Main concepts of technology analysis in the light of the literature on the subject

Katarzyna Halicka[a]

[a]*Faculty of Management, Bialystok University of Technology, 45A Wiejska Str., Bialystok, 15–351, Poland, e-mail: k.halicka@pb.edu.pl*

Abstract: The main aim of this article is to identify and present the relevant concepts and methods of technology analysis. On the basis of the bibliometric analysis of scientific articles, research subareas related to the technology analysis were selected. Relationships between earlier executed research in this field were determined. Taking into account the obtained map of relationships, the possibility of the use of technology analysis was indicated. Also, methods used to analyse the current state of technology and concepts used for the prospective technology analysis were identified. Then, the concepts of predicting the technology development were discussed and compared.
The conclusions from the conducted study can be used as the basis for determining the critical directions for the development of research areas related to the technology analysis.

Keywords: technology analysis; forecasting; foresight; technology assessment; Future-oriented Technology Analysis.

References

[1] Carlson L. Using technology foresight to create business value. *Research Technology Management* 2004;47(5);5–60.
[2] Gudanowska A E. *Technology mapping as a tool for technology analysis in foresight studies*. Technology Management Conference: ITMC 2014: IEEE International; Chicago 2014.
[3] Nazarko J, Saparauskas J. Application of DEA method in efficiency evaluation of public higher education institutions. *Technological and Economic Development of Economy* 2014;20(1);25–44.
[4] Porter AL, Cunningham SW, Banks J, Roper AT, Mason TW, Rossini FA. *Forecasting and Management of Technology*. New York: John Wiley & Sons; 2011.
[5] Firat AK, Woon WL, Madnick S. *Technology Forecasting – A Review*. Composite Information Systems Laboratory Sloan School of Management. Cambridge: Massachusetts Institute of Technology; 2008.
[6] Ejdys J. Ustinovicius L., Stankevičienė J. Innovative application of contemporary management methods in a knowledge-based economy – interdisciplinarity in science. *Journal of Business Economics and Management* 2015;16(1);261–274.
[7] Nazarko J, Kononiuk A. The critical analysis of scenario construction in the Polish foresight initiatives. *Technological and Economic Development of Economy* 2013;19(3);510–532.
[8] Magruk A. The Most Important Aspects of Uncertainty in the Internet of Things Field – Context of Smart Buildings. *Procedia Engineering* 2015;122;220–227.
[9] Magruk A. Analiza niepewności w złożonych, dynamicznych systemach – przypadek Internetu Rzeczy [Analysis of uncertainty in complex, dynamic systems: Internet of Things case study]. *Przegląd Organizacji* 2016;1;53–59.
[10] Ejdys J. Future oriented strategy for SMEs. *Procedia – Social and Behavioral Sciences* 2014;156;8–12.
[11] Nazarko J, Glinska U, Kononiuk A, Nazarko L. Sectoral foresight in Poland: thematic and methodological analysis. *International Journal of Foresight and Innovation Policy* 2013;9(1);19–38.
[12] Nazarko Ł. Responsible research and innovation – new paradigm of technology management. In: Stankevičienė J, Lankauskienė T, editors. *The 9th International Scientific Conference Business and Management 2016: Conference Proceedings*, Vilnius; 2016.
[13] Nazarko Ł. Technology Assessment in Construction Sector as a Strategy towards Sustainability. *Procedia Engineering* 2015;122;290–295.
[14] Mazurkiewicz A, Belina B, Poteralska B, Giesko T, Karsznia W. Universal methodology for the innovative technologies assessment. *Proceedings of the 10th European Conference on Innovation and Entrepreneurship* 2015;458–467.
[15] Halicka K. Innovative Classification of Methods of The Future-Oriented Technology Analysis. *Technological and Economic Development of Economy* 2016;22(4);574–597.
[16] Saritas O, Burmaoglu S. The evolution of the use of Foresight methods: a scientometric analysis of global FTA research output. *Scientometrics* 2015;105(1);497–508.
[17] Halicka K, Lombardi PA, Styczyński Z. Future-oriented analysis of battery technologies. *Proceedings of the IEEE International Conference on Industrial Technology* 2015; 1019–1024.