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Managing intrapreneurial capabilities: An overview

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ABSTRACT

In recent decades, there has been growing interest in intrapreneurial capabilities. The intrapreneurship and strategic management literatures have insights for entrepreneurs about how to apply entrepreneurial and strategic techniques and concepts in creating competitive advantage. More specifically, the dynamic capabilities framework has emerged as a useful tool for managers to better develop and manage intrapreneurial capabilities. Our essay and the papers in this special issue provide a timely opportunity to assess the rise of intrapreneurship and address organizational and policy implications.

1. Introduction

Entrepreneurs and innovative firms in the new economy face different kinds of opportunities and challenges. The new economy not only provides opportunities but also poses problems: innovation must often be managed in a different way and success is often more difficult to achieve. Overcoming challenges effectively requires developing and effectuating intrapreneurial capabilities. In this context we posit that intrapreneurial capabilities can be best understood as the organization's ability to react quickly and innovatively to internal/environmental changes in order to adapt to and shape new environments.

This challenging socio-economic scenario, especially during troubled times (e.g. public health crises (e.g. Covid-19), political instability) demands collaborative approaches such as open platforms and open innovation that help organizations to generate new ideas, develop better products, solve problems, promote and even finance projects. Information and knowledge is more readily accessed through a variety of channels.

Although increased access to information benefit companies, it has become more challenging to capture value from the increasing volume of information, manage information flows, and make insightful decisions. Successful outcomes can be more difficult to anticipate since information can increase perceived risk and uncertainty. More is not always better. The ability to access new sources of information increases the need to evaluate them more carefully. More information and a diversity of information sources can increase the risk of poor integration, inconsistency in strategies and operations, confusion in business

decision-making, and higher implementation costs. To some extent, better access to external ideas requires firms to be more agile, flexible and attentive to new ways of generating value, that is, intrapreneurial capabilities (Teece et al., 1997, 2012).

Business success will demand that firms creatively combine external assets with internal assets and capabilities. Organizations and teams generally, not just business firms, need to become more entrepreneurial and adopt new agile practices on tactical and strategic levels. A corporate entrepreneurship approach implies a process in which individuals within organizations act entrepreneurially in pursuing new opportunities (Burgelman, 1983, 1985; Kanter, 1984; Miles et al., 2003; Morris et al., 2010). Individuals play an important role in a firm's ability to realize economic value from knowledge assets and information and to improve competitiveness through innovation.

There is a large volume of literature relating to the mobilization of ideas and knowledge from external sources and innovation. Chesbrough (2003) describes the shift in the way large corporations engage in innovation, from an introverted to a much more extroverted and open paradigm (Van de Vrande et al., 2009). More broadly, Cohen et al. (1990) stress the importance of absorptive capacity not only to manage innovation but also to access and utilise external ideas. Similarly, others have addressed the interactive and inter-organizational nature of innovation (e.g. Rosenberg, 1982; Pinchot, 1985; Von Hippel, 1988; Spithoven et al., 2011).

Successful innovation strategies demand not only firm-specific technical skills but also the formation and maintenance of industrial network and system skills; entrepreneurial vision and appropriate

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Table 1
Keywords used in the literature review.

Keywords (+)
Intrapren* (intrapreneur, intrapreneurship, intrapreneurial) AND "Dynamic capabili*" (capabilities, capability)
"Intrapren* capabili*"; "Corporate entrepren*" (corporate entrepreneurs, entrepreneurship) AND "Dynamic capabili*"
Entrepren* (entrepreneur, entrepreneurship, entrepreneurial) AND "Established firms" AND "Dynamic capabili*"
"Entrepreneurial orientation" AND "Dynamic capabili*"
Entrepren* AND firm AND "Dynamic capabili*"
"Entrepren* firm" AND "Dynamic capabili*"
Entrepren* AND organization* (organizations) AND "Dynamic capabili*"
"Entrepren* organization*" AND "Dynamic capabili*"
Entrepren* AND business AND "Dynamic capabili*"
"Entrepren* business" AND "Dynamic capabili*"
Entrepren* AND industry AND "Dynamic capabili*"
"Entrepren* industry" AND "Dynamic capabili*" AND Innovat* (innovation, innovative, innovator)
"Innovati* firms" AND "Dynamic capabili*"
"Innovati* firms" AND capabili*

(+) *, " ", -, AND, OR are Boolean operators. They consist of words or symbols used as conjunctions to combine or exclude keywords in a search. The command AND limits the results to those that contain all of the words in the search. Using OR in the search the aim is to obtain the information that contains any of the words that you are combining. " " is used to search for a specific group of words that should appear together. And * is useful for completing phrases or keywords; it can be used as a part of a word, for example, entrepren* search for entrepreneur, entrepreneurship, entrepreneurial.

managerial abilities are required to exploit the opportunities that emerge both inside and outside the boundaries of the firm.

In this context, both dynamic capabilities (Teece et al., 1997; Caloghirou et al., 2004) and intrapreneurship (Covin and Slevin, 1991; Pinchot, 1985) are especially relevant. Dynamic capabilities, as the "firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997, p. 515) are fundamental to orchestrate the new resources, especially in an economy based on digital computing technologies. Intrapreneurship, understood as entrepreneurship within an existing firm, has become also very relevant. Intrapreneurship involves a company extending its competence and increasing its opportunities by creating new organizations, new products/services- or combining new resources (Covin and Slevin, 1991). Intrapreneurship could be an important remedy for the lack of capabilities surrounding innovativeness and competitiveness within established organizations (Pinchot, 1985).

However, there is little research relating intrapreneurship and dynamic capabilities; this hampers our overall understanding. More specifically, we need to learn more about managing intrapreneurial capabilities: (a) to better orchestrate internal and external firm' resources to sustainable performance, and (b) to address the challenge of how to design organizational environments which encourage and nurture innovation and firms' entrepreneurial orientation in the new

milieu.

Therefore, the objective of this paper is to integrate the literature of these two lines of research (intrapreneurship and dynamic capabilities) to advance our understanding of the intersection between the two areas, that is intrapreneurial capabilities. A brief overview of the papers included in this special issue is also presented.

The remainder of this paper is as follows. Section 2 reviews the main literature on managing intrapreneurial capabilities. Section 3 summarizes the papers in the special issue. Section 4 concludes and lays out an agenda for future research.

2. Mapping recent research on intrapreneurial capabilities

We employed a standardized search strategy to find publications on intrapreneurial capabilities. We systematically reviewed studies published in Web of Science, specifically in the SSCI (Journal Citation Reports, Clarivate Analytics, 2019) based on the following keywords that appeared in the title, abstract, and text of the article: intrapreneurs, intrapreneurship, intrapreneurial, corporate entrepreneurs, corporate entrepreneurship, entrepreneurial orientation, dynamic capabilities, intrapreneurial capabilities. (see Table 1).

After searching by the keywords, we found 76 documents including articles, reviews, books, books chapters, and conferences. Then, we filtered by articles and reviews in order to ensure the quality of the documents through the evaluation and peer review of the documents, obtaining 63 articles. Moreover, we also analysed the abstracts of those works and after this selection process, 17 articles remained. Of these studies, a third are theoretical and the rest are empirical works. Among the latter, quantitative and qualitative studies are distributed to 50%.

Fig. 1 shows that although there are some peaks in 2012 and 2016 with three and four papers respectively, the distribution of the number of articles by year is very homogeneous, not particularly highlighting any significant increase in any of the years considered. A subtle increase in the interest of these topics by different researchers has grown over the past 5 years (2015–2019) with eight papers published compare to the nine papers published in the nine years earlier (2006–2014). Half years for almost the same number of papers published. This could shed some light for future developments on this topic filling this new and interesting research gap.

3. Analysis of the literature review

Our literature review reveals that there are few publications relating to intrapreneurial capabilities. We found that in general scholars analyse and discuss the firms' necessity to develop entrepreneurial orientation and certain capabilities with the aim to increase innovation and performance. However, intrapreneurial capabilities (entrepreneurial capabilities inside the firm) are still a relatively new topic, and have less frequently been addressed in the literature. While some studies discuss dynamic capabilities in the context of entrepreneurship inside the firm, they are often silent on how dynamic capabilities are orchestrated to

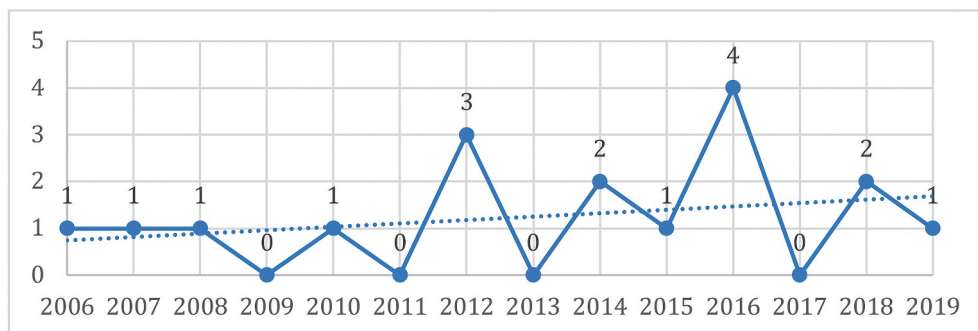


Fig. 1. Number of articles (2006–2019).

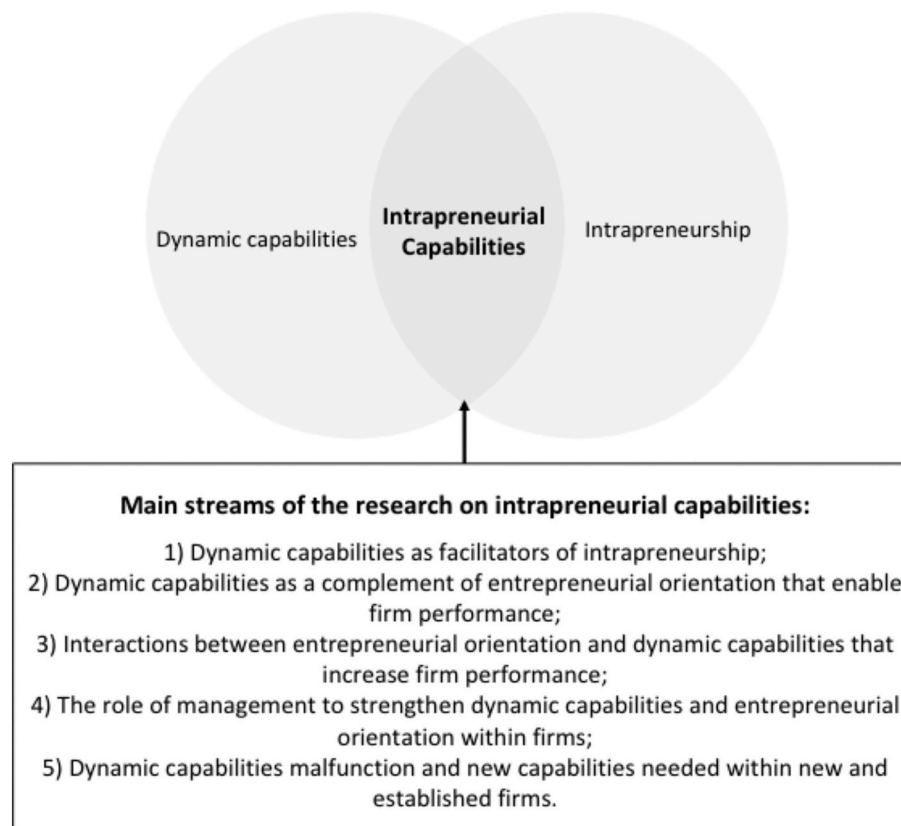


Fig. 2. Intrapreneurial capabilities as an interrelated topic.

develop more entrepreneurial firms.

According to Teece (2016), the better understanding of dynamic capabilities and the role of managers with entrepreneurial orientation, in particular, contribute to a stronger foundation for economic models of production and innovation. Concretely, intrapreneurial managers are crucial in effectuating better resource allocation under deep uncertainty, and also in contributing to innovation and firm's performance. Following this idea, the literature reviewed has been divided in five streams of the research: Dynamic capabilities as facilitators of intrapreneurship; dynamic capabilities as a complement of entrepreneurial orientation that enable firm performance; interactions between entrepreneurial orientation and dynamic capabilities that increase firm performance; the role of management to strengthen dynamic capabilities and entrepreneurial orientation within firms; and dynamic capabilities malfunction and new capabilities needed within new and established firms.

3.1. Dynamic capabilities as facilitators of intrapreneurship

Some researchers argue that dynamic capabilities promote entrepreneurial orientation inside the firm. For example, Rodrigo-Alarcon et al. (2018) suggest that dynamic capabilities facilitate intrapreneurship. Zahra et al. (2006) propose that applying different dynamic capabilities to the management of new ventures and established companies can improve their ability to continuously create, define, discover, and exploit entrepreneurial opportunities. Similarly, Wu (2007) demonstrates that dynamic capabilities can help leverage entrepreneurial resources that improve firm performance. Below we discuss specific channels by which dynamic capabilities facilitate intrapreneurship and also related issues.

3.2. Dynamic capabilities as complements of entrepreneurial orientation that enable firm performance

Dynamic capabilities are often considered a complement of entrepreneurial orientation, which together generates the necessary capabilities to improve innovation and performance within the firm (Ahmadi and O'Cass, 2018; Morris et al., 2010). Moreover, Arend (2014) finds that most entrepreneurial ventures exhibit specific dynamic capabilities, which in turn positively affect firm performance. Dynamic capabilities combined with entrepreneurship inside firms facilitates export performance - four distinct dimensions of intrapreneurship (new business venturing, innovativeness, self-renewal, and proactiveness) are proposed as critical resources (Skarmeas et al., 2016).

3.3. Combined effect of entrepreneurial orientation and dynamic capabilities on firm performance

Some studies investigate the combined effect of entrepreneurial orientation and different dynamic capabilities on firm performance (e.g. Swoboda and Olejnik, 2016). Specifically, Wu (2007) demonstrates that dynamic capabilities mediate the relationship between entrepreneurial resources and a firm's performance. Yiu and Lau (2008) argue that internal resources developed through entrepreneurship initiatives (e.g. domestic venturing and international venturing) mediate the role of other resources acquired outside the firm (e.g. government support and strategic alliance ties) to enhance firm performance. Entrepreneurial capabilities and a different set of dynamic capabilities are also intertwined in subtle and complex ways, and the development of one shapes and is shaped by the development and use of the other (Woldesenbet et al., 2012).

Table 2
Overview of articles in this special issue.

Authors	Contribution to intrapreneurial capabilities
Audretsch, Lehmann, Menter, and Wirsching	Contribute to the knowledge spill over theory of intrapreneurship and consider how new employee recruitment as well as employee exits (i.e., employee mobility) enhance knowledge. The novel focus of the authors on labour mobility at both firm and regional levels paints a holistic picture of the value of context and the impact of networks and knowledge flows on intrapreneurial capabilities.
Masucci, Parker, Brusoni, and Camerani	Contribute to corporate venturing literature in their novel exploration of the criteria used in corporate selection and funding of early-stage intrapreneurial initiatives. The concise description of the selection process made it possible, for example, to uncover how the assessment criteria at various firm development stages differed from those proposed in more traditional models.
Honig and Samuelsson	Contribute to the literature on intra- versus entrepreneurial ventures by exploring the relationship of dynamic capabilities with business planning from the perspective of environmental uncertainties. The authors also show that some institutional forces should not be overlooked in an analysis of intrapreneurial processes; intrapreneurs are sometimes directed to invest their energy in non-efficient ways for the sake of the agendas of normative practice.
Yildiz, Murtic, Klofsten, Zander, and Richtner	Contribute to intrapreneurship literature by exploring absorptive capacity on the individual and the group level. They designed their own model to explore (a) predictors of individual absorptive capacity and (b) the effect of absorptive capacities on innovation performance.
Guerrero, Heaton and Urbano	Contribute to the dynamic capabilities literature in their examination of massive open online courses (MOOCs) and a comparison with ordinary capabilities in teaching, research, and administration. They find that intrapreneurial capabilities based on the MOOC approach had direct and indirect effects on university entrepreneurial outcomes, and supported ordinary capabilities.
Faridian and Neubaum	Contribute to our knowledge of how entrepreneurial and intrapreneurial capabilities develop. The authors propose a model based on an open source ecosystem and explore how the type of network tie strengthens intrapreneurial capabilities. The authors carry out their study with a view to the dynamic capabilities of open source ecosystems and to the present environment of asset sharing where ambidexterity is a necessary survival skill. The concepts in this paper lay the groundwork for future theoretical and empirical research on ecosystems, networks, and their influence on how the capabilities of intra- and entrepreneurship develop.
Kör, Wakkee and Sijde	Contribute to our knowledge of the innovative behaviour of managers, and in particular in the area of Individual-level Innovative Behaviour (IIB). The study examines intrapreneurial activities in the Turkish banking sector. Among others, the study examines the relationship of IIB with the self-leadership strategies of Perceived Organizational Innovativeness (POI). Managers and practitioners can glean many pointers on ways of designing organizational environments conducive to an intrapreneurial culture.

3.4. The role of management in strengthening dynamic capabilities and entrepreneurial orientation within the firm

Entrepreneurial attitudes of managers (e.g. strategic leadership) can reinforce dynamic capabilities to promote the competitiveness of the firm (Leih and Teece, 2016). Rodrigo-Alarcon et al. (2018) argue that dynamic capabilities help enhance social capital (relational and cognitive), which in turn helps the entrepreneurial orientation of a firm.

Entrepreneurial managers play a critical role in both transforming the enterprise and shaping the ecosystem through different strategic acts that do not arise from routines (Teece, 2012) or achieving a firm's success in global markets (Pitelis and Teece, 2010; Teece, 2014). In studying university performance, Leih and Teece (2016) argue that dynamic capabilities together with strategic leadership generate better performance and survival of organizations. In a similar vein, Macpherson et al. (2015) also highlight the role of the entrepreneur in developing dynamic capabilities and argue that entrepreneurs can change the learning path of the firm through the gradual accumulation and integration of resources.

3.5. Dynamic capabilities malfunctioning and new capabilities being needed within new and established firms

Some studies identify the conditions under which dynamic capabilities cease to function properly and even lead to failure. Zhang et al. (2019, p. 415) show how exogenous and endogenous factors can interplay and lead to "dynamic capabilities malfunction," which ultimately results in business closures. Other studies explore the effect of specific capability-related entrepreneurial activities on environmental and financial performance. For example, Chang (2012) identifies specific capabilities required by IT entrepreneurs for the success of different phases of a start-up. Those capabilities are market-oriented sensitivity, the ability to absorb knowledge, social-networking capability, and the integrative ability to communicate and negotiate.

Fig. 2 shows intrapreneurial capabilities as a result of the intersection between dynamic capabilities and intrapreneurship, highlighting the streams of research discussed above. Fig. 2 also summarizes the main research on intrapreneurial capabilities with specific topics.

4. Summary of the papers in the special issue

The seven papers in this special issue address some unresolved research questions on managing intrapreneurial capabilities from multiple perspectives (see Table 2 for a summary of the papers). The authors employ a mix of quantitative and qualitative methods and also use different levels of analysis.

The Audretsch and his colleagues' study explores the absorptive capacities of intrapreneurship in established firms and how labour market fluidity influences firm employment. The particular focus of the authors on absorptive capacities describes how these affect the competitiveness of a firm via exploitation of all types of knowledge to engender new ideas. Labour stock or labour mobility alone, whether regionally or internal to the firm, have no positive effect on the absorptive capacity of a firm. Together, however, labour stock and labour mobility on the firm and regional levels drive the absorptive capacities of a firm. Audretsch et al., thus observe that the effects of labour mobility are sterile unless the labour markets are fluid enough for employees and employers to find adequate matches.

Masucci et al., look at the selection process for choosing new corporate ventures. The fine-grained analysis of the authors examines the behind-the-scenes criteria of an internal venture unit at a major energy company. Cases are interwoven with assessments drawn from a 13-year database in order to illustrate the criteria behind the selection and funding of early-stage entrepreneurial initiatives. The study builds on previous literature assessments of the internal venture selection process and points out where its findings make a departure from those of published observations. The relevance of the selection criteria used to assess ventures at different development stages sometimes varied between those proposed by traditional models and what Masucci et al., observed in their analysis. As an example, deployment-related aspects have been thought to be an important consideration first after a project has demonstrated feasibility; the careful analysis of the authors, however, found this issue to be an important consideration in an earlier stage, during the maturation and validation process, and to play a larger

Table 3
Future research lines on intrapreneurial capabilities.

Original question	WHAT	HOW	WHY	FOR WHAT
Content	Concept of intrapreneurial capabilities	Relationship between dynamic capabilities and intrapreneurship	Antecedents of intrapreneurial capabilities	Consequences of intrapreneurial capabilities
Specificities	Definition, dimensions.	Types of relationship.	Determinants: internal factors, external factors.	Effects: performance, sustainability.
Early studies	Teecce (2012, 2014, 2016) Zahra et al. (2006)	Teecce (2012, 2014, 2016) Zahra et al. (2006)	Hornsby et al. (2009) Antoncic and Hisrich (2001) Turró et al. (2014) Klofsten et al. (2019) Guerrero et al. (2016)	Arend (2014) Caloghirou et al. (2004) Skarmees et al. (2016) Leih and Teece (2016) Heaton et al. (2019a) Heaton et al. (2019b) Yildiz et al. (2020)
Papers in this SI		Masucci et al. (2020), Honig and Samuelsson (2020), Kör et al. (2020)	Audretsch et al. (2020), Guerrero et al. (2020)	
Some research questions	<ul style="list-style-type: none"> - How can we approach the concept of intrapreneurial capabilities? - What theoretical foundations are about intrapreneurial capabilities? 	<ul style="list-style-type: none"> - How are different types of dynamic capabilities changing entrepreneurship within and across organizations and in the survival of incumbents? - What effects does the increasing availability of information have on the capability development decisions of a firm? - To what extent are assumptions about dynamic capabilities still valid in an intrapreneurship environment? - How are organizations working to support intrapreneurship processes through intrapreneurial capabilities? 	<ul style="list-style-type: none"> - What external/institutional factors influence the innovation activities inside a firm and the success of intrapreneurial capabilities? - What internal factors affect the development of intrapreneurial capabilities? - What cultural values shape the formation of entrepreneurial firms? - Does the national origin of a company play any role in the development of intrapreneurial capabilities? - What kind of public policies are needed to promote intrapreneurial capabilities within firms? 	<ul style="list-style-type: none"> - What are the effects of intrapreneurial capabilities on firm performance? - Are firms with intrapreneurial capabilities more sustainable? - What is the impact of firm's intrapreneurial capabilities on socio-economic progress? - How can intrapreneurial capabilities shape firm' outcomes? - How can intrapreneurial capabilities help during troubled times?

role in the selection process than previously thought.

Honig and Samuelsson have analysed the relationship between dynamic capabilities and business planning – including the effect of environmental uncertainty on this relationship –from the standpoint of whether the venture is intra- or entrepreneurial. They assessed 623 Swedish ventures during a 10-year period. In particular, the study examined the likelihood of planning, the impact of environmental uncertainty on planning, and the role of experience given that entrepreneurs tend to execute formal planning while intrapreneurs generally already have experience navigating environments undergoing rapid change and forego much of formal planning. The authors measured prevalence of planning depending on the type of venture and type of environment: entre-vs. intrapreneurial; highly dynamic vs. more mature, less dynamic. Their discussions are theoretical, supported by empirics, and the outcomes that Honig and Samuelsson arrive at a point up surprising differences between the two types of new-firm start-up ventures.

Yildiz et al., explore intrapreneurship from the perspective of a microfoundation, placing a particular focus on the absorptive capacity of the individual and various contextual determinants. They test their theoretical model with original data from 648 knowledge workers in 126 functional areas. On the individual level, the authors look at the goal orientations and absorptive capacity of the employee and how these relate. On a more collective level, the study looks at the aggregation of absorptive capacities in a group and the determinants that allow for the efficient expression of these capacities in innovation performance. Yildiz et al., found that goal orientation and learning were important predictors of individual absorptive capacity, and on a group level, that individual absorptive capacities needed to be highly coordinated to achieve positive innovation performance.

With a sample of 145 universities across countries, Guerrero et al., investigate the role of massive open online courses (MOOCs) and their impact on intrapreneurial capabilities. The authors explore the relationships between ordinary capabilities in teaching, research, and administration and intrapreneurial capabilities developed through MOOCs. Ordinary capabilities – teaching, research, and administrative qualities – are necessary for carrying out core university strategies.

Intrapreneurial capabilities – risk-taking, opportunity detection, and transformation of present routines toward being more proactive and innovative – play an important role in developing entrepreneurial strategies of the university. Such strategies may help diversify university income structure, attract local (and international) students, and convey prestige on the university for its teaching and research. The authors find that intrapreneurial capabilities have a direct effect on university performance as well as an indirect effect on ordinary capabilities.

The conceptual study of Faridian and Neubaum proposes a model based on an open source ecosystem and uses the symbiotic relationships among network actors in the software industry to show that in dynamic environments, intrapreneurial capabilities are strengthened through network ties with a specific orientation toward exploitation and exploration. Observations of the need for ambidexterity in the present culture of asset sharing and the dynamic capabilities of open source ecosystems led the authors to initiate a study on how entrepreneurial and intrapreneurial capabilities develop. Their model integrates two aspects – (i) an open innovation perspective and (ii) assumptions of asset positions from a dynamic capability perspective – to suggest how inter-organizational ties may capture and create value. The concepts that Faridian and Neubaum discuss in this paper are an interesting precursor for empirical and theoretical research on how ecosystems and networks influence the development of intra- and entrepreneurial capabilities.

The Kör et al., study was interested in the innovative behaviour of managers – the roles of individual perceptions and factors – and how to enhance this behaviour. In pursuit of explanations, the authors surveyed 340 bank managers in Turkey. Intrapreneurial activities in the banking sector have become important, in light of the rapid growth of Information and Communication Technology, for developing products and services that will satisfy new customer demands. At present, the literature appears to agree that Individual-level Innovative Behaviour (IIB) is the best way to support intrapreneurship. Research on the promotion of IIB in the workplace, however, is still sparse. Thus, they chose to explore the relationship of IIB with the self-leadership strategies of Perceived Organizational Innovativeness (POI), the gender of the individual, and perceived organizational risk-taking. The study used SEM to analyse the survey responses and found a positive relation of self-leadership,

strategies of self-leadership, and POI to IIB. In addition, while (i) self-leadership fully mediates the relationship between POI and IIB, (ii) the mediating effect of self-leadership on this relationship is moderated by the gender of the respondents.

5. Conclusions and an agenda for future research

This paper sheds some light on a relatively new concept of intrapreneurial capabilities integrating the literatures on intrapreneurship and dynamic capabilities. In this article, we posit that intrapreneurial capabilities are the organization's ability to react quickly and innovatively to internal/environmental changes and have a significant implication for achieving an organization's survival and success, especially during uncertain and turbulent environments. Despite its importance, there are few studies addressing this issue. Moreover, most existing studies have pointed out the need for developing intrapreneurial capabilities, but they are silent on how such capabilities are developed. In this special issue, the dynamic capabilities framework has emerged as a useful framework to address this. More specifically, dynamic capabilities can play a role in (a) facilitating intrapreneurship and (b) complementing entrepreneurial orientations that enable firm performance.

We also discuss related issues: the relationship between entrepreneurial orientation and dynamic capabilities, the role of management in strengthening dynamic capabilities and entrepreneurial orientation within firms, and dynamic capabilities malfunctioning and new capabilities being needed within new and established firms. The papers in this special issue also lead to new research areas on this important topic, which are summarized in Table 3.

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