



Disruptive technological change within knowledge-driven economies: The future of the Internet of Things (IoT)



The boundaries of innovation management have considerably evolved over the last thirty years, especially with the advent of the Internet of Things (IoT) which engages and leverages intelligent management processes and business-related activities for productivity as drivers of revitalization, technological forecasting and reengineering initiatives.

The IoT is considered a disruptive technological paradigm increasingly influencing the daily life, the business world and even the global economy. In a nutshell, the IoT can be considered a family of technologies whose purpose is to transform any type of object, even without originally a digital “nature”, into a device connected to the Internet, likely to take advantage of all the features owned by the objects born to use the network, like the functionality for monitoring and control as well as adaptation and potentially even self-organization. In this context, monitoring means that the objects can behave as sensors, likely to produce information about themselves or the surrounding environment and sharing knowledge with and among the users (Arora and Gambardella, 1994; Sundmaeker et al., 2010; Van den Bergh et al., 2014) whereas control, means that the objects can be controlled remotely without particular technologies but simply through the Internet. In this manner, modern enterprises become progressively more “intelligent” and ambience-sensing as the components of the production lines grow more interconnected, thus opening the way to new forms of business (Cooper and Schendel, 1976; Del Giudice, 2016). The development of IoT, likely to generate higher economic value and achieve higher levels of operating efficiency, goes actually through different types of opportunities: digital transformation processes and new business models and services (Carayannis et al., 2014a, 2014b, 2017) based on information gleaned from IoT home appliances. The IoT-enabled functionality and the related socio-economic, socio-technical and socio-political applications and their implications (privacy, safety and even quality of democracy considerations), are receiving great attention by consumers and end users, and they span a broad spectrum including the monitoring of personal health, fitness devices or automation in navigation or other operations (Lopez-Nicolas and Soto-Acosta, 2010; Del Giudice and Straub, 2011a, 2011b). Likewise, it is reasonable to expect that all kinds of industry globally will benefit as well as be disrupted whether in the manufacture, distribution, infrastructure management and resources (see again Industry 4.0 and Digital Transformation references).

Most recent innovative strategies and practices increasingly postulate novel IT-based and technological opportunities to revise and re-define modern business models and emphasizing new disruptive paradigms requiring original tools and dynamic capabilities including the acquisition and incorporation of knowledge and technology from

outside the organization (Alavi and Leidner, 2001; Carayannis et al., 2018; Cegarra-Navarro et al., 2016; Vermesan, 2009).

Nevertheless we still know very little about how the IoT is influencing global ecosystems as well as the social change (Gawer and Cusumano, 2014). The disruptive technology “halo effect” of the IoT has the potential to revolutionize the way businesses gather data and, within this process, transform many aspects of management, accounting and auditing as well as how we live and function as individuals and citizens of democracies. Although the IoT is growing in importance, it has yet to reach critical mass. Therefore, the aim of this special volume has been to investigate the impact and the role of the IoT on various managerial processes as well as their effect on the social change within global ecosystems, in terms of the promotion of knowledge flow, innovation and competitiveness (Alavi and Leidner, 2001). Furthermore, as the IoT is going to change the sources of transactional data flowing into enterprise resource planning, billing and accounting systems, it will alter the way audits of these transactions are carried out: this special issue aims to focus on these issues as well.

Following those premises, this special issue was motivated by the following question: **“how are IoT technologies changing the nature and dynamics of the ways and means of competing for business?”**.

Conscious of many underexplored phenomena that should be scientifically and practically addressed, this special issue strives to address empirical and practical applications of best practices, comparative analyses, cross-studies, network analyses and synthesize the prior theoretical literature into an emerging grounded theory framework. Hence, this volume comprises both theoretical and empirical research papers.

The selected papers reflect research collaborations between scholars from different nations and they encompass contributions and discuss empirical findings across multiple levels of analysis from a wide range of organizational archetypes. The research methodologies used for gathering empirical data vary from quantitative surveys to exploratory case studies based on qualitative data. Several rounds of blind peer reviews resulted in the final form of this volume for publication with the TFSC. We aimed at selecting papers reporting on the application of innovative methods addressing real world problems. We were looking for studies containing both some form of novel innovation as well as an empirically validated application. Readers of this special issue should be technically savvy, scientifically demanding, and drawn to practically relevant phenomena.

This volume opens with a quantitative research by Martinez-Caro Eva, Juan-Gabriel Cegarra-Navarro, Alexeis Garcia-Perez, and Monica Fait titled **“Healthcare Service Evolution Towards The Internet Of Things: An End-User Perspective”**. This study provides evidence that