

Link sito dell'editore: <http://www.emeraldinsight.com/doi/abs/10.1108/EBR-12-2015-0169>

Link codice DOI: <http://dx.doi.org/10.1108/EBR-12-2015-0169>

Citazione bibliografica dell'articolo:

Elia, G., Li, X., Margherita, A. and Petti, C. (2017), "Human-oriented corporate entrepreneurship: An integrative framework of creativity and HRM enablers", *European Business Review*, Vol. 29 No. 4, pp. 386-401

Version Post-print referato

Human-oriented Corporate Entrepreneurship: an Integrative framework of Creativity and HRM Enablers

Abstract

Purpose

The generation of new ventures within established companies, also known as corporate entrepreneurship (CE), is a process influenced by a set of individual and organizational factors. This study aims to focus on creativity and human resource management enablers of CE, with the purpose to define an integrative framework and draw a set of related research propositions.

Design/methodology/approach

The paper relies on a multidisciplinary literature review in the fields of corporate entrepreneurship, creativity and organizational innovation.

Findings

The effectiveness of corporate entrepreneurship depends on a set of individual factors, distinguished into professional and psychological characteristics, and organizational factors, which include the system of values of the organization and the management practices applied in the same.

Research limitations/implications

From a theoretical point of view, the article develops an integrative framework of conditions that impact on CE, and outlines a set of propositions and alternative research methods to test.

Practical implications

From a practitioner perspective, the study provides managers with a comprehensive set of factors enabling CE by leveraging the creativity of individuals and make it flourish through consistent human resource management practices.

Originality/value

The value of the article stays in the integration of individual-related and organizational-related determinants of entrepreneurial performance.

Keywords: *Corporate Entrepreneurship, Creativity, Integrative Framework, Human Resource Management, Management Practices*

Paper Type: *Conceptual Paper*

Introduction

In the current competitive environment, successful firms are able to introduce innovation faster than their competitors. Such organizations pursue new business opportunities that arise from asymmetries between market demand and the potential of technology-based offering, thus achieving increasing financial and market performance (Antoncic and Hisrich, 2001; Lee et al., 2011; Zahra and Covin, 1995).

Innovative organizations conduct a process of creative destruction (Schumpeter, 1949) within their industries. They identify new ways of doing business, introduce new technologies and processes, products and services which have a potential to drive strategic renewal and new venture creation. All of these strategies and actions can be grouped under the concept *corporate entrepreneurship* (Guth and Ginsberg, 1990; Vesper, 1984). A wide body of literature has analyzed the construct and investigated its determinants at organizational and environmental level, whereas individual-level factors (e.g. leadership style and attitudes) and their relationship with organizational factors (e.g. organizational structure and management practices) represent a less developed area of investigation.

In this endeavor, this paper undertakes an extended review of CE-related literature, with the goal to develop a complementary view that combines: 1) individual dimensions, i.e. the characteristics of employees and managers conducive to corporate innovation and business venturing; and 2) organizational dimension, i.e. the management practices and conditions that can harness capabilities, creativity and talent of individuals. The ultimate purpose of research is to present a human-oriented perspective of CE through an integrative framework of conditions that can support effective corporate renewal and new venturing initiatives.

The combined analysis of employees' characteristics and motivations and the organizational conditions/practices impacting on the same, provides indeed a people-centered orientation to the framework proposed, by underlining the crucial role of human capital in the process of initiating and sustaining corporate entrepreneurship activities. Although current literature explains the isolated effect of single antecedents (mainly studies with traditional social science methods), this article suggests investigate the combined effects of groups of antecedents, also through the use of techniques typically applied in other scientific contexts, such as psychology and neuroscience (which may prove more appropriate, especially when individual-level factors are of concern). The article can thus drive new studies beyond the well-trodden structural and organizational context of CE.

The remainder of the paper is structured as follows. Next section illustrates the process of literature review and retrieval of relevant research. The theory background is then illustrated, with a specific focus on three interrelated perspectives of analysis, i.e. enabling factors of CE, creativity at individual and organization level, and HRM practices. Then, the integrative framework of CE enablers is introduced, with a set of related research propositions. The findings and value of the paper are then discussed along with conclusions and avenues for future research.

Method: Retrieving Current Research

To carry out the study, a systematic review and analysis of extant literature was undertaken. First, a multi-disciplinary search of relevant articles in the innovation management area has been accomplished using the electronic databases of ISI Web of Knowledge and ABI-Inform. These databases include collections of journals that typically publish research on corporate entrepreneurship, organizational behavior and HRM practices (e.g. *Academy of Management Journal*, *Entrepreneurship Theory and Practice*, *Human Resource Management Review*, *Journal of Applied Psychology*, *Journal of Business Venturing*, *Personnel Psychology* and *Strategic Management Journal*). Keywords searched in articles' titles are: "corporate entrepreneurship", "corporate venturing", "intrapreneurship", "organizational entrepreneurship", and "organizational innovation". These terms were cross-referenced ("AND" search) with: "antecedent", "creativity", "enabler", "environment", "framework", "human resource", "individual", "model", "practice", and "process".

The first selection of articles based on such combined search was obtained by reading abstracts with the purpose to isolate those specific contributions providing elements for building an integrative model of determinants of CE. Articles with a generic focus on innovation, and without a specific CE and/or business development focus, were excluded from this preliminary search. As a result, 108 articles were selected for a deeper investigation.

A full text analysis was then accomplished in search for claims, conclusions, and findings about the constructs investigated, definitions of terms, gaps and calls for follow-up studies. The coding schema was based on the classification of articles in three groups according to the predominant focus: CE process, individual creativity and characteristics, and organizational environment and HRM practices.

The analysis was addressed to isolate the key constructs found in the papers as potential antecedents, mediators or moderators of CE. A chart was realized to synthesize the constructs and research models presented by each article analyzed, which served both to foster an iterative process of review, analysis and summarization, and as an archive for future reference. An initial list of 171 constructs was identified.

The list was then refined to eliminate duplicates and redundancies (e.g. 'trusted environment' and 'trusted relationships' have been collapsed into 'trust and loyalty'). The final result was a taxonomy of 52 elements related to the emergence and effectiveness of corporate entrepreneurship into organizations. Some of these elements are conditions or characteristics of the organization as a whole, whereas others can be associated to the individuals. Two groups of constructs were thus identified and four sub-groups pointing to the "soft" or "hard" dimension of the antecedents, as illustrated in the result section.

Based on the work above, a research model and a set of research propositions were defined with relation to the determinants of CE. The extant literature was then double-checked in order to distinguish the research propositions that have already studied in preliminary research, those that need further confirmatory or explorative analysis and those that have not yet been investigated.

Study Background

The background of this study is based on two main areas: foundation and enabling factors of CE process, with a specific focus on a systemic view and models; and creativity and HRM related issues, which support CE at individual and organizational level.

Dimensions of Corporate Entrepreneurship

In the last forty years, a large body of research has investigated and defined the phenomenon of corporate entrepreneurship (CE), its characteristics and enabling factors (Peterson and Berger, 1972; Miller, 1983; Vesper, 1984; Guth and Ginsberg, 1990; Kuratko et al., 1990; Lumpkin and Dess, 1996; Hornsby et al., 2002). In broad terms, CE refers to the process of creation and development of new business ventures, new products or services, or new strategies and competitive postures (Antoncic and Hisrich, 2000) within established firms. The goal is to improve financial performance in terms of profitability, market share and growth (Zahra, 1991; Zahra and Covin, 1995; Lumpkin and Dess, 1996; Behram and Özdemirci, 2014).

Besides the management process perspective (Hornsby et al., 1993; Lumpkin and Dess, 1996), CE has been also classified as learning process (Hayton, 2005), as individual ability to pursue entrepreneurial opportunities (Stevenson and Jarillo, 1990), or organizational strategy (Covin and Slevin, 1991; Dess et al., 1999; Lau et al., 2010). With reference to the latter, a CE strategy model (Ireland et al., 2009) has been defined in terms of antecedents (e.g. entrepreneurial cognitions of the organization's members), strategy elements (e.g. top management's entrepreneurial vision), and outcomes (i.e. results of entrepreneurial actions). Whereas the conceptualization of CE is quite consolidated in literature, a still evolving field of research is represented by the identification of individual-level factors, and their relationship with organizational-level factors and creativity-related issues.

Successful cases of organizations that stimulate and support internal entrepreneurial activities include Apple, 3M, Procter & Gamble and Google (Finkle, 2011; Kuratko et al., 2014). More in general, success companies that are able to conduct a performing CE process show common traits or "genes" like

autonomy and independent action of individuals or teams, *innovativeness* in products and organization, *proactiveness* to anticipate competitors, *risk propensity* in uncertain ventures, and *competitive aggressiveness* to face competitors' challenges (Miller, 1983; Lumpkin and Dess, 1996; Rutherford and Holt, 2007; Schmelter et al., 2010).

The enabling factors of CE can be mostly associated to the individual and organizational dimension of the organization. Whereas the study of individuals is aimed to understand the characteristics of employees and managers which are conducive to the generation of innovative results, the analysis of strategies and practices implemented by the company to stimulate entrepreneurial behavior is addressed to evaluate the organizational maturity for CE. At individual level, Hayton and Kelley (2006) have described the knowledge, skills and personality of specific company roles associated with the success of CE. At organizational level, culture and values play a role in improving the creative behavior which is at the heart of CE. In particular, team spirit and collaboration, empowerment of employees, and senior management support are crucial elements, more than rewards and freedom (Srivastava and Agrawal, 2010).

There is an attempt in literature to analyze the interrelations among these dimensions and produce a system view of CE. In such view, Ireland et al. (2006a, 2006b) have introduced the "Entrepreneurial Health Audit", a tool that allows to assess a firm's entrepreneurial intensity, and identify the organizational characteristics supporting or hindering entrepreneurship. Rutherford and Holt (2007) have discussed three categories of antecedents of CE, i.e. process, context, and individual characteristics of employees. Soleimani and Shahnazari (2013) have validated a research model based on four enabling groups of factors, i.e. personal characteristics of entrepreneurs, human resource practices, organizational culture, and employees' satisfaction. Similarly, Hornsby, Kuratko and Zahra (2002) and Kuratko, Hornsby and Covin (2014) have introduced the CEAI (*Corporate Entrepreneurship Assessment Instrument*), a tool for measuring five dimensions associated with an environment conducive to entrepreneurial behavior, i.e. top management support, work discretion/autonomy, rewards/reinforcement, time availability, and organizational boundaries. Finally, Turner and Pennington III (2015) have developed a motivation, opportunity, and ability framework to demonstrate that knowledge sharing and organizational learning are necessary means to drive corporate entrepreneurship.

Creativity, HRM and Corporate Entrepreneurship

Corporate entrepreneurship is a process initiated and led by the internal human resources of the organization. In such perspective, being creativity the seed and the antecedent of innovation (Sarooghi et al., 2015), it is of interest to investigate the individual characteristics of employees and managers as well as the aspects of the internal environment which can stimulate creativity. Regarding the organizational or environmental dimension, the broader perspective of the resource-based view of the firm (Barney, 1991) supports the centrality of human resource practices for organizational competitiveness.

Creativity is defined as the generation or production of ideas that are both novel and useful and is being increasingly recognized as a critical means by which organizations and their members can create meaningful and sustainable value for stakeholders (Amabile, 1988; Amabile, 1996). The concept of creativity assumes thus a relevant importance in human resource management studies aimed to identify the ultimate foundation of organizational success. Organizational creativity and firm performance have been studied with a focus on the mediating role of corporate entrepreneurship and the moderating role of the environment. In particular, firm performance is associated to entrepreneurial behavior, which is in turn associated to organizational creativity (Bratnicka and Bratnicki, 2013).

Creativity within organizations has different sources which have been studied in literature. A specific attention was dedicated to the internal processes leading to creative insights. Among such processes, the focus is intrinsic motivation which facilitates the creativity (Amabile, 1988; Shalley, Zhou and Oldham, 2004), opposed to extrinsic motivation which dampens creativity. Intrinsic motivation stems from a positive engagement in work and related tasks, whereas extrinsic motivation stems from sources external to the performance of work such as external pressures, job requirements, and influences from others (Amabile, 1996).

Although it is crucial, motivation is not the only constituent of individual and organization creativity. The “componential theory”, which is still recognized as one of the major creativity theories and a foundation for several other theories and empirical investigations, provides a comprehensive model of the social and psychological components necessary for an individual to produce creative work. Four components are defined by the model: three components are within the individual, and these are domain relevant skills, creativity-relevant processes, and intrinsic task motivation; one component is outside the individual, i.e. the social environment in which the individual is working (Amabile, 2013).

Research into the psychology of creativity has grown theoretically and methodologically. However, the proliferation of contributions has also determined the risk of potential misalignment among investigators. A deeper understanding of creative behavior requires thus more interdisciplinary research based on a systems view of creativity that recognizes a variety of interrelated forces present at multiple levels. Systems view is the highest level of analysis. Lower levels are culture/society, social environment, groups, individual/personality, affect/cognition/training, and neurological (Hennesseys and Amabile, 2010).

Organization creativity is impacted by a set of facilitating or detracting contextual factors which have been grouped in four main categories, i.e. signals of safety, creativity prompts, supervisors and leaders, and social networks (George, 2007). In the analysis of the work environment, creativity has been correlated to autonomy, encouragement, resources, pressures and organizational impediments (Amabile et al., 1996). Some authors have also suggested that collaborative effort among peers is crucial to idea generation (Amabile and Gyskiewicz, 1989).

Other studies have focused on corporate creativity and the determinants of innovation and organizational improvement (Robinson and Stern, 1997). Leadership, support for innovation, managerial role expectations, career stage, and systematic problem-solving style have been found to be significantly related to individual innovative behavior (Scott and Bruce, 1994).

The relations among cognition, creativity, and entrepreneurship have been analyzed, with a specific focus on the processes that influence the originality of newly generated ideas (Ward, 2004). Other reviews have examined quantitative empirical research about factors influencing individual creativity in the workplace (Egan, 2005).

Creativity and HRM practices influence individual and organizational culture and values, which stimulate people to adopt CE behaviors (Burgelman, 1983) and create ideas, solutions and new knowledge (Wong, 2005). Soleimani and Shahnazari (2013) validated a research model based on four specific groups of factors supporting CE, such as: personal characteristics of entrepreneurs, human resource practices, organizational culture, and employees’ satisfaction. However, a limited number of studies has attempted to realize more rigorous and integrative analysis of the relations between creativity and practices for human resource development (Joo et al., 2013).

Questioning, observing, experimenting and ~~idea~~ idea networking are information-seeking behaviors which trigger cognitive processes and increase the probability of generating innovative ideas and successful entrepreneurs (Dyer, Gregersen and Christensen, 2008). An integrative literature review and a conceptual framework were presented related to the relations between creativity and human resource development (Joo et al., 2013) as well as related to organizational culture’s influence on creativity and innovation (McLean, 2005). Personal and contextual factors of employee creativity were studied (Oldham and Cummings, 1996) as well as the role of team composition and climate for creativity and innovation implementation (Somech and Drach-Zahavy, 2013). Other connections have been explored between human resource development and creativity by pointing to the importance of looking at knowledge workplaces, workforce projections, work values, occupation projections, on-the-job training, and entrepreneurship (Waight, 2005).

HRM practices are crucial in stimulating entrepreneurial attitudes among employees, through promoting cooperation, commitment, learning, and creativity as well (Fong et al., 2013; Montoro-Sánchez and Ribeiro-Soriano, 2011; Rutherford and Holt, 2007). HRM practices are fundamental mediators in the relationship between CE and firm performance (Kaya, 2006) and, more in general, they support organizational performance through organizational learning, knowledge management and organizational capability (Theriou and Chatzoglou, 2008). Hiring and selection, reward, job design and team working are positively related to employee creativity (Jiang et al., 2012). Structuring of HRM is

negatively associated with perceived uncertainty and stress, and such perceptions produce a sense of psychological availability, which in turn enhances employee creativity (Binyamin and Carmeli, 2010).

Morris and Jones (1993) have highlighted five HRM practices impacting on the level of entrepreneurship within an organization, and these are performance appraisal, compensation, orientation and training, recruitment and career development, and job design. In a similar study, Hornsby et al. (1993) have identified five successful practices conducive to CE, i.e. appropriate use of rewards, management support for innovation, availability of resources for innovation, encouragement and support to learning and cooperation, and diffused culture of individual risk taking. Edralin (2010) and Schmelter et al. (2010) have focused on staff selection, development, training and rewards as HRM practices supporting CE. Finally, Srivastava and Agrawal (2010) have found that team spirit and collaboration, empowerment, and management support are crucial elements sustaining CE. Proper HRM practices encourage entrepreneurial behaviors and CE, especially the promotion of entrepreneurial training for developing entrepreneurial cognitions (Boukamcha, 2015).

In large companies, the case of Montalt-Valencia (Lee et al., 2011) highlights five main HRM practices (cooperation among executives, discovering of opportunities through experience and social capital, connection among internal selection, training and career development, export of improvements to new divisions and hybrid individual/monetary and collective/non-monetary goal-oriented rewards. Regional studies argument the relationship between HRM practices and CE in Philippines (Edralin, 2010), Turkey (Kaya, 2006), Germany (Schmelter et al., 2010), USA (Morris and Jones, 1993), and China (Zhang and Jia, 2010). Finally, a study in Spain (Castrogiovanni et al., 2011) shows that trust-based relationships, open communication, training practices and a reward system based on employees' promotion can help to develop entrepreneurial behavior.

Results: a Framework of Antecedents

The analysis of literature has led to the identification of 52 antecedents of the CE process. *Actor-related antecedents* refer to the characteristics of individuals involved in the entrepreneurial process, and they can be distinguished in two main sub-groups: *Professional Characteristics* (i.e. factors related to the background and work experience of the individual), and *Psychological Characteristics* (i.e. elements related to personal attitudes and traits of the individual).

Organization-related antecedents refer to the community where the actor belongs, and they can be categorized in two families: *System of Values* of the organization (i.e. "soft" aspects pointing to the organizational mindset and climate) and *Management Practices* (i.e. "hard" dimensions related to the CE process and practical approaches undertaken within the organization). Figure 1 shows the overall framework of antecedents of corporate entrepreneurship.

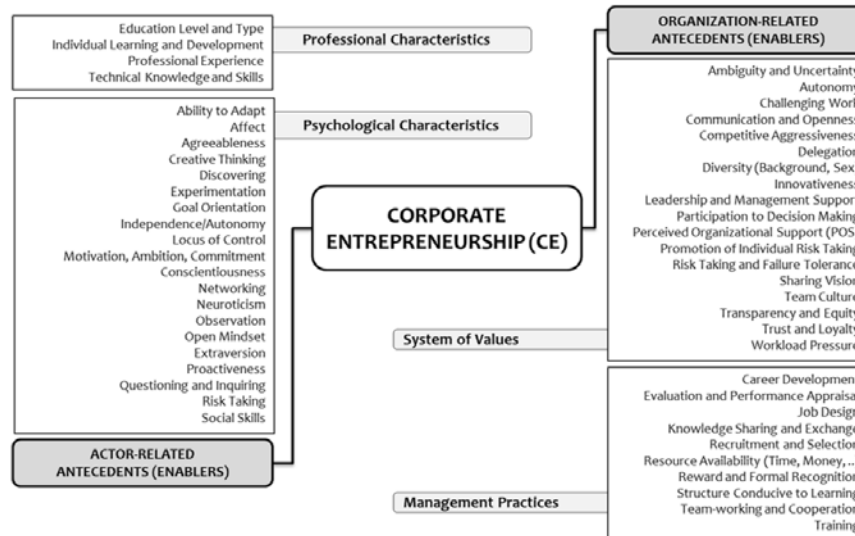


Figure 1 Antecedents (enablers) of corporate entrepreneurship

Factors included in the “Professional Characteristics” and “Psychological Characteristics” have largely been studied in literature as antecedents of corporate innovation and entrepreneurship, whereas factors belonging to the “System of Values” and “Management Practices” have mostly been studied as mediators or moderators of the relations among individual characteristics and the performance of CE.

The framework developed is a platform for the systemic investigation of CE through the study of: a) *direct relations* existing among group of factors (individual and organizational) and the effectiveness of CE; b) *indirect or interactive links* (mediation or moderation) of the role that organizational level factors can play for a more effective CE process. Both research efforts are aimed to investigate the positive or negative impact of specific factors, the degree of such impact and propose a “hierarchy” of determinants (e.g. which *Management Practices* are more important than *Psychological Characteristics* in determining effective CE). The continuous lines in figure 2 represent the first set of propositions. Consistently with literature analyzed, the second set of propositions, represented by the dotted lines in figure 2, concerns the mediated or moderated effects of organization-related antecedents in the relationship between actor-related antecedents and performance. In a simple form, the propositions can be expressed as follows:

- P1: *Professional Characteristics* of individuals are related to the effectiveness of CE;
- P2: *Psychological Characteristics* of individuals are related to the effectiveness of CE;
- P3: *System of Values* of the organization is related to the effectiveness of CE;
- P4: *System of Values* (a)moderates/(b)mediates the relationship between *Professional Characteristics* of individuals and the effectiveness of CE;
- P5: *System of Values* (a)moderates/(b)mediates the relationship between *Psychological Characteristics* of individuals and the effectiveness of CE;
- P6: *Management Practices* of the organization are related to the effectiveness of CE;
- P7: *Management Practices* (a)moderate/(b)mediate the relationship between *Professional Characteristics* of individuals and the effectiveness of CE;
- P8: *Management Practices* (a)moderate/(b)mediate the relationship between *Psychological Characteristics* of individuals and the effectiveness of CE.

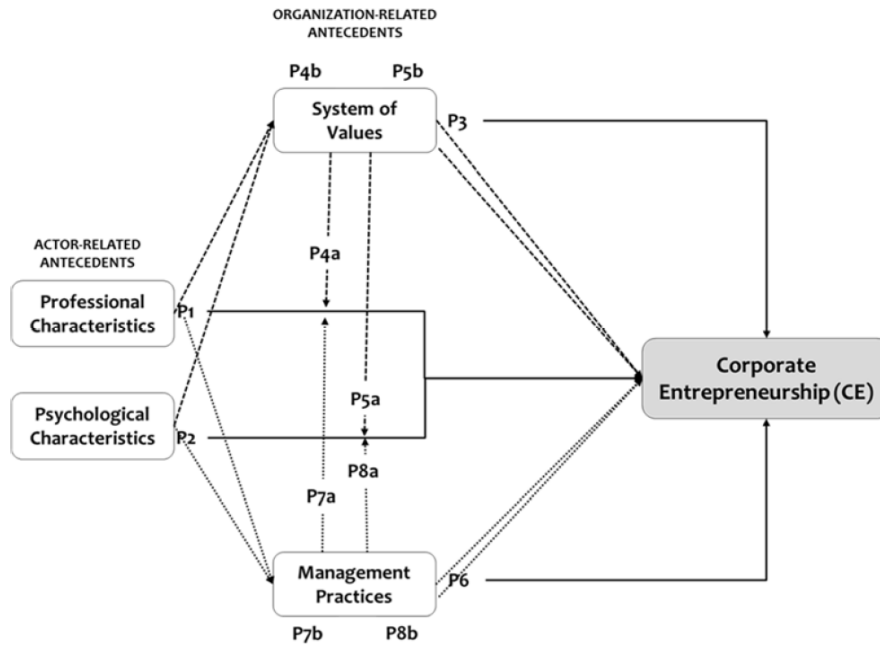


Figure 2 Research framework of creativity and HRM enablers of corporate entrepreneurship

P1 moves from studies (e.g. Lee and Tsang, 2001) which report that entrepreneurial, industrial and managerial experience is positively related to venture growth, whereas the education level is fundamental for large firms. In fact, previous experience of entrepreneurs is a valuable background to avoid recurring mistakes and to exploit social capital and personal networks. Education level is supposed to impact positively the growth of big companies where operations are relatively more complex and require more planning and structured knowledge. Complexity affects today also small firms, which increasingly need more sophisticated competencies to manage their business in the global economy. The investigation of these and other counterfactual aspects is aimed at contributing to the debate on the varying relationships between professional characteristics antecedents and CE.

Concerning P2, Dyer et al. (2008) have found that innovative entrepreneurs are more likely to recognize opportunities for new businesses when they practice observing and experimenting behaviors, and questioning when combined with observing, experimenting, and idea networking. These psychological characteristics highlight information-seeking behaviors that give superior access to information, which is a central factor for opportunity recognition. These findings have found further confirmation in Soleimani and Shahnazari (2013) who reveal that personal characteristics of entrepreneurs (internal control center, need for achievement, result orientation, risk taking, ambiguity tolerance, flexibility against change) have a positive significant relationship with CE. Other authors like Lee et al. (2011) have studied the role of individual attributes on corporate entrepreneurship, whereas Chen et al. (2005) have analyzed individual entrepreneurial qualities such as self-efficacy, independence, achievement motivation, failure learning, and opportunity seizing. The study of P2 would be addressed to systematize and analyze the complex (and diversified) set of individual characteristics respect to the entrepreneurial attitude.

P3 refers the impact on entrepreneurial intensity of internal “soft” antecedents, i.e. those intangible conditions that impact on how employees work and interact, with the purpose to propose new ideas and develop innovative results. A number of these antecedents have been already verified in the CE context, like the positive stimulation of openness in communication and relationships based on trust (Castrogiovanni et al., 2011). This is due to the fact that speaking openly with managers contributes to remove internal barriers for promoting and developing new ideas. Besides, openness in communication supports the creation of a sense of trust among employees, which in turn facilitates the entrepreneurial behavior (Ribeiro-Soriano and Urbano, 2009). This confirms the study of Rutherford and Holt (2007) that observed how management support becomes crucial in supporting CE, along with risk taking and

failure tolerance. Therefore, qualitative and quantitative literature review systematization in the search of more generalizability of these findings would definitely contribute to the advancement of both research and managerial practice.

More in detail, the study of P1, P2 and P3, especially concerning the analysis of counterfactual aspects, is relevant to prompt more rigorous and useful research, especially if it is geared to dispel myths and taken for granted assumptions. We refer in particular to the existence of 'threshold' and 'composition' effects within the positive relationships mentioned. This is not only rewarding from the researcher's perspective, but is also very practical. For instance, for CE team's staffing, with reference to individual professional and psychological characteristics, and for the evaluation of organizational readiness to CE initiatives undertakings.

Even more relevant would be the study on how system of values may interact with professional and/or psychological characteristics in determining CE effectiveness. For example, to what extent the need to promote openness and communication among employees may influence their personal characteristics and push them to act more entrepreneurially? Or, furthermore, can we be sure that all the system of values elements are interchangeable, i.e. all positively related to education level, background or previous professional experiences of individuals? Take for example risk taking, it may have nothing to do with education level, whereas some education backgrounds may and others may not. More, whether and how sharing vision or team culture may influence individual learning and solicit experimentations of CE. These kinds of questions are part of Propositions 4 and 5.

The study of the above interactions may prove essential to explain the reasons of possible 'thresholds' effects that may be identified. Therefore making the results of the researches proposed above not only more interesting but also more actionable for practitioners.

P6 relates to the presence, kind and appropriateness of systems of management practices. In this context Castrogiovanni et al. (2011) found that promotion, together with training and hiring criteria, has a positive effect. As for rewards, it seems to be not sufficient, but a number of other things like delegation, autonomy and responsibility in decision-making complement this practice. This is in line with the study of Rutherford and Holt (2007) that identified resource availability and the appropriate use of rewards as two important factors that influence CE. P6, therefore, invites to study the impact on CE of internal "hard" antecedents, i.e. those tangible conditions and managerial activities which have an impact on how employees work and interact with the purpose to propose new ideas and develop innovative results.

P7 and P8 assume an intervening role of these "hard" factors on Professional and/or Psychological characteristics and invites on fine-grained studies on these relationship. For example career development may influence positively the relationships between education level, individual learning and CE. Besides, rewards and formal recognition, resource availability and top management support may be an essential step to turn (or not, if lacking) professional experience or proactiveness into effective corporate entrepreneurship.

The same considerations made for the first four propositions apply in here. In addition, since among the four group of antecedents *Management Practices* is the most directly and short-term manageable one, research about the effects of these antecedents is the key to devise management dashboards measuring, monitoring and thereby increasing the effects of management practices in harnessing individual's capabilities and characteristics, and the effects of both on enhancing CE. In these last regards, examining the combined effects of single individual characteristics and management practices antecedents, may offer specific levers to CE managers and teams with (better) predictable outcomes and concrete possibilities for learning, rather than generic advices that are useful as long as they would not need to be analyzed in hindsight, especially when things goes wrong.

Moreover, by adding "soft" factors, these dashboards are what would made for creating and diffusing human-oriented CE within companies, in a nutshell a CE approach that hinges on individuals, their inner and acquired characteristics and capabilities. This is the strong practical contribution of the integrated framework, built upon the comprehensive, multi-level and complementary individual-organization perspective taken in the analysis carried out.

Turning back to the theoretical contributions, the framework devised advances a more fine-grained analysis of the relationships between individual creativity and corporate entrepreneurship effectiveness thanks to the identification of a number of possible contingencies and explanations. In addition, the consideration of individual-level factors along the well-trodden structural and organizational context of

CE, with particular reference to *Psychological Characteristics*, has the merit of driving research in this area outside the narrow boundaries of innovation management, and even farther, outside management topic itself. As a matter of facts, these factors can and actually are much longer and better studied with techniques applied in psychology and neuroscience. We'll discuss this latter aspect in the next section.

Discussion and Conclusion

Corporate entrepreneurship is a process at the core of strategic renewal and growth of successful companies. This article has identified an integrative framework which can support a set of research propositions and practitioner applications. The framework integrates antecedents or enabling factors of CE that have been classified in two groups: 1) factors associated to the "actor", which include *Professional Characteristics* and *Psychological Characteristics*; and 2) factors associated to the organizational "context", which include *System of Values* and *Management Practices*.

The degree at which such factors are developed can be assumed as a proxy of the "maturity" level of the entrepreneurial process of the organization, i.e. extent at which the conditions at individual and organization level support a performing CE. The research framework and propositions defined in this article can support such assessment, for two main reasons.

First, the framework distinguishes "hard" determinants related to the *physiology* of the organization (i.e. *Management Practices*) and "soft" aspects related to the *psychology* of the company (i.e. *System of Values*). Such approach allows to look into a systemic view of conditions that can impact the overall effectiveness of CE, by adopting a people-centered view. Second, it suggests to investigate the moderation and/or mediation effects that organization-related variables can have on the relationships between actor-related variables and CE. In fact, to evaluate the maturity of CE within an organization, the mere assessment of the impact of each specific determinant may be misleading, because it does not consider the combined effects among the different factors.

The framework addresses the individual characteristics of entrepreneurial actors, and the organizational practices that impact on employees and groups. This brings to a human-oriented vision of CE, which embraces a system of organizational conditions that stimulate individual entrepreneurial drive within an established organization. In this vein, the article provides corporate entrepreneurs and managers with a list of factors to combine into both practitioners' experimentations and further researches. An example in this direction may concern the study of relationships existing among ambiguity, uncertainty or autonomy (that are elements related to the system of values of the organization) with risk taking or discovering (that are elements characterizing the psychological profile of individuals). Such investigation can help managers to rethink the policies and strategies for staffing, communicating, or designing new initiatives.

The article suggests also to adopt innovative methods of investigation, mainly for those individual factors acting at psychological level. Indeed. In fact, the complexity of the CE phenomenon makes it an appropriate concept both for multi-disciplinary investigations, and for mixed research methods, which include traditional organizational science methods (such as survey and case study) and more innovative methods like those applied in the cognitive science and neuroscience (e.g. EEG - ElectroEncephaloGraphy, or fMRI - functional Magnetic Resonance Imaging). These latter methods can provide more in-depth and direct research techniques, especially when dealing with individual and psychological factors, to disclose the underlying neural mechanisms of individual creativity and entrepreneurial behavior.

Self-report questions, which are the principal means of enquiry in the studies reviewed, are on the other side rather indirect and, in some cases, may be even misleading because of a number of biases affecting our reasoning. Many of these have been enlisted, described and exemplified by Kahneman (2011), also in relation to the business world. We refer in particular to priming (a process in which the processing of a target stimulus is aided or altered by the presentation of a previously presented stimulus), anchoring (the common human tendency to rely too heavily on the first piece of information offered when making decisions), expert biases like illusions of validity and ability and, particularly insidious within the

field of entrepreneurship, our innate tendency to look for rationales and logic and build our stories and memories upon that.

Self-perceptual questions or narratives can do little about it, and even brain-imaging itself is not immune and requires several precautions to control these biases. That's why, cognitive neuroscience researchers' approaches, which rely on self-report questions in an ancillary manner, mainly for triangulating data collected with other, and more direct, measures of latent psychological variables, can be a more reliable alternative in individual level-related studies within the entrepreneurship field. For example, let's take creative ideation, i.e. the process of producing various original ideas to a given open problem. Instead of asking the extent to which one actively search or come across new ideas, one may resort to EEG techniques to detect to what extent, certain creative task can modulate brains' alpha band activity, which is consistently investigated to be associated with creativity processing (Fink and Benedek, 2012). Even better, without suggesting to scan hundreds of individuals (which is an issue often limited by the research conditions), one may resort to the analysis of creativity within psychometrical and neuroscientific literature to find more reliable characteristics and associations. On the other side, these fields of enquiry and techniques may provide further stimulus and insights to management researchers while building their questionnaires and the other methods of enquiry. In simple words, resort to other disciplines to have more direct measures of creativity at work instead of a self-reported proxy can be used to detect more reliable individual differences. Thanks to this improved understanding of the inner creativity process, a better and more fine-grained account of the interrelations among individual and organizational factors would give the possibility to fine tune incentives systems to individuals' characteristics and even train people to be more creative.

The findings of such article can help companies to design a measurement dashboard or scorecard to assess CE maturity. In this perspective, all the individual and organization-related elements can be operationalized through the identification of appropriate key performance indicators and target actions. In addition, the *Professional Characteristics* and *Psychological Characteristics* of individuals can be used, in a managerial perspective, as design requirements to be applied in human resource planning, staffing, recruitment and selection activities. Finally, concerning the organizational factors, *System of Values* and *Management Practices* are to be adopted as managerial targets to achieve throughout the implementation of a successful management system aimed to create the right conditions for a performing CE process.

From a practitioner perspective, the paper provides company managers with a list of research-based factors useful to craft better conditions to stimulate entrepreneurial dynamics within their organizations. In fact, the identification of elements which impact the performance of CE provide a sort of checklist for managerial action aimed to develop and stimulate creativity and human resource innovation.

Although this article has tried to make a step forward towards integrating determinants of entrepreneurial performance, it remains a preliminary theoretical account and food for thought that needs to be substantiated through purposeful empirical studies aimed to specify, validate and fully operationalize the propositions outlined. Next research effort shall thus addressed to identify a sample of companies for undertaking case studies aimed at fine-tuning and fine-graining the research propositions.

References

- Amabile T.M. and Gryskiewicz N.D. (1989) The Creative Environment Scales: Work Environment Inventory, *Creativity Research Journal*, 2, 231-252.
- Amabile, T.M. (1988) A Model of Creativity and Innovation in Organizations. *Research in Organizational Behavior*, 10, 123-168
- Amabile, T.M. (2013) Componential theory of organizational creativity and innovation, in Eric H. Kessler (Ed.), *Encyclopedia of Management Theory*, Sage Publications.
- Amabile, T.M., Conti R., Coon H., Lazenby J. and Herron M. (1996) Assessing the Work Environment for Creativity. *The Academy of Management Journal*, 39(5), 1154-1184
- Antoncic, B. and Hisrich, R. (2000) Intrapreneurship modeling in transition economies: A comparison of Slovenia and the United States, *Journal of Developmental Entrepreneurship*, 5(1), 21-40

- Antoncic, B. and Hisrich, R. (2001) Intrapreneurship: Construct Refinement and Cross-Cultural Validation. *Journal of Business Venturing*, 16, 495-527
- Barney, J. (1991) Firm resources and sustained competitive advantage, *Journal of Management*, 17(1), 99-120.
- Behram, N.K. and Özdemirci, A. (2014) The Empirical Link between Environmental Conditions, Organizational Culture, Corporate Entrepreneurship and Performance: the Mediating Role of Corporate Entrepreneurship. *International Journal of Business and Social Science*, 5(2), 264-276
- Binyamin, G. and Carmeli, A. (2010) Does Structuring of Human Resource Management Processes Enhance Employee Creativity? The Mediating Role of Psychological Availability. *Human Resource Management*, 49(6), 999-1024
- Boukamcha, F. (2015). Impact of training on entrepreneurial intention: an interactive cognitive perspective. *European Business Review*, 27(6), 593-616.
- Bratnicka, K. and Bratnicki, M. (2013) Linking Two Dimensions of Organizational Creativity to Firm Performance: the Mediating Role of Corporate Entrepreneurship and the Moderating Role of Environment. *Advances in Business-Related Scientific Research Journal (ABSRJ)*, 4(2), 153-163
- Burgelman, R.A. (1983) Corporate Entrepreneurship and Strategic Management: Insights from a Process Study. *Management Science*, 29(12), 1349-1364
- Castrogiovanni, G.J., Urbano, D. and Loras, J. (2011) Linking Corporate Entrepreneurship and Human Resource Management in SMEs. *International Journal of Manpower*, 32(1), 34-47
- Chen, J., Zhu, Z. and Anquan, W. (2005) A System Model for Corporate Entrepreneurship. *International Journal of Manpower*, 26(6), 529-543
- Covin, J. G., and Slevin, D. P. (1991) A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice*, 16(1), 7-24
- Dess, G.G., Lumpkin, G.T. and McGee, J.E. (1999) Linking Corporate Entrepreneurship to Strategy, Structure, and Process: Suggested Research Directions. *Entrepreneurship Theory and Practice*, Spring, 85-102
- Dyer, J.H., Gregersen, H.B. and Christensen, C. (2008) Entrepreneur Behaviors, Opportunity Recognition, and the Origins of Innovative Ventures. *Strategic Entrepreneurship Journal*, 2, 317-338
- Edralin, D.M. (2010) Human Resource Management Practices: Drivers for Stimulating Corporate Entrepreneurship in Large Companies in the Philippines. *DLSU Business & Economics Review*, 19(2), 25-41
- Egan T.M. (2005) "Factors Influencing Individual Creativity in the Workplace: an Examination of Quantitative Empirical Research," *Advances in Developing Human Resources*, 7: 160-181.
- Fink, A. and Benedek, M. (2012) EEG Alpha Power and Creative Ideation. *Neuroscience & Biobehavioral Reviews* 44, 111-123
- Finkle, T.A. (2011) Corporate Entrepreneurship and Innovation in Silicon Valley: The Case of Google, Inc. *Entrepreneurship Theory and Practice*, January, 1-25
- Fong, C.Y., Ng, Y.K., Tan, P.S.H. and Seow, A.N. (2013) Does Leadership and HRM Matter on Corporate Entrepreneurship? *Human Resource Management Research*, 3(1), 7-10
- George, J.M. (2007) Creativity in Organizations. *The Academy of Management Annals*, 439-477
- Guth, W.D. and Ginsberg, A. (1990) Guest Editors' Introduction: Corporate Entrepreneurship. *Strategic Management Journal*, 1(1), 5-15
- Hayton J.C. and Kelley D.J. (2006) A Competency-Based Framework for Promoting Corporate Entrepreneurs, *Human Resource Management*, 45(3), 407-427.
- Hayton, J.C. (2005) Promoting Corporate Entrepreneurship through Human Resource Management Practices: a Review of Empirical Research. *Human Resource Management Review*, 15, 21-41
- Hennesseys, B.A. and Amabile, T.M. (2010) Creativity, *Annual Review of Psychology*, 61: 569-598.
- Hornsby, J.S., Kuratko, D.F. and Zahra, S.A. (2002) Middle Managers' Perception of the Internal Environment for Corporate Entrepreneurship: Assessing a Measurement Scale. *Journal of Business Venturing*, 17, 253-273
- Hornsby, J.S., Naffziger, D.W., Kuratko, D.F. and Montagno, R.V. (1993) An Interactive Model of the Corporate Entrepreneurship Process. *Entrepreneurship Theory and Practice*, Winter, 29-37
- Ireland, R.D., Covin, J.G. and Kuratko, D.F. (2009) Conceptualizing Corporate Entrepreneurship Strategy. *Entrepreneurship Theory and Practice*, January, 19-46
- Ireland, R.D., Kuratko, D.F. and Morris, M.H. (2006a) A health audit for corporate entrepreneurship: innovation at all levels: part I, *Journal of Business Strategy*, 27(2), 10-17.
- Ireland, R.D., Kuratko, D.F. and Morris, M.H. (2006b) A health audit for corporate entrepreneurship: innovation at all levels: part II, *Journal of Business Strategy*, 27(2), 21-30
- Jiang, J., Wang, S. and Zhao, S. (2012) Does HRM Facilitate Employee Creativity and Organizational Innovation? A Study of Chinese Firms. *The International Journal of Human Resource Management*, 23(19), 4025-4047
- Joo, B.-K., McLean, G.N. and Yang, B. (2013) Creativity and Human Resource Development: an Integrative Literature Review and a Conceptual Framework for Future Research. *Human Resource Development Review*, 12(4), 390-421

- Kahneman, D. (2011). Thinking, fast and slow. Macmillan.
- Kaya, N. (2006) The Impact of Human Resource Management Practices and Corporate Entrepreneurship on Firm Performance: Evidence from Turkish Firms. *International Journal of Human Resource Management*, 17(12), 2074-2090
- Kuratko, D.F., Hornsby, J.S. and Covin, J.G. (2014) Diagnosing a Firm's Internal Environment for Corporate Entrepreneurship. *Business Horizons*, 57, 37-47
- Kuratko, D.F., Montagno, R.V. and Hornsby, J.S. (1990) Developing an Intrapreneurial Assessment Instrument for an Effective Corporate Entrepreneurial Environment. *Strategic Management Journal*, 11, 49-58
- Lau, T., Chan, K.F., Tai, S.H.C. and Ng, D.K.C. (2010) Corporate entrepreneurship of IJVs in China. *Management Research Review*, 33(1), 6-22
- Lee, D.Y. and Tsang, E.W.K. (2001) The Effects of Entrepreneurial Personality, Background and Network Activities on Venture Growth. *Journal of Management Studies*, 38(4), 583-602
- Lee, S.M., Peris-Ortiz, M. and Fernández-Guerrero, R. (2011) Corporate Entrepreneurship and Human Resource Management: Theoretical Background and a Case Study. *International Journal of Manpower*, 32(1), 48-67
- Lumpkin, G. T. and Dess, G.G. (1996) Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance. *The Academy of Management Review*, 21(1), 135-172
- McLean L.D. (2005) "Organizational Culture's Influence on Creativity and Innovation: a Review of the Literature and Implications for Human Resource Development", *Advances in Developing Human Resources*, 7(2): 226-246.
- Miller, D. (1983) The correlates of Entrepreneurship in three types of firms. *Management Science*, 29(7), 770-791
- Montoro-Sánchez, Á. and Ribeiro-Soriano, D. (2011) Human Resource Management and Corporate Entrepreneurship. *International Journal of Manpower*, 32(1), 6-13
- Morris, M.H. and Jones, F.F. (1993) Human Resource Management Practices and Corporate Entrepreneurship: an Empirical Assessment from the USA. *The International Journal of Human Resource Management*, 4(4), 873-896
- Oldham G.R. and Cummings A. (1996) "Employee Creativity: Personal and Contextual Factors at Work", *Academy of Management Journal*, 39: 607-634
- Peterson, R., Berger, D. (1972) Entrepreneurship in Organizations. *Administrative Science Quarterly*, 16: 97-106
- Ribeiro-Soriano, D. and Urbano, D. (2009) Overview of Collaborative Entrepreneurship: an Integrated Approach Between Business Decisions and Negotiations, *Group Decision and Negotiation*, 18(5), 419-30
- Robinson A.G. and Stern S. (1997) *Corporate Creativity: How Innovation and Improvement Actually Happen*, San Francisco, CA: Berrett-Koehler.
- Rutherford, M.W. and Holt, D.T. (2007) Corporate Entrepreneurship. An Empirical Look at the Innovativeness Dimension and its Antecedents. *Journal of Organizational Change Management*, 20(3), 429-446
- Saroghi, H., Libaersa, D. and Burkemper, A. (2015) "Examining the relationship between creativity and innovation: a meta-analysis of organizational, cultural, and environmental factors", *Journal of Business Venturing*, 30, 714-731.
- Schmelter, R., Mauer, R., Börsch, C. and Brettel, M. (2010) Boosting Corporate Entrepreneurship through HRM Practices: Evidence from German SMEs. *Human Resource Management*, 49(4), 715-741
- Schumpeter, J.A. (1949) *Economic Theory and Entrepreneurial History - Change and the Entrepreneur*. Postulates and Patterns for Entrepreneurial History. Harvard University Press: Cambridge, MA
- Scott, S.G. and Bruce, R.A. (1994) Determinants of Innovative Behavior: a Path Model of Individual Innovation in the Workplace. *The Academy of Management Journal*, 37(3), 580-607
- Shalley, C.E., Zhou, J. and Oldham, G.R. (2004) Effects of personal and contextual characteristics on creativity: where should we go from here? *Journal of Management*, 30, 933-958
- Soleimani, M. and Shahnazari, A. (2013) Studying Effective Factors on Corporate Entrepreneurship: Representing a Model. *Research Journal of Applied Sciences, Engineering and Technology*, 5(4), 1309-1316
- Somech A. and Drach-Zahavy A. (2013) "Translating Team Creativity to Innovation Implementation: the Role of Team Composition and Climate for Innovation", *Journal of Management*, 39: 684-708.
- Srivastava, N. and Agrawal, A. (2010) Factors Supporting Corporate Entrepreneurship: an Exploratory Study. *VISION-The Journal of Business Perspective*, 14(3), 163-171
- Stevenson, H.H. and Jarillo, J. C (1990) A paradigm of entrepreneurship: Entrepreneurial management. *Strategic Management Journal*, 11, 17-27
- Theriou, G. N. and Chatzoglou, P. D. (2008) Enhancing performance through best HRM practices, organizational learning and knowledge management - A conceptual framework. *European Business Review*, 20(3), 185-207.
- Turner, T. and Pennington III, W.W. (2015) Organizational networks and the process of corporate entrepreneurship: how the motivation, opportunity, and ability to act affect firm knowledge, learning, and innovation, *Small Business Economics*, 45, 447-463.

- Vesper, K. H. (1984) Three Faces of Corporate Entrepreneurship: a Pilot Study. *Frontiers of Entrepreneurship Research*, Babson College, Wellesley, MA, 294-320
- Waight C.L. (2005) "Exploring Connections between Human Resource Development and Creativity", *Advances in Developing Human Resources*, 7(2): 151-159
- Wong, K. Y. (2005) Critical success factors for implementing knowledge management in small and medium enterprises. *Industrial Management & Data Systems*, 105(3), 261-279
- Zahra, S.A. (1991) Predictors and financial outcomes of corporate entrepreneurship: an exploratory study. *Journal of Business Venturing*, 6, 258-282
- Zahra, S.A. and Covin, J.C. (1995) Contextual Influences on the Corporate Entrepreneurship Performance Relationship: a Longitudinal Analysis. *Journal of Business Venturing*, 10, 43-58
- Zhang, Z., and Jia, M. (2010) Using Social Exchange Theory to Predict the Effects of High-Performance Human Resource Practices on Corporate Entrepreneurship: Evidence from China. *Human Resource Management*, 49(4), 743-765