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HE INTRAPRENEURIAL NATURE OF ORGANIZATIONAL INNOVATION: TOWARD A NEW PROCESS MODEL

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ABSTRACT

While innovation research for a long time has been preoccupied with technological innovation, in recent years growing interest has been sparked for research in organizational innovation understood as the invention and implementation of an organizational practice new to the state of the art. However, little is known about the mechanisms and processes generating this non-technological type of innovation. In this paper I argue that organizational innovations are usually not produced by way of institutionalized R&D processes but are the result of entrepreneurial employee behavior that breaks with customary business practice. Understanding organizational innovations as a form of intrapreneurship, I develop a new type of process model, explaining their emergence by combining insights from entrepreneurship and innovation studies.

Keywords: Intrapreneurship; Management Innovation; Organizational Innovation

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INTRODUCTION

Although the theoretical study of innovation and of entrepreneurship has its common origin in the seminal work of Schumpeter (1912) and investigates intrinsically related topics of opportunity recognition, exploration and exploitation, the two literatures and research traditions have developed separately and now constitute two largely unconnected bodies of research (Sundbo, 1998; Crossan & Apaydin, 2010). One presumable reason for this divergence is that entrepreneurial studies have focused mainly on the individual as the locus of entrepreneurial activity (e.g., Shane & Venkataraman, 2000; Shane, 2003), whereas the bulk of innovation studies has emphasized the supra-individual context, from firm-level determinants to the institutional environment of the regional and national innovation system. In their comprehensive survey reviewing the innovation literature of the past 27 years, Crossan and Apaydin (2010) thus found that only 5 per cent of all publications focused on the level of the individual.

In this paper I aim to shift the focus back to individual agency as the motor driving one type of innovation in particular, namely organizational innovation. This type is understood as the invention and implementation of an organizational practice or method new to the state of the art. Although ample evidence has accumulated that organizational innovation has no less of a profound impact on a firm's performance and competitive advantage than the introduction of a newly developed product or production process (e.g., Armour & Teece, 1978; Teece, 1980; Damanpour, Szabat, & Evan, 1989; Schmidt & Rammer, 2007; Mol & Birkinshaw, 2009; Damanpour, Walker, & Avellaneda, 2009; Battisti & Stoneman, 2010; Hecker & Ganter, 2013; Ganter & Hecker, 2014), this type of innovation clearly constitutes an under-researched topic. While Schumpeter initially proposed a broad notion of innovation – comprising not only the introduction of a new product or production method, but also of new organizational methods in the firm's business

practices and external relations (Schumpeter, 1912) – succeeding researchers have significantly narrowed their focus, making product (and perhaps process) innovation the almost sole subject of study. The body of knowledge on the determinants and mechanisms generating product and process innovation has grown accordingly large, whereas other types of innovations are hardly to be found on the map of current research (e.g., Alänge, Jacobsson, & Jarnehammar, 1998; Birkinshaw & Mol, 2006; Birkinshaw, Hamel, & Mol, 2008; Crossan & Apaydin, 2010; Damanpour & Aravind, 2012; Ganter & Hecker, 2014).

The utility of reviving the individual (and of bridging the gap imposed between innovation and entrepreneurial studies) in investigating organizational innovation lies in the observation that organizational innovations are not fabricated by way of institutionalized processes of research and development, nor by utilizing dedicated resources such as R&D labs, researchers etc. – in stark contrast to other types such as product or process innovation. Rather, they frequently derive from entrepreneurially inclined individuals (so-called intrapreneurs) within the organization who depart from customary ways of doing business, who engage in experimentation with new organizational practices, processes, structures, or techniques and who promote and sell their ideas to colleagues, superiors and other constituencies. As these individuals acquire the support of management and of corporate resources, their initiatives take the form of an internal venture aimed at the implementation and internal commercialization of their inventions throughout the organization.

Numerous examples immediately come to mind. The whole cluster of disruptive organizational innovations at the workplace later dubbed Taylorism was pioneered in an entrepreneurial fashion by a middle manager at Midvale Steel Works, who later became an eponym for his innovations (Taylor, 1911; Kanigel, 2005). Nearly fifty years later, it was again a set of entrepreneurial individuals who

drove the next revolution in workplace organization. It was firstly Taiichi Ohno who developed lean manufacturing, Kanban, Kaizen, Just-in-time production and other organizational practices that came to form the Toyota Production System (Ohno, 1988; Magee, 2007). But even if these two examples stand out for their radicalness and impact, many other, less disruptive organizational innovations likewise provide cases in point. Larry Huston experimented for several years before he succeeded with his innovative “Connect and Develop” innovation process at Procter & Gamble (Birkinshaw, Crainer, & Mol, 2007); Arthur Schneiderman broke new ground when he pioneered the first prototype of a balanced scorecard while working for Analog Devices (Kaplan, 1998; Birkinshaw et al., 2007); and the innovative ‘Spaghetti organization’ at Oticon developed as an internal venture driven by one employee, Lars Kolind (e.g., Foss, 2003). The development of all these and many other more or less significant and visible organizational innovations follow the same basic pattern: They are invented by intrapreneurs usually at the level of operational and middle-management (but sometimes, as in the case of Lars Kolind, at the top), who discover opportunities for organizational improvement; these individuals then exploit these opportunities by combining knowledge and/or resources in novel ways, and they promote their invention by acquiring the support of co-workers and other constituencies, as well as necessary resources for implementation and roll-out.

But what precisely are the generative mechanisms and processes spurring organizational innovations? What factors and organizational conditions drive and catalyze their emergence? To answer the first question I link two emerging but as yet unconnected literatures – one on organizational innovation and the other on corporate entrepreneurship (and in particular intrapreneurship) – to develop a coherent process model of the origination of organizational innovation. This model itself builds the basis for answering the second question: If organizational innovations are the products of intrapreneurial activity, then the determinants of intrapreneurship are main antecedents to organizational innovation. In deriving organizational conditions triggering (or inhibiting)

intrapreneurial employee behavior, I thus identify concrete levers at the hands of management toward stimulating and steering organizational innovation.

I begin by reviewing the relevant literatures on organizational innovation and corporate entrepreneurship in the following section. Thereafter I explore the notion of organizational innovation and identify several characteristics that set organizational innovations apart from other types of innovation (and particularly from product and process innovation). These preliminary considerations set the stage for elaborating on different stages in the emergence of organizational innovations, which together form a comprehensive process model. Finally, I derive organizational conditions that influence this generative process and, additionally, discuss some implications for further theorization and research.

RELATED LITERATURES

This study interweaves two largely unconnected bodies of research. On the one hand, there is a small literature that departs from the bulk of studies on (mainly technology-oriented) product and process innovation and investigates the specificities of organizational innovations. The main concerns of these studies have so far been the diffusion of this type of innovation (e.g., Teece, 1980; Alänge et al., 1998; Kogut & Parkinson, 1998; Guler, Guillén, & Macpherson, 2002); the determinants of its adoption and its implications for performance (e.g., Damanpour et al., 1989; Mol & Birkinshaw, 2009; Hecker & Ganter, 2013; Ganter & Hecker, 2014); and the (in-)efficiency of markets for organizational innovations prone to fads and exaggeration (e.g., Abrahamson, 1996; Kieser, 1997; Wellstein & Kieser, 2009). All of these studies accordingly conceptualize organizational innovation as an organizational practice or method new to the firm but that is elsewhere tried and tested, and they investigate actual decisions and mechanisms of their (imitative) introduction.

This is not the focus of my endeavor, however, as I am interested rather in the first-time invention and implementation of an organizational practice or method which has no

known precedent and which is truly new to the state of the art. This important subject has been researched in far fewer papers. The approach closest to my effort is perhaps that proposed by Birkinshaw et al. (2008). These authors investigate organizational innovations (or management innovations, as they dub it) new to the state of the art, and they develop a process model of their invention and implementation that emphasizes individual agency. Cornerstone to their process model are external agents of change (e.g., consultants, management intellectuals) whose interplay with internal agents of change (i.e., top management) constitutes the driving force that brings about organizational change and new managerial practices. In this respect, their approach is different from (but complementary to) mine, as I primarily focus on the entrepreneurial activities of employees as the mainspring of organizational innovation from within the organization and largely neglect the influence of external consultants. Without a doubt, external agents play an important role in the adoption of organizational practices new to an organization. This pertains in particular to the trade and transfer of existing tried-and-tested concepts and sometimes of mere fads (e.g., Abrahamson, 1996; Kieser, 1997; Wellstein & Kieser, 2009). In the invention and implementation of organizational innovations without known precedent outside the firm, however, external agents have arguably much less to contribute (at least in terms of knowledge transfer from other organizations, although they still may act as catalysts of change or as providers of abstract ideas). Instead, I see the development of unprecedented (and usually highly idiosyncratic) solutions as a mainly internal venture, driven by entrepreneurial individuals within the firm.²

Such internal venturing is the subject of quite a different stream of literature investigating corporate entrepreneurship (CE) and (internal)

corporate venturing (CV) (e.g., Burgelman, 1983a; 1983b; Kuratko, Montagno, & Hornsby, 1990; Zahra, Jennings, & Kuratko, 1999; Zahra, 2005; Morris, Kuratko, & Covin, 2008; Narayanan, Yang, & Zahra, 2009). As with my focus, studies within this literature examine types and processes of entrepreneurial activity within large companies, along with their antecedents and determinants. A large part of these studies focus, however, on the exploitation of technological inventions through transforming R&D activities into new business (e.g., Burgelman, 1983b; Burgelman, 1991; Kuratko et al., 1990; Narayanan et al., 2009). They therefore relate rather to the literature on product or process innovation than to the innovation type studied here. More generally, as Narayanan et al. (2009) ascertain in their comprehensive survey of this body of research, the focus of this literature is on “new business creation, the *raison d’être* of CV” (p. 59). My concern, however, is the invention and implementation of organizational innovation within *existing* business operations. Furthermore, whereas internal CV activities usually follow standardized processes and rely on dedicated resources (manifested, for instance, in a company’s New Venture Division), companies hardly ever sustain institutionalized processes and infrastructures for organizational innovation activities.

This difference relates to another distinction, namely that CV is usually investigated at the level of the organization and understood as a program designed by top management, imposed on the organization from the top down (e.g., Kuratko et al., 1990; Zahra et al., 1999; Antoncic & Hisrich, 2001; de Jong & Wennekers, 2008). Here, in contrast, I analyze organizational innovation as the outcome of an entrepreneurial process occurring at the individual level, usually moving from the bottom (e.g., the individual workplace) up. Closest to my approach is therefore a small offshoot of the literature on CE

² There are further differences between my approach and that of Birkinshaw et al. (2008). Birkinshaw et al. largely focus on executives as key agents of change within the organization, whereas my model points rather to operational and middle managers as main drivers of organizational innovation (as discussed in

detail below). Furthermore, Birkinshaw et al. intentionally neglect cognitive processes and determinants of those agents involved (cf. Birkinshaw et al., 2008: 833, footnote 6) whereas the cognitive level represents a main subject of the entrepreneurial studies incorporated here.

and CV that researches entrepreneurial behavior at the workplace. It has coined the umbrella term 'intrapreneurship' for any kind of "emergent behavioral intentions and behaviors that are related to departures from the customary ways of doing business in existing organization" (Antoncic & Hisrich, 2003, p. 20). Such behavior refers to initiatives undertaken by employees of the organization and has been related to new business venturing, strategic renewal, and product and process innovation (cf. Antoncic & Hisrich, 2001; Antoncic & Hisrich, 2003 for surveys). Its relevance to and impact on organizational innovation, the topic of my attempt, has remained however largely unrecognized.

In investigating the link between intrapreneurship and organizational innovation I aim at cross-fertilizing both literatures. In particular, this paper adds to the literature on organizational innovation by developing a new perspective on this type of innovation as the outcome of entrepreneurial activities within the firm. It thus offers a promising opportunity to extend our understanding of organizational innovation by employing insights of the well-developed literature on entrepreneurship. On the other hand, it elaborates on the literature on CE and CV by studying the role of individuals in internal venturing activities and by providing a process model of intrapreneurship that focuses on the individual level.

Notion and Nature of Organizational Innovation

No broadly accepted definition of organizational innovation currently exists, nor is there a consensus regarding its delineation from related concepts such as management innovation or administrative innovation. In 2005, however, the OECD and Eurostat Oslo Manual set out on a widely recognized attempt to unify the conceptual basis of innovation studies and measurement, stipulating an organizational innovation as "the implementation of a new organizational method in the firm's business practices, workplace organisation or external relations" (OECD/Eurostat, 2005, p. 51). I largely adhere to this definition in the following, with one important qualification. Although there are

several equally valid perspectives on the reference point of novelty – e.g., new to the firm versus new to the market versus new to the world (OECD/Eurostat, 2005: 57 f.) – I focus in the following on the invention and implementation of organizational methods, practices, processes, structures, or techniques new to the state of the art. The reason is that I am interested in how a new organizational solution without known precedent comes about, rather than in the adoption of an 'off the shelf' solution already widely spread throughout the industry. Not only is this the area in which our existing knowledge is particularly sparse, but this qualification is also not overly restrictive, as even the adaption of an established organizational concept to the firm-specific context in many cases requires the invention and implementation of an idiosyncratic organizational method, practice, process, structure, or technique. This definition is furthermore in line with the conceptualization of the related notion of management innovation proposed by Birkinshaw et al. (2008, p. 825), stipulating management innovation "as the invention and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals."

Organizational innovations share many characteristics with other types of innovation such as a high degree of uncertainty over the outcomes and success of innovative activities or the high degree of knowledge-intensity and -diversity of these activities (e.g., Boer & During, 2001). In the following I focus, however, on the distinctive features of organizational innovations that set them apart from other types of innovation, justifying a specific account in their theorization and management. With respect to such differences, the existing literature primarily discusses the non-technological character, the behavioral dimension, the high degree of firm specificity and peculiarities in the protection of this type of innovation.

Although organizational innovations may co-evolve with technical innovations (e.g., Ettlie, 1988; Bresnahan, Brynjolfsson, & Hitt, 2002; Schmidt & Rammer, 2007), they are themselves non-technological in nature. Rather, they comprise changes in more intangible organizational artifacts such as values, rules, routines and procedures and they mainly

manifest themselves at the behavioral level of the organization (e.g., OECD/Eurostat, 2005). This implies a high degree of dependency on the idiosyncratic socio-technical system of the organization and its context. As a result, organizational innovations are highly specific to the inventor and their adoption usually needs a significant amount of adaptation (e.g., Alänge et al., 1998).

As a further distinguishing mark, organizational innovation usually cannot rely on patents to prevent spillovers and imitation (Teece, 1980). Such weakness in the legal protection regime is instead (somewhat) compensated by their high degree of idiosyncrasy, their complex character (Rivkin, 2000), the high degree of tacitness regarding the knowledge usually involved (Lam, 2000), and the difficulties involved in their external observation (Alänge et al., 1998). Together, these characteristics form a strong kind of socio-technical protection regime that effectively prevents many organizational innovations from immediate imitation and expropriation and that therefore renders them an important source of sustainable competitive advantage (Hamel, 2006; Hamel, 2007).

While the existing literature has drawn heavily on such distinguishing marks to build a case for treating organizational innovations as an object of research in its own right, only a few studies have elaborated on a further and no less important difference between organizational and other types of innovation.³ Whereas most organizations maintain resources dedicated to developing product innovation (e.g., research personnel, R&D labs) or process innovation (e.g., production engineers, quality circles) and at the same time sustain institutionalized processes for their development (e.g., stage-gate innovation processes, continuous improvement processes), both are usually non-existent with respect to the development of organizational innovations. Rather, organizational innovations are often the result of initiatives undertaken by entrepreneurially inclined employees who depart

from customary ways of doing business, trying something new, usually without being asked or expected to do so (and sometimes even without being given permission by higher management to do so). They therefore fall into the realm of internal venturing and intrapreneurship. Analyzing them through the theoretical lens of entrepreneurship studies promises a deeper understanding of the mechanisms and processes involved in their generation.

A Process Model of Organizational Innovation as Intrapreneurship

Process models have a long tradition in innovation studies. Beginning in the 1950s, a large number of mainly prescriptive process models have been proposed, criticized and refined, resulting in a vast number of model types, generations and variants (e.g., Forrest, 1991; Rothwell, 1994; Hobday, 2005 provide surveys). With the few exceptions already mentioned in section 3, all of these models clearly pertain to the invention and implementation of product and process innovation, and they propose (more or less) formalized stages and institutionalized gates for sequencing and controlling the development of new products or production methods. As the emergence of organizational innovations usually does not unfold within the avenues of such formalized organizational processes, and as they are typically not planned and controlled by dedicated organizational institutions either, these models fail to explain the mechanisms and processes bringing such innovation about.

The fact that the first-time invention and implementation of an organizational practice or method is quite often pioneered and driven by one or several entrepreneurially inclined individuals within the organization suggests drawing instead on models developed in the context of entrepreneurship and start-up venturing. The uncritical adoption and

³ Among these few exceptions are Alänge et al. (1998) and Birkinshaw et al. (2008), which draw quite different conclusions.

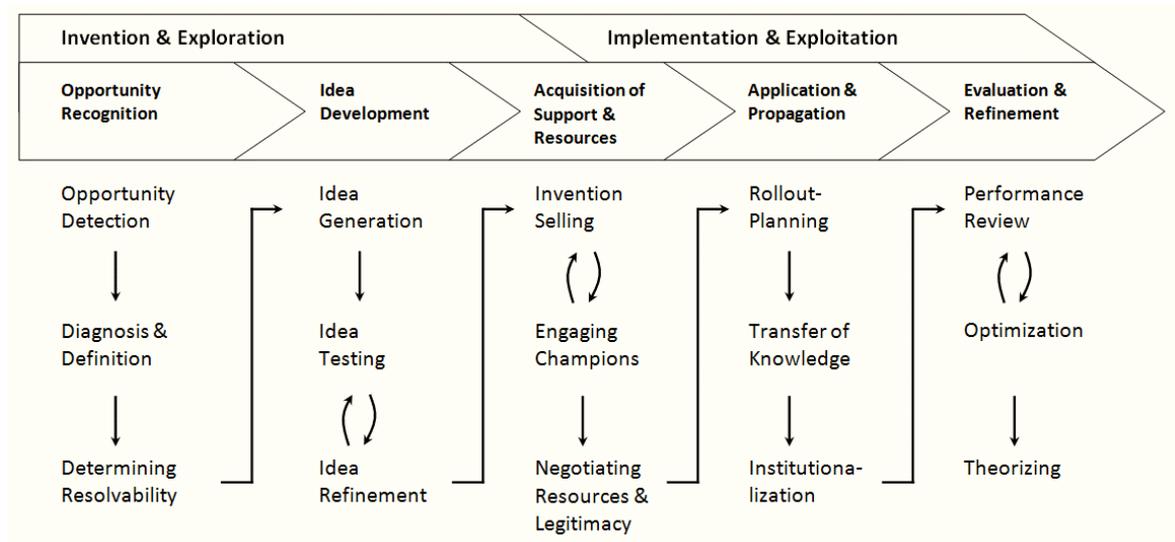
application of such models, however, neglects important differences between *entrepreneurship* and *intrapreneurship*. After all, “intrapreneurship distinctly belongs to the domain of 'employee behaviour' and thus faces specific limitations that a business hierarchy and an internal business environment may impose on individual initiative, as well as specific possibilities for support that an existing business may offer to a nascent intrapreneur” (de Jong & Wennekers, 2008, p. 24). Thus, while the entrepreneur depends on private sources of capital and on markets for equity (e.g., venture capital) and debt, the intrapreneur can and must leverage resources provided by the organization. Whereas entrepreneurs commercialize their novel solution to diverse customers on external markets, intrapreneurs must ‘sell’ their novel ideas to actors and decision-makers within the organization (e.g., Burgelman, 1983a; Dutton & Ashford, 1993; Dutton, Ashford, O’Neill, Hayes, & Wierba, 1997). Toward this end, they must overcome the internal constraints and selection processes of a centrally managed economy, instead of surviving and thriving on free market competition.

Accommodating these important differences, I merge elements of models of both innovation and entrepreneurship to develop a new type of process model explaining the invention and implementation of organizational innovation (see figure 1). In this model I roughly distinguish two phases that I borrow from numerous innovation process models, i.e., the

invention or exploration phase and the implementation or exploitation phase. Underlying these two smoothly transitioning phases are five successive stages (themselves made up of a number of core activities) identified by various process models of entrepreneurship: Opportunity recognition and idea development are main stages of the invention and exploration phase; application and propagation of the invention constitute together with its evaluation and refinement, on the other hand, the implementation and exploitation phase. The acquisition of managerial support and organizational resources marks the transition between these two phases. This stage acts as an important selection mechanism on the stream of organizational inventions, linking mechanisms of experimentation and variation (the focus of the first and second stages) to those of retention and reproduction (the focus of stages four and five).

Although for sake of simplicity these stages are represented and discussed in sequential order, the innovation process is not necessarily linear; rather, instead of a sequence of neatly separated steps, it typically unfolds in overlapping and recursively iterated stages, frequently oscillating back and forth between different stages while ultimately covering the spectrum of core activities highlighted. This is partly hinted at by the recursive arrows in the level of core activities that make up the different stages. In the following, however, I discuss the various stages and activities in sequence.

Figure 1: A Process Model of Organizational Innovation



Opportunity recognition

An opportunity is the common starting point and *conditio sine qua non* of both innovation and entrepreneurial (or intrapreneurial) activity. According to a broadly accepted definition, entrepreneurial opportunities are “those situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their costs of production” (Shane & Venkataraman, 2000, p. 220 referring to Casson, 1982). In a similar vein, I define the opportunity for an organizational innovation as a situation in which an organizational method, practice, process, structure, or technique new to the state of the art and which may further any organizational goal can be introduced. Recognition of such an opportunity by an employee means not only the opportunity’s mere appreciation and apprehension (i.e., detection); it also comprises some preliminary understanding of underlying causes and consequences (i.e., diagnosis and definition) as well as a provisional appraisal of the actual feasibility of improving the *status quo* by means of organizational change (i.e., determination of resolvability).

Opportunity detection. Opportunity detection refers to the identification of a possibility for and a potential value to departing from customary ways of doing business and to try something new. Such detection may be triggered by some problem or obstacle arising in the ordinary course of business, such as the determination of a perceived performance gap, i.e., a mismatch between actual and potential (or required) performance. Alternatively it can be the result of active search or of mere chance (e.g., Chandler, DeTienne, & Lyon, 2003). Numerous studies in the context of entrepreneurship show that the recognition of an opportunity for entrepreneurial (and, by analogy, intrapreneurial) activity depends to a large extent on specific expertise and experience, as well as on the cognitive abilities and other traits and dispositions of the individual faced with given environmental conditions. Profound knowledge of relevant technologies and pertinent

organizational context significantly fosters the detection of opportunities for improvement (e.g., Shane, 2000; Shepherd & DeTienne, 2001; Shepherd & DeTienne, 2005). Beyond differences in human capital, heterogeneities in cognitive abilities (e.g., signal detection, pattern recognition) have been shown to contribute to interpersonal differences in the recognition of entrepreneurial opportunities (e.g., Baron, 2004; Gaglio, 2004; Baron & Ensley, 2006). Arguably, they will have a similar bearing on intrapreneurial opportunity detection. Finally, entrepreneurial opportunity detection is driven by specific traits and enduring personal dispositions such as IQ, perceptive ability, openness and curiosity, alertness, tolerance for ambiguity, optimism and self-starting behavior (e.g., Cromie, 2000; Gaglio & Katz, 2001; Shane, 2003). In terms of employee behavior, these personal antecedents can be supplemented by results showing the importance of proactivity and the inclination to take charge at the workplace as personal dispositions conducive to intrapreneurial opportunity detection (e.g., Morrison & Phelps, 1999; Crant, 2000; Frese & Fay, 2001; Parker, Williams, & Turner, 2006; de Jong & Wennekers, 2008).

Diagnosis and definition. On first detection, an opportunity usually presents itself rather fuzzily and vaguely. To recognize and evaluate the opportunity as such, the intrapreneur must obtain a preliminary understanding of the causes and consequences of the perceived deficit or other possibility for improvement. Gaining such understanding entails the targeted acquisition of information and repeated learning cycles. Several studies have shown that the prior knowledge and experience of the entre- or intrapreneur, her access to further sources of knowledge (e.g., the quantity and quality of links to knowledge-holders inside and outside the organization), the personal learning disposition (e.g., her learning type) as well as the fit between these resources and dispositions and the opportunity at hand all have significant influence in fostering early diagnosis (e.g., Corbett, 2005; Politis, 2005; Ravasi & Turati, 2005). These factors therefore also shape the provisional definition of the problem and its possible solution.

Determining resolvability. Beyond a provisional definition and preliminary understanding of some insufficient *status quo*, a rudimentary assessment of its improvability also constitutes part of opportunity recognition, as it separates real opportunities from intractable deficits. This exercise requires first attempts at contrafactual and creative thinking that hypothetically transforms existing concepts into novel 'means-end frameworks' as a theoretical basis for provisionally assessing the potential resolvability of perceived deficits. It also requires a provisional assessment of the prospects for the further investment of time and resources in the development of an organizational solution (e.g., Mumford, 2000; Shane, 2003).

Idea Development

Idea development refers to the pursuit of a recognized opportunity by combining knowledge and/or resources in new ways toward devising an organizational solution. If an opportunity presents itself in the form of a problem or obstacle arising in the ordinary course of business, of a perceived gap in organizational performance, or of an unmet need of internal or external stakeholders of the organization, the solution is usually non-obvious and requires a more or less lengthy and laborious process of idea development. Generic steps within this process are idea generation, idea testing and idea refinement.

Idea generation. Idea generation means the production of new and useful ideas applicable to the perceived opportunity. It usually results in the formation of a hypothetical means-ends framework describing a novel resource recombination and predicting its superior performance in the face of recognized opportunity (e.g., Shane, 2003). The access to new information and the unprecedented interpretation or combination of established pieces of information are the two main sources of new ideas. Extant (conceptual) knowledge and relevant information are the raw materials from which new means-ends frameworks are fabricated. "Invention is little more than a new combination of those images which have been previously gathered and deposited in the memory. Nothing can be made of nothing. He

who has laid up no material can produce no combination" (Sir Joshua Reynolds, 1732-1792; quoted in Woodman et al. 1993, p. 301). The availability of such material is determined by the intrapreneur's own prior knowledge and experience, as well as by her access to further knowledge sources both within the organization (e.g., printed or electronic repositories, colleagues, specialists of other departments) and outside the organization (e.g., conferences, trade fairs, consultants, other social contacts) (e.g., Singh, Hills, Hybels, & Lumpkin, 1999; Shane, 2003; Arenius & De Clercq, 2005; Ozgen & Baron, 2007).

The mere availability of extant knowledge and information is no sufficient condition for the generation of new and useful ideas, however, as this additionally requires the reorganization and reinterpretation of acquired knowledge and information in innovative ways. This constitutes a genuinely creative act, and employee creativity thus forms a building block of intrapreneurship. This act involves cognitive processes such as finding apt problem structurations and representations (since such problems and opportunities are usually ill-defined and poorly structured); screening, selecting and absorbing relevant information; and, most notably, recombining and reorganizing these pieces of information together with conceptual knowledge to form a new means-ends framework capable of exploiting the recognized opportunity (e.g., Mumford, Whetzel, & Reiter-Palmon, 1997). This creative process on the part of the intrapreneur has been shown to be fostered by domain-specific expertise and experience, by cognitive abilities (e.g., IQ, divergent thinking, ideational fluency, analogical reasoning, idea linking, skill in combining and reorganizing concepts), as well as by non-cognitive traits and predispositions such as openness to experience, breadth of interest, curiosity, self-confidence, energy and locus of control (e.g., Woodman, Sawyer, & Griffin, 1993; Mumford, 2000; Zhou & Shalley, 2008; Hennessey & Amabile, 2010).

Idea testing. Idea testing describes the experimental application of the idea to the opportunity under consideration, as well as the evaluation of its usefulness. The conceived means-ends frameworks represent a kind of Popperian conjecture, as intrapreneurs do not have the information actually necessary to assess

with certainty their correctness at the outset (e.g., Hamilton & Harper, 1994; Shane, 2003). They must therefore rely on some kind of testing, which may take the form of provisionally establishing the prescribed resource combination (at least *in vitro*) and evaluating its performance against projected outcomes. Alternative (and weaker) forms of idea testing include (mental) simulation (e.g., Gaglio & Katz, 2001; Gaglio, 2004), thought experiments (e.g., Weick, 1989) and triangulation, e.g. by using colleagues and other social contacts as sounding boards.

Idea refinement. Such probing of an idea's conceptual validity usually triggers a feedback and learning process that results either in the idea's dismissal or its incremental shaping and refinement (e.g., Corbett, 2005; Ravasi & Turati, 2005). "New ideas emerging from the combination and reorganization represent fuzzy solutions. The implications of those new ideas must be explored and initial ideas tried out and revised, if a truly usable solution is to be found" (Mumford et al., 1997, p. 12). Insights and information obtained during testing provide new inputs to the creative conceptual processes as described above, leading to revisions in the conceived means-ends framework. The revised framework must again stand the test of experimental application and so on, until in the course of these iterations of refinement and testing the hypothetical invention has taken sufficient shape and has accumulated sufficient evidence of its workability so as to justify further steps toward its implementation.

These considerations already provide important hints at the likely locus of organizational innovation within the organization. While domain knowledge and the familiarity with local conditions are important prerequisites for the generation of new ideas and innovative solutions to organizational problems, such generation usually requires at the same time sufficient discretion and resource autonomy so as to try and experiment (at least *in vitro*) with new organizational structures, methods and practices.

Excepting in very small firms, both prerequisites constitute a kind of trade-off, as the knowledge of specific circumstances and functional expertise usually accumulates at the lower ranks while discretionary power increases

with increasing rank of the hierarchical order. The initiators of organizational innovation are therefore not infrequently found amongst middle and lower management.

This consideration parallels an observation by Burgelman (1991, p. 246) in the context of corporate venturing: "Autonomous initiatives can originate at all levels of management. But they are most likely to emerge at a level where managers are directly in contact with new technological developments and changes in market conditions, and have some budgetary discretion. As the organization grows, they are increasingly likely to emerge at levels below top management".

Acquisition of managerial support and organizational resources

While substantial parts of the first two stages of the innovation process usually take place within the inventor's arena of discretion and resource control, at some point further development and implementation probably requires authority and access to resources beyond the initial endowment of the intrapreneur.

Whereas intra- and entrepreneurial activity exhibit many parallels up to this point, the acquisition of requisite resources constitutes a watershed separating process models of entrepreneurship and organizational innovation. While the entrepreneur depends on private sources of capital and on markets for equity (e.g., venture capital) and debt, the intrapreneur can and must leverage the resources of the organization. Important activities and steps toward mobilizing these resources and support around her invention comprise invention selling, engaging champions, and negotiating resources and legitimacy.

Invention Selling. To obtain the resources needed and the legitimization required to further develop and implement the organizational innovation, the intrapreneur must gain the support of colleagues, superiors and other employees and decision makers within the organization. I subsume all activities directed at

affecting others' attention to and support of the organizational invention under the heading of 'invention selling'. Invention selling can be understood as a special case of issue selling as studied by Dutton & Ashford (1993) and Dutton et al. (1997). Invention packaging and the configuration of the selling process are important building blocks of these activities. Invention packaging refers to "how an issue is linguistically framed, the way an issue is presented, and how an issue's boundaries are established" (Dutton & Ashford, 1993, p. 410). Typical framings present organizational inventions as a significant opportunity to further a well-accepted organizational goal or as the solution to an (already recognized or so far latent) organizational problem. Independent of its framing, the intrapreneur has the option to present her invention in terms of a suggestive and emotionally appealing vision, in terms of numbers constructing a convincing case, or in some other format. Determining the way of presentation certainly depends on the culture of communication within the focal organization as well as upon the availability of evidence and data already at the early stages of innovation development. Furthermore, establishing the boundaries of an organizational innovation refers to the option of highlighting the autonomous or systemic character of an organizational innovation (Teece, 2000) and of bundling the invention with other important organizational issues (e.g., portraying the organizational invention as complementary to organizational measures already approved or taken, such as the adoption of a new technology).

Configuring the selling processes, on the other hand, includes the choice of adequate selling channel(s), the use of influencing techniques and the selection of addressees and audiences. Obviously, organizations offer a wide variety of channels for invention selling – e.g., public channels such as meetings versus private channels such as one-on-one appeals; formal channels such as institutionalized suggestion schemes versus informal channels such as a private talk. Such fact requires a well-considered and orchestrated attempt at selling. Furthermore, the seller of the invention has choice over numerous techniques of influence, such as rational justification, selective information sharing, appealing to higher

authority or to organizational values, bargaining for win-win situations, using friendliness and ingratiation, being assertive, etc. (e.g., Kipnis, Schmidt, & Wilkinson, 1980; Kipnis & Schmidt, 1982; Dean, 1987). The choice of both selling channel and influencing technique(s) must be tailored to the target of the sales effort (e.g., Reardon, 1981; Dutton & Ashford, 1993), whose selection and targeting represents a further important task in configuring the selling process.

Engaging champions. An important (interim) goal and at the same time complementary activity of invention selling is the winning of champions of the hypothetical organizational innovation. Champions are individuals with influence and authority who show personal commitment to the invention and take on the (usually informal) responsibility of promoting it, thus pushing the invention through organizational barriers and resistance (e.g., Burgelman 1983a; Howell & Higgins, 1990). Champions can thus leverage the intrapreneur's invention selling efforts and success. Convincing single promoters within the organization, however, is in many cases not sufficient to secure the successful development of the invention. The more expensive and disruptive development efforts become, the larger the coalition the intrapreneur must galvanize. Obtaining the required resources and support in this case necessitates much careful maneuvering and political action on the part of the intrapreneur.

Negotiating resources and legitimacy. After convincing relevant decision-makers and acquiring sponsors (i.e., individuals with sufficient budgetary discretion as to fund the innovation effort and to provide access to required resources), the intrapreneur must negotiate the resources and authority required for the further development and – in particular – the successful implementation of the organizational invention. The demand for such resources and authority varies significantly across different kinds of organizational innovation and is determined by, among others, the organizational reach of the innovation, the extent of behavioral change entailed amongst those affected, the degree of uncertainty induced and the amount of complementary investment required (e.g., King, 1990; Zbaracki, 1998; Janssen, van de Vliert, & West, 2004). These factors also determine effective bargaining strategies on the part of the

intrapreneur. Successful bargaining processes usually result in differentiated support schemes staggering the provision of resources and authority and tying them to the achievement of some predefined milestones and (interim) goals (e.g., Stevenson & Gumpert, 1985).

Application and propagation

After successful idea testing and piloting, and after acquiring requisite resources and legitimacy, the organizational innovation has to be carried from *vitro* to *vivo*. This includes the permanent application of the focal invention, the implementation of its underlying structures and methods as well as the propagation and routinization of pertaining practices throughout the organization. Important steps within this stage include the planning of rollout activities, the transfer of the relevant knowledge to its intended users, and, finally, its institutionalization within the existing context of the organization

Rollout-planning. Determining an effective rollout strategy and setting up an according schedule is a mission-critical but intricate matter. Such planning must maintain sufficient flexibility as to deal with unanticipated problems in the process of implementation. Too tight of constraints in terms of formal plans, bureaucratic rules and decision-making processes can delay and hinder learning and adaptation in the planned course of action. Instead of stipulating a lock-step schedule, actors should therefore carefully specify key steps, contingencies and opportunities for revision (e.g., Mumford, 2000). Resource and procedural autonomy must be balanced, however, against the accountability of the intrapreneur with respect to the results of her development project and the resources provided (e.g., Kanter, 1988). Paralleling the coordination between start-up ventures and financing venture capitalists, rollout plans and resource commitments are usually structured in multiple stages tied to ex-ante-defined milestones whose realization (or failure to realize) indicate the new venture to be on (or off) track (e.g., Stevenson & Gumpert, 1985).

Transfer of knowledge. Diffusion of the organizational innovation throughout the organization usually entails the transfer of

knowledge relevant to its implementation and use. Depending on the degree of tacitness of this knowledge, a wide variety of communication measures are generally used to facilitate this transfer, ranging from written documentation to personal trainings and apprenticeship programs (e.g., von Hippel, 1994; Nonaka & Takeuchi, 1995; Lam, 1997). For large-scale innovations in particular, the recruiting and training of a cadre of disseminators can represent an important intermediate step in spreading the invention and its underlying knowledge. Recent research has shown, however, that the mere communication of knowledge (e.g., in terms of distributing a written manual or ex cathedra instruction) usually fails to yield actual common understanding of the relevant practical content and elements of the newly introduced organizational method, practice or structure. Successful transfer additionally requires processes of translation and conversion, allowing the learner to assimilate – i.e., to re-interpret, re-contextualize and re-appropriate – the relevant content and meaning vis-à-vis her idiosyncratic epistemic context. Such processes of transformation and collective sense-making are of particular importance if diffusion is to reach across the boundaries of departments, communities of practices, occupations or (e.g., national) cultures (e.g., D'Adderio, 2001; Carlile, 2002; Carlile & Rebentisch, 2003; Carlile, 2004; Bechky, 2003; Cacciatori, 2008).

Institutionalization. Institutionalization means the incorporation of new organizational methods, practices and structures into the framework of prevailing norms, values and rules (e.g., Kimberly, 1979; Goodman, Bazerman, & Conlon, 1980). It lends stability and predictability to the activities and behaviors of the affected employees and their underlying social relationships. This is mainly achieved by detaching practices and processes from individual actors in charge of their development and initial execution (which also implies that the intrapreneurial innovator relinquishes influence and ownership over her innovation). The new method or practice is furthermore integrated into the existing operations and consolidated with the organization's extant structures and relations.

Comparing the innovative activities of entrepreneurs on external markets to that of intrapreneurs within the organization, a number of differences become obvious which shape the process of implementing and rolling out organizational innovation. To begin with, the 'target market' of organizational innovations is the innovation-producing organization itself. As this excludes real markets mediating between the innovation's user and producer, the terms of trade of its implementation and propagation are negotiated on the basis of political processes and power constellations rather than via the market-mechanism and based on economic conditions. Furthermore, while entrepreneurial business-building usually includes the creation of a new organization (e.g., Gartner & Carter, 2003; Shane, 2003), in the case of intrapreneurial innovation, an existing and mature organization must be changed. This entails not only the pre-existence of numerous resources and supporting mechanisms but also a legacy of constraints, inertia and rigidity. Finally, while entrepreneurs (in terms of business founders) usually keep ownership and significant influence over their innovation, the implementation and diffusion of the organizational innovation usually leads to its expropriation from its initial creator. While the intrapreneurial innovator had significant influence on shaping the innovation during the invention stage, institutionalization significantly reduces her influence over and thus her ownership of the innovation in its implementation.

Evaluation and refinement

As with product or process innovations, the implementation of the new organizational innovation is usually followed by some kind of monitoring of success. Toward this aim, performance indicators and success criteria must be identified and a metric determined. These provide the basis for incremental learning, iterative optimization and finally for the innovation's overall evaluation. Many organizational innovations, however, are too complex, pursue too many diverse goals and exhibit too many complementarities with other organizational parameters so as to simply decide on success or failure on the basis of some simple

performance indicators. This lack of immediate proof of success prompts further and supplementary forms of legitimization. Here, theorizing the organizational innovation can play an important role in providing further legitimacy to its introduction amongst internal and external stakeholders (e.g., Suchman, 1995; Birkinshaw et al., 2008).

Performance review. While there are numerous clear-cut performance indicators measuring the success of a newly introduced product innovation (e.g., market share, profitability) or process innovation (e.g., cost reduction, quality improvement), this is often not the case for organizational innovation. One reason is that the variety of organizational goals pursued by organizational innovations is much greater than that entailed in product and process innovation, and the definition and operationalization of success measures are accordingly much more heterogeneous. Moreover, the high degree of intangibility, tacitness, system-dependence and complementarity to technological innovations make it difficult in many cases for organizational innovations to objectively determine real impact, at least in the short term (e.g., Teece, 1980; Alänge et al., 1998; Birkinshaw et al., 2008). Therefore, measurement concepts and approaches are specific to the organizational innovation under consideration, and they frequently fail to provide an adequate estimate of its success or failure.

Optimization. While in the early stage of idea development trial-and-error learning and other disruptive learning processes occur, the application stage is usually governed by incremental learning and iterative optimization (e.g., Corbett, 2005; Politis, 2005; Ravasi & Turati, 2005). Beyond such general refinement, particularly large-scale organizational innovations that are propagated across the boundaries of departments, communities of practices, countries and cultures usually require some subsequent adaptation to the local organizational context so as to unleash its full potential (e.g., Carlile, 2004; Bechky, 2003; Cacciatori, 2008).

Theorizing. Theorizing means the social process of retrospective sense-making of the organizational innovation, including its labeling (i.e., selecting names with useful connotations); its ex-post rationalization (i.e., proffering

theoretical and scientific evidence for its working); and its consolidation under the overarching norms, beliefs and assumptions prevailing within the organization and its environment (e.g., Greenwood, Hinings, & Suddaby, 2002; Suddaby & Greenwood, 2005; Birkinshaw et al., 2008). Similar processes of 'retroactive rationalizing' (Burgelman, 1983b: 239) and ex-post legitimizing were described in the context of corporate venturing and strategy-making processes (e.g., Burgelman, 1983b; Burgelman, 1983a).

Beyond its legitimization, theorizing the organizational innovation fulfills further important functions. Owing to its complex and often highly tacit character, organizational innovations leave much greater scope to (and can be much more shaped by) subjective interpretation (e.g., Alänge et al., 1998). Controlled theorizing assumes an important role in reducing the conceptual ambiguity, in aligning interpretations among organizational members and in securing sufficient consistency with the overarching organizational and strategic content (e.g., Burgelman, 1991). Furthermore, as theorizing means the abstraction of the genuine content of the organizational innovation from the organization's idiosyncratic context, it represents an important step towards the externalization of the innovation, be it via communicational measures supporting efforts at marketing and image-building (e.g., articles, books, contributions to conferences) or via commercializing efforts aimed at capitalizing on the innovation by selling it to other organizations.

Managing Organizational Innovation

As organizational innovation has been shown to be an important source of a firm's competitive advantage, wealth and growth (e.g., Armour & Teece, 1978; Teece, 1980; Damanpour et al., 1989; Schmidt & Rammer, 2007; Mol & Birkinshaw, 2009; Battisti & Stoneman, 2010; Damanpour & Aravind, 2012; Hecker & Ganter, 2013), its stimulation and steering should be of particular concern to management. In contrast to product and process innovation, however, this

type of innovation evades usual processes, tools and routines of innovation management and takes rather the form of autonomous initiative, driven by intrapreneurially inclined employees. Accordingly, such ventures seem to emerge fortuitously, are difficult to predict and hard to control. Nevertheless, they are not random but rooted in and constrained by the organizational ecology, i.e., the firm's employees and their organizational environment (e.g., Burgelman 1991).

What however are the antecedents and contingencies of fertile ecologies for organizational innovation? What organizational conditions trigger (or inhibit) the generation of new ideas and the invention of new organizational solutions? The previously developed process model provides a simple answer: If organizational innovations are actually the outcome of intrapreneurial activity, then the determinants of intrapreneurship become main antecedents of organizational innovation. According to this model, intrapreneurship is developed as a process unfolding in close interaction between individuals and their organizational environment. Put differently, it always takes both conducive circumstances in the organizational environment and an individual with certain dispositions and abilities for an intrapreneurial opportunity to be recognized, for a fitting idea to be developed, for requisite resources and support to be acquired, for the idea to be implemented, and finally for the venture's success to be acknowledged and its underlying principles understood and theorized. Managing organizational innovations therefore primarily means driving and directing intrapreneurial employee behavior by attending to both the individual level (e.g., in terms of human resource practices that attract and promote intrapreneurially inclined employees) and the organizational level (i.e., fostering an organizational context conducive to internal venturing). In the following I discuss some important determinants of intrapreneurship derived from the process model above. As far as they are susceptible to managerial measures of influence and intervention, they provide important levers in the hands of management

toward facilitating and fostering organizational innovation.

Employee selection. Intrapreneurial inclination and ability is to a significant extent a matter of personal traits and dispositions (e.g., Cromie, 2000; Shane, 2003; Baron, 2004). By definition, these represent personal factors not susceptible to direct managerial manipulation, but they are subject to the conscious design of employee selection and assignment procedures. For intrapreneurial behavior in general therefore holds what Mumford (2000: 316) ascertains for the mere ability of conceptual combination: "In fact, given the importance of conceptual combination to creative thought, simply selecting people for skill in combining concepts may prove one of the simplest and most effective human resources strategies for enhancing innovation." Toward this end, "successful firms establish recruiting networks, systematically seek out new talent, and create coherent developmental programs for this talent." (Mumford 2000, p. 325).

Training and personnel development. In contrast to personal traits, other skills identified as important to intrapreneurial performance (such as analytical and perceptive ability, proactivity, creative thinking and skills in the selling of an invention) can be nurtured by adequate measures of training embedded in tailored personnel development programs (e.g., Scott, Leritz, & Mumford, 2004). In addition to methodological skills specific to intrapreneurship, breadth and depth of knowledge about relevant technologies and pertinent organizational contexts were argued to be important factors in facilitating the recognition and exploitation of opportunities for organizational improvement. Some kind of cognitive slack resources in particular, i.e., an excess in human capital as compared to the knowledge and expertise the employee must hold for completing her assigned task, was emphasized to be conducive to thinking outside the box of customary business practice. Accordingly, a human resource management that promotes ongoing development of knowledge and expertise beyond the narrow scope of current task assignment and that, for instance, encourages the attendance of conferences, the visitation of other sites and more generally the exchange of knowledge and experience across departments, communities of practices and even

firms should contribute to organizational innovation.

Reward regime. As entrepreneurship is usually spurred by high-risk, high-reward incentives, one could be led to the conclusion that high-powered incentive schemes (which draw heavily on extrinsic incentives such as performance-related pay, bonuses and other forms of gain sharing) may also be a potent means of stimulating intrapreneurial activity. Studies of employee creativity, however, have shown that the (excessive) provision of extrinsic incentives may crowd out intrinsic motivation as an important facilitating condition to proactive and creative employee behavior (e.g., Amabile, 1996; Osterloh & Frey, 2000; Hennessey & Amabile, 2010). Extrinsic rewards in terms of gain sharing should therefore be balanced by providing intrinsic rewards, such as the appreciation of progress and achievement, the provision of (further) slack resources such as time and authority to pursue topics of personal professional interest, the (further) reduction of administrative burdens, or the provision of (additional) possibilities for personal development (e.g., research visitations of educational institutions, committee work, etc.). These latter, more intangible rewards not only foster intrinsic employee motivation but at the same time help to establish further conditions favorable to intrapreneurial activity and success.

Job definition and task assignment. Job definition and task assignment play an important role in providing (or constraining) opportunities for intrapreneurial activity and in providing (or constraining) room and motivation for their pursuit. Because recognizing emerging opportunities and puzzling out innovative organizational practices usually requires sufficient room and time for tinkering and experimentation, jobs should be defined broadly to allow for sufficient discretion in time allocation and structuring of own work activities. Moreover, flexible assignment schemes, such as job rotation or project-based employment (possibly allowing employees to participate in a mix of diverse projects) help employees to develop a broader understanding of the organization and its operating environment, enabling them to see organizational problems and the impact of possible solutions in the overarching context of the organization. They furthermore help

employees to obtain a broad range of (cross-fertilizing) knowledge and experience and to build up social connections with a wide variety of colleagues. Such connections serve as an important resource upon which to draw for the targeted search of knowledge, as well as for purposes of selling the organizational invention. Finally, assignment procedures based on self-selection (e.g., employees bid for participation in favored projects) have been argued to foster intrinsic motivation and to allow for capitalization on existing knowledge and skills at the same time (e.g., Zuckerman, Porac, Lathin, & Deci, 1978; Mumford, 2000).

At the same time, ample evidence suggests that the ability to construct superior ways of doing business and to develop creative solutions to novel problems is related to the depth of knowledge of current conditions and to comprehensive work experience accumulated over time. This speaks in favor of long-term assignments, allowing the accumulation of more profound expertise and experience in a small set of tasks and in a specific organizational environment. Breadth and depth of job descriptions and task assignment schemes therefore build a kind of trade-off where the organization must strike a fragile balance. On this note, different types of job definitions and assignment schemes should be conducive to different kinds of organizational innovation, where a rather narrow scope fosters autonomous and local organizational innovation while a broad and flexible approach is instead more conducive to more systemic and global innovations.

Resource allocation. The allocation of resources represents one of the most important means to fertilize (or drain) intrapreneurial activity and the development of organizational innovation (e.g., Kuratko et al., 1990; Hornsby et al., 2002). During the exploration phase, a sufficient degree of autonomy on the part of the intrapreneur was identified as an important condition for the inspiration of organizational inventions. Such autonomy includes above all resource autonomy and the availability of slack resources such as knowledge, information, working time, financial means and further equipment beyond that required for ordinary operation. Once the organizational invention is

about to be implemented and exploited, fast decision processes about necessary investments (e.g., in complementary technology and training measures) as well as the assignment of sufficient financial, physical and human resources are decisive for successfully scaling up the organizational innovation from *vitro* to *vivo*. But even beyond the official allocation of concrete resources, furnishing the intrapreneur with general legitimacy to cross formal lines and levels (e.g., by signaling top management commitment to the project), to call for support and to pull from other departments what is needed provides an important 'lubricant' that smoothes the way to successful implementation.

Evaluation and control regime. Resource and procedural autonomy must be balanced against the intrapreneur's accountability with respect to her development project and the resources provided (e.g., Kanter, 1988). Designing adequate evaluation procedures, however, is an intricate matter for several reasons. Firstly, and particularly in early stages of development, the invention is typically surrounded by a high degree of ambiguity and is difficult to understand and assess, especially from the more remote perspective of an evaluating superior. Here, peer-based evaluation procedures (as established for scientific research), where superiors rather take a moderating role, may provide a suitable solution. Secondly, due to the high degree of uncertainty inherent in the development process, technical difficulties, overrunning costs and missed deadlines are common concomitants that must be taken with leniency and counter-steered with sensitivity. In particular, untimely and selective intervention must be avoided as it would not only undermine the authority, autonomy and motivation of the intrapreneur under evaluation but also discourage other employees from similar initiatives. In fact, several economists have forcefully argued that the temptation of such opportunistic intervention by superior management (and the impossibility of its credible preclusion *ex-ante*) is one of the main reasons for why organizations (and planned economies) systematically fall short of the market in exciting entrepreneurial activity (e.g., von Mises, 1949; Williamson, 1996; Foss, 2003). Finally, even in the

case of project failure and termination, the assignment of blame is a difficult matter, as the risk of failure is inherent in the development of organizational innovation. To stimulate intrapreneurship, innovating employees should be buffered from such risks as much as possible.

Leadership. A main task of leadership in nurturing an ecology in which employee-driven ventures of organizational innovation thrive is the arrangement for the antecedents and facilitating factors as discussed here. Leaders further take a central role in directing, selecting and retaining innovation development projects by granting resources and legitimacy. In the course of daily interaction with intrapreneurs, leaders should act as a kind of business angel. This entails on the one hand coaching activities such as counseling the intrapreneur and furnishing her with constructive feedback, senior advice and useful contacts both within and outside the organization. On the other hand, leaders should also moderate between the intrapreneur and other employees within their sphere of influence in an attempt to conciliate conflicting interests. For instance, they should actively countervail groupthink and a 'not invented here' posture against new ideas. By the same token, they should encourage questioning the status quo and create an open arena for discussions about alternative ways of doing, largely unconstrained by the organization's power structures (such as institutionalized by McKinsey's well-known 'obligation to dissent', which obliges the employee to object to *any* superior in case of reasonable dissent).

In this context middle managers occupy a particular role (e.g., Burgelman, 1991; Hornsby et al., 2002). The main reason is that these managers are on the one hand sufficiently involved in the structures, methods and practices to be changed as to competently assess opportunities and developed ideas. On the other hand, they dispose over sufficient discretion and slack resources so as to support provisional implementation and testing of new ideas up to the point that sufficient proof of concept has accumulated, allowing them to mobilize and engage larger parts of the organization. If they are not the inventors themselves (cf. section 3.2), they at least represent an important selection instance, and winning their championship is not infrequently a matter of life and death for a nascent organizational invention. Middle

managers are thus the crucial link between the local origin and the corporation-wide context of application for many organizational innovations.

Organizational culture. Consistent role modeling by the organization's leaders may also help to shape an organizational culture conducive to organizational innovation. It is a well known fact from entrepreneurial studies that there are significant differences in national cultures affecting entrepreneurial activities (e.g., Thomas & Mueller, 2000; Freytag & Thurik, 2010; Kreiser, Marino, Dickson, & Weaver, 2010). In a similar way, the organization's corporate culture will bear on the employee's inclination to intrapreneurship. Clearly, a culture cherishing values of entrepreneurship, innovation, openness to new ideas, individuality and autonomy will more likely attract and stimulate intrapreneurial talent while at the same time promote acceptance of and support for employee ventures as compared to one stressing the value of tradition, conformity, social adjustment and the smooth operation of existing practices. But even more subtle effects of culture, such as its influence in fostering (or obstructing) an open communication environment where inspiring ideas, first-hand knowledge, necessary information, personal opinions and alternative points of view can freely flow and be gathered with ease, should be taken into account.

Conclusion

Beginning from the observation that the mainspring of many organizational innovations resides in the initiatives of entrepreneurially inclined employees, this paper set out to investigate the generating mechanisms shaping this type of innovation as a form of intrapreneurship. Intrapreneurship was analyzed as a process unfolding in close interaction between the individual and her organizational environment, made up of a set of ideal-typical stages and core activities. Together these stages and activities were condensed into a comprehensive process model of organizational innovation that integrates elements and insights from both traditional models of product and process innovation as well as from entrepreneurship. The model allowed the identification of several antecedents to a fertile

organizational ecology, representing concrete levers under the control of management toward sowing and steering the growth of this important type of innovation.

As with all explanatory models, this process model entails strong simplifications of real-world conditions, and these limitations should be well recognized. In particular, the focus of the preceding discussion has been on the organization as the locus of organizational innovation's development and on its members as the driving force behind its rise. I have thereby largely neglected the influence of factors and actors outside the organization, as well as of external (knowledge-) sources fueling processes of organizational innovation. These observations suggest the systematic investigation of the external antecedents and inputs in intrapreneurial processes as an important undertaking for further research. Such research would complement our understanding of the interplay between the external environment and the organization's internal ecology in generating organizational innovation. To some extent this topic has been investigated by research complementary to my own, which has studied for instance the influence of external change agents and of the external supply of ideas on the invention and implementation of new organizational structures, practices and methods (e.g., Abrahamson 1996, Birkinshaw et al. 2008). As this was done without recognizing intrapreneurial processes as an important mechanism mediating external influences and innovative outcomes, however, merging these works with my own approach should provide a more comprehensive picture of the generative mechanisms underlying organizational innovation.

Other complementary work has focused on the diffusion of organizational innovations following their first-time implementation in other organizations within the same industry and beyond (e.g., Alänge et al., 1998; Kogut & Parkinson, 1998; Guler et al., 2002). This suggests on the one hand supplementing my model by explicitly considering additional stages of externalization and cross-firm diffusion.

On the other hand, it places an important question pertaining to the early stages of the

proposed process model center-stage: In the face of a recognized opportunity (e.g., an organizational problem encountered under the inherited ways of doing business), what factors favor the in-house development of an organizational response (resulting in a organizational innovation new to the state of the art) over searching for and adopting tried-and-tested solutions developed by other organizations (driving the diffusion of organizational innovation across organizations)? Linking the model proposed here with the literature on the diffusion of organizational innovations promises to address this open issue and to thus further complement our understanding of the origin and spread of organizational innovations.

Further considerations refer to the relationship between intrapreneurship and entrepreneurship more generally and their combined impact on organizational innovation. Thus, intrapreneurs sometimes become external entrepreneurs by spinning off their innovative business activities and by exploiting their organizational inventions of their own. In other cases, 'idea entrepreneurs' become hired to develop and implement their idea within existing organizations. Therefore, the long-standing question of the boundaries of the firm also becomes pertinent in exploring and exploiting organizational innovation and marks a further area of promising research.

This consideration links to a final and more programmatic point. As was mentioned at the outset, although sharing common origin in the seminal work of Schumpeter (1912) the theoretical studies of innovation and entrepreneurship have developed separately and now constitutes two largely unconnected bodies of research. This strict separation seems questionable as both literatures investigate agnate topics of opportunity recognition, exploration and exploitation. Moreover, many entrepreneurs are at the same time innovators, and the exploration and exploitation of a new product or process innovation is the *raison d'être* for founding their new business. Similarly, many organizational innovations developed within existing businesses are pioneered and driven by entrepreneurially inclined employees, and their

exploration and exploitation can be more adequately understood as a form of internal venturing and intrapreneurship. In scrutinizing this type of innovation, it therefore proved promising to pull together insights and frameworks from both streams of research. Such integration provided a more comprehensive view of the underlying generating mechanisms and processes as well as of the relevant determinants and contingencies (as compared to studying this paper's topic from a more isolated point of view located in either innovation studies or entrepreneurship studies).

There are good reasons, however, that incorporating insights from entrepreneurial studies into the research of innovation (and vice versa) constitutes a promising avenue for further research more generally. Such a rapprochement seems to benefit not only from the fact that both literatures research intrinsically related topics, but also from the fact that both streams of research have developed disparate but complementary perspectives on these shared topics.

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