

Socio-economic ecosystems: challenges for sustainable development in the digital era

1. Introducing the Business Systems Laboratory 7th International Symposium

The set of scientific conferences “Business Systems Laboratory International Symposia” aims to address the global economic and social challenges of our times by systemic perspectives, shedding light on the various interactions between natural social and economic systems. The challenges and the opportunities faced in our times require cutting edge research and practices in social science. This multidisciplinary perspective includes a wide range of fields such as management, psychology, economics, engineering and sociology.

The Symposium 2020 considered how socio-economical ecosystems can be developed and managed to foster Sustainable Development by considering the challenges and opportunities of digital tools.

The Symposium 2020 focused on the epistemological, theoretical, methodological, technical and practical contributions that can represent advancements in theory and practice for sustainable well-being in the global era in and by different perspectives.

2. Relevance of systemic approaches for governing socio-economic ecosystems

The complexity of our times is due to social, economic and organizational factors that imply relentless changes in the logics and the methods to steer socio-economic ecosystems. Nowadays, the global arena is more dynamic and inter-connected than in the past century. This implies the need for new methodologies to govern business systems that need to be nonlinear and resilient to manage the emergence of unpredictable phenomena (Dominici, 2012a, 2012b). Likewise organizations cannot be only regarded as isolated systems but need to be considered within a wider global scenario.

To this aim, it is necessary to implement a systemic view that considers the complexity and interaction of socio-economic ecosystems. This implies that systems’ controllers have to be aware that it is not possible to find a single model or algorithm able to predict the future states of the system or to manage the same situation in all the possible actual or future scenarios (Dominici and Levanti, 2011).

These considerations imply the need for a paradigm shift toward a more wide-ranging systemic perspective.

This paradigmatic shift from the whole/part approach to the systemic environmental approach is pivotal for the advancement of the studies in the fields of sociology, management and economics.

To govern the constantly changing states of the social arena, managers and controllers must use new models considering the social and psychological aspects of the players and their interrelations with society, places and governments (Basile *et al.*, 2016), as well as the consumer behavior (Dominici and Yolles, 2016; Dominici *et al.*, 2017; Dominici *et al.*, 2013; Espejo and Dominici, 2017) in a systemic framework.

This special issue is a selection of nine papers developed from the presentations at the Symposium held in Alicante (Spain) on January 22–24, 2020.

3. Articles in this special issue

The first paper “Scalability of generative knowledge management systems: designing for individuals’ and institutions’ mutual benefit” by Ulrich Schmitt introduces a novel



generative knowledge management system and focuses to identify and mitigate the risks related to its envisaged scaling from a prototype to an application with a rapidly growing user base. The knowledge management perspective taken prioritizes a decentralizing agenda benefiting knowledge workers while also aiming to foster a fruitful co-evolution of conventional organizational knowledge managements approaches. This article integrates the Concept–Knowledge Design Theory is a novel thermodynamic knowledge-related approach and a scalable innovation heuristic. With this approach, the paper highlights the potential scaling risks related to the logics and logistics, hence, investigates how this risk may be identified and mitigated.

Also the second paper proposed in this special issue deals with knowledge management systems. In “Investment behaviour in mutual funds: is it a knowledge-based decision?,” Luminița Nicolescu and Florentin Gabriel Tudorache, the authors aim to analyze investment behaviour in mutual funds, by looking at different investment decision influencers to discover the extent to which the investment decisions are knowledge-based. The paper has three main purposes, namely, to assess the extent to which the considered factors influence investment decision-making in young capital markets from Central and Eastern Europe; to compare the investment behavior in the three considered countries (Romania, Slovakia and Hungary); and to portray investment behavior in periods of economic turbulence.

In the third paper, titled “AI-driven platform enterprise maturity: from human led to machine governed,” Sergey Yablonsky highlights how artificial intelligence (AI) requires a broad overall view of the design and transformation of enterprise architecture and capabilities. The article considers Maturity Models (MMs) as tools to identify strengths and weaknesses of certain domains of an organization. The research conducted highlights how, in the case of AI, quite a few numbers of MMs have been proposed and introduces the complete details of the AIMM for AI-driven platform companies to address these gaps. The associated AI-Driven Platform Enterprise Maturity framework proposed in this paper may help to achieve most of the AI-driven platform companies’ objectives.

The forth paper, “Exploring how the intangible side of an organization impacts its business model” by Maria-Isabel Sanchez-Segura, German-Lenin Dugarte-Peña, Antonio Amescua-Seco and Fuensanta Medina-Dominguez, sheds light on how the information technology/software professionals use the business model canvas to identify innovative digital solutions that improve their customers’ business values. This paper aims to address the issue of considering, for a client company, the status of its intangible assets (IAs) in decision-making on the most innovative digital solution.

Also, the fifth paper deals with IAs. In “The effect of intangible assets on sustainable growth and firm value – Evidence on intellectual capital investment in companies listed on Bucharest Stock Exchange,” Catalin Ionita and Elena Dinu examine the connection between company investments in intellectual capital and how they translate into financial value. The aim of this study is to examine the impact of IAs on the firm value and its sustainable growth.

In “Utopian and dystopian ideological systems and unintended and adverse consequences” by José Luis Usó Doménech, Josué Antonio Nescolarde-Selva, Miguel Lloret-Climent, Kristian Alonso and Hugh Gash, we find a mathematical demonstration of the impossibility of achieving a utopian society. The article demonstrates that any endeavor to correct deviations from a hypothetical trajectory whose ultimate goal is the utopia, increasingly demands more work, including measures, that lead to terror, which may even be absolute, leading to the horrible paradox that in seeking paradise hell is constructed. The authors find that myths are the substrate of some complex systems of beliefs, and that utopia is its ultimate goal. Through the use of combination of the theory of trajectories,

belonging to the alysidal algebra, the theorem of unintended effects and kinematics theory provides an approximation to deviations suffering utopian ideological currents and their corrections.

In the article “Social cryptocurrencies as model for enhancing sustainable development” by H. Mora, Mario R. Morales-Morales, Francisco A. Pujol-López and Rafael Mollá-Sirvent, we see the potential of social cryptocurrencies to enhance the community development and cooperation between small businesses and how the evolution of these technology-based schemes could be key factors for generating innovative social enterprises.

Iván Manuel De la Vega Hernández and Luciano Barcellos de Paula in the paper “Scientific mapping on the convergence of innovation and sustainability (innovability): 1990–2018” point out that it is no longer possible to conceive an organization that has not incorporated innovation and sustainability. They conduct a longitudinal bibliometric study to examine the topography of innovation and sustainability and to determine whether there is already a terminological integration that could be defined as innovation capability in a sustainable way. The most relevant finding of the study lies in the sustained growth of the convergence of the terms innovation and sustainability. Moreover, the article shows that innovation is directly linked to sustainability, suggesting that the convergence of concepts and practices becomes part of the strategy of companies seeking to be competitive and sustainable.

In the last paper of this special issue, “An epidemic model to address the spread of plant pests. The case of *Xylella fastidiosa* in almond trees” by María Teresa Signes-Pont, José Juan Cortés-Plana, Higinio Mora and Rafael Mollá-Sirvent, it is shown how the grid architecture can be a valuable tool to model the pest expansion. The delays (between susceptible and asymptomatic, asymptomatic and infected, infected and recovered/dead) may have a crucial impact on both the peak of infected and the recovery/death rate. This theoretical model has been successfully tested in the case of the dissemination of information through mobile social networks and is also currently under study in the case of expansion of COVID-19.

4. Conclusions

All articles within this special section present different methods and fields of investigation considering sustainability as a key issue. The advancements and methodologies proposed are urgent and important for societies and organizations. Through the diffusion of these approaches, we hope to contribute to the scientific debate and promote the participation in the dissemination of scientific advancements that may stimulate the progress in the field of ecosystems.

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