published between 2010 and 2018. The results show that the concept of megatrends has been utilized in analyzing the impact of fundamental economic and social changes in three main areas: foresight studies of selected industries, analyses of existing and anticipated changes in management and business practices, and other socio-economic topics. The content of the most frequently used megatrends covered: technology developments, environmental changes, demographic shifts, urbanization, and changes in geopolitics. The most coherently defined megatrends that are frequently envisaged to exercise influence on the contemporary world, and are expected to continue to do so in the future, are: digitization and development of ICT and related technologies, urbanization growth, scarcity of resources and climate changes.

Keywords: megatrend, megatrends analyses, foresight, literature review, economic analyses, world economy.

Streszczenie: Celem artykułu było przeprowadzenie przeglądu literatury w celu przeanalizowania użycia koncepcji megatrendu jako analitycznej struktury w różnych obszarach ekonomicznego i społecznego dyskursu. Badanie z wykorzystaniem metodyki SALSA obejmuje recenzowane artykuły naukowe opublikowane między 2010 a 2018 rokiem. Wyniki pokazują, że koncepcja megatrendów była wykorzystywana do analizy oddziaływania istotnych ekonomicznych i społecznych zmian w trzech głównych obszarach: studia nad przyszłością poszczególnych branż, analizy obecnych i przewidywanych zmian w zarządzaniu i praktyce biznesowej oraz do badania społeczno-gospodarczych zagadnień. Problematyka najczęściej używanych megatrendów obejmuje: rozwój technologii, zmiany środowiskowe, przemiany demograficzne, urbanizację, zmiany geopolityczne. Najbardziej spójnie zdefiniowane megatrendy, o największej domniemanej sile oddziaływania, to:

cyfryzacja i rozwój technologii informacyjnych, wzrost urbanizacji, niedobór surowców naturalnych oraz zmiany klimatyczne.

Słowa kluczowe: megatrend, analiza megatrendów, przegląd literatury, analiza ekonomiczna, gospodarka światowa, studia nad przyszłością.

1. Introduction

The drive to understand the major economic and social changes that influence the world around us has for decades been a crucial motivation stimulating both scientific studies and personal intellectual ventures. Since its introduction in the 1980s by John Naisbitt, the concept of megatrends has occupied an important place in popular economic and social analyses. This has resulted in a number of publications on this subject being released in the recent years by consulting companies [EY 2016; PWC 2015; KPMG 2014] and other research bodies [National Intelligence Council 2012; Gros, Alcidí 2013; Boumphrey, Brehmer 2017] as well as publication of numerous books [Naisbitt 1982; Naisbitt, Aburdene 1990; Naisbitt, Naisbitt 2017; Hajkowicz 2015]. The predominant aim of these publications is to provide insight into the fundamental social and economic trends that not only shape the contemporary world economy but, as it is predicted, will continue to influence our world in the near future. Thus, the concept of megatrends has occupied an important place among in public opinion.

Taking up this topic, we were interested in studying the extent to which the concept of megatrends was adopted by academic researchers and used as an analytical framework for papers in the economics and social sciences. Our additional motivation was to identify and verify which megatrends were considered the most influential in the world economy in the 21st century by professional researchers who decided to cite them in their works. To our knowledge there has been no previous literature review on the concept of megatrends worldwide. As a peripheral interest, we would like to understand the extent to which the popular and relatively journalistic concept has been taken up in academic research.

The paper is structured as follows: in the first part the concept of the megatrend is introduced. The second section describes the methodology of our literature review. The third part synthesizes the areas in which the megatrends are used as an analytical framework. The results are supplemented by the fourth part, which analyses the megatrends that are most commonly utilized in scientific journals. The last section summarizes the results of our research and proposes avenues for further studies.

2. Megatrends as a research concept

The evolution of contemporary economy and society characterized as ‘constant change’ [Castells 2002], also called ‘liquid modernity’ [Bauman 2008], has been driven by three major, global forces, namely technology, globalization, and demography [EY 2017]. As the changes accelerate, companies, as well as governments, attempt to predict the evolutionary directions in order to plan their development strategies. In a turbulent environment the traditional approach, such as mid or long term predictions, often lack in effectiveness, for which reason they are complemented by scenarios method, foresight studies or trend and megatrend analyses [Gajewski, Paprocki, Pieriegud 2015].

According to Naisbitt, the most reliable way to anticipate the future is by understanding the present [Naisbitt 1982]. Therefore, observing tendencies and trends occurring in societies on the local, regional as well as global levels could serve as a major tool in foresight studies for the foreseeable future. Astonishing strength and reach of certain trends may elevate them to the range of leading movements called megatrends [Naisbitt 1982]. In a study based on a 12-year analysis of American local press articles, Naisbitt identified 10 trends shaping the United States of America in the 1980’s. However, it was only in his second book: “Megatrends 2000: 10 new directions for the 1990’s” [Naisbitt, Aburdene 1990], that he defined megatrends as ‘large social, economic, political, and technological changes [that are] slow to form, and once in place, they influence us for some time – between seven or ten years, or longer’.

Twenty-five years after the publication of Naisbitt’s first book, Stefan Hajkowicz proposed defining megatrends as ‘gradual yet powerful trajectories of change that will at some point express themselves with explosive force and throw companies, individuals and societies into freefall’ [Hajkowicz 2015], highlighting at the same time that ‘as ocean currents, the social, economic, political, technological and environmental drivers of global change – the megatrends – are powerful forces’ reshaping our world [Hajkowicz 2015]. Being the most important transformation processes observed in societies [Naisbitt 1982], they undoubtedly should be regarded as global, vast phenomena defining the present world and, most importantly, shaping the future [Peciak 2016]. A detailed review of definitions and approaches may be found in [Gajewski, Paprocki, Pieriegud 2015; Peciak 2016].

Other futurists, even though they did not use the term megatrend, attempted to foresee economic and social changes on the global level. In 1980, Alvin Toffler formulated his theory of three waves [Toffler 1980], corresponding to the movements reported by Naisbitt. A few years later Jeremy Rifkin, in turn, developed such concepts as the changing nature of work [Rifkin 2001], green lifestyle [Rifkin 1990] and collaborative economy [Rifkin 2014]. The visions of both, based on detailed observation of reality, were also described in Naisbitt’s successive books:

“Megatrends 2000” [Naisbitt, Aburdene 1990] or “Mastering megatrends” [Naisbitt, Naisbitt 2017].

Apart from the numerous researchers mentioned above, a significant number of consulting firms such as EY, PWC and KPMG, along with institutions researching for governments or international authorities, namely the National Intelligence Center, Euromonitor International or Centre for European Policy Studies, have endeavoured to address the megatrends issue, proposing their own definitions and methodologies. As a result, the term lacks comprehensive, coherent understanding, as it reflects various perspectives and focus, be it political, economic or social. Nonetheless, led by the driving forces mentioned above, megatrends may be defined by three crucial factors: shortness or length of duration, scale of the impact, and size. They also evolve in a similar way to the product life cycle, namely: emergence, spread, domination and decline. In the first phase, old, declining megatrends are gradually replaced by emerging ones, which rapidly grow and trigger subsequent revolutionary changes in economy and society [Gajewski, Paprocki, Pieriegud 2015].

According to Hatalaska, a trends analyst, apart from megatrends, leading trends, counter-trends and microtrends may also be identified, depending on their spread, strength and duration. The latter, arising in a favourable environment, may gradually evolve into leading trends which, combined with some neighbouring ones, end up as powerful megatrends or, on the contrary, as counter-trends, being a kind of reaction to the leading forces [Hatalaska 2014]. It is worth mentioning that authors of respective analyses and reports frequently identify similar megatrends as leading, even though the terms may slightly differ in meaning, which is indicative of a need for common consensus about their hierarchy.

3. Research method

The objective of this paper is to conceptualise and synthesize megatrends as an important analytical tool to broaden understanding of structural shifts in the world economy in the 21st century. In order to achieve this goal a thorough literature review was conducted, which covered scientific articles published in peer reviewed journals and conference materials between 2010-2018. The sole aim of the review was to identify short texts only in which megatrends were applied as analytical lenses to provide insight into selected research phenomena. The absence of a literature review on megatrends in peer reviewed papers constitutes an adequate reason to perform this research [Torraco 2016].

It is recognised that longer texts such as books, reports published by consulting firms and other analytical studies provide influential overviews of megatrends and are instrumental in promoting the concept among the wider public. The reason for excluding longer texts from this literature review stems from the fact that the initial pre-study of those texts revealed that they tended to focus on analysing a broad array of megatrends rather than providing a straightforward application of megatrends as

an analytical tool. It is acknowledged that such longer publications provide important insight into the nature and scope of modern megatrends and therefore their review would constitute separate research to be undertaken.

In order to structure the research project, a SALSAs model (Search, Appraisal, Synthesis, and Analysis) was used to organise the literature review [Booth, Sutton, Papaioannou 2016]. In order to ensure up-to-date results and enable their application to contemporary shifts in the world economy, only the publications from the last 8 years, i. e. released between 2010-2018, were included in the review.

In the first step of SALSAs model, a search was carried out with the aim of providing a comprehensive overview of the use of megatrends in scientific publications in economics and social sciences. The literature review included Web of Science, Google Scholar, and Science Direct as important data pools for scientific journals. In order to extend the literature review to articles published in Polish, the BazEkon database was included in the research. The primary key words used in the search were the following variants of the term megatrend and related phrases: “megatrends”, “mega-trend”, “economic megatrends”, “world megatrends”, “global megatrends”, “contemporary megatrends”, “megatrend analysis”.

In the second step of the SALSAs model, the quality of the texts was verified. Citation analysis was conducted on all of the obtained peer reviewed articles and the reliability of their sources was authenticated. The review of abstracts and summaries as well as subsequent analyses of the full texts led to the set of papers used for this research. As a further step in the model, a synthesis of the texts was carried out in order to establish key strands in the analysed literature. To broaden the understanding of megatrends as an analytical tool, the following characteristics of the texts were discussed: scope of the analysis, areas of implementation, number of megatrends used in the research, set and description of actual megatrends utilized in the texts. As the last step of the review, an analysis was conducted of the frequency of the application of megatrends as an analytical tool to identify shifts of paramount importance in the 21st century world economy.

4. Summary of the literature review

The initial search performed for the papers, published between 2010 and 2018, with the set of key words related to megatrends resulted in a vast pool of texts identified. The following number of publications was found in the respective search engines: 42 in Google Scholar, 78 in Science Direct, 162 in Web of Science, and 67 in BazEkon. However, the subsequent screening and primary appraisal of the texts led to a considerable decrease in the number of articles considered adequate for further inquiry. Certain papers were excluded based on two main factors. First, a frequent inclusion in the initial set of texts articles in which megatrends did not constitute the primary research objective nor were applied as analytical lenses. This was an important cause for the exclusion. The second ground was that a significant number

of the texts could not be considered as peer reviewed, with analytical and consulting companies texts largely contributing to this group. As a result, only 27 papers were qualified for the synthesis part of the review. Of this set, 25 texts were published as articles and 2 as book chapters. Out of the selected collection of texts, 22 were published in English, 4 in Polish and 1 in German.

In the 27 texts included in the scope of the research, the majority, i.e. 20 texts, used the concept of megatrends to analyse the impact of crucial trends on selected research areas. An auxiliary review demonstrated an extensive range of disciplines and fields where megatrends were applied as an analytical framework. The thematic scope of these texts can be divided into three general categories: foresight studies of selected industries, analyses of existing and anticipated changes in management and business practices, and other socio-economic topics.

The results of the scope review have shown that the important line of the literature aims to analyse the impact of megatrends on a chosen industry. This foresight approach was used to research future changes in the general tourism industry [Buckley et al. 2015], cruise industry [Wolf, Mozuni 2017], packaging industry [Olsmats, Kaivooja 2014], 5G mobile services [Yu, Lee, Jeon 2017], and cadastral system services [Krigsholm et al. 2017].

In the area of business management topics selected for the research with the usage of megatrends as the analytical framework, an impressive diversity of subject matters is included, that is: virtual team work [Grosser, Baumol 2017], marketing communication [Rekettye 2017], building corporate strategy in local and global context [Bojar, Klosowski 2015], information security [Skelnik 2017], passenger mobility [Wolański 2015], mobility-challenged consumers [Maciaszczyk 2017], controlling function in a corporation [Laval 2015], case study on the market expansion of Uber [Watanabe, Naveed, Neittaanmäki 2016], and the development of global innovation networks [Cano-Kollmann, Hannigan, Mudambi 2017].

The third field in which the concept of megatrend is frequently utilised by authors is research of socio-economic topics of various types. Altogether there were 5 articles identified in this stream of literature which encompassed general research topics such as food safety [King et al. 2017] and demography [Goldstone 2010], as well as very specific ones such as: inequity of pay in the Chinese economy [Zhang, Bao 2015], sustainability of natural and human systems in the United States [Day et al. 2014], developments in environmental assessment practice [Retief et al. 2016] and patterns of innovation development and its impact on wealth creation [Watanabe, Naveed, Neittaanmäki 2016].

In the remaining 7 texts out of 27 in the scope of the review different approaches referring to megatrends were exercised. In two texts, an attempt was undertaken to identify the most important trends in the selected general areas. The authors provided an overview of megatrends highlighting their impact on the world economy [Pieriegud 2015] and social changes in the contemporary world [Siscan 2016]. In another paper, the main objective was to provide an in-depth study of two

megatrends characterized as fundamental changes in global water supply and food security [Rosegrant, Cline, Valmonte-Santos 2009].

Only one paper was dedicated to a theoretical evaluation of megatrends as a tool to forecast social and economic changes. The authors concluded that megatrends can be utilized as a valuable tool to address complex discourses by providing an appropriate naming convention and direct focus on shifts of outstanding gravity. However, they also convincingly show that the use of megatrends often lacks a definition rigour and semantic integrity, which constitutes a challenge for their application in foresight research [von Groddeck, Schwarz 2013].

In three papers, the authors embraced a diverse conceptual approach to analyse important trends, labelled as megatrends, in selected areas of their research. This attitude was used to highlight important trends in medicine [Rosenkrantz 2018], agriculture [Bindraban, Rabbinge 2012] and environmental sustainability of mining in Australia [Mudd 2010]. Although the last research approach is fully justified and provides valuable insight into trends affecting these areas of study, this attitude is not consistent with the definition of megatrend singled out in this study. According to the accepted definition, a megatrend has a broad social and economic impact, and therefore it is not confined to one domain or discipline. Thus, these three texts and the theoretical study were excluded from the next step of the analysis which aims at identifying the key megatrends most frequently covered in research to summarise critical shifts in the contemporary world.

5. Key megatrends of the contemporary world

In this part of the paper, 23 texts from the whole pool of 27 articles that were qualified for the research, were included in the more in-depth analysis of the scope of megatrends. The theoretical study and the three texts highlighting important trends in a specific domain were excluded from the set. The objective of this part was to synthesize the use of megatrends and identify those most commonly used which were perceived as influencing contemporary economic and social life in various domains.

The comparative research on the scope and frequency of megatrends used in the texts faced a significant obstacle as the trends were inconsistently defined by the authors. Thus, any comparison needed to simplify the scope of the trends and cluster based on their content rather than exclusively on the authors' naming conventions. This obstacle has been envisaged by the authors of this paper but the richness of the approaches to the concept of megatrends and vast array of definitions turned out to be more significant than initially predicated. The lack of transparency and consistency in the use of megatrends was featured by some authors in previous research [von Groddeck, Schwarz 2013].

In the researched set of papers, the average number of trends per article was 4.26 with the mean and dominant equals 4. The authors covered the impact from

1 [Zhang, Bao, 2015] up to 12 [Pieriegud 2015] megatrends per paper. The total 98 megatrends were disclosed by the authors in the reviewed articles. The more fine-grained conceptual analysis performed with the aim of comparing the scope and substance of the trends showed that a total number of 34 different megatrends could be identified. The majority of these megatrends were mentioned only once or twice in the texts and only 7 trends clearly exceeded that threshold. These 7 most frequently mentioned megatrends cover more than 2/3 of the initial set of 98 of all megatrends indicated in the texts and can be further reduced to cover 5 essential megatrends:

- technology developments,
- environmental changes,
- demographic shifts,
- growth of urbanisation,
- changes in geopolitics.

The most recognised megatrend applied to technology development was indicated 24 times. This trend could be further divided into digitisation and development of ICT and related technologies (21 remarks) and general development of new technology (3 remarks). It needs to be highlighted, however, that the authors used a very broad range of naming conventions to describe similar patterns of technology development, which includes labels phrased in an explicit but general term, e.g.: advancement of ICT [Watanabe, Naveed, Neittaanmäki 2016], in a more particularized way, e.g. the explosion of mobile data traffic [Yu, Lee, Jeon 2017] and even in an ambiguous way, e.g. digital culture [Krigsholm et al. 2017].

The second most referenced megatrend, which involved environmental changes, was observed 17 times. This group consisted of two straightforward and consistently designated subtrends: resource scarcity (8 remarks) and climate changes (5 remarks), as well as a more general category with reference to environmental changes which include e.g. loss of ecosystem services [Day et al. 2014]. The third recurring megatrend could be collectively dubbed demographic shifts (12 notes) and consisted of two tendencies that were predominantly jointly recognized by the authors as world population increase and population aging.

The megatrend described in the most homogeneous and clear-cut way and still very frequently mentioned was the growth of urbanisation (8 notes) with only limited reference to related phenomena such as urban sprawl [Goldstone 2010]. The last megatrend which substantially occupied the attention of the authors compiled changes in geopolitics (6 remarks) which covered, apart from clearly associated power shifts [Jr 2017; Cano-Kollmann, Hannigan, Mudambi 2017], some arbitrary, to a certain extent, collections of transformations in the realm of power and politics e.g. the rise of highly populous newly wealthy nations [Buckley et al. 2015] and decline of Europe [Goldstone 2010].

The inclusion of the analyzed megatrends provides an overview of the major trends that attracted the attention of the researchers and that were considered

influential enough to be used as an analytical framework to provide insight into developments in various fields. However, it could be equally insightful to look into the omissions from the list of megatrends. It is worth noting that no par excellence economic trend has been frequently used in the reviewed literature. The trends closest to purely economic and management fields mentioned by the authors were the development of knowledge based economy quoted twice [Pieriegud 2015], as well as business volatility and sustainable development [Pieriegud 2015], each of which received single remarks across the pool of the analyzed texts. This attitude proves that the changes in economies and companies are predominantly perceived as areas of influence but not as drivers of the fundamental world changes in the 21st century.

6. Conclusions

In the turbulent contemporary environment, megatrends, understood as powerful forces reshaping the today's world, seem to be one of the major tools used to forecast future developments in society, economies, politics and culture. For that reason, not only are they analysed by researchers – futurists, but also commonly examined by various consulting companies and research offices working for governments and international authorities in order to determine development strategies in the economy, business as well as in regards to public policy. When it comes to the scientific research, only a limited number of studies published between 2010 and 2018 refer to the notion of megatrends. During the analysis process through the SALSA method, of 349 texts found thanks to four search engines: Google Scholar, Science Direct, Web of Science and BazEkon, 27 were qualified for further study, from which three major conclusions may be drawn.

The first one is that the notion of megatrends is applied to the analyses of their impact on diverse areas, e.g. specific industries, changes in management and business practices as well as some broader socio-economic topics in a more than theoretical way. This kind of approach shows an important drawback, i.e. it ignores the complex character of these phenomena, particularly their overlapping elements, relating to neighbouring areas, which deprives these studies of a more comprehensive perspective. Moreover, despite the fact that the analyzed papers cover a vast range of topics, the overall number of texts that qualified for our study (27) was rather limited. This suggests that, although the concept of megatrends as a framework for economic and social analyses has been applied in various fields, the proliferation of this analytical tool among scientific researchers is relatively moderate.

The second conclusion is that megatrends are very rarely associated with economics and management, which proves that both areas are the objects of influence rather than breeding grounds for trends.

As the third conclusion it may be pointed out that, despite a common consensus about megatrends as significant global movements, a large gap in research thus far

may be identified in terms of a coherent definition and typology of megatrends. For that reason, diverse authors, when referring to megatrends, utilize intuitive definitions, descriptions and terms, which makes these studies difficult to compare and base subsequent research on. The most coherently defined megatrends that are frequently considered to exercise influence on the contemporary world and are expected to continue to do so in the future are: digitization and development of ICT and related technologies, urbanization growth, scarcity of resources and climate changes.

As far as avenues for further research are concerned, we would like to propose two directions. The first would include an expansion of the literature review to cover longer analytical texts and books in order to tap into the vast research pool of publications by consulting companies, think tanks and other research institutions. In this area it would be especially valuable to summarize the list of megatrends that are considered to be the most influential. The second research direction would extend the literature review to a broader array of tools in foresight analyses which could provide an important overview of complementary analytical methods and would support the establishment of megatrends among them.

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