A trilogy of organizational ambidexterity: Leader's social intelligence, employee work engagement and environmental changes

Abstract

By proposing an integrative multilevel framework, this paper analyzes the simultaneous impact of two internal micro-antecedents (i.e., leader's social intelligence and employee's work engagement) and one external macro-antecedent (i.e., dynamically changing environment) of organizational ambidexterity on two dimensions of organizational performance (i.e., creativity and productivity) through the simultaneous pursuance of organizational exploration and exploitation by firms. The analysis is based on a sample of 657 Greek employees working in 99 private organizations, by adopting a multi-level structural equation modeling via Mplus. The findings reflect that leader's social intelligence has higher positive impact on creativity through exploration activities, compared to productivity through exploitation activities. Additionally, the dynamically changing environment has a lower positive impact on creativity compared to the positive impact on productivity. This study contributes to the field of ambidexterity and behavioral integration literature by simultaneously examining micro- and macro-antecedents and consequences of organizational ambidexterity.

Keywords: Leader's social intelligence, employee work engagement, dynamic environment, organizational ambidexterity, organizational performance

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1. Introduction

Over the last decade, there has been a massive interest in theory and research on organizational ambidexterity (Hughes, 2018). *Organizational ambidexterity* (OA) refers to an organization's ability to manage efficiently the current business demands and at the same time to be adaptive to future business needs due to environmental changes (Raisch and Birkinshaw, 2008). The term *exploitation* reflects the current efficient management of business demands and by avoiding risks usually is focused on production effectiveness and efficiency. The term *exploration* reflects the ability to adapt to future requirements and by being risk taking usually is focused on experimentation, flexibility and innovation (March, 1991; Levinthal and March, 1993). Accordingly, taking into consideration that organizations are constantly facing accelerating macro- and micro- level environmental changes, the long-term development and success of an organization relies on its ability to exploit its current capabilities while at the same time explore future opportunities (Alghamdi, 2018). To this end, leadership attempts to achieve an improved organizational performance at the macro level through employee behavior on the micro-level (Mueller et al., 2018).

There are generally two research streams investigating OA. The first focuses on the genesis of ambidexterity and the second focuses on the impact of ambidexterity on organizational performance (see Limaj and Bernroider, 2019; Venugopal et al., 2020). However, for establishing our case, we consider it important to briefly refer to the typology of the strategies followed by organizations with respect to OA. From a time-dependent perspective, research distinguishes two main approaches to studying organizational ambidexterity: simultaneous and sequential. *Simultaneous ambidexterity* refers to the synchronous chase of exploration and exploitation at the same time period (Gibson and Birkinshaw, 2004; O'Reilly and Tushman,

2013; He and Wong, 2005; Jansen et al., 2005). *Sequential ambidexterity* refers to the case where firms follow a temporal cycle through periods of exploitation and periods of exploration (Nickerson and Zenger, 2002; Siggelkow and Levinthal, 2003; Venkatraman et al., 2007). An unsuccessful trade-off between exploration and exploitation activities may reduce business efficiency in the simultaneous case, whilst an unsuitable switching between exploration and exploitation phases in the sequential case may result in unnecessary increasing costs (Liu and Leitner, 2012).

From an antecedents' perspective, research distinguishes two main approaches in studying organizational ambidexterity: structural and contextual. *Structural ambidexterity* refers to the general organizational structure in separate subunits that may affect the simultaneous development of exploration and exploitation (Simsek, 2009; Diaz-Fernandez et al., 2017; Jansen et al., 2009). A strategic structural ambidexterity enables differentiation between tasks (Andriopoulos and Lewis, 2009; Eriksson, 2012, Venugopal et al., 2018), develops appropriate contexts for exploration and exploitation (Raisch et al., 2009; O'Reilly and Tushman, 2004), and allows for different processes and cultures (O'Reilly and Tushman, 2004). However, managing exploitation and exploration activities across different subunits internally or externally to the organization, such as research and development (R&D), impose coordination and communication costs (Del Giudice and Straub, 2011). *Contextual ambidexterity* emphasizes the importance of people working within the organization who may pursue internally the simultaneous development of exploration and exploitation (Gibson and Birkinshaw, 2004; Raisch and Birkinshaw, 2008). In contrast to structural ambidexterity, which focuses on the structural setup of the organization, contextual ambidexterity considers the behavior of its individuals and their characteristics in simultaneously fostering alignment and adaptability (Cao et al., 2010; Raisch and Birkinshaw, 2008; Keller and Weibler, 2015; Lubatkin et al., 2006). In particular, studies considering the individual level of ambidexterity

on the managerial level have introduced the term *ambidextrous leadership* (Rosing et al., 2011; Vera and Crossan, 2004) and support that the achievement of organizational ambidexterity is primarily a leadership challenge that arises from the supportive organizational factors developed by leaders in the organization (Raisch et al., 2009). Similarly, the term *employee ambidexterity* has been introduced when referring to behavioral actions of employees in their effort to develop exploitation and exploration associated activities (Gibson and Birkinshaw, 2004; Kang and Snell, 2009; Tempelaar and Rosenkranz, 2019), and *ambidextrous knowledge management* practices has been introduced consisting of employee high skill characteristics, participative leaders style, and culture values related to openness to new technologies (Filippini et al., 2012). Accordingly, individual, behavioral, leadership or employee ambidexterity is used to express alternatively contextual ambidexterity. Therefore, structural ambidexterity is considered referring to macro-level internal environmental changes whilst contextual ambidexterity to micro-level internal environmental changes (Alghamdi, 2018).

Structural and contextual are considered to be *internal antecedents* of OA. However, for achieving ambidexterity, other factors from outside the organization must also be considered. Representatives of these *external antecedents* are the environmental dynamism, which represents the changing environmental demands, environmental competitiveness, which represents the degree of market competition (Auh and Menguc, 2005; Jansen et al., 2006; Raisch and Birkinshaw, 2008), and institutional voids which refer to the weak or underdeveloped institutional environment (Amankwah-Amoach et al., 2019). Although it is generally acknowledged that external environmental factors may influence organizational ambidexterity, few studies have analyzed the relationship between external environmental factors and organizational ambidexterity (Kim and Rhee, 2009; Pertusa-Ortega and Molina-Azorin, 2018). Accordingly, further research is needed for understanding the influence of environmental factors on organizational ambidexterity (Pertusa-Ortega and Molina-Azorin,

2018).

Regarding the consequences of ambidexterity, prior studies have indicated that successful organizations are those organizations that develop exploration and exploitation activities simultaneously (March, 1991; Tushman and O'Reilly, 1996). Researchers have increasingly recognized that ambidextrous firms try to achieve long-term success by either balancing or combining exploitation and exploration activities (Benner and Tushman, 2003; Junni et al., 2013; Cao et al., 2009; Patel et al., 2013). At the organizational level, most empirical research has utilized for balancing the difference between, and for combining the product of exploration and exploitation (Auh and Menguc, 2005; Rosing and Zache, 2017). Accordingly, taking into consideration that OA is a prerequisite of organizational success, many studies have focused on investigating the organizational ambidexterity – organizational performance relationship (see e.g., Hill and Birkinshaw, 2014; Hayton, 2005; Hayton and Kelley, 2006; Jansen et al., 2012; Junni et al., 2013; Raisch and Birkinshaw, 2008). However, empirical evidence regarding the performance implications of OA is still mixed (Junni et al., 2013; Zhang et al., 2015). This is because some studies have found a positive relationship between OA and performance (e.g. Gibson and Birkinshaw, 2004; He and Wong, 2004; Lubatkin et al., 2006), whilst other studies have found no such relationship (Venkatraman et al., 2007), and yet others have found a negative relationship (e.g., Athuahene-Gima, 2005). Therefore, more research is needed in order to decipher the ambidexterity - performance relationship as it has been indicated by relevant studies (Junni et al., 2013; Nosella et al., 2012; O'Reilly and Tushman, 2013; Simsek et al., 2009).

Based on the above discussion, it seems that studying OA involves four aspects: timing (simultaneous, sequential), approaches (structural, contextual), antecedents (internal, external) and consequences (exploration and exploitation performance depending). In reviewing the literature, we found that most studies address the important issue of ambidexterity in a

fragmented form by choosing a-la-cart either the constructs employed or the activity domains referring to (e.g., see Kassotaki et al., 2019 for aerospace and defense organizations, Balboni et al., 2019 for high-tech start-ups, and Malik et al., 2019 for MNCs). As a result, and according to Simsek (2009) who proposes integrated frameworks, Junni et al. (2015) and Pertusa-Ortega and Molina-Azorin (2018) suggest that further understanding of ambidexterity may require both the joint effects of internal and external antecedents and different approaches. We make an attempt to fill this gap.

Accordingly, the contributions of this study are fourfold, reflected in its purpose. First is to apply a contextual approach by referring to the internal individual antecedents of leadership behavior (reflected in leader's social intelligence) and employee behavior (reflected in work engagement) and the interrelationship between the two, where leaders' OA strategy is penetrating employee behavior (Kassotaki et al., 2019), addressing thus the limited work on the micro-level of ambidexterity, i.e., the role of individuals actors such as leaders, employees and their actions in enabling ambidexterity within the organization (Swart et al., 2016). Our findings extend knowledge referring to the relationship between transformational and transactional leadership and OA, by introducing instead leader's social intelligence (Junni et al., 2015). Second is the use of the environmental factors of dynamism and competitiveness as external determinants of OA, addressing therefore the still neglected issue of the influence of the environment on ambidexterity (Pertusa-Ortega and Molina-Azorin, 2018). Our findings shed light on the previously unknown strength of the impact of external environment on exploration and exploitation activities. Third is the investigation of the organizational performance dimensions of productivity (to capture short-term consequences depending on exploitation) and creativity (capture long-term consequences depending on exploration) to enlighten the existing mixed results in ambidexterity – performance relationship on a macro-level (Junni et al., 2013; Zhang et al., 2015). Our findings by distinguishing the differential effects of the dimensions of

OA on productivity and creativity, extends the design of business models (Balboni et al., 2019). Fourth is to examine OA by developing an integrated framework that treats exploration and exploitation simultaneously, reacting thus to suggestions for further research on integrated frameworks (e.g., Junni et al., 2015) by referring to associations between micro- and macro-levels of OA (Venugopal et al., 2020). Considering that in our study the initiating determinants of OA are leadership, employees and environmental changes we termed the influence of these three determinants on the OA – performance relationship as the *trilogy of organizational ambidexterity*. The detailed content of this trilogy and the related hypotheses will be analyzed in the next section. To the best of our knowledge, no empirical study has examined organizational ambidexterity under a similar integrated framework.

Additionally, taking into consideration the need for examining ambidexterity in different contexts (Cao et al., 2009; Jansen et al., 2005), the data for this study is obtained by an employee survey in the Greek private sector referring to small and medium enterprises (SME). In view of the fact that most Greek SMEs are family firms, and by being typically conservative and risk-averse (Perri and Peruffo, 2017), it will be interesting to investigate ambidexterity in such contexts (Hughes et al., 2018). Further, it would be interesting to extend the debate on the role of ambidexterity towards improving organizational performance in countries that are under severe financial and economic crisis, such as Greece, and it can be extended to countries predicted to go down a similar route. This is because the empirical evidence that relates leadership, OA and organizational performance is largely undertaken in developed countries contexts (Malik et al., 2019). Additionally, although it is usually argued that the generalization of findings may depend on the choice of industry, we follow Schaufeli (2015) who argues that studies of national samples that include many sectors, ownerships and occupations offer an exceptional possibility to generalize findings for similar countries (e.g., such as those that face economic and financial crises). Finally, in view of the fact that in the survey employees are

nested in organizations a multilevel approach of analysis is followed using multilevel structural equation modeling. This also constitutes an important contribution of our study because very few studies have examined ambidexterity via a multilevel integrated framework (Mom et al., 2018).

2. The research framework and hypotheses

In the field of management, research is usually divided between the "macro" and "micro" areas (Aguinis et al., 2011). Macro areas focus the analysis mainly on the organizational or firm level, whilst micro areas focus the analysis mainly on individual and group levels (Molina-Azorin, 2014). However, research analysis should be fundamentally concerned with how individual-level relations influence organizational-level outcomes (Barney and Felin, 2013; Smith et al., 2010). Ambidexterity can provide the framework to investigate the relationship between individuals' behavior, which in turn determines organizational ambidexterity, and ultimately influences organizational performance (Felin and Foss, 2005; Swart et al., 2016). Thus, by investigating how the individual-level relations influence organizational-level outcomes, this study is associated with the theory of behavioral integration underpinning an understanding of the influence of leadership processes on ambidexterity (Venugopal et al., 2020), which is an extension of the upper echelon perspective (Hambrick and Mason, 1984) in the sense that organizational outcomes are partially predicted by managerial background characteristics of the top level management team such as leaders with the characteristics of social awareness and relationship management (i.e., leaders' social intelligence).

2.1. Impact of leader's social intelligence on organizational ambidexterity

The continuous changes in the organizational environment create challenges of managing complex activities such as those of OA. Developing and managing exploration and exploitation is an important task for the organization's leadership. Leadership has been described as a process of social influence in which one person can consider the aid and support of others in

the accomplishment of common tasks (Chemers, 1997). Transactional and especially transformational are two forms of leadership that have been used as antecedents of organizational ambidexterity (Raisch and Birkinshaw, 2008, Junni et al., 2015). *Transactional leadership* involves an exchange relationship between leaders and followers such that followers receive income rewards or prestige for complying with a leader's wishes (Burns, 1978). In contrast, *transformational leaders* motivate followers to achieve high levels of performance by transforming their followers' attitudes, beliefs and values as opposed to merely gaining obedience (Bass, 1985).

Taking into consideration the many challenges that leaders face in ambidextrous organizations, a noticeable issue that arises is whether the personal characteristics of leaders who are facing the contradictory roles of exploration and exploitation should be considered when investigating ambidexterity (Raisch et al., 2009). Some scholars (e.g., Bass, 1985) argue that ambidexterity is connected to transformational leadership where the interpersonal characteristics of the leader unfold the change processes. Other scholars (e.g., Dvir et al., 2002) argue that ambidexterity is connected to transactional leadership where the motivating characteristics of the leader have an impact on performance. Prior research indicated that transformational leadership behaviors are associated with exploratory challenges, whilst transactional leadership behaviors are associated with exploitative activities (Jansen et al., 2009). Additionally, other studies found that leadership practices may affect the success of exploration or exploitation (e.g., Carmeli and Halevi, 2009; O'Reilly and Tushman, 2011).

However, although prior research suggests the importance of leaders in developing and maintaining ambidexterity throughout the organization, a clear gap that has been identified is a lack of research about the contribution of leaders' social intelligence on ambidexterity (Junni et al., 2015). *Leader's social intelligence* (LSI) is defined as "the ability to understand the feelings, thoughts, and behaviors of persons, including oneself in interpersonal situations and

to act appropriately upon that understanding" (Marlowe, 1986, p. 52). Goleman and Boyatzis (2008, p. 3) define "leaders' social intelligence as a set of interpersonal competencies that inspire others to be effective".

According to Boyatzis and Goleman (2017), the two general characteristics of LSI comprise *social awareness* (i.e., recognizing and understanding the emotions of others) and *relationship management* (i.e., applying emotional understanding in dealings with others). In particular, empathy (e.g., understanding what motivates other people) and attunement (e.g., individualized consideration of the feelings of employees) constitute two major qualities of social awareness. These qualities are also reflected in transformational leadership behaviors. Additionally, developing others (e.g., providing feedback to employees) and teamwork (e.g., encouraging cooperation) are also reflected in transactional leadership behaviors. But, we said previously that research attaches transformational leadership more to exploration challenges whilst transactional leadership more to exploitation activities (Jansen et al., 2009). However, a leader that acts both as a transformational leader and as transactional leader is an ambidextrous leader (Gianzina-Kassotaki, 2017). Therefore, we argue that a *socially intelligent leader* may be seen as an ambidextrous leader that associates micro-level leadership behaviors to macro-level organizational ambidexterity activities, supporting the notion that ambidextrous organizations need ambidextrous leaders (Mom et al., 2015). However, we argue further that it is not only the characteristics of the socially intelligent leader that automatically influence organizational ambidexterity, but it is the strategic preference of these leaders for pursuing exploration or exploitation. This preference may depend on various internal factors (such as organizational resources) and external factors (such as environmental characteristics), which will lead the strategic decisions about the trade-off between exploration and exploitation practices.

In particular, in small and medium sized firms, where resources are rather limited, and during periods of environmental changes and high competitiveness in markets, leaders may choose to

put more emphasis on exploration activities, for securing the long-term growth of the firm and at the same time put the necessary emphasis on exploitation practices for securing the short-term survival of firm. In such context, the role of the socially intelligent leaders is important in utilizing organizational resources, because by activating their relationship management and social awareness skills create long-term innovative organizational climates that favor exploration than exploitation activities (Boyatzis and Goleman, 2017).

From the above presentation, three messages are emerging. First, the characteristics of social awareness and relationship management of the top leadership team constitute the necessary condition for the successful development of exploration and exploitation. This is supported in the upper echelon perspective (Hambrick and Mason, 1984). Second, the continuous and constructive relationship between leaders and employees constitute the necessary condition for the successful implementation of exploration and exploitation. This is underpinned in the theory of behavioral integration (Carmeli and Haveli, 2009). Third, during periods of high environmental changes, ambidextrous leaders favor exploration than exploitation activities (Boyatzis and Goleman, 2017). Accordingly, and taking also into consideration that these arguments have not received an appropriate empirical investigation related to ambidexterity (Junni et al., 2015), we propose that:

H1: Leaders' social intelligence will have a positive and higher direct association with exploration than with exploitation.

2.2 The relationship between leader's social intelligence and employee's work engagement

It is argued that *emotional intelligence*, that involves "the ability to monitoring one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey and Mayer, 1990, p. 189), is a subset of social intelligence, and further emotional intelligence is associated with transformational leadership behavior (Barling et al., 2000; Brown and Moshavi, 2005; Harms and Crede, 2010).

Researchers have verified the relationship between emotional intelligence and employee behaviors (Day and Carroll, 2004; Lam and O'Higgins, 2012; Sy et al., 2006).

Additionally, it is supported that transformational leaders inspire, energize, and intellectually stimulate their employees, meaning that there is a positive relationship between transformational leadership and employee behaviors (Howell and Avolio, 1993; Li and Shi, 2003; Yukl, 1984). Accordingly, considering that transformational leaders and therefore emotional intelligent leaders, use their inspirational abilities, motivational skills, intellectual stimulation, and individualized consideration to change employee aspirations and behavior (Pasha et al., 2017), we argue that leaders' social intelligence is also connected with employee behaviors.

However, although researchers argue that social capital fosters ambidextrous behavior (Kang and Snell, 2009), and that leadership is an important enabler of organizational ambidexterity (e.g., Mihalance et al., 2014), there have been limited leadership-based studies which by examining leaders' social intelligence characteristics as antecedents of employee behaviors respond to tensions between exploration and exploitation (Fu et al., 2016; Venugopal et al., 2017). In contrast, there are studies (e.g., Burges et al., 2015) examining the contextual and personal circumstances that enable middle managements to form compromises between exploration and exploitation to facilitated OA, and other (e.g., Ahammad et al., 2015) arguing that motivation-enhancing human resource practices make employees feel the sense to extend their work engagement that is essential in building OA. Yet, Li et al. (2012) established that socially intelligent leaders influence employee behaviors such as work engagement and inspire employees to engage in both explorative and exploitative behaviors and be effective in dividing their time and energy between these two behaviors (Rosing and Zacher, 2017).

From the above presentation four messages can be been established. First, emotional intelligence is a subject of social intelligence. Second, there is a positive relationship between

transformational leadership and employee behaviors. Third, transformational leadership is associated with leader's social intelligence. Fourth, inductively, leader's social intelligence is related with employee behaviors. Accordingly, considering that the fourth message has not been empirically examined, we hypothesize that:

H2: Leaders' social intelligence positively influences employee's work engagement behavior.

2.3. Impact of employee's work engagement on organizational ambidexterity

According to Birkinshaw and Gibson (2004), contextual ambidexterity identified four ambidextrous behaviors of individuals. First, individuals should take initiatives and being alert to opportunities beyond the confines of their own jobs. Second, they should be cooperative and seek out opportunities to combine their efforts with others. Third, they should be brokers, always looking to build internal linkages. And fourth, they should be multi-taskers who are happy to get involved in more than one job.

These attributes describe individuals who are motivated and committed in taking actions in the broader interests of the organization, and are engaged and 'keep up' with the changes and the developments in the company. These attitudes and behaviors constitute the initiatives for the alignment and the adaptability of individuals with the overall strategy of the business, and in fact illustrate organizational ambidexterity at an individual level (Adriopoulos and Lewis, 2010; Birkinshaw and Gibson, 2004). Thus, ambidexterity is not only essential at the organizational, but also at the individual level. For example, it is found that prior technology transfer experience of employees increased ambidextrous outputs (Chang et al., 2009). However, although individuals need to engage in both explorative and exploitative behaviors, the optimal balancing of explorative and exploitative behaviors remains unanswered (Rosin and Zacher, 2017; Venugopal et al., 2020).

In the current turbulent times, changes in the organizational environment are discontinuous rather than incremental, "meaning that it requires firms to reconfigure their existing ways of

working and to rethink their assumptions about how to succeed in their chosen industry" (Birkinshaw et al., 2016, p. 36). In this discontinuous environment, OA is dynamic and focusing on the simultaneous pursuit of exploration and exploitation (Raisch et al., 2009). In such OA cases, decisions must be made about the division of individuals' time between exploration and exploitation (Gibson and Birkinshaw, 2004). However, some firms are more effective at adapting to discontinuous changes in their environment than others. This means that there may be some factors that are utilizing better the dynamic capabilities of the organization, which are defined as "the ability to continuously create, extend, upgrade, protect, and keep relevant an enterprise's unique asset base" (Birkinshaw et al., 2016, p. 36). In this study, we argue that the utilization of the dynamic capabilities of the organization depends on the employee's work engagement and the results of this dependence are reflected on exploration and exploitation. Rephrasing Teece (2014), we say that leaders with social intelligence skills orchestrate dynamic capabilities by engaging their employees who constitute the orchestra members according to the ambidexterity strategy they have already established.

However, the competence of the maestro of the orchestra may differently influence exploration and exploitation through employee work engagement. For example, considering that exploration is aiming mainly to future knowledge and innovative practices and exploitation is aiming mainly to current processes efficiently being used, the motivated and the keeping up with the organizational development individuals will be spending more time in engaging to exploration than to exploitation activities. This is because in turbulent times employees may believe that it is exploration than exploitation that will positively influence organizational growth and in turn keep their jobs safe. In other words the personal drivers of employees work engagement in OA, which are described as passion for exploration and discipline for exploitation, are tensions that emerge at the employee level (Andriopoulos and Lewis, 2009). For example, product development challenges demand discipline so that employees can obtain

higher productivity, while through passion employees promote risk taking activities for achieving creativity (Gianzina-Kassotaki, 2017). There are studies suggesting a strong link between employee's behaviors, which maintain an ambidextrous environment (Caniëls et al., 2017; Kobarg et al., 2017; Napier et al., 2011), other studies stressing that aspects of work engagement have an impact on employee ambidexterity (Bonesso et al., 2014), and additional studies examining the micro- and macro- levels of ambidexterity approach OA through individual ambidexterity (Stokes et al., 2015).

Taking into consideration that exploitation reflects production effectiveness and efficiency by avoiding risks, and exploration reflects experimentation, flexibility and innovation by taking risks, the dilemma that employees face is how to distribute their ambidexterity efforts between exploitation and exploration. However, both leaders and employees aim at the survival and growth of the organization both in the short- and in the long-term. Thus, we argue that employees are engaged in work activities under the influence of their leaders and as such they follow the same wave of the ambidexterity strategy that has been suggested by their socially intelligent leaders, as it is presented in hypothesis H1. This may be considered to be the "ambidexterity penetration" of leader's strategy to employees (Kassotaki et al., 2019). Accordingly, we propose that:

H3: Employee's work engagement will have a positive and higher direct association with exploration than with exploitation.

2.4. Impact of environmental factors on organizational ambidexterity

Environmental dynamism and competitive dynamics are considered to be two important environmental factors that may influence OA (Raisch and Birkinshaw, 2008). *Environmental dynamism* refers to the degree of continuous and intensive changes and *competitive dynamics* refer to the degree of price competition and the existence of strong competitors (Jansen et al., 2006). It is argued that these environmental factors push firms to follow the strategy of

becoming ambidextrous (Floyd and Lane, 2000; Jansen et al., 2005). Empirical studies found that the extent to which firms follow the exploration or exploitation activities depend on the local environmental conditions (Jansen et al., 2005a), and further they have indicated that environmental conditions positively influence OA (Boumgarden et al., 2012). However, firms become more effective when adapt successfully to discontinuous environmental change. This adaptation depends on the ability of the firm to continuously create, extend, upgrade, protect, and keep relevant its unique asset base (Birkinshaw et al., 2016; Teece, 2014).

Scarce financial and human resources constitute the major constraint that firms have to deal with. This constraint becomes more important during dynamic environmental changes. In more dynamic environments, firms by trying to protect their long-term existence explore for new opportunities, as the competition is becoming intense. In contrast, in more stable environments, firms by trying to protect their short-term survival exploit the utilization of existing processes for developing competitive products (Davis et al., 2009). However, Luger et al. (2018, p. 449) argue that "in contexts characterized by incremental change, firms benefit more from the learning effects of maintaining ambidexterity, which lead to superior performance. Firms in discontinuous change contexts, however, suffer more from the misalignment that reinforcement creates, which affects their performance negatively". Therefore, firms by becoming ambidextrous have to balance their resources between exploration and exploitation (Jansen et al., 2005; O'Reily and Tushman, 2013; Venugopal et al., 2020). However, decisions for allocating existing resources between exploration and exploitation constitute a significant and risky problem, especially for small firms. This is because firms may lose their current competitive position by diverting resources from exploitation to exploration activities believing that the consequences of exploration may be more certain (Pertusa-Ortega and Molina-Azorin, 2018). Therefore, we argue that although environmental aspects make firms to be ambidextrous, this influence is more conservative when it refers to exploration than to exploitation.

Accordingly, we hypothesize that:

H4: Environmental aspects will have a more conservative influence on exploratory than on exploitative activities.

2.5. Impact of organizational ambidexterity on organizational performance

It is generally accepted that OA is increasingly important for building sustained competitive advantage of firms. However, due to adoption of different methodologies, the empirical results revealing the relationship between organizational ambidexterity and organizational performance are mixed (Junni et al., 2013; Rosing and Zache, 2017). As mentioned previously, OA refers to the simultaneous pursuance of both explorative and exploitative activities. However, it is possible for organizations to put more emphasis in exploration and incur the substantial costs of this activity without reaping the benefits thereof (March, 1991). In contrast, it is possible for organizations to put more emphasis in exploitation without reaping the benefits of increased efficiency due to the obsolescence of processes (Levinthal and March 1993). Therefore, the impact on organizational performance of this interplay between exploration and exploitation depends on the opportunity cost of using existing organizational resources for achieving performance goals (Bonesso et al., 2014; Rothaermel and Alexandre, 2009). Similarly, for small to medium-sized firms, Cao et al. (2009) found that balanced ambidexterity is more beneficial to firms having limited access to resources, whereas combined ambidexterity is more beneficial to firms having higher access to resources. However, Venugopal et al. (2020) found that in SMEs the combined ambidexterity dimension has a higher impact on the firm's financial performance compared to balanced ambidexterity dimension. Additionally, it is supported that the higher is OA the higher is organizational performance (Blarr, 2012; Derbyshire, 2014; Solís-Molina et al., 2018), and a collaborative knowledge construction through exploration and exploitation supports creativity results (Boutellier et al., 1998).

Accordingly, and considering that the nature of exploration is discontinuous whilst the nature

of exploitation is incremental (O'Reilly and Tushman, 2004), the impact of ambidexterity on performance should be investigated individually, assuming that exploration influences performance more in terms of future creativity and less in terms of current productivity, whilst exploitation influences performance more in terms of current productivity and less in terms of future creativity. However, the utilization of the existing limited resources may have plateaued in firm's efficiency achievement, and therefore, in building the firm's sustained competitive advantage some resources must be utilized through the exploration activities. Hence, we hypothesize that:

H5: Exploration has a positive impact on firms' creativity performance, which is higher than the positive impact of exploitation on productivity performance.

2.6. The integrative multi-level framework

Boyatzis and Goleman (2017) argue that social awareness constitute the cornerstone of effective socially intelligent leaders that create the conditions for employee effectiveness, engagement and innovation. Consequently, ambidexterity at an individual level can be seen as initiating factors, which produce synergies that will develop exploration and exploitation at an organizational level (Alghamdi, 2018), meaning that exploration and exploitation spread out through parallel patterns from the individual level towards the organizational level (Nielsen et al., 2018). Accordingly, the strategic option of ambidexterity at the organizational macro-level can be considered as being initiated at the individual leader's and employee's micro-level (Costea et al., 2012; Raisch et al., 2009). Considering that external environment, OA and organizational performance refer to organizational level-2 and LSI and employee's engagement refer to individual level-1, we distinguish four mediating mechanisms in our integrative multi-level framework that is presented in Figure 1: environment – ambidexterity – performance (i.e., 2-2-2), LSI – work engagement – ambidexterity (i.e., 1-1-2), LSI – ambidexterity – performance (i.e., 1-2-2), and work engagement – ambidexterity – performance (1-2-2).

INSERT FIGURE 1 ABOUT HERE

3. Methods

3.1. Sample and data

Data for this research was collected in October-November 2017 by help of a questionnaire survey, which was distributed to the employees of private organizations in the manufacturing, services and trade sectors covering the whole of Greece. The questionnaires were administered by individuals (samplers) who were pursuing management degrees at a Greek business school. The survey instrument was distributed to 150 organizations with more than 10 employees. Following Gerhart et al. (2000), who suggest that the reliability of measures will be increased by using 5-10 respondents per firm, the samplers were asked to concentrate on approximately up to 8 respondents from each organization - two respondents from at senior management level, two respondents at middle management level and four respondents at other employee levels. According to this protocol, the samplers were asked to distribute a total of 1,200 questionnaires, ensuring overcoming the low sampling error and selection bias due to the large sample size employed. Furthermore, to overcome self-biased response error, we assured respondents of anonymity, designed a well structured and interesting questionnaire, carefully ordered the questions in the survey, avoided ambiguous phrases, and avoided justifications in the questions used (Podsakoff et al., 2003). A total of 657 usable questionnaires were returned from the employees in 99 organizations, a response rate of 66.7 percent at the organization level, and 54.8 percent at the employee level. The non-response rate at the organizational level was close to the critical level of 30% ensuring that the sampling procedures followed were appropriate (Armstrong and Overton, 1977). The sample characteristics are presented in Table 1.

INSERT TABLE 1 ABOUT HERE

3.2. Measures

Leader's social intelligence construct comprised of social awareness and relationship

management dimensions suggested by Goleman and Boyatzis (2008). Social awareness construct (α=0.881) comprised of 6-items and has the sub-scales of empathy (α=0.789), attunement (α=0.739), and organizational awareness (α=0.801). Relationship management construct (α=0.891) comprised of 8-items and has the sub-scales of influence (α=0.747), developing others (α=0.808), inspiration (α=0.856), and team-work (α=0.783). For the construction of a higher order factor, confirmatory factor analysis (CFA) indicated good data fit indices (chi-square=66.889, df=26, p=0.000, normed chi-square=2.573, RMSEA=0.049, CFI=0.983, TLI=0.972, SRMR-within=0.023, SRMR-between=0.031).

Employee work engagement construct comprised of 17-items developed by Schaufeli et al. (2002) and has three sub-scales of vigor (α=0.897), dedication (α=0.924), and absorption (α=0.903). Its CFA fit indices indicate a good fit (chi-square=713.045, df=232, p=0.000, normed chi-square=3.073, RMSEA=0.056, CFI=0.935, TLI=0.924, SRMR-within=0.040, SRMR-between=0.070).

Exploration construct comprised of 20-items developed by Popadiuk (2012) and has two sub-scales of knowledge practices (α=0.883) and innovative practices (α=0.939). Its CFA fit indices indicate a good fit (chi-square=1265.277, df=338, p=0.000, normed chi-square=3.743, RMSEA=0.065, CFI=0.873, TLI=0.858, SRMR-within=0.058, SRMR-between=0.226).

Exploitation construct comprised of 25-items developed by Popadiuk (2012) and has four sub-scales of competition (α=0.866), strategic orientation (α=0.665), efficiency focus (α=0.823), and partnership (α=0.885). Its CFA fit indices indicate a good fit (chi-square=237.132, df=142, p=0.000, normed chi-square=1.670, RMSEA=0.032, CFI=0.969, TLI=0.891, SRMR-within=0.058, SRMR-between=0.147).

Environmental construct comprised of 9-items developed by Jansen et al. (2006) and has two sub-scales of environmental dynamism (α=0.847) and competition dynamics (α=0.891). Its CFA fit indices indicate a good fit (chi-square=113.516, df=52, p=0.000, normed chi-

square=2.183, RMSEA=0.042, CFI=0.974, TLI=0.963, SRMR-within=0.024, SRMR-between=0.149).

Organizational performance has two constructs developed by Katou et al. (2014): The productivity construct (α=0.728) comprised of 2-items referring to effectiveness (i.e., if the organization meets its objectives) and to efficiency (i.e., if the organization uses the fewest possible resources to meet its objectives). The creativity construct (α=0.749) comprised of 2-items referring to innovation (i.e., for products and processes) and quality (i.e., quality enhancement for products and services). The CFA fit indices indicate a good fit (chi-square=56.233, df=18, p=0.000, normed chi-square=3.124, RMSEA=0.057, CFI=0.956, TLI=0.927, SRMR-within=0.039, SRMR-between=0.048.

Controls used are distinguished into personal (e.g., gender, age, education), employment individual controls (e.g. seniority, tenure, position), and organizational (e.g., sector of production where the organizations are activated, size of the organization).

3.3. Data properties

Table 2 presents means, standard deviations, consistency and reliability indices and correlation coefficients of all the constructs involved in estimation. The average variances extracted (AVE) values are higher than 0.50, indicating acceptable survey instrument construct validity. Since all scores exceed 0.70, the construct composite reliability (CR) is acceptable. Since the correlation coefficients are smaller than the square root of each factor's AVE, construct discriminant validity was acceptable (see Hair et al., 2010).

INSERT TABLE 2 ABOUT HERE

3.4. Statistical analysis

Considering the hierarchical nature of our data, with employees nested within organizations, we adopted multilevel structural equation modeling (MSEM) via Mplus (Muthen and Muthen, 2014) in testing the multilevel model (MLM) presented in Figure 1. We used MSEM for a

number of reasons (Do et al., 2018). First, MSEM is more suitable for testing multilevel mediations than hierarchical linear regressions (Preacher et al., 2011). Second, the MLM can be tested as a whole reaching direct and indirect mediation effects. Third, it offers the opportunity to assess fit at the overall, between- and within- levels. Fourth, MSEM utilizes, via Mplus, a full information maximum likelihood estimator for all analyses.

4. Results

4.1. Measurement model

In testing the MLM through MSEM, we followed the five steps of analysis proposed by Peccei and Van De Voorde (2016). First, the hypothesized model was tested. The analyses showed acceptable fit for the hypothesized structure (Chi-Square=441.661, df=191, p=0.000, Normed-Chi-Square=2.312, RMSEA=0.045, CFI=0.945, TLI=0.921, SRMR-within=0.031, SRMR-between=0.083). Further, we examined all factor loadings and their squares for evaluating indicator reliability and we concluded that all measures are meaningfully related to their proposed latent dimensions. Then, we compared the fit of the proposed measurement model to an alternative less restrictive model, with all items loading on a single factor (Chang et al., 2010). This model was found to fit worse than the hypothesized model (Chi-Square=1182.526, df=233, p=0.000, Normed-Chi-Square=5.075, RMSEA=0.079, CFI=0.791, TLI=0.756, SRMR-within=0.073, SRMR-between=0.262) supporting the proposed factor structure of the constructs used in this study. Additionally, comparing the results of these two MCFA (i.e., Δchi-square=740.865, Δdf=42, Δratio=Δchi-square/Δdf=17.640) and taking into consideration that the correlation coefficients between constructs are not higher than 0.80 or 0.85 (see Table 1), we concluded that the latent factors represent distinct constructs and that common method bias is limited because the Δratio=17.640 is much larger that the critical value of 3.84 per degree of freedom (see Brown, 2015).

4.2. Structural model

With respect to step 2, in presenting the multilevel operational model in the literature review and hypotheses development section, we explained all the proposed cross-level links between initiating, mediator and outcome variables by reference to ambidexterity theories for accounting to the downward and upward effects in multilevel mediation models of the LSI-organizational performance relationship. Further, considering the multilevel mediation nature of our model we hypothesized cross-level homology. Homology refers to the degree of applying the same structural model at different levels of analysis (Kozlowski and Klein, 2000).

With respect to step 3, the intra-correlation coefficients ICC1 found to range between 0.106 (for strategic orientation) and 0.265 (for dedication). Because these values are larger than 0.10 there is sufficient between-unit variation to justify multilevel analysis. The intra-correlation coefficients ICC2 found to range between 0.512 (for strategic orientation) and 0.704 (for dedication). Because these values are larger than 0.50, the constructs ensure that there is sufficient within-unit agreement to justify aggregation. Similarly, the inter-rater agreement measures $r_{wg}(j)$ found to range between 0.730 (for strategic orientation) and 0.960 (for knowledge). Because these values are larger than 0.70, the constructs ensure that there is also sufficient within-unit agreement to justify aggregation (see Klein et al., 2000).

In step 4, we estimated the hypothesized (cross-level) links simultaneously of the integrated operational model presented in Figure 1. The fit indices (Chi-Square=422.624, df=208, p=0.000, Normed-Chi-Square=2.032, RMSEA=0.040, CFI=0.955, TLI=0.941, SRMR-within=0.036, SRMR-between=0.112) indicated acceptable fit. We note here that the inclusion of controls in estimation did not produce any significant results. In Figures 2 and 3 we present the MLM estimation standardized results for the within and the between dimension of the model where all the used variables were significant. The similar estimated structure of the within and the between dimensions of the model verify the homology assumption made in step 2.

INSERT FIGURES 2 and 3 ABOUT HERE

4.3. Hypothesis testing

In step 5, we examine separately the within-level and between-level effects as well as we report the separate R^2 values for all the within-level and between-level analyses (see Figures 2 and 3). This is important for separating within- from between-level effects to arrive at unbiased estimates of relevant between effects in the data (Peccei and Van De Voorde, 2016). Hypotheses 1, 2 and 3 constitute the mediating mechanism 1-1-2 of LSI – work engagement – ambidexterity. This mechanism indicates partial mediation for the within-level estimation (i.e., both total and total indirect effects are significant and statistically different) and full mediation for the between-level estimation (i.e., both total and total indirect effects are significant and statistically equal). In particular, the within-level results support all three hypotheses, with the direct influences of both LSI and work engagement on ambidexterity being higher for exploration than for exploitation. On the contrary, the between-level results support the two hypotheses 2 and 3, with the direct influences of LSI on ambidexterity being not significant and the work engagement on ambidexterity being higher for exploration than for exploitation. However, the higher impact of LSI for exploration than for exploitation is still supported, although not directly but through work engagement. The R^2 values of the involved constructs are high and significant.

Following the same methodology, the mediating mechanism 1-2-2 of work engagement – ambidexterity - performance indicates full mediation for both the within-level estimation and the between-level estimation. The mediating mechanism 1-2-2 of LSI – ambidexterity - performance indicates full mediation for the within-level estimation, whilst there is no mediation for the between-level estimation. The important aspect here is that hypothesis 5 is supported because it indicates that the positive impact of exploration on creativity is significantly higher than the positive impact of exploitation on productivity. Attempts for cross-impacts produced not significant results with respect to exploration – productivity and

exploitation – creativity relationships. However, the overall impact of LSI on creativity is just more than twice larger compared to the overall impact of LSI on productivity for both within- and between-level estimations.

Finally, the mediating mechanism 2-2-2 of environment – ambidexterity - performance indicates full mediation for both the within-level estimation and the between-level estimation, supporting at the same time hypothesis 4, because it is seen that environmental aspects have a stronger influence on exploitative than on exploratory activities.

5. Discussion

5.1. Theoretical and research contributions

In this study we explored the relationship between micro-internal antecedents, such as leader's social intelligence and employee work engagement, and macro-external antecedents, such as environmental dynamism and competitive dynamics, on macro-organizational ambidexterity, expressed by exploration and exploitation, and in turn, on macro-organizational performance, expressed by creativity and productivity. In doing so, and because of the fragmented nature of prior work (Junni et al., 2015), we theoretically presented and empirically tested an integrated framework that unifies leadership characteristics, employee behavior, and environmental changes as a trilogy of the determinants of organizational ambidexterity and performance.

The integrated model used in the study is based on two presumptions that have been verified by previous work. First, exploration and exploitation are two factors that drive out each other (Levinthal and March, 1993). Second, exploration and exploitation are not mutually exclusive (He and Wong, 2004) but on the contrary may be combined at the organizational-level (Venugopal et al., 2020). However, there is a lack of conceptually understanding and empirically validating the relationship between contextual ambidexterity and organizational performance in terms of the leader's social intelligence ambidexterity penetration strategy to

organizational micro and macro levels (Kassotaki et al., 2019). This paper aims to contribute to this understanding.

It is generally accepted that different leadership styles may influence ambidexterity strategy. In particular, Jansen et al. (2008) and Hotho and Champion (2011) suggest that transformational leaders are capable of enhancing explorative activities among employees, whilst Jansen et al. (2009) argue further that transactional leaders are capable of enhancing exploitative activities. However, although it is accepted that leaders or top manager teams (Venugopal et al., 2020) are important in developing ambidexterity strategies, the case of the leader's social intelligence has not yet been associated with OA (Junni et al., 2015). Thus, our study makes a significant contribution to the ambidexterity literature by presenting the path through which leader's social intelligence influences the productivity and creativity dimensions of organizational performance.

The study supports the view that leaders with the characteristics of social awareness and relationship management can be seen as facilitators of both exploration and exploitation. In particular, leaders with these characteristics develop an ambidexterity-oriented strategy by putting more emphasis on exploration than on exploitation. This strategy is penetrated to the employees who engage in practices and show dedication in implementing their leaders' strategy, and by following them, put also more emphasis on exploration than on exploitation. Thus, our study provides a novel contribution to both the literature of ambidexterity and the literature of behavioral integration by explicitly reflecting the behavioral relationship between leaders and employees who in implementing ambidexterity strategy put more emphasis exploration than on exploitation. This means that the lens of these actors are more concentrated at the long-term compared to the short-term development of the organization.

The theoretical framework proposes and the empirical study supports the hypothesis that firms operating in a dynamically changing environment pursue a strategy of a simultaneous

development of exploration and exploitation (Pertusa-Ortega and Molina-Azorin, 2018). However, the study does not only support the view that the more dynamic is environment, the more ambidextrous is the firm, but it differentiates this impact between exploration and exploitation. In particular, it theoretically advances and empirically finds that a highly changeable environment influences more exploitation than exploration activities, because the first priority of the firm is to survive in the short-term. Consequently, this study contributes to the understanding on how external environmental factors influence OA.

Our study may be categorized among the studies that support the view that the simultaneous pursuance of exploration and exploitation activities positively influences organizational performance (e.g., Gibson and Birkinshaw 2004; He and Wong, 2004; Cao et al., 2009; Lubatkin et al., 2006; Pertusa-Ortega and Molina-Azorin, 2018). However, in our study, performance is characterized by the two distinct constructs of productivity (i.e., reflecting short-term), and creativity (reflecting long-term). Additionally, our study indicates that exploration activities are more strongly associated with creativity compared to the exploitation activities that are more associated with productivity. Therefore, our study contributes to the understanding that the consequences of the simultaneous pursuance of exploration and exploitation are differentiated in terms of creativity and productivity performance.

Finally, from a purely technical point of view and taking into consideration the hierarchical nature of our data, with employees nested within organizations, we adopted multilevel structural equation modeling via Mplus to test the hypotheses. We followed this research strategy for avoiding limitations of the traditional estimation techniques (Preacher et al., 2011). As such, the analytical method followed verifies the five steps of SEM analysis proposed by Peccei and Van De Voorde (2016). Therefore, in terms of the integrated research framework we believe that our framework minimizes the production of possible erroneous findings and thus, by extending previous research (e.g., Andriopoulos and Lewis, 2009), contributes to

ambidexterity literature at micro- and macro-levels.

5.2. Managerial implications

Organizations work so as to both survive in the present and to develop performance in the future. It is this double pressure that underlies the exploration-exploitation tradeoff. This means that organizations need to align their strategies, competencies, structures and leadership skills (Tushman and O'Reilly, 2006). However, skills required to explore are fundamentally opposed to those required to exploit (Swift, 2016). Thus, in an ambidextrous organization it is important for a common culture to be created that is dealing simultaneously with the aspects of innovation and efficiency (Tushman and O'Reilly, 2006). Accordingly, there are different actions that managers can take for improving organizational performance, especially in small and medium sized firms that operate under dynamically changing environments like those Greece is facing.

First, we found that the dynamic economic environment has a much higher influence on exploitation than on exploration. This may depend on the amount of internally controlled and externally accessible resources available to the firm. In a resource-constrained context because managers cannot manage external environment they should focus on managing trade-offs between exploration and exploitation (Cao et al., 2009; Pertusa-Ortega and Molina-Azorin, 2018).

Second, we found that the simultaneous pursuance of exploration and exploitation positively influences organizational performance. This may mean that in resource-constrained contexts, the simultaneous chase of exploration and exploitation is both probable and advantageous (Cao et al., 2009). This finding verifies the result of Venugopal et al. (2020, p. 9) suggesting that "resource-constrained small firms would benefit from a combined pursuit of exploration and exploitation".

Third, we found that the exploration has a much higher impact on creativity than the impact of exploitation on productivity. Thus, it is important for organizations to follow strategies that

increase independently the activities of exploration and exploitation to their maximum levels (Simsek et al., 2009). In particular, organizations could focus on factors of cost, efficiency, and incremental innovation for exploitation, and on speed, flexibility, and radical innovation for exploration (Tushman and O'Reilly, 2006).

Fourth, we found that employee work engagement behaviors have a higher impact on exploration than on exploitation. Thus, it is important for organizations to follow strategies that synchronize the high influence of employee behaviors on exploration compared to exploitation with the high influence of the dynamic environment on exploitation compared to exploration. This is because our findings suggest that the dynamic and competitive environmental conditions relax the impact of exploration on organizational creativity and enforce the impact of exploitation on organizational productivity. Thus, in highly changeable environmental conditions "organizational ambidexterity may be more of a necessity than a differentiating factor leading to superior short-term performance" (Raisch and Birkinshaw, 2008, p. 394).

Fifth, organizations should utilize the social awareness (empathy, attunement, organizational awareness) and the relationship management (influence, developing others, inspiration, teamwork) skills of their leaders for creating a common culture that is dealing simultaneously with the aspects of innovation and efficiency. This culture may create a shared vision and a penetrating ambidexterity strategy that will develop a collective understanding of how leaders and employees will manage the exploration-exploitation tradeoff. Considering the findings of our study where leader's social intelligent are behaviorally integrated with work engagement of employees, the ambidexterity culture is important because "while it may contribute to the development of new combinations of exploration and exploitation, it may also lead to disagreements and potential conflict within top management teams" (García-Granero et al., 2018, p. 881).

5.3. Limitations

This study has some limitations. First, the data was collected using a questionnaire at a single point in time. As a result, the study does not allow for dynamic causal inferences. Thus, the field would greatly benefit from time series or longitudinal studies in the future, where the possibility of sequential ambidexterity could be investigated (O'Reilly and Tushman, 2013). However, cross-sectional studies could be used to investigate the causal direction of relationships, because instant changes, for example simultaneous ambidexterity can empirically be demonstrated through simultaneous relationships (Gujarati, 2003). Second, all variables were self-reported, giving rise to concerns about common method bias. Although data were collected using three actors (i.e., senior managers, middle managers, and other employees) and multiple respondents, this does not necessarily completely eliminates this source of bias. However, the use of multilevel analysis increased the unbiased nature of our results (Lai et al., 2013). Third, all variables were reported in retrospect, raising measurement concerns about recall bias (Lippman and Mackenzie, 1985). Fourth, the study was applied in the context of Greece, and thus the findings from the Greek sample may not generalize across borders. Future research should consider including other countries that are experiencing similar economic and financial crises. Nevertheless, within these limitations the study has made a number of useful contributions and we believe these results should be relevant for other similar economies.

6. Conclusions

Simultaneous or sequential ambidextrous activities have emerged as one of the prime questions in management research. Although explorative and exploitative activities are conceived to have individual positive performance effects, still there is a gap with respect to the degree of the impact on organizational performance of the simultaneous pursue of both of these activities. In this study we found that in small-to-medium-size firms, leader's social intelligence and employee work engagement have a higher positive impact on creativity through exploration activities compared to the positive impact on productivity through

exploitation activities. On the contrary, the dynamically changing environment has a lower positive impact on creativity through exploration activities compared to the positive impact on productivity through exploitation activities. Accordingly, the study contributed to the ambidexterity literature and behavioral integration literature by analyzing simultaneously the impact on organizational performance, through OA of a trilogy of internal micro- and external macro-antecedents.

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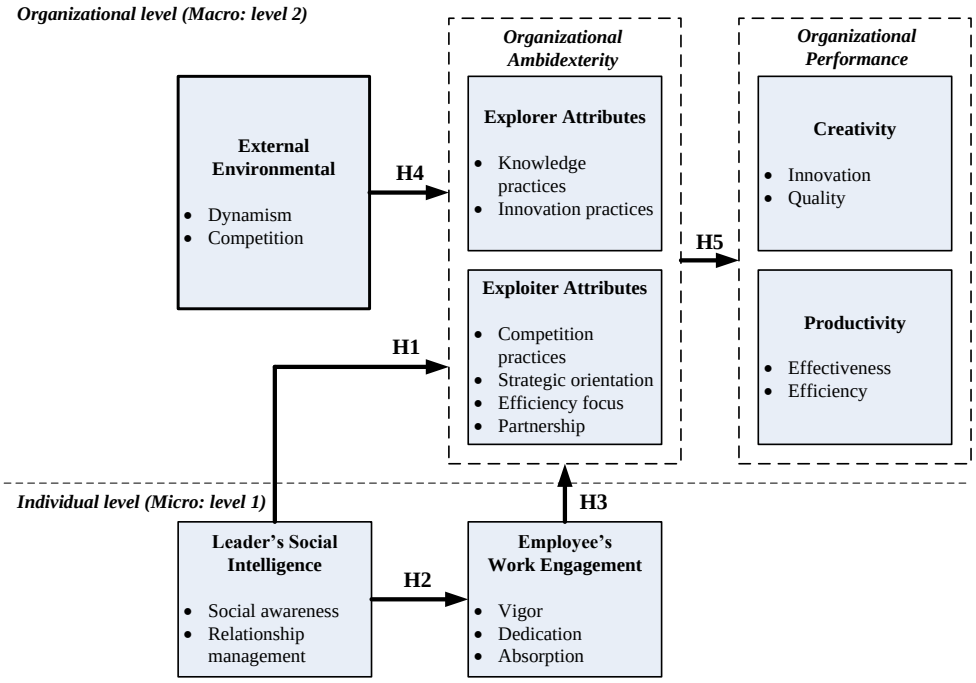

Figure 1. Operational model of the proposed framework

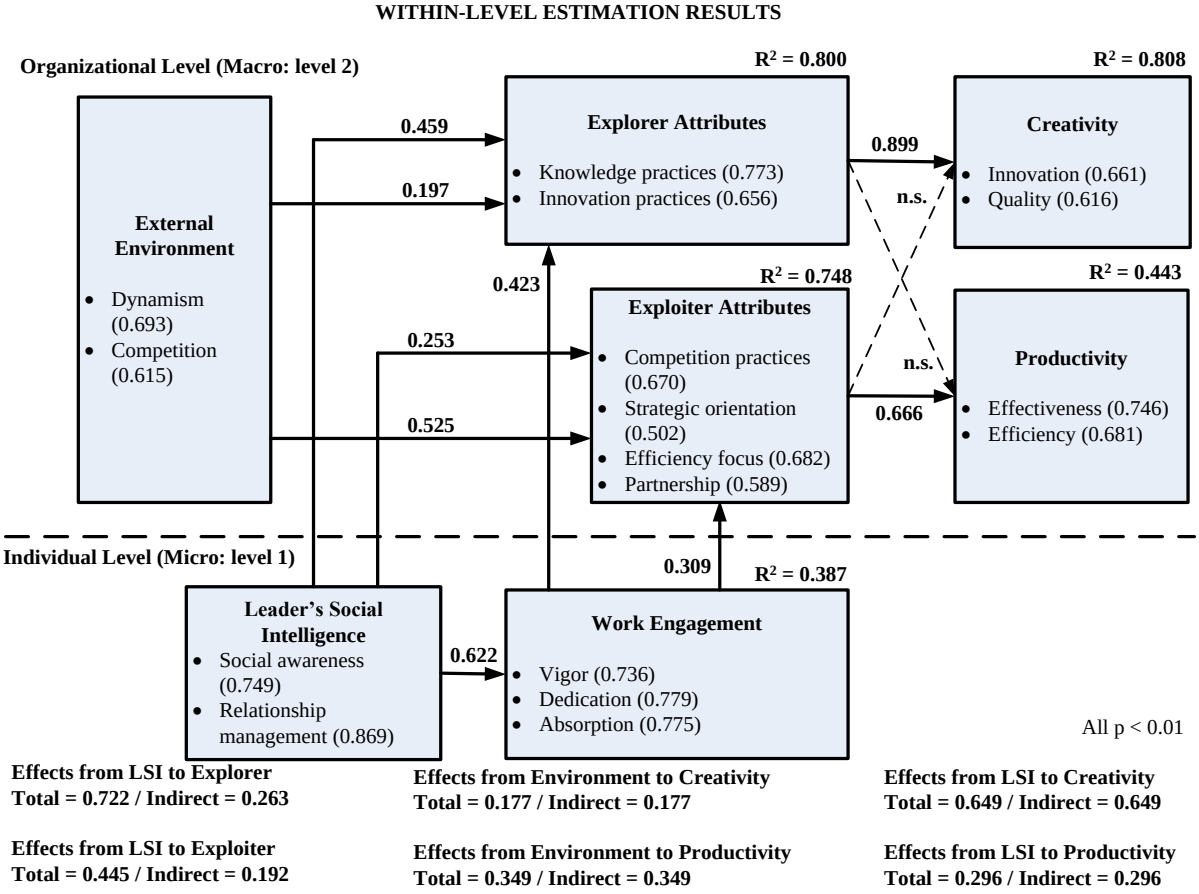

Figure 2. The within-level estimation results of the operational model

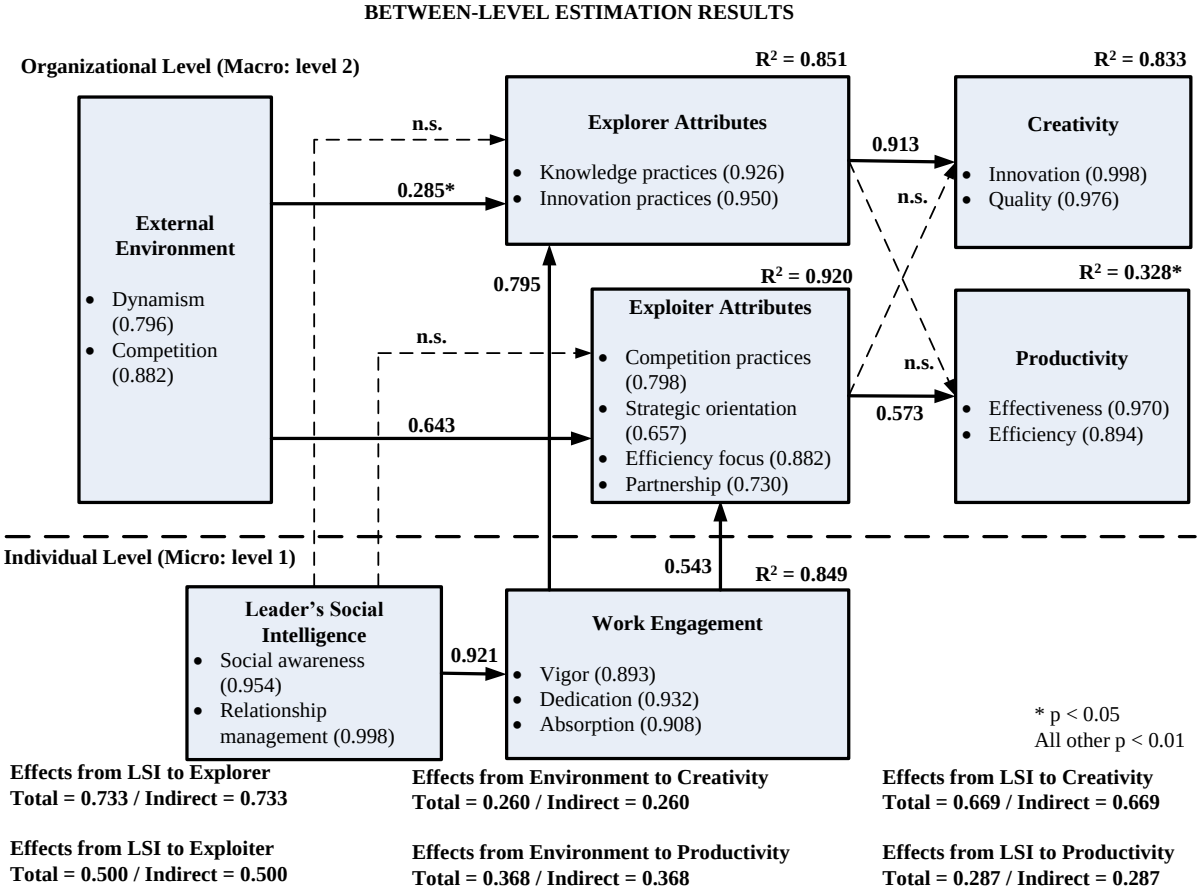

Figure 3. The between-level estimation results of the operational model

Table 1

Sample characteristics

	Number	Percent
Demographic characteristics of sample organizations (N = 99)		
Employees		
– 25	50	50.5
26 – 50	21	21.2
51 +	28	28.3
Sector		
Manufacturing	17	17.2
Services	45	45.5
Trade	37	37.4
Demographic characteristics of sample respondents (N = 657)		
Gender		
Male	327	49.8
Female	330	50.2
Education		
Basic	16	2.4
High school / Lyceum	183	27.9
University	458	69.7
Tenure		
Full time	569	86.6
Part time	88	13.4
Position		
Senior managers	118	18.0
Middle managers	156	23.7
Other	383	58.3
Average age of employees (in years)	37.66 (± 10.52)	
Average seniority of employees (in years)	11.01 (± 8.56)	

Table 2

Means, standard deviations, consistency indices, and correlation coefficients of constructs

Constructs	Mean (standard deviation)	Consistency and reliability indices		Correlation coefficients						
		Cronbah's alphas	Composite reliability	Leader' social intelligence	Employee work engagement	Exploration attributes	Exploitation attributes	Environmental aspects	Creativity	Productivity
Leader' social intelligence	3.860 (0.799)	0.841	0.926	[0.863]						
Employee work engagement	3.766 (0.857)	0.853	0.912	0.582	[0.776]					
Exploration attributes	3.738 (0.786)	0.739	0.889	0.598	0.577	[0.799]				
Exploitation attributes	3.705 (0.686)	0.726	0.835	0.512	0.458	0.578	[0.560]			
Environmental aspects	3.889 (0.818)	0.647	0.945	0.300	0.237	0.370	0.493	[0.739]		
Creativity	4.283 (0.740)	0.679	0.864	0.499	0.489	0.558	0.408	0.208	[0.760]	
Productivity	4.277 (0.704)	0.728	0.881	0.415	0.360	0.385	0.393	0.159	0.507	[0.787]

Note: All correlations are significant at 0.01 level (2-tailed)
Figures in brackets indicate Average Variance Extracted (AVE)