Guest editorial

Financing novelty: new tools and practices to induce and control innovation processes

Innovation has long been recognized as an instrument of competitiveness and growth and as an effective tool to stimulate change after the crises, both the macro- and micro-level. Innovation can be seen as an outcome (new products, processes or organizations), but also as a process that involves many activities linked together, namely basic research, industrial research, development and commercialization. Innovation processes and innovation outcomes arrive in different shapes and with varying stakes. By shapes, we mean the managerial and organizational modalities adopted to obtain innovations; stakes are the costs and benefits for the firms (Bathelt *et al.*, 2017; Pénin *et al.*, 2011). In the past couple of decades, new managerial techniques have had a significant impact on models of innovation (among others: open innovation, crowdsourcing, frugal approach, etc.). During this same period, the modes of innovation expected by firms took forms that are more radical than before (Christensen and Raynor, 2013).

When dealing with innovation performance, it is crucial to study and assess the quantitative and qualitative evolution of funding dedicated to science systems and industrial R&D (Grilli *et al.*, 2018). Innovation is recognized as a key driver of performance (Chatzoglou and Chatzoudes, 2017), but the lack of adequate financial resources stands out as a key factor preventing potentially disruptive and radical innovation (e.g. traditional risk-avoidance focus, and inertia caused by systems architecture) (Das *et al.*, 2017). The challenges of successful fundraising, however, remain raising a persistent barrier to scaling up for the large share of young innovative companies (Mazzucato and Semieniuk, 2017).

To address this issue, firms are reforming both their control and incentives techniques to integrate new financial schemes. To be funded, entrepreneurs have to build complex networks of relations and demonstrate the pertinence and the foreseen profitability of their innovative projects. The rise of crowdfunding is an evident signal of how much digital networking with "the crowd" became essential for financing innovation over the last years (Leone and Schiavone, 2019). Some new techniques appear to finance innovation inside firms (Nucciarelli *et al.*, 2017), but those financial innovations need to fit the management innovation (Mol and Birkinshaw, 2009). Nevertheless, the tools and the different practices used inside firms have not evolved to encompass all the different techniques or to fit the characteristics of truly novel innovation (Birkinshaw and Haas, 2016). The use of formal tools or traditional financing techniques is difficult at all stages of the innovation process, but becomes particularly relevant in the earlier stages or when handling with intercultural settings (Neukam, 2017).

Many managerial issues, such as governance and control, are raised by evolving sources of funding. Many scholars have pinpointed the influence of managerial control tools and financial techniques during the R&D process and its outcomes (Grabner and Speckbacher, 2016; Revellino and Mouritsen, 2009, 2015). These outcomes can be positive or negative (Adler and Chen, 2011; Chapman, 2005; Laperche and Burger-Helmchen, 2019). Specific management tools designed to support innovation activities tend to enhance classic innovation outcomes rather than disruptive innovation.

This special issue revisits these questions by taking into account quantitative and qualitative aspects in the evolution of innovation financing.

The work of Raedersdorf Bollinger (2019) considers whether some management tools facilitate the smooth implementation of an innovation process. She shows that the

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relevance of these tools depends on the size of the company, its activity sector, the type of innovation expected and the viewpoint of the manager in charge. The paper also contributes to a re-evaluation of the relationship between management control and innovation activities. In particular, it investigates how the use of management tools varies depending on managers' viewpoints.

The nature of the relationship between the innovative entrepreneur and the banker is studied by Boutillier (2019). This historical-based work demonstrates the importance of trust between the two protagonists and contributes to the study of the behaviour of financers and entrepreneurs today. It takes into account the context of business eco-systems, clusters and science parks – in other words, the key places of innovation.

Hain and Lindgaard Christensen (2019) investigate how firm-specific structural and behavioural characteristics affect the access to financing of incremental as well as radical innovation activities. The study, which is based on a survey of data spanning the period 2000–2013 and covers 1,169 firms, analyses the effect of a firm's engagement in incremental and radical innovation in relation to its likelihood to get constrained in access to external financing. The results of Hain and Lindgaard Christensen (2019) point to the need for policy implications regarding eligibility criteria of public innovation programs.

For Sierra (2019), the funding of innovation is explained by typical cost-based financial approaches. The author proposes a framework to understand innovation-funding cases where traditional financial theory does not suffice.

Battisti *et al.* (2019) and Nylund *et al.* (2019) are two quantitative works. The first investigates value creation of innovative firms and financial market reactions. The second grasps the important question of internal and external financing possibilities of the firm. The authors also highlight extensive differences between industrial sectors.

Taken together, these approaches help to broaden our understanding of the financing of novelty and follow a clear research agenda on that topic (Stefani *et al.*, 2019).

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