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Unlocking the potential of non-managerial employees in corporate entrepreneurship: a systematic review and research agenda

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Abstract

Purpose – While extant literature has advanced our understanding of senior and middle managers in corporate entrepreneurship, studies have only recently attended to the role of non-managerial employees (NMEs). These organizational members bring ideas, resources and energy to the pursuit of innovative opportunities, yet the determinants of their entrepreneurial behavior are poorly understood.

Design/methodology/approach – The authors performed a systematical literature review on the subject of NMEs in corporate entrepreneurship to identify gaps and recommend an agenda for future research.

Findings – The review revealed gaps regarding (1) the distance of NMEs from decisions on corporate strategic intent, (2) agentic choices made by NMEs to use their subject matter expertise for their employers' benefit, and the influences of (3) job characteristics and (4) organizational infrastructural support of entrepreneurial behavior.

Originality/value – The authors present a theoretical framework and directions for future research.

Keywords Entrepreneurial behavior, Corporate entrepreneurship, Non-managerial employees, Intrapreneurship, Systematic literature review

Paper type Literature review

Introduction

To complement the rise in popularity of open innovation, in which corporations engage with start-ups to stimulate innovation, company leaders have sought ways to foster entrepreneurial behavior from within the organization to maintain its vibrancy and health.

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Recent research mentions that first-level managers and non-managerial employees (NMEs) can play relevant roles in entrepreneurial initiatives in established firms, yet how NMEs are influenced to engage in entrepreneurial behavior is understudied (Urbano *et al.*, 2022). The drivers of NMEs' responses to calls to participate in corporate sponsored programs such as idea contests, work in corporate venture units or to initiate entrepreneurial behavior on their own are as yet unclear. This paper reviews the literature to examine our understanding of the determinants of the entrepreneurial behavior of NMEs. Our review addresses the current state of scholarly understanding regarding: (1) *the factors that influence the entrepreneurial behavior of NMEs in corporate entrepreneurship (CE) settings* and (2) *the influence of NMEs' entrepreneurial behavior on organizational outcomes*. By systematically examining the literature of this important managerial concern, we shed light on potential influencers of such behavior and the nature of the outcomes that might be expected, and offer theoretical explanations for those relationships. A research agenda is offered to draw attention to this nascent area of inquiry and help advance understanding, resulting in prescriptions to improve managerial practice. Ultimately, we seek to understand how firms can unleash NMEs' entrepreneurial drive to contribute to organizational renewal.

We adopt Gibson *et al.* (2019) definition of NMEs as independent contributors or those who work as members of teams or projects but do not have supervisory responsibility. Not all NMEs are in first-level positions in the organizational hierarchy. Some may occupy specialist roles as subject matter experts, such as R&D Fellows or Chief Engineers, where their value is recognized via their organizational stature, but they neither command resources nor have decision authority as managers do. These, too, are included in our definition.

Why might the determinants of managerial and NMEs entrepreneurial behavior, or the specific ways in which it is manifested, differ? Several factors may be at work. First, NMEs are less privy to the firm's strategic agenda. As such, they may be more likely to spot, pursue or advocate for entrepreneurial opportunities that managers might dismiss as strategically irrelevant. Moreover, NMEs may experience comparatively more difficulty gaining internal support for their ideas. Therefore their persuasion skills may take precedence over their position power and resource control as determinants of their willingness and ability to engage in entrepreneurial acts. The specific forums and processes that encourage entrepreneurial behavior among managers and NMEs might also differ. For example, NMEs may need the encouragement and organizational legitimacy associated with participating in corporate sponsored innovation events (i.e. hackathons, contests) in order to take entrepreneurial action, whereas managers, due to their command over resources and organizational legitimacy, may not. In short, entrepreneurial behavior among these two groups of employees may be determined by their different circumstances.

We contribute to current CE and innovation literature in several ways. First, we assess how context and situation affect the tendencies of NMEs toward entrepreneurial behavior. We show how existing studies have relegated these important dimensions to simple control variables or sampling conditions, neglecting how organizational roles and occupations affect the likelihood of organizational members to take entrepreneurial action. We also contribute by identifying relevant inconsistencies, ambiguities and gaps in previous literature that have prevented a more detailed understanding of the effects of NMEs in the CE process. Finally, based on this analysis, we propose a model for examining the determinants of NMEs' entrepreneurial behavior. Our holistic, integrative approach analyzes micro (personal), meso (job), and macro (work environment) influences on NMEs' willingness to engage in entrepreneurial behaviors leading to productive organizational outcomes.

Corporate entrepreneurship: definition and scope

Corporate entrepreneurship is "entrepreneurial behavior inside established mid-sized and large organizations" (Morris *et al.*, 2011, p. 11) that aims at creating new businesses, or at

instigating innovation, change and renewal (Guth and Ginsberg, 1990; Morris *et al.*, 2011; Sharma and Chrisman, 1999; Urbano *et al.*, 2022). The specific form of CE most directly relevant to NME's is "intrapreneurship," whereby the individual organizational member initiates entrepreneurial action in a bottom-up manner (Pinchot, 1985). We adopt the broad definition of CE offered by Morris *et al.* (2011), which concentrates on entrepreneurial behavior wherever it may be located, and encompasses types (including internal corporate venturing, open innovation and intrapreneurship) as well as outcomes (including value creation, breakthrough innovation and organizational renewal).

The entrepreneurial roles of top, middle, and lower-level managers have been extensively discussed in prior literature (e.g. Kuratko and Audretsch, 2013; Kuratko *et al.*, 2005a, b), but non managerial employees have received scant attention as a focus area. A number of studies examine employees in general terms, combining managerial and NMEs (e.g. Valsania *et al.*, 2016; Gawke *et al.*, 2017). For example, Urbano *et al.*'s (2022) recent and comprehensive review of the CE literature does not separate the unique roles of non-managers as entrepreneurial actors. While comprehensive and encompassing, Urbano *et al.*'s (2022) model of the antecedents and consequences of CE's many forms does not distinguish which elements pertain or do not pertain to NMEs involved in corporate entrepreneurial processes. By failing to differentiate by the type of employee, the motivations, nature and outcomes of entrepreneurial behavior that are unique to NME's cannot be isolated. More generally, the likely unique characteristics, motivations and contributions of NME's relative to CE have yet to be systematically reviewed within the larger CE conversation (Mustafa *et al.*, 2018).

As vital organizational agents, NMEs may contribute to a firm's entrepreneurial performance in several ways (Vojak *et al.*, 2012). First, they generate ideas, since they work in the immediate areas of the technical core development or at the day-to-day interface with customers or other environmental agents (Hayton and Kelley, 2006; Urbano *et al.*, 2022). Second, they may bring resources to transform ideas into CE initiatives and projects. For example, R&D and marketing employees possess specialized knowledge and expertise relevant to the technological and market potential of new ideas (Hughes and Perrons, 2011). Third, they bring creative energy and stamina to CE initiatives (Kuratko *et al.*, 1990; Carrier, 1996), and they support innovation (Hayton and Kelley, 2006; O'Connor *et al.*, 2018). Organizations' CE endeavors rely on NMEs and their entrepreneurial behavior and are not restricted to top officials and middle managers (Covin *et al.*, 2020; Mustafa *et al.*, 2016). We recognize that NMEs can also help *implement* corporate entrepreneurial activity initiated by others.

Although NMEs offer unique entrepreneurial contributions, they face challenges that managers do not. First, they lack control over resources (people and funding) to deploy for innovative projects. Second, the distance from top management that NME's experience may limit their awareness and nuanced understanding of the organization's strategy, and prevents them from influencing it easily. This distance, known as the *hierarchical erosion effect* (Gibson *et al.*, 2019), may result in their entrepreneurial activities being misaligned with or irrelevant to the goals and objectives of senior management. Third, NMEs must exert greater effort to communicate their ideas upward than do mid-level managers as a standard procedure (Morris *et al.*, 2006). Thus, they face a diminished likelihood of gaining "an opportunity where these ideas are evaluated and considered within the context of the firm's overall strategic priorities" (Hornsby *et al.*, 2002, p. 257) or winning top management support (Zahra and Covin, 1995). Fourth, due to their lack of authority, they cannot use "different approaches to make the organizational structure less resistant to change, thereby allowing corporate entrepreneurial activities to flourish" (Hornsby *et al.*, 2002, p. 257) or provide reinforcement or rewards "to experiment with, and explore the feasibility of, innovative ideas" (Hornsby *et al.*, 2002, p. 257). Managers have "a structural ability" to create avenues that support entrepreneurial action (Hornsby *et al.*, 2009, p. 236). In contrast, NMEs do not and therefore may have difficulty enacting productive entrepreneurial behavior inside corporations.

Methods

A systematic literature review (SLR) captures those studies in scholarly literature that address a particular phenomenon or theory and uses that as the population of papers to be reviewed. An SLR requires thoroughness and rigor, comprehensive and unbiased search, and transparency in data collection and synthesis to enhance the legitimacy and objectivity of its results (Tranfield *et al.*, 2003). We adhere to the principles of methodological scrutiny while identifying, appraising, and synthesizing relevant studies in a reproducible manner (Kraus *et al.*, 2020), and provide future researchers with an audit trail of the processes we followed to review prior research, examine different research streams, and suggest future research directions. Per Kraus *et al.* (2020), we applied a four-stage procedure, shown in Figure 1, to achieve thoroughness and transparency. These include (1) Planning and review, (2) Identifying and evaluating studies, (3) Extracting and synthesizing data, and (4) Disseminating the review findings.

The objective of first stage, *Planning the Review,* was to determine if there is a need for an SLR. As previously described, we noted (1) an absence of attention to NME's other than as control variables, (2) a call for increased attention to this group, and (3) the emergence of the hierarchical erosion theory. Combined, these three phenomena create a rationale for distinguishing the unique influences on and effects of NMEs' CE behavior. We then defined the research objective as to revisit the CE field and understand the determinants of NMEs' entrepreneurial behavior.

During the *Identifying and Evaluating Studies* stage, we gathered and evaluated the qualifications of the studies for review, and thereby moved from a population of CE studies to a sample that fit our criteria for examination. We started with a search of the ISI Web of Knowledge database Social Sciences Citation Index (SSCI), one of the most comprehensive databases of peer-reviewed journals in the social sciences. We excluded books, book chapters, case studies, teaching materials, reports, and conference papers, except for three seminal texts: O'Connor *et al.* (2018), Pinchot (1985), and Vojak *et al.* (2012). We evaluated introductions to special issues on CE ($N = 5$), but excluded those that merely summarized the papers in their special issues with no clear contribution to moving forward the research of NMEs in CE. We examined broad reviews of the CE field ($N = 14$) to gain in-depth insights on the development of the CE field concerning NMEs in the CE process (see Online Supplementary Material). We eliminated research notes, commentaries, and papers that examined managers only, papers whose respondents were not NMEs (e.g. Carrier, 1996), and papers with data on NMEs aggregated with undifferentiated employee data from other levels (e.g. Antoncic and Antoncic, 2011; Gawke *et al.*, 2017). We also excluded unpublished, non-peer-reviewed works such as research notes on personal, professional, or university websites (e.g. Bosma *et al.*, 2010).

Our search began with the year 1985, when Gifford Pinchot's seminal work on intrapreneurship was published, and continued through October 2022. Given the plurality of meanings for "corporate entrepreneurship," we used search terms prevalent in the earlier period of this research timeline for completeness: corporate entrepreneurship, intrapreneurship, internal corporate venturing, strategic renewal, entrepreneurial orientation, corporate venture capital, and strategic entrepreneurship (Hughes and Morgan, 2007; Hughes and Mustafa, 2017; Morris *et al.*, 2011). Search parameters drawn from the past included: document type as article, which we reference as paper or review (but not book review); language as English; and subjects as business, management, economics, and business finance. Keywords found in the title, keyword list, or abstract were used as selection criteria for the topic, resulting in a sample of 425 papers. The SLR focused on individual analysis only and excluded papers with an organizational or team view, which reduced the sample to 238 papers comprised of 108 empirical studies and 130 conceptual works.

Of the 108 empirical studies, which was our interest, we eliminated 52 papers that focused on individual employees but did not specify their managerial/non-managerial status (e.g. Valsania

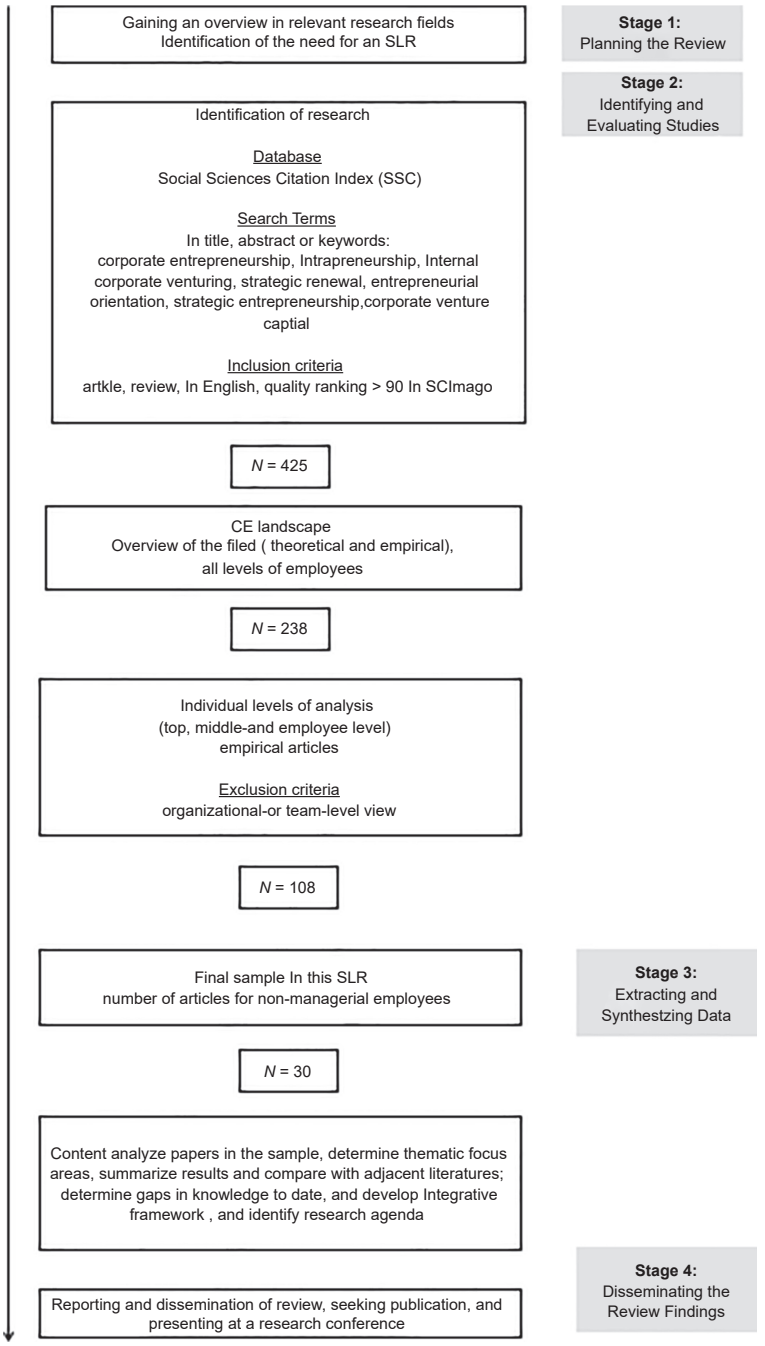


Figure 1.
Four–stage procedure to the systematic literature review

et al., 2016), and 26 papers in which the sample was described as a mix of managerial and NMEs (e.g. Gawke *et al.*, 2017). Although such papers enrich our understanding of entrepreneurial behavior, we excluded them as the results could not isolate influences on and effects of NME's entrepreneurial behavior. Table 1 presents the final sample of 30 papers.

During the *Extracting and Synthesizing Data* stage, we followed a content analysis procedure that aligns with Gioia *et al.*'s (2013) method to understand the studies in the sample and develop an integrated framework. Following Glaser and Strauss (1967) and Miles *et al.* (2019), we analyzed the 30 papers using a three-stage coding process. First, two authors independently open-coded the reported results of each paper. Open-coding ascribes codes to data without a specific rubric or pre-defined codes. Three categories of characteristics associated with influences on and impact of NME's entrepreneurial behavior emerged: their personal characteristics, job characteristics, and work environment characteristics. Second, we performed another round of open-coding within these three groupings to allow codes specific to each grouping emerge (Gioia *et al.*, 2013). Third, we removed unnecessary duplication by combining closely adjacent codes. Fourth, we compared the papers within each code using axial coding to identify similarities and differences among categories (Gioia *et al.*, 2013; Strauss and Corbin, 1998). This helped us find sub-themes that had emerged in multiple cases. Fifth, the authors met to discuss coding discrepancies and identify insights from comparing results across themes and those from CE literature. Iteration of these five steps continued until we arrived at and agreed upon a final set of themes. Making use of the Gioia *et al.* (2013) method, we were able to extract crucial relationships between the three levels of our ultimate coding scheme of first-order concepts, second-order themes, and aggregated dimensions of (1) personal, (2) job, and (3) work environment characteristics. Figure 2 presents detailed information on the open and axial codes under these three thematic streams.

Our SLR detected great diversity in the terminology used to refer to CE and employee entrepreneurial behavior. "Entrepreneurial behavior" is most commonly used and eclipses earlier references to "intrapreneurial behavior." The empirical studies we identified ($N = 108$) include diverse levels of analysis, organization sizes, industry affiliations, and geographic locations. Most empirical studies (72%) are at the organizational level and were conducted in manufacturing or high-tech industries (59%) in companies of large size (48%) and headquartered in North America (42%).

Finally, regarding the *Disseminating the Review Findings* stage, we present our resultant conceptual model in Figure 3 and summary Table 1, as detailed below.

Results

Our content analysis identifies three broad thematic streams dominating CE studies of NMEs linked to their engagement in the CE process. These are: (1) individual personal characteristics (e.g. studies of individual entrepreneurial orientation or intrapreneurial personality); (2) job characteristics (e.g. studies of job autonomy and job variety as part of job design or access to managerial information, or encouragement of initiatives as part of the support environment); and (3) supportive work environment (e.g. studies of supportive entrepreneurial strategy or supportive organizational support). Individual personal characteristics surfaced as the category scholars examined most often. Nonetheless, job characteristics and work environment often appear in the literature as drivers of NMEs' entrepreneurial behavior. We review the principal findings of our SLR next.

(1) Personal characteristics

The first category in our framework revealed three major foci of empirical work: personality characteristics, individual entrepreneurial orientation, and subject matter expertise. The first

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
Papers which solely focus on non-managerial employees (N = 14)				
Entrepreneurial Behavior in Organizations: Does Job Design Matter? De Jong *et al.* (2015)	Which job characteristics influence individual entrepreneurial behavior?	179 workers in a Dutch research and consultancy organization	Survey (web-based and follow up) and internal records data (check: administrative data)	Job autonomy is positively related to entrepreneurial behavior and its innovation and proactivity subdimensions, while job variety is not, suggesting that interventions related to the vertical scope of jobs will promote entrepreneurial behaviors more than horizontal job expansion
Managing your core incompetencies for corporate venturing Dougherty (1995)	How can managers assure an effective connection between ventures and the firm's core competencies?	80 employees representing four large US firms of different departments	Interviews and archival records; content analysis of in-depth interviews	Managing the core incompetencies (that the core competencies can be accessed more easily) seems key to more effective corporate venturing and more viable core competencies
Employee intrapreneurship and work engagement: A latent change score approach Gawke *et al.* (2017)	Does employee intrapreneurship build personal resources over time, and does that foster work engagement?	351 employees of five public organizations in The Netherlands	Survey (two-wave study)	Employee intrapreneurship can significantly and positively contribute to employee work engagement over time. When individuals engage in intrapreneurial behavior, they increase their personal resources, which results in higher and more stable levels of work engagement over time

Table 1.
The final sample of 30 papers used in this SLR

(*continued*)

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
Innovative Behaviour, Trust and Perceived Workplace Performance Hughes *et al.* (2018)	*(1) To what extent does innovative work behaviour at the individual and team levels affect perceived individual and team workplace performance? (2) Does trust moderate the effects of innovative work behaviour within teams on their perceived team workplace performance?*	628 employees of a large insurance company in the Netherlands	Surveys conducted at two points in time	(1) Innovative work behavior affects perceived performance at the individual and team levels, and (2) the relationship between a team's average innovative work behavior and perceived workplace performances moderated in complex ways by the horizontal and vertical trust that an individual has in their team colleagues and direct supervisor
Individual entrepreneurial orientation and intrapreneurship in the public sector Kraus *et al.* (2019)	What is the relationship of IEO (Individual entrepreneurial orientation) and exploration and exploitation?	266 employees of municipalities and cities located in Austria, Germany, Liechtenstein and Switzerland	Survey	Entrepreneurially oriented employees are highly effective explorers. The results also showed that IEO is strongly connected to explorative activities
Effects of traits, self-motivation and managerial skills on nursing intrapreneurship Marques *et al.* (2018)	How self-motivation and managerial skills mediate the influence of entrepreneurial traits on nurses' intrapreneurial intentions?	536 of nurses of seven public hospitals in Portugal	Survey	Nurses more determined to become intrapreneurs are more likely to take risks, more self-confident about their managerial skills, and slightly more self-motivated. Proactivity contributes to increasing nurses' self-confidence in their skills

(*continued*)

Table 1.

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
The Impact of Strategic Entrepreneurship Inside the Organization: Examining Job Stress and Employee Retention Monsen and Boss (2009)	*(1) How do managers and staff react to strategic entrepreneurship? (2) How can we minimize resulting job stress and maximize employee retention?*	1975 staff of 110 departments of the two largest US general practice hospital	Survey	Strategic Entrepreneurship can impact management and staff differently and thus requires a customized design philosophy
Beyond Simple Utility: Incentive Design and Trade-offs for Corporate Employee -Entrepreneurs Monsen and Boss (2009)	*(1) How do managers and staff react to strategic entrepreneurship? (2) How can we minimize resulting job stress and maximize employee retention?*	61 corporate employees in an evening master of business administration (MBA) program at a midwestern U.S. university	Metric conjoint analysis	Risk and effort as factors moderating an employee's decision to participate in a new corporate venture interact to affect the choice to engage in CE projects
The influence of transformational leadership and organizational identification on intrapreneurship Moriano *et al.* (2011)	How do manager leadership styles influence employee intrapreneurial behavior and the mediating role of organizational identification?	189 employees of various Spanish organizations (health, education, local administration, financial services, consumer services, software and computer services, and transportation and communication)	Survey	Transformational leadership positively impacts employee intrapreneurial behavior, whereas transactional leadership negatively influences it. These effects are found to be partially mediated by organizational identification
Intrapreneurship or entrepreneurship? Parker (2011)	*What factors determine whether new business opportunities are exploited by starting a new venture for an employer ("nascent intrapreneurship") or independently ("nascent entrepreneurship")*	1,214 of non-retired US adults engaged in 22,741 observations	Participant observation	Nascent entrepreneurs tend to leverage their general human capital and social ties to organize ventures which sell directly to customers. In contrast, intrapreneurs disproportionately commercialize unique new opportunities which sell to other businesses

Table 1. (*continued*)

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
Person or Place: The relative role of individual characteristics, network attributes and environmental aspects on entrepreneurial intentions and behavior Standish-Kuon *et al.* (2009)	*To what extent the individual attributes, characteristics of researchers' social networks; and faculty perceptions of institutional and school-level policies and procedures may predispose individuals to position their scholarship for commercialization*	399 faculty researchers affiliated with 21 universities and medical schools in New York State	Survey	Supportive institutional practices, such as sponsored research staff, funding opportunity digests, incubators, technology parks, and seed financing, can demonstrably affect a researcher's entrepreneurial intentions. Furthermore, the actual support far outweighs perceived support in predicting entrepreneurial behavior
Entrepreneurial behaviour in the Greek public sector Zampetakis and Moustakis (2007)	How does organizational, individual and job characteristics influence the entrepreneurial tendency of front-line Greek public servants?	260 of Greek public servants with a variety of jobs	Survey	There is a positive correlation between the supportive context, as expressed by the encouragement of initiatives and access to managerial information, and entrepreneurial behavior among public servants
"Day-to-day" entrepreneurship within organisations: The role of trait Emotional Intelligence and Perceived Organisational Support Zampetakis *et al.* (2009)	How can employees perceptions of Organisational Support and their Emotional Intelligence influence their entrepreneurial behavior?	224 employees of public and quasi-public organizations from the Greek service sector	Survey	Both personal and contextual variables correlate with individual entrepreneurial behavior. There is a significant negative relationship between the joint impact of perceived organizational support and organization tenure on entrepreneurial behavior

(*continued*)

Table 1.

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
Exploratory research on the factors stimulating corporate entrepreneurship in the Greek public sector Zampetakis and Moustakis (2010)	Which factors stimulate entrepreneurial behavior in the Greek Public sector?	260 participants (223 respondents for conjoint analysis) of various industries working in Greece	Survey and Conjoint analysis	Results provide preliminary evidence about entrepreneurial civil servants' preferences and make available a well-documented framework for addressing corporate entrepreneurship in the public sector
Papers which examined various employee levels, yet we were able to retrieve findings related to non-managerial employees (N = 16)				
Organizational strategy, individual personality and innovation behavior Åmo and Kolvereid (2005)	What factors cause variation in the innovation behaviour of employees in organizations?	634 business graduates (41 top managers from Norway	Survey	In order to achieve innovation behavior among employees, organizations are advised to put a corporate entrepreneurship strategy in place to recruit individuals with intrapreneurial personalities or train their current employees in innovation and entrepreneurship
Employee intrapreneurship and work engagement: A latent change score approach Gawke *et al.* (2017)	Does employee intrapreneurship build personal resources over time, and does that foster work engagement?	351 employees of Dutch insurance company	Two-wave survey	Employee intrapreneurship can significantly and positively contribute to employee work engagement over time. When individuals engage in intrapreneurial behavior, they increase their personal resources, which results in higher and more stable levels of work engagement over time

Table 1. (*continued*)

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
Do formal management practices impact the emergence of bootlegging behavior? Globocnik and Salomo (2015)	Is boot-legging behavior influenced by formal management practices?	103 employees involved in innovation tasks of Austrian companies with exclusion of local sales offices without research and development departments	Survey	Intrapreneurial self-efficacy, strategic autonomy, and rewards for innovation accomplishments foster bootlegging. Front-end formality has a positive effect on bootlegging by increasing intrapreneurial self-efficacy
Assessing a Measurement of Organizational Preparedness for Corporate Entrepreneurship Hornsby *et al.* (2013)	How to assess the content, construct, and convergent validity of the CEAI (Corporate Entrepreneurship Assessment Instrument) for scale development and refinement?	Study 1: 39 participants; Study 2 and 3: First sample 290 professionals and second sample 509 professionals of US organizations	Survey	The results of this study find strong support for the validity of the newly refined instrument and provide a foundation for future empirical work on the topic of OPCE (organizational preparedness for CE)
Managers' corporate entrepreneurial actions: Examining perception and position Hornsby *et al.* (2009)	Are organizational factors that support entrepreneurial action supportive for all?	458 participants or US organizations	Survey	(1) The positive relationship between managerial support and entrepreneurial action is more positive for senior and middle-level managers than it is for lower- (first) level managers. (2) The positive relationship between work discretion and entrepreneurial action is more positive for senior and middle-level managers than it is for first-level managers

(*continued*)

Table 1.

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
Opportunity Structures in Established Firms: Entrepreneurship versus Intrapreneurship in Mutual Funds **Kacperczyk (2012)**	Whether large and mature firms, which are typically associated with lower individual rates of entrepreneurship, are also associated with lower individual rates of intrapreneurship	7,447 fund managers of US companies	Observations, event-history analyses	Though employees in large and mature organizations are less likely to transition to entrepreneurship, they exhibit a higher propensity to pursue venturing opportunities inside the established firm than employees in smaller and younger firms
Toward a multi-dimensional measure of individual innovative behavior Kleysen and Street (2001)	RQ not explicitly stated Can be formulated as Develop and test a multi-dimensional measure of individual innovative behavior	225 employees of various professions (administrative staff, engineers, draftsmen, managers, information technology staff, teachers, accounting staff, clerical workers) working in Canadian organizations	Survey	This research delivered a relatively poor fit between structure and respondents' job behaviors. However, a single-factor measure based on items representing all five factors (opportunity exploration, generativity, formative investigation, championing, application) supported a multi-dimensional conceptualization of innovative behavior in general

Table 1. (*continued*)

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
Cultural Influences on Entrepreneurial Orientation: The Impact of National Culture on Risk Taking and Proactiveness in SMEs Kreiser *et al.* (2010)	To assess the impact of national culture and certain institutions that are representative of national culture on two key dimensions of entrepreneurial orientation (risk taking and proactiveness)	Between 30 and 75 of various employees from each country: Australia, Sweden, Costa Rica, Norway, Indonesia, The Netherlands	Two-wave mailing survey	(1) Uncertainty avoidance and power distance are both found to have a significant negative influence on risk-taking, uncertainty avoidance, individualism, and power distance influence proactive firm behaviors negatively. (2) Some institutional factors are also significantly linked to between-country differences in risk-taking and proactive behaviors
Examining the Technical Corporate Entrepreneurs' Motivation: Voices from the Field Marvel *et al.* (2007)	What is the trade-off between social interactions and relationship safeguards?	24 tech employees and 19 HR managers of US technology company	Open-ended interviews	The framework on the five conditions that support corporate entrepreneurship: rewards, management support, resources including time, organizational structures (at the macro level), and risk acceptance is applicable but incomplete relative to motivating these individuals. The additional dimensions of appropriate work design (at the micro level) and their intrinsic motivation to innovate need to be considered in supporting technical CE

(*continued*)

Table 1.

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
Bootlegging in the R&D Departments of High-Technology Firms Masoudnia and Szwejczewski (2012)	Why do employees choose to bootleg and hide their innovative activities from the rest of the organization, especially the senior management?	55 participants (staff 49%, senior staff 27%, middle manager 24%) of	Interviews and semi-structured questionnaire	Bootlegging was undertaken to reduce the uncertainty associated with an idea and increase the likelihood of being accepted by senior management. The primary motivation behind bootlegging was the desire of the individual to undertake work that would benefit the organization
Exploring the practice of corporate venturing: some common forms and their organisational implications Miles and Covin (2002)	What typology can further describe the domain of one manifestation of CE: corporate venturing (CV)	24 extensive personal interviews with executives) 21 site visits and 8 top executives (from ventures associated with the 11 corporations)	Open ended interviews	A new typology of corporate venturing is based on the two dimensions of focus of entrepreneurship (internal or external to the corporation) and the presence of investment intermediation
Bottom-Up Building of an Innovative Organization: Motivating Employee Intrapreneurship and Scouting and Their Strategic Value Park *et al.* (2014)	In which ways can organizations increase employees' voluntary intrapreneurship and motivated business information seeking and sharing, scouting?	528 participants (experienced but not managers 50%, entry-level employees 14%, staff managers 29%, executives 4%, senior executives 3%) of US companies	Survey; structural equation modeling	Decentralized power and communication are key factors in developing good relationships between employees and organizations

Table 1. (*continued*)

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
Enhancing Role Breadth Self-Efficacy: The Roles of Job Enrichment and Other Organizational Interventions Parker (1998)	What are the factors that determine whether new What is the role of breadth self-efficacy (which refers to employees' perceived capability of carrying out a broader and more proactive set of work tasks that extend beyond prescribed technical requirements) in entrepreneurial behavior	669 employees from a glass manufacturing company	Survey (completed questionnaires during work hours in group sessions facilitated by researchers), with repeated in a second cross-sectional study ($N = 622$) and extended by examining change over time ($N = 459$)	Increased job enrichment and increased quality of communication predicted the development of greater self-efficacy
Middle Managers' Strategic Role in the Corporate Entrepreneurial Process: Attention-Based Effects Ren and Guo (2011)	What are the attention-based effects on how middle managers provide the impetus for different types of entrepreneurial opportunities (i.e. exploratory vs exploitative initiatives)	Size: (top and middle level managers) Type: Mixed level Location: Not specified	Qualitative	Middle managers, constrained by the attention structures of the firm, likely prescreen entrepreneurial opportunities from lower organizational levels and attend primarily to those that align with the firm's strategic orientation
Work context and employee behaviour as antecedents for intrapreneurship Rigtering and Weitzel (2013)	How can employee behavior be stimulated towards intrapreneurship?	176 employees of Dutch organization	Survey, Structural equation model	Formal organizational factors (horizontal participation, resource availability) affect intrapreneurial behavior, and highlight informal factors such as trust in the direct manager. Innovativeness and personal initiative, but not risk-taking, play a role for the effective translation of employees' behavior into intrapreneurial projects

(*continued*)

Table 1.

Paper title	Research question[1]	Sample details (size, type of employees, location)	Data collection and analysis approach	Findings relevant to non-managerial employees
The focus of entrepreneurial research: contextual and process issues Ucbasaran *et al.* (2001)	(1) Examine literature focusing upon opportunity recognition and information (2) Discuss the literature relating to the organizational forms selected by entrepreneurs?	Employees of failed and successful firms	Literature review	Additional research attention should be directed towards gaining a greater understanding of the behavior of different types of entrepreneurs (i.e. nascent) and the different organizational forms selected (i.e. corporate venturing) by entrepreneurs
International Corporate Entrepreneurship and firm performance: The moderating effect of international environmental hostility Zahra and Garvis (2000)	What is the moderating effect of perceived hostility of the international environment on the relationship between international CE and company performance?	149 Vice Presidents, 73 Managers of US organizations	Survey validated through secondary data)	Companies benefit from international corporate entrepreneurship activities by achieving higher overall performance, foreign profits and growth in revenue. However, the aggressive pursuit of international corporate entrepreneurship does not always guarantee superior performance

Note(s): [1]Where a research question was explicitly stated, we included it in the table *in italics*. Where a research question was not explicitly stated, we approximated its research question based on the paper's objectives and findings

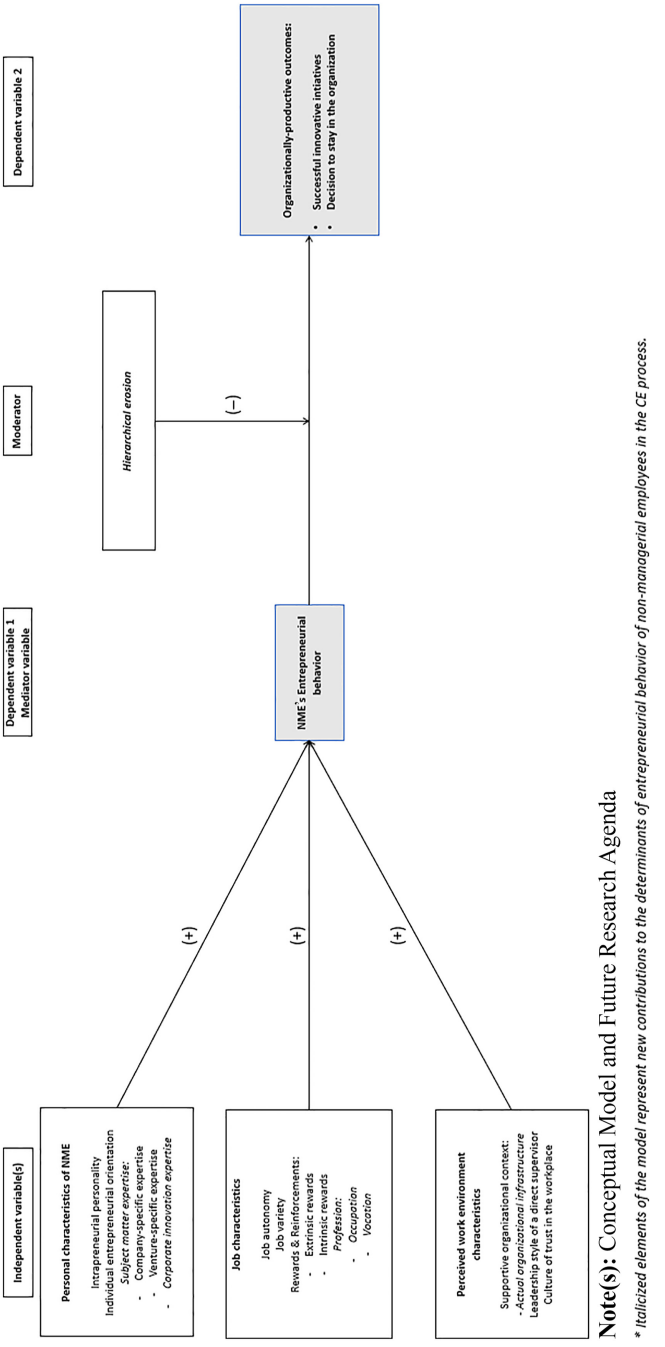
Table 1.

is an inborn individual characteristic, but the second and third are learned behaviors. We take these in turn.

Intrapreneurial personality

Intrapreneurship is understood as individual, agentic, anticipatory behavior aimed at creating new businesses for the organization (i.e. venturing behavior), fostering operationally-significant innovation within the organization (i.e. innovation-driving behavior), and/or enhancing an organization's ability to react strategically to internal and external advancements (i.e. strategic renewal behavior). An *intrapreneurial personality* can therefore be defined as an individual's traits favoring and promoting engagement in these behaviors by themselves. Employees with an intrapreneurial personality have a bias for taking action. They show enthusiasm for acquiring new skills and acting on ideas, and are eager to improve, persevere, and create a collaborative working environment to meet a challenge (Åmo and Kolvereid, 2005; Blanka, 2019; Pinchot, 1985).

Figure 2.
The ultimate coding scheme in our systematic literature review



Note(s): Conceptual Model and Future Research Agenda

** Italicized elements of the model represent new contributions to the determinants of entrepreneurial behavior of non-managerial employees in the CE process.*

Figure 3.
The determinants of non-managerial employees' behavior in corporate entrepreneurship

Four of our sample studies addressed intrapreneurial personality. Åmo and Kolvereid (2005) use Pinchot's self-assessment quiz (1985, p. 31) to measure respondents' intrapreneurial personality and find that a high score on that self-assessment is positively and significantly associated with innovation outcomes in organizations. Gawke *et al.* (2017) examined personality characteristics associated with intrapreneurial behavior and found three: ego-resilience, optimism, and self-efficacy. *Ego-resilience* refers to individual preference for change; *optimism* defines a broad, diffuse sense of confidence that is associated with a tendency to approach challenges with enthusiasm and persistence; and *self-efficacy* describes the expectations of individuals about their abilities to execute desired behavior successfully. The data were gathered from 351 employees with an online questionnaire in five public organizations in The Netherlands at two time periods. Gawke *et al.* (2017) find that ego-resilience, optimism, and self-efficacy positively influence employee intrapreneurship and work engagement, "enhancing an organization's ability to react to internal and external advancements (i.e. strategic renewal behavior) as characterizing employee intrapreneurship" (p. 4).

Another entrepreneurial personality trait described in the literature is *emotional intelligence*. Defined as "the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships" (Goleman, 1998, p. 317), emotional intelligence reflects the extent to which a person notices, incorporates and acts on information of an emotional nature (Zampetakis *et al.*, 2009). Zampetakis *et al.* (2009) surveyed 224 employees working for service sector organizations in Greece. Their research revealed that NMEs' emotional intelligence is significantly and positively related to entrepreneurial behavior. The emotional signals NMEs received from their work environment influenced them to act entrepreneurially.

Individual entrepreneurial orientation

Entrepreneurial orientation (EO) is an "attribute of an organization that exists to the degree to which that organization supports and exhibits a sustained pattern of entrepreneurial behavior" (Covin and Wales, 2012, p. 5). The construct is measured along three dimensions, including risk-taking, proactiveness, and innovativeness (Covin and Slevin, 1989). However, EO addresses the organization rather than the individual; it aligns with upper echelon theory in that a firm is entrepreneurially oriented if senior managers favor processes, practices, and decision-making that display risk-taking, innovativeness, and proactiveness.

The concept of Individual EO (IEO) mirrors the same core dimensions (risk-taking, innovativeness, and proactiveness) measured as observable behaviors at the individual level (e.g. Bolton and Lane, 2012). The organizational pervasiveness of EO (Wales *et al.*, 2011) may depend on the extent to which employees at different hierarchical levels exhibit intrapreneurial characteristics (Covin *et al.*, 2020). Covin *et al.* (2020) operationalize IEO as self-reported or supervisor-reported risk-taking, innovative, and proactive behaviors in the workplace, similar to De Jong *et al.* (2015). Kraus *et al.* (2019) discuss IEO as an expression of exploration and exploitation behaviors, where exploration speaks to opportunity identification, and exploitation speaks to exploiting newly-found opportunities within the organization. Thus IEO not only incorporates initiation of opportunities, but also their execution.

Two empirical studies in the sample addressed the influence of IEO characteristics on entrepreneurial behavior among NMEs in corporate settings. Marques *et al.* (2018) examined innovations in publicly funded healthcare systems, focusing on 536 nurses who worked at seven public hospitals in Portugal. The authors found that intrepreneurial nurses are more likely to take risks, more confident in their managerial skills, and slightly more self-motivated. In terms of the three IEO dimensions and their effect on outcome measures, innovativeness had no significant effect, proactivity positively affected managerial skills, and risk-taking had positive and significant effects on intrapreneurial intentions (Marques

et al., 2018, p. 739). Kraus *et al.* (2019) examined the effect of the IEO of 266 municipal and city employees in Germany on their exploration and exploitation activities. Their survey-based study concludes that "employees with a high level of IEO are more likely to work on explorative activities which are the foundation for every intrapreneurial process, whereas IEO does not seem to influence exploitative activities" (Kraus *et al.*, 2019, p. 1247). Based on these two studies we see evidence of a link between IEO and entrepreneurial intentions and behaviors.

Subject matter expertise

Subject matter expertise is another significant theme that emerged in our analysis of personal characteristics. We understand *subject matter expertise* as skills, knowledge, and experience. Scholars differentiate between individual and firm-specific expertise (Becker, 1993; Hughes *et al.*, 2016). The former is the expertise that a person has developed in areas that can be applied to and transferred across firms as employees move from one firm to another (Gimeno *et al.*, 1997). In comparison, firm-specific expertise refers to skills, knowledge, and capabilities imparted by firm-specific training programs or firm related work experiences (Parker, 2011), which are not transferable and are typically narrower in scope (Becker, 1993). Notably, although firm-specific training programs can augment firm-specific expertise and activate its use for employee entrepreneurial behavior, management training offered to NME's has only a weak effect on their entrepreneurial skills (Marques *et al.*, 2018). Nevertheless, recent studies call for research on corporate innovation expertise because promising initial findings suggest that training and experience in innovation roles may lead to a step-change in NME entrepreneurial behavior (O'Connor *et al.*, 2018).

Firm-specific expertise is sometimes linked to an agency problem mentioned in CE literature. When an employee identifies a new venture opportunity that can be exploited either inside or outside the firm, the employee has a choice: the employee can keep the opportunity secret and quit the firm to exploit it in a new independent firm or disclose it to the firm, hoping to share the resulting profits. The choice of NMEs to use their expertise or not may be a function of the extent to which corporations create innovation career paths and opportunities for their people. In fact, corporate innovation may be considered an expertise unto itself. Research has been shown that people learn, develop and improve this expertise with practice (O'Connor *et al.*, 2018). Designated innovation roles can help retain individuals who desire to work in a corporate innovation context (O'Connor *et al.*, 2018). Drawing on the results of a four-year study and 2 decades of related research, O'Connor *et al.* (2018) outlined three fundamental competencies necessary among individual employees for innovation: *discovery, incubation, and acceleration.* The authors deliver a pioneering blueprint for innovation by NMEs, mapping the skills to roles and opportunities for advancement, also noting the selection criteria should discern the personal characteristics required of those who occupy these roles.

We draw on two sampled studies to gain insights on expertise as a determinant of NMEs entrepreneurial behavior. First, Parker's (2011) study of a nationally representative sample of American adults engaged in starting a new venture distinguishes between *individual* and *firm-specific* expertise. The study reveals that individual expertise comprising skills, knowledge, experience, and capabilities (such as those conveyed through formal education) can be useful in many productive settings, including existing organizations and new venture creation. Individual expertise "enables individuals to exploit new opportunities independently of a formal employer" (Parker, 2011, p. 28). Indeed, Parker (2011) implies that on an individual level, the most influential driver of NMEs' willingness to be involved in new corporate ventures is the benefit to their personal wealth. Secondly, Zampetakis *et al.* (2009), using a sample of 224 employees from four Greek organizations, found that entrepreneurial behavior is stronger for employees with less tenure.

(2) Job characteristics

Two job characteristics were revealed in our SLR as determinants of entrepreneurial behavior: job autonomy and job variety

Job Autonomy is defined as "the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out" (Hackman and Oldham, 1976, p. 258). Job autonomy enhances a worker's belief that they have control over how they undertake their tasks. This belief is associated with increased mastery experience and self-efficacy (Parker, 1998). Mastery experiences at work are "facilitated when gradual accomplishments build the skills, coping abilities, and exposure needed for task performance" (Gist, 1987, p. 473), while self-efficacy is defined as an individual's beliefs about his capabilities to produce designated levels of performance (Bandura, 1994). Therefore, job autonomy is a crucial component of developing an individual's entrepreneurial capabilities and mastering this with experience.

De Jong *et al.* (2015) found that job autonomy relates directly to NME entrepreneurial behavior, particularly its innovation and proactivity dimensions. Their findings suggest that work design can enhance in-house entrepreneurship. A vertical expansion (job enlargement), or enhanced autonomy for decision-making (Hackman and Oldham, 1976), encourages entrepreneurial behavior. Horizontal expansion (job enrichment) increases "the breadth of activities people are involved in, such as by combining tasks previously carried out by two separate people" (Parker, 1998, p. 837).

Similar to De Jong *et al.* (2015), Hughes *et al.* (2018) find that autonomy encourages individual entrepreneurial behavior. Ultimately, entrepreneurial behavior is more likely to follow when autonomy is high than when autonomy is low. Drawing on social exchange theory, Hughes *et al.* (2018) found that granted autonomy only encourages individual entrepreneurial behavior if the NME trusts their line manager or fellow team members. Trust enables NMEs to overcome the fear that failed initiatives will be unduly sanctioned, and encourages individuals to believe that their colleagues and line manager will support their initiatives in principle and implementation. Notably, Hughes *et al.* (2018) only examine those NMEs where entrepreneurial behavior was not a routine part of their job–where such behavior represents extra-role behavior. In other occupations and positions (sales, R&D), entrepreneurship and innovative behavior are more expected features of the job. Similarly, some roles require autonomy because of the nature of the work (e.g. lab worker, factory worker, auditor, computer programmer). People in these roles can work independently of others because of their work and not just because their boss trusts them. This discussion points to whether forms of job autonomy exist and how occupations or professions may change expectations therein.

We suggest there is a distinction between autonomy as a characteristic of the job itself and autonomy granted by one's trusting supervisor(s). While autonomy is "loaned" in both instances, negative outcomes may occur when individuals empowered with autonomy operate in isolation. Inventors may work alone, but entrepreneurs usually have a team (and necessarily so) to ensure wild and unproductive entrepreneurial ideas are terminated or changed (e.g. Hughes *et al.*, 2022).

Job Variety is "the degree to which a job requires a range of different activities in carrying out the work" (Hackman and Oldham, 1976, p. 257). Job variety refers to the structure, content, and configuration of NME tasks and roles and is associated with enactive mastery experiences (Parker, 1998) that increase employees' perceived capabilities to engage in entrepreneurial behaviors.

De Jong *et al.* (2015) show that job variety is not significantly related to entrepreneurial behavior, unlike job autonomy. However, they observe that job variety matters when job autonomy is absent, suggesting a moderating relationship between the two. In contradiction to Parker (2011), job variety does not generate mastery experience; rather, it diversifies the

tasks and experiences of NMEs. This implies that job variety impacts learning experiences, but we cannot conclude that learning experiences benefit intrapreneurial behavior. Zampetakis and Moustakis (2010) imply such an effect and observe that job rotation, exposing an individual to various tasks, is preferred by entrepreneurial civil servants and stimulates entrepreneurial behavior.

(3) Supportive work environment

We define the *supportive work environment* as the extent to which a NME senses management support for CE. Management support refers to "the willingness of managers to facilitate and promote entrepreneurial behavior, including the championing of innovative ideas and providing the resources people require to take entrepreneurial actions" (Hornsby *et al.*, 2013, p. 939). While Hornsby *et al.*'s definition referred expressly to top management support, we extend this to all management levels since they set the culture of the work environment. Kuratko *et al.* (2005a,b, p. 670) note that "all managerial behavior is critical to attaining CE success." It can be instrumental in fostering entrepreneurial activity leading to productive innovation results and performance outcomes (Calisto and Sarkar, 2017; Hornsby *et al.*, 2009). Our analysis of a supportive work environment revealed four themes: (1) Supportive organizational context toward entrepreneurial behavior, (2) Rewards and reinforcement, (3) Leadership style of a direct supervisor, and (4) Culture of trust in the workplace.

Supportive organizational context toward entrepreneurial behavior is defined as one that provides access to resources, information, and rewards that encourage entrepreneurial behavior. Such a context motivates employees to initiate organizational improvements (Kraus *et al.*, 2019) by using the organization's physical and informational assets and infrastructure.

CE studies show that management support is important (Kuratko *et al.*, 2005a, b; Hornsby *et al.*, 2013) and have focused on identifying organizational elements that stimulate and support entrepreneurial behavior (Corbett *et al.*, 2013).

According to Hornsby *et al.* (2013), top management support encourages individuals to act entrepreneurially, take calculated risks with new ideas, and bend the rules and rigid procedures to keep promising ideas on track. Dougherty (1995) reveals that management support is crucial to overcoming the negative consequences of organizational inadequacies and weak capabilities, described as "core incompetencies." However, management support is not meaningful unless NMEs *perceive* it as real and authentic.

Two studies in the sample report similar results regarding management support. First, using a sample of 237 public servants working at the second level of government in Greece, Zampetakis and Moustakis (2007) found a positive correlation between the encouragement of initiatives, access to managerial information, and entrepreneurial behavior among NME's (albeit public servants). Their study emphasized the importance of providing resources (i.e. actual organizational infrastructure) and encouraging initiatives to stimulate entrepreneurial behavior. Secondly, Zampetakis *et al.*'s (2009) study of 224 employees representing four Greek organizations aimed at deepening the understanding of the factors, which influence individual entrepreneurial behavior in organizations, and in particular tested the influence of personal traits (represented emotional intelligence or emotional self-efficacy) and contextual factors (represented by perceived organizational support) on entrepreneurial behavior. The study finds that top management support correlates significantly with entrepreneurial behavior. Thus, organizational support for innovation can be crucial for stimulating entrepreneurial behavior.

Rewards and reinforcement are defined as "developing and using systems that reward based on performance, highlight significant achievements, and encourage pursuit of challenging work." (Hornsby *et al.*, 2013, p. 939). Rewards and reinforcement systems have

long been identified as correlates of CE activity among middle managers. For example, Hornsby *et al.*'s (2002) Corporate Entrepreneurship Assessment Instrument (CEAI) measures a firm's entrepreneurial culture and includes "rewards/reinforcement" as one of its core factors.

Work on corporate innovation and creativity suggests that employees engage in CE based on intrinsic motivation, enjoy intrinsic rewards, and prefer recognition over pay (Amabile *et al.*, 1996). Literature on motivation and empowerment advocates that intrinsic motivation is necessary to motivate employees, yet we find little research on how *extrinsic* rewards affect entrepreneurial behavior. For instance, Hornsby *et al.* (2009) highlight the importance of rewards in general to entrepreneurial behavior, but their measure mixes intrinsic and extrinsic rewards. Choi *et al.* (2019) used survey data collected from 79 US-based multinational firms and found that the impacts of extrinsic rewards on breakthrough innovation vary with the firm's degree of conservatism. They suggest that the reward–motivation relationship is contingent on wider work environment factors for its effect on NMEs' entrepreneurial behavior to take hold.

Whether rewards are sufficient in isolation to prompt and reinforce entrepreneurial behavior among NMEs is partially addressed by Marvel *et al.* (2007). Investigating the conditions motivating individual scientists and engineers who created and commercialized multiple breakthrough innovations in their place of employment, Marvel *et al.* (2007) find that the intrinsic motivation to innovate needs to be considered in supporting entrepreneurial behavior in the CE process. These findings suggest that implementation of the reward–motivation relationship concerning NMEs' entrepreneurial behavior is potentially faulty if perceptions between what actually incentivizes corporate entrepreneurs and what HR managers believe incentivizes them differ.

Using decision-making scenarios with corporate employees, Monsen and Patzelt (2010) found that profit-sharing positively affects employee willingness to participate in CE but that effect is diminished with higher pay risk and job risk. More specifically, Monsen and Patzelt (2010, p. 118) observe that "employees' willingness to participate in corporate venturing increases with (1) decreasing job risk (if the venture fails employees still have a job), (2) increasing success probability, and (3) decreasing effort associated with the new venture."

While CE studies address different types of rewards (Hayton, 2005; Kuratko *et al.*, 2014), few examine the content and form of reward systems for NMEs that effectively deal with the issues of risk–reward considerations and job security. For example, some reward systems might encourage high risk but promise a high reward, such as phantom stocks in a venture or promotion to a managerial position. Other systems may offer low risk and rewards, such as a traditional salary or greater job security. However, we found no research on different risk-reduction/upside-reward mixes and NME entrepreneurial behavior. As Marvel *et al.* (2007) noted, blueprints or reward templates that emphasize one set of reward mix may be meaningless as a motivator when an employee's role or occupation is non-traditional, or when they value a different mix. Going forward, scholars must address the issue of rewards and reinforcement in a more nuanced way, allowing that extrinsic rewards do make a difference in providing signals of reduced risk from organizational leaders, but that upside potential as well as intrinsic motivations may also be important aspects of the mix.

Leadership style of a direct supervisor affects one's entrepreneurial behavior. We adopt Bass and Avolio's (1993) definition of leadership style: characteristic behaviors when motivating, guiding, and managing employees to act willingly and enthusiastically to attain defined individual, group, or organizational goals. The entrepreneurship literature investigates two common leadership styles, transformational and transactional. *Transformational leadership* refers to inspiring followers to adopt the organization's vision as if it were their own and focus on achieving collective goals. *Transactional leadership* refers to defining what followers need to do as their part of a transaction (successfully completing

a task) to receive a reward or avoid punishment (satisfy followers' needs) contingent on task fulfillment (satisfying the leader's needs) (Bass, 1985).

Two studies in the sample addressed leadership style influences on entrepreneurial behavior. First, Moriano *et al.* (2011) studied 29 work teams belonging to large and medium Spanish organizations from both the public and private sectors. They found that transformational leadership positively influenced employee intrapreneurial behavior, and transactional leadership negatively influenced it. Transformational leadership correlated with employee perception of support for entrepreneurial initiatives, while transactional leadership correlated with providing structures and resources to enable such initiatives. Thus, employees respond differently to managers' actions to embed a CE structure compared to a culture of inspirational leadership. Moreover, the willingness of NMEs to behave entrepreneurially is likely shaped by the historical actions of managers. By comparison, transformational leaders enhance the performance of individuals by engaging in intellectual stimulation, inspirational motivation, charismatic or idealized influence, and individualized attention (Bass, 1985). The organizational vision communicated and understood by employees is important, given the findings of Moriano *et al.* (2011). The effects of transformational leadership on CE behavior seem to transcend the organizational hierarchy. Not only are direct supervisors with transformational leadership styles found to be more incentivizing of CE behavior, but so are senior leaders. Ireland *et al.* (2009) identify top management vision as the core driver of entrepreneurial behavior among lower level employees.

Second, Monsen and Boss (2009) surveyed 1,975 participants in 110 departments of a diversified Dutch healthcare organization to investigate how managers and staff perceive and react to entrepreneurial strategies. The researchers found that staff (i.e. NME's) report lower levels of risk-taking, innovation, and proactiveness than managers. These results may indicate transformational leadership style is more important for NME's than previously considered. Monsen and Boss's (2009) study is the only one in our sample that compares managers and NMEs. Their findings support our argument for decoupling NMEs from other employee levels to clarify differences among the triggers and support mechanisms each needs to engage in entrepreneurial behavior.

These few studies, and the larger set that do not distinguish NMEs, reveal that transformational leadership appears to be more effective than transactional leadership in generating entrepreneurial behavior (e.g. Afsar *et al.*, 2017). In the absence of transformational leadership, an individual's sense of empowerment may compensate. Thus, an individual might take advantage of the resources a transactional leader provides, assuming the leader is committed to the particular intrapreneurial initiative. However, psychological empowerment has yet to be examined thoroughly in studies of CE.

Culture of trust in the workplace and its influence on NME entrepreneurial behavior emerged as a third theme in our analysis of work environment characteristics. By "culture of trust" we mean the extent to which NMEs trust their immediate peers (horizontal trust) and direct supervisors (vertical trust). Trust lubricates the social fabric of the firm, providing NMEs with the confidence to take risks without fear (Castrogiovanni *et al.*, 2011), and thus facilitates entrepreneurial behavior (Ribeiro-Soriano and Urbano, 2009). Trust must extend beyond team members and their relationships with direct supervisors to relationships with other organizational members in order to receive the necessary support for developing new knowledge and competencies for the organization (Zahra *et al.*, 1999).

Hughes *et al.* (2018), the only study on trust in our sample, found that innovative work behavior among non-managerial, front-line employees can increase their perceived workplace performance, and the effect is conditional on trust. Their study of the front office and operations department of a major insurance company in The Netherlands focused on the innovative work behavior of lower-level employees and the work teams in which

they participated. The authors found that innovative behavior at the individual level positively affects individual and team performance. There are rewards to the firm when employees go beyond their roles through innovative behavior. The research found that vertical trust between employees and supervisors and horizontal trust between team members positively affect this relationship.

Entrepreneurial behavior of non-managerial employees: a conceptual model

Our integrative approach provides a multi-level analysis that considers the concurrent influences of micro (personal), meso (job), and macro (work environment) levels on NME willingness to engage in entrepreneurial behaviors that lead to productive organizational outcomes. We propose a conceptual model from our analysis, shown in Figure 3, to guide a systematic examination of this subject. To explain organizationally productive outcomes from NMEs' entrepreneurial behavior, we expanded our synthesis of its determinants to include relevant insights from adjacent literature. Doing so provides additional richness to our proposed future research agenda and provides scholars with confidence that what we recognize as missing has foundations in adjacent fields. The italicized terms in Figure 3 represent these additions.

Organizational outcomes

Beginning at the right side of the figure, we propose two variables that are relevant to an organization's well-being: (1) successful innovative initiatives, which may be assessed in future research based on an initiative's impact on the firm and the market; and (2) non-managerial employee retention. Both reflect organizationally productive outcomes of interest to senior leaders. Successful innovative initiatives are well understood in the literature and include various forms of new market entry, such as new business development, corporate venturing, or innovations associated with change or improvement, such as business model reconstruction. The notion of agentic choice may require more explanation.

Every NME must deliberate or consciously choose to use their expertise for CE to benefit the organization. This choice may or may not be a function of how corporations facilitate innovation-rewarding career paths or provide entrepreneurial opportunities for NMEs. As reported in the literature, 71% of employees leave the innovation function in their companies, and 20% choose to leave and start their own company (O'Connor *et al.*, 2018). Thus, retaining innovation talent in the firm and within the innovation function are important managerial concerns. Corporate innovation research, seizing on this fact, is beginning to address this challenge. Corporate innovation expertise (innovation competence), built around discovery, incubation, and acceleration roles (O'Connor *et al.*, 2018), is an emerging business function and a new career path. Future research should investigate how organizations ensure that NMEs make choose to use their entrepreneurial proclivities to benefit the organization. The cost of an entrepreneurial NME leaving is a loss of valuable human capital (Hughes *et al.*, 2016).

Antecedents and mediating constructs

The model suggests that NME engagement in entrepreneurial behavior can result in organizationally productive outcomes. Figure 3 proposes that company leaders can support NME entrepreneurial behavior in three ways, by (1) selecting people with particular personal characteristics, (2) understanding the job design implications associated with entrepreneurial behavior and (3) setting up the work environment in a particular manner.

Individual characteristics. Based on the literature, we theorize that an intrapreneurial personality, individual entrepreneurial orientation, and subject matter expertise all relate positively to a NME's likelihood of engaging in entrepreneurial behavior.

However, we advocate breaking down subject matter expertise into three types. A person may have firm-specific expertise, meaning knowledge of company norms for accomplishing work, rich internal networks, and other sources of influence. Secondly, subject matter expertise may lie closely with the venture, that is, its technology or market domain expertise. Finally, corporate innovation expertise means that a person understands how to identify opportunities, turn them into business proposals, and scale them within a corporate setting. To date, most studies consider subject matter expertise only in terms of an individual's tenure, firm experience, or ability to contribute to a venture. These studies have omitted the corporate innovation expertise that forms and launches new innovation projects or CE ventures.

Job characteristics. We suggest a positive association with entrepreneurial behavior for roles that offer high autonomy, high variety and a greater likelihood of being rewarded for innovation. Additionally, we suggest the concept of *profession*, consisting of occupation and vocation, as part of the job characteristics category. We define occupation as the specific job an employee is hired to perform (e.g. accountant, researcher, salesperson). We define vocation as a feature of the job, whether administrative, technical, or related to trade, craft, or art. An organization might prefer its finance staff *not* to be entrepreneurial because of the regulatory and legal risks associated with errors. Conversely, roles such as those in R&D or sales may be innovative, with entrepreneurial activity expected (in-role) versus unexpected (extra-role) (De Jong *et al.*, 2015; Hughes *et al.*, 2018). Similarly, what it means to be innovative or entrepreneurial in one profession likely differ from what it means for another very different profession. Scholars often control for industry in their sample design or data collection. However, this coarse variable does not capture differences in profession (occupation and vocation) within single industries or industry groupings.

Work environment characteristics. CE literature recognizes that a supportive organizational context affects employee willingness to engage in entrepreneurial behavior. Our analysis suggests that this is especially true for those at lower ranks in an organizational hierarchy. The leadership style of one's direct supervisor and a culture of trust in the workplace predict non-managerial employee entrepreneurial behavior. Notably, most literature views the work environment based on respondent perceptions.

The perceived work environment indicates the extent to which a NME will develop a *willingness* to engage in entrepreneurial behavior. However, willingness will not convert into the *ability* to behave entrepreneurially if the organizational infrastructure does not enable progress in entrepreneurial endeavors. Moreover, environmental perceptions are often imperfectly correlated with environmental realities regarding support for entrepreneurial behavior. NMEs may sometimes perceive support, only to run into limitations and barriers caused by deficiencies in organizational design. For example, many companies today provide opportunities for employees to submit ideas and use free time to pursue those opportunities with a small amount of funding. They run contests and may offer time away from jobs to move to an accelerator to pursue an idea, with coaching from support staff and some visibility to senior leaders. These supportive infrastructure elements have not always been available in large corporations. What is unknown is the nature and characteristics of such infrastructure that are needed to bring fledgling ideas to fruition rather than adding to the frustration of NMEs who participate but do not have a full complement of the resources required to succeed.

The moderating influence of hierarchical erosion

Very few studies consider what conditions limit the organizational productiveness of NME entrepreneurial behavior. Ireland *et al.* (2009) draw attention to top management's entrepreneurial strategic vision. However, recent studies in management theory (Gibson *et al.*, 2019) speak of a "hierarchical erosion effect" that occurs as employees become increasingly distant, hierarchically, from senior management. Hierarchical erosion causes

NMEs to lose understanding and knowledge of the overall strategic vision. Because of this, encouraging entrepreneurial behavior among NMEs may lead to aimless entrepreneurship unless these employees have sufficient knowledge and understanding of top management's vision and associated organizational goals. An organization may have a low dispersion of interpretation of top management's vision across employees at similar levels, but a significant difference between the views of senior executives, middle-level managers, front-line supervisors, and NMEs.

Hierarchical erosion is lower in business units where lower-level employees have greater access to strategic information and when practices are implemented with more front-line input (Gibson *et al.*, 2019). In this vein, perceptions of firm-level strategy are biased by the degree to which individuals are involved in creating strategy and by how accurately strategy and its vision, goals, and objectives are communicated to them. These differences partly explain why managers and staff report different levels of understanding of firm-level strategies and entrepreneurial strategies (Monsen and Boss, 2009). In contrast to middle-level managers, NMEs have fewer occasions for having their ideas considered within the overall set of strategic priorities (Hornsby *et al.*, 2002). Greater effort is required for NMEs to communicate their ideas to upper management and gain top management support. At the same time, middle-level managers do so as part of their standard operations (Morris *et al.*, 2006) because they have a structural ability to "make more of organizational factors that support entrepreneurial action" (Hornsby *et al.*, 2009, p. 236). Thus, NMEs may behave entrepreneurially; but due to hierarchical erosion, their entrepreneurial initiatives may be disconnected from strategy and receive less support. Thus, a priority for future research is to examine the effects of hierarchical erosion on the relationship between NME entrepreneurial behavior and the resulting outcomes, both in terms of their innovation initiatives and their decisions to remain in the organization.

We anticipate that the greater the hierarchical distance between NMEs and senior managers, the worse their understanding of organizational goals, vision, and strategy, as theorized by Gibson *et al.* (2019). Further, NMEs who experience more significant hierarchical erosion are likelier to initiate entrepreneurial activities that are less suited to the firm. This will result in fewer of their initiatives being accepted, and consequent frustration may increase the probability of their departure. Scholars might examine ways to mitigate hierarchical erosion to prevent wasted effort and frustration from NMEs. While we only model the effect of hierarchical erosion as a moderator between entrepreneurial behavior and outcomes, clearly there is more nuanced work to be done on this important topic.

Limitations

Our SLR has several limitations to consider. First, our sample size ($N = 30$ papers) was relatively small, so the scope of the conclusions is limited. Still, the sample of papers in this SLR was rich enough to support the identification of a conceptual model on which future studies may build. Second, limiting our SLR to studies that explicitly referenced the entrepreneurial behavior of NMEs – rather than simply *employees*, which could include those with managerial positions – potentially eliminated relevant studies from consideration. Hence, our study likely underrepresents the true scope of research in this area. Third, in our review, we hoped to examine the influence of environmental factors, including *industrial factors* (such as, for example, market dynamism, competitive intensity, industry growth and complexity) and *institutional factors* (such as socio/political environment, government policy, technology policy, labor mobility, and national culture-related factors). Yet, the paucity of studies on NMEs specifically meant we could not reliably add this element into our model [1]. Lastly, we acknowledge that there is a rich set of bordering literature that could be explored for the purpose of identifying possible additional determinants of NMEs' entrepreneurial behavior.

Conclusions and directions for future research

What do we know about the roles and effects of NMEs in CE processes? Our SLR offers a synthesis of research on NMEs' entrepreneurial behavior to answer this question. Many fertile areas exist for new research. We present the first conceptual model that considers concurrently three sets of micro (individual), meso (job) and macro (work environment) characteristics in predicting NMEs' entrepreneurial behavior. We conceptualize hierarchical erosion as a new boundary condition.

Associated with the model, we deliver the three following contributions. First, we focus on individual entrepreneurial behavior at lower levels of the organizational hierarchy. We reveal the general tendency to overlook NMEs and a general assumption that entrepreneurial behavior will follow in the presence of specific organizational parameters. We reveal the individual-level elements that empirical studies have concentrated on to date to shed light on conditions that influence the entrepreneurial behavior of NMEs. Second, we conduct a fine-grained assessment of NMEs that accounts for their context and situations affecting their entrepreneurial behavior tendencies. Specifically, we show how existing studies have relegated context to simple control variables or sampling conditions, ignoring how roles and occupations may change the potential of NMEs for entrepreneurial behavior. In doing so, we spotlight the need for context-sensitive theorizing in future studies of CE. Third, we offer detailed findings on the determinants of NMEs' entrepreneurial behavior in CE process as a foundation for future theoretical and practical development of the field; and we set out high-priority areas in need of urgent research.

Several notable conclusions are drawn regarding research in this domain emerge. First, surprisingly little research has explored the efficacy of programs that catalyze entrepreneurial behavior among NMEs, in spite of the fact that entrepreneurial behavior has long been regarded as, on the whole, virtuous and a multi-level responsibility (Wales *et al.*, 2011). Second, individual-level entrepreneurial behavior is rooted in individuals' values (Pidduck *et al.*, 2021), yet the values of non-managers conducive to their engagement in extra-role (i.e. not dictated by their job descriptions) corporate entrepreneurial activity have yet to be explored. Third, anecdotal evidence suggests that the industry and macroenvironmental contexts in which firms operate can significantly affect the likelihood that NMEs will engage in entrepreneurial activities (e.g. Adim and Poi, 2022; Morris *et al.*, 2011). Nonetheless, how and why – that is, through which specific mechanisms – conditions external to the firm might affect intrapreneurship among NMEs has received scant attention.

As shown in this review, there is a need for CE scholars to focus more specifically on NMEs as a population of interest when examining motives and success factors for employee engagement in CE behavior. Figure 3 and the discussion that emanates from it is just the beginning of a theory on NMEs in CE literature. It requires testing and ongoing conceptual enhancement. Developing operational definitions of the constructs and new measures may also be necessary.

Future research might include comparative studies that analyze the influence of power and access to resources that managerial employees have compared to NMEs. The relative importance of types of expertise in NMEs' success with CE offers another research opportunity. Furthermore, the various professions and work contexts of NMEs require different skills, knowledge, and experience (subject matter expertise). Comparing entrepreneurial behavior by NMEs across various professions and industries in terms of skills, knowledge, and experience needed to display entrepreneurial behavior (e.g. sales workers versus manufacturing employees) is another promising avenue of research.

Encouraging entrepreneurial behavior by NMEs helps unleash entrepreneurial energy in organizations, but there is no guarantee that initiatives taken will collectively drive long-term organizational success. As implied earlier, there is no inherent direction to entrepreneurial energy, so for entrepreneurship to work in a company's favor, that energy must be harnessed

and strategic. However, firms must establish and widely communicate strategic agendas that guide entrepreneurial activity to promote long-term organizational performance. Nevertheless, these agendas should not be so strict that they fail to recognize or discourage entrepreneurial behavior that might be the basis for performance that sustains or enhances long-term strategic renewal. Arguably, exploratory entrepreneurial activity and firm strategy *should* operate in a recursive relationship (Covin and Miles, 1999, 2007), with firms benefitting from entrepreneurial actions that inform strategy and suggest parameters inviting entrepreneurial activity. Thus, identifying mechanisms that effectively link NMEs' entrepreneurial behavior to the strategic agendas of their firms is a primary CE management challenge and research need.

Note

1. Our review data led us to focus on factors inside the firm affecting non-managerial employees' behavior. Originally, when first crafting our conceptual model, we considered *environmental (institutional) factors* as a separate category, but the findings of our SLR did not support this category's inclusion in our model.

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Further reading

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Appendix

The supplementary material for this article can be found online.

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