Guest editorial

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Business models, entrepreneurship and performance in the digital age

Introduction

Salvatore Ammirato, Roberto Linzalone and Alberto Michele Felicetti are all based at the Department of Mechanical, Energy and Management Engineering, University of Calabria, Rende, Italy.

The *digital transformation* pushed by the COVID19 pandemic in the past year produced more effects than the innovations occurred in the last decade, with every transformation effort already underway finding itself accelerated, and at scale (Newman, 2020). *Digitalization* that is having a deep impact on both socio-economic environments and everyday life of individuals as never happened before (Olanrewaju *et al.*, 2020), now shapes value creation, delivery and capture in the economy and society (Von Briel *et al.*, 2018; Nambisan *et al.*, 2019). From a business perspective, *digital entrepreneurship* has been defined as "the pursuit of opportunities based on the use of digital media and other information and communication technologies" (Davidson and Vaast, 2010, p.2). Digital entrepreneurship embraces all new ventures and the transformation of existing businesses that drive economic and/or social value by creating and using novel digital technologies (Fang *et al.*, 2018; Nambisan *et al.*, 2017). Digital entrepreneurship offers public and private investors opportunities to stimulate speedy growth of digital entrepreneurs (DEs) (Nambisan *et al.*, 2019). By leveraging on high intensity of utilization of digital technologies, DEs reinvent traditional business models, improve business/organizational performances, sharpen business intelligence and gain more flexibility and agility in engaging with customers, stakeholders and new strategic partners (e.g. public administrations, Universities and research centres, venture capitalists, etc.) (Linzalone *et al.*, 2020). DEs, from which depend the jobs and growth opportunities of the future always more (Huang *et al.*,2017; Nambisan *et al.*, 2017; European Commission, 2015), capitalize on the internet by merging digital technologies, e.g. cloud computing, cybersecurity, blockchain, Internet of Things, big data and artificial intelligence, in many different industries (finance, tourism, public administration, manufacturing, education, agribusiness, etc.) (Ammirato *et al.*, 2019).

Despite management literature has recognized the central role of business model as conceptual junction between digital exploitation and business venture, a performance-driven perspective to the innovation of business models is far to come (Meyer *et al.*, 2017; Nielsen *et al.*, 2014).

Digital age prospects huge exploitation opportunities for those firms that will be able to innovate their BM (Spieth *et al.*, 2014; Zaheer *et al.*, 2019) but, to this aim, it is imperative to approach such strategic process with a performance perspective, and start paving the way to theorizing on the performance of business model innovation, in digital age.

Research highlighted in the special issue

On this premises this Special Issue called together selected researches from the 15th edition of the *International Forum on Knowledge Asset Dynamics* (IFKAD®) – "Knowledge in Digital Age", held in Matera (Italy) from 9 to 11 September, 2020. The contributions, coming from Russia, Spain, Denmark, Italy and bringing diverse managerial perspectives and productive sectors, have the common aim of analysing the innovation of digital business models to impact on firms' and organizations' performance.

Articles comprising the special issue are briefly described as follows:

- *Drivers of business model innovation in digital enterprise. A performance management perspective*, by Salvatore Ammirato, Roberto Linzalone and Alberto Felicetti. This paper, highlighting that business model innovation (BMI) is a crucial process in digital enterprise to achieve higher performance and firms' competitiveness, addresses a lack of focus and vision of the "drivers" that should guide and orient the management of BMI. BMI drivers, indeed, are factors reflecting objectives and conditions for the achievement of superior performance, and key elements for the definition of BMI performance. By reviewing current literature addressing BMI in DE, the paper identifies current BMI drivers, define a comprehensive set of key drivers for BMI, and detect extant gaps in the literature.

- *Digital supply chain performance metrics – a literature review*, by Faisal Rasool, Marco Greco, Michele Grimaldi. This paper provided a systematic literature review on performance metrics of digital supply chains (DSCs). During the last decade, several studies have measured the performance of DSC systems. These metrics vary in nature and have been focused on different aspects of DSC. This study summarizes and synthesize performance metrics of DSCs using the Balanced Score Card (BSC). A total of 299 metrics to measure DSC performances is collected by means of a systematic literature review and is categorized into four BSC perspectives: financial, customer, growth and internal perspective.

- *A bi-dimensional classification and characterization of enterprise social media users*, by Kathrin Kirchner, Rasmus Jørgensen, Ettore Bolisani, Enrico Scarso. This paper attempted to provide a better understanding of how employees approach enterprise social media by identifying the factors that characterize different user groups. They carried out a quantitative analysis based on a sample of 262 employees of an international project-based service company. The paper proposes a classification of enterprise social media (ESM) users based on two dimensions: frequency and kind (active or passive) of use. Authors identify four category of ESM users: frequent contributors, frequent lurkers, sporadic contributors, sporadic lurkers.

- *Entrepreneurship and fintech development: comparing reward and equity crowdfunding*, by Ciro Troise, Diego Matricano, Elena Candelo, Mario Sorrentino. This paper focuses on digitalization and reorganization of the value chain of financial services. The variety of technologies and business models that are transforming the financial services industry are encompassed under the umbrella term "Financial technology" or shortly "fintech". Crowdfunding represents a new and popular financing mechanism enabled by advances in fintech. The authors develop a conceptual framework grounded on the main studies on crowdfunding literature – both reward crowdfunding and equity crowdfunding – aiming to provide a comprehensive analysis of Fintech development and to conceptualize the comparison between these two types of crowdfunding. The study suggests that five key elements characterize the development of Fintech: regulation, infrastructure, technologies, finance and innovations.

- *The impact of digital technologies on business models. Insights from the space industry*, by Davide Aloini, Lara Agostini, Loretta Latronico, Valentina Lazzarotti, Anna Nosella, Luisa Pellegrini. This paper investigates the relationship between digital technologies and business model structure, namely, its components. By the mean of a multiple case study, they explore which digital technology affects BM's component, in a theoretically consistent sector: the space industry. They assume as a business model framework the business model canvas. Big data, system integration (artificial

intelligence, high performing computing) and cloud computing are pivotal in the Space Industry to exploit all the different areas and components of the BM.

- *Modelling and managing innovation lab as catalyst of digital transformation: theoretical and empirical evidence*, by Francesco Santarsiero, Daniela Carlucci, Giovanni Schiuma and Antonio Lerro. This paper proposes a model to manage effectively the activities performed within an Innovation Lab, to foster digital and continuous innovation practices within organisations of the digital ecosystem. A meta-model resulting from the analysis of a case study (i.e. the TransformaLab) disclose and describe the key phases and the relevant issues for the effective management of innovation labs as catalysts of digital innovation.

- *Co-design-based learning for entrepreneurs in the digital age*, by Georgy Laptev and Dmitry Shaytan. This paper deals with design-based learning approach for entrepreneurship education and, more specifically, for the development of innovative thinking in nascent entrepreneurs. The authors, in the perspective of improving innovative thinking competence of nascent entrepreneurs, identifies key characteristics of co-design-based learning approach for nurturing entrepreneurs in the digital age. They found the key dimensions relevant to co-design-based learning in entrepreneurial learning (features of project, facilities for project activities, features of teaching process, features of learning context and assessment) and found the corresponding characteristics.

- *Digital skills in tourism. a study from the next tourism generation (NTG) alliance*, by Patrocinio Zaragoza-Sáez, Enrique Claver-Cortés, Bartolomé Marco-Lajara, Mercedes Úbeda-García. This paper aims to identify the gap existing between the current and future needs regarding digital skills, as well as the training needs for the 2030 horizon in Spanish tourism organisations belonging to five subsectors (accommodation; food and beverage; destination management; visitor attractions; and travel agents and tour operators). To this aim, 139 Spanish tourism organisations were involved in a survey. What emerges is that tourism organizations consider digital skills as an unresolved issue. Findings obtained supports the development of a Europe blueprint strategy for digital skills within the tourism and hospitality sector, to provide employees, employers, entrepreneurs, teachers, trainers and students with a set of core digital skills represented in a "skills matrix".

- *Extracting insights from big social data for smarter tourism destination management*, by Gianluca Solazzo, Ylenia Maruccia, Gianluca Lorenzo, Gianluca Elia, Pasquale Del Vecchio, Valentina Ndou. This paper highlights how big social data and analytics exploitation helps destination management organizations to understand tourist behaviours and destination experiences and images. The authors gather data from two different sources, Flickr and Twitter, whose textual and visual contents are used to perform different analytics tasks to generate insights on tourist behaviour and the affective aspects of the destination image. The empirical context of study is the Salento region (Italy). Results show that the generated insights allow DMOs to acquire new knowledge about discovery of unknown clusters of point of interests, identify trends and seasonal patterns of tourist demand, monitor topic and sentiment, identify attractive places. DMOs can exploit insights to address its needs in terms of decision support for the management and development of the destination, the enhancement of destination attractiveness, the shaping of new marketing and communication strategies, and the planning of tourist demand within the destination.

Concluding remarks

Digitalization has ushered in a new era in which business models and entrepreneurial approaches are continuously evolving at a fast pace. Traditional forms of pursuing entrepreneurial opportunities are increasingly refashioned and questioned since digitalization

offers the opportunity to improve business processes, reinvent products or services and encourage new approaches for creating and capturing value (Nambisan *et al.*, 2019).

Research at the intersection between entrepreneurship, business models and organizational performances in the digital age is still at its embryonic stage and calls for a unified perspective to inform future theoretical and empirical studies. This Special Issue represents a first attempt to give order to this emerging field of study, providing an understanding on how current tendencies in digitalization transform organizational performances, entrepreneurial approaches and business frameworks and how these transformations are implemented in some industries (e.g. fintech, tourism, space).

The nine papers included in this Special Issue offer examples of multidisciplinary research along the performance management, entrepreneurial and business model perspectives. Of course, this Special Issue is not meant to provide a comprehensive and conclusive overview of this field of study. Given the rapid evolution of digital technologies, we just scratched the surface of a more complex issue that needs further investigation. Nevertheless, papers included in this special issue addressed relevant research questions, giving fruitful insights both for theory and practice. We hope that results provided in this Special Issue would motivate and guide future research efforts in this area.

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