Technological Forecasting & Social Change 167 (2021) 120672

Contents lists available at ScienceDirect

Technological Forecasting & Social Change

journal homepage: www.elsevier.com/locate/techfore

BOOK REVIEW

New Frontiers in the Theory of Meaning in Inter-Human Communications

A B S T R A C T

The theory of inter-human communications and dynamics of discursive knowledge serve a base for knowledge based innovations and social coordination. The book of Loet Leydesdorff "The Evolutionary Dynamics of Discursive Knowledge: Communication Theoretical Perspectives on an Empirical Philosophy of Science" presents recent advances in this area. Based on a collection of author's research papers and works of other prominent scientists in this and adjacent spheres the book in much detail discusses the sociocybernetics of scientific knowledge, the dynamics of knowledge and expectations and new approaches to its measurement.

The book of Loet Leydesdorff "The Evolutionary Dynamics of Discursive Knowledge: Communication-Theoretical Perspectives on an Empirical Philosophy of Science" enters a new stage in the field of discursive communications theory. Is presents the in depth review of existing approaches to three themes: the dynamics of science, technology, and innovation, the scientometric operationalization and measurement of these dynamics, and the Triple Helix (TH) of university-industry-government relations. The book introduces new conceptual tools for analyze and understand the mechanisms of inter-human communications.

Drawing on the existing body of literature Loet Leydesdorff offers a new model of processing meaning in complex dynamic system of interacting agents. It is focused on developing redundancy as a measure of the number of cases that could have occurred or the meanings that could have been provided. This approach is based on previously unrelated Luhmann's sociological theory about meaning-processing in communications, information-theoretical operationalizations of the possible synergies in Triple-Helix relations, and anticipatory mechanisms in cultural evolutions.

Specifically the research argues that meaning in social communications is processed in communication via specific sets of communication codes. Codes span horizons of meaning acting as selection and coordination mechanisms. Meaning is based on expectations and incur on events against the arrow of time. Expectations can be measured as redundancy (i.e. additional options) with help of Shannon's entropy information theory. This redundancy is linked to synergy in the TH model of innovations which can be directly measured. Synergy creates business environments in which companies can enhance their productivity and innovative capacity. The case study on Italy reports on successful experience in the practical implementation of the concept of the Triple-Helix synergy indicator.

Conceptually, much is to be gained from combining and testing these ideas with new methods and approaches. Maybe even more important is the idea that meaning can be measured quantitatively. This is very interesting and promising research area which has great potential to enlarge our capabilities in understanding the dynamics of social systems and improve our forecast capabilities as to future yet to happing events. Possible fields of application vary from artificial intelligence, economic of innovations, behavioral economics, financial markets and other domains connected with informational exchange in social systems.

The book seems highly relevant, written in clear concise language and should arouse great interest among the readers. For those interested in learning more about the triple or quadruple helix concepts please consider the following articles:

Leydesdorff, L., & Ivanova, I. A., 2021 (early view). The Measurement of Interdisciplinarity and Synergy in Scientific and Extra-Scientific Collaborations. Journal of the Association for Information Science and Technology. doi: https://doi.org/10.1002/asi.24416 - The relation between interdisciplinarity and synergy as different and partly overlapping indicators.

Leydesdorff, L., Ivanova, I., & Meyer, M., 2019. The Measurement of Synergy in Innovation Systems: Redundancy Generation in a Triple Helix of University-Industry-Government Relations. In W. Glänzel, H. Moed, U. Schmoch & M. Thelwall (Eds.), Springer Handbook of Science and Technology Indicators. pp. 421-443. Heidelberg, etc.: Springer. – Uncertainty and synergy generation in a Triple Helix system.

Ivanova, I. A., & Leydesdorff, L., 2014. Rotational Symmetry and the Transformation of Innovation Systems in a Triple Helix of University-Industry-Government Relations. Technological Forecasting and Social Change, 86, pp. 143-156. – Triple Helix dynamics from a mathematical viewpoint.

Ivanova, I., 2014. Quadruple helix systems and symmetry: a step towards helix innovation system classification. Journal of the Knowledge Economy, 5(2), pp. 357-369. – Different Quadruple Helix representations.

Gouvea, R., Montoya, M. and Walsh, S., 2013. How the corruption Quadruple Helix affects BRIC: A case study of corruption in big emerging economies. J. Pol. & L., 6, p.1. - Quadruple Helix model of BRIC corruption.

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https://doi.org/10.1016/j.techfore.2021.120672
Received 12 January 2021; Received in revised form 31 January 2021; Accepted 9 February 2021
Available online 24 February 2021