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EFFECT OF LEADERSHIP ON BMI AND COMPETITIVE ADVANTAGE OF SMEs

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This study investigated the relationships between transformational leadership (TL), entrepreneurial leadership (EL), business model innovation (BMI) and competitive advantage, as well as the role of environmental uncertainty in these relationships. The importance of BMI and leadership style for the firms and the gaps identified in literature motivated the need for this paper. Previous literature has not fully explained in detail the antecedents of BMI or how BMI improves competitive advantage of organisations. Thus, an empirical model was used to analyse data gathered from a survey of 474 small- and medium-sized enterprises (SMEs) from several sectors in Greece. The findings reveal the contribution of leadership styles on BMI, the direct contribution of TL and EL on competitive advantage, as well as the contribution of BMI in competitive advantage in all responding SMEs, those SMEs with low scores of business environmental uncertainty and those SMEs with high scores of business environmental uncertainty.

Keywords: Transformational leadership; entrepreneurial leadership; business model innovation; competitive advantage.

Introduction

Business Model Innovation (BMI) represents a novel and more holistic form of innovation (Foss and Saebi, 2017) that allows firms to create novel activities that go beyond product, process and organisational innovation (Osiyevskyy and Dewald, 2015). BMI often represents an underused source of value creation; it

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is difficult to be imitated or replicated by competitors, and it can be a very powerful competitive tool (Amit and Zott, 2012). Companies who are hesitant to spend their money on new products, services or processes that can be imitated at ease are now increasingly turning their attention towards BMI (Bashir and Verma, 2019). Thus, it is very important for firms to know the specific role of BMI on business performance and how BMI can be attained in different business environments.

Moreover, literature shows that most of the research on BMI has mainly focused on large enterprises. However, research findings pertaining to large, well-established firms cannot be generalised to small, young firms. Thus, BMI remains an acknowledged but comparatively less researched stream in Small- and Medium-Sized Enterprises (SMEs) (Kafetzopoulos and Psomas, 2016), which are considered to be the backbone of European economics (Balboni *et al.*, 2019). SMEs' BMI—a key mechanism for their competitiveness, sustainability and growth (Kakouris *et al.*, 2016)—should be thoroughly monitored and supported, especially during financial crises and turbulence in the market.

Few articles explain in detail the antecedents of BMI or how BMI improves competitive advantage or other aspects of organisational performance (e.g., Schneider and Spieth, 2013). Saiyed (2019), Hossain (2017) and Doz and Kosonen (2010) assert the crucial role of different leadership styles and their importance in developing BMI. Nevertheless, Foss and Saebi (2017) mention that only one paper, authored by Achtenhagen *et al.* (2013), focuses on leadership in BMI, while recently Saiyed (2019) found that only seven studies discuss leaders' role in BMI. Thus, our understanding of the crucial role of leadership as an antecedent in promoting BMI is still limited (Alblooshi *et al.*, 2021; Bashir and Verma, 2019), while the specific impact of different leadership styles on SMEs' BMI remains a field scarcely investigated (Saiyed, 2019; Hossain, 2017).

The importance of BMI and leadership styles for the firms and the gaps identified in literature motivated the need for this paper. Some authors assert that transformational leadership (TL) has been considered one of the most effective leadership styles that attracts the most attention in the innovation literature (Sheehana *et al.*, 2020; Le *et al.*, 2018). TL positively affects a firm's innovation capability through intellectual stimulation, encouraging openness among individuals inspiring and motivating employees' innovation behaviour (Choi *et al.*, 2016). Thus, its practice might be a decisive pathway to enhance a firm's BMI and competitive advantage (Akman and Yilmaz, 2008). However, knowledge about the direct relationship between TL and BMI remains underdeveloped and insufficient (Anderson *et al.*, 2014). The findings on the TL-BMI link are not conclusive with researchers highlighting the need for cross-lagged designs and the identification of TL behaviours that are appropriate to understand BMI (Sheehana *et al.*, 2020). According to

Sattayaraksa and Boon-itt (2018), future research can help extend the understanding of the connection between TL and BMI.

Similarly, a plethora of research has also recognised that entrepreneurial leadership (EL) fosters innovation and competitive advantage (Renko, 2018). EL is a unique leadership style that focuses on making heterogeneous talents work in an organisation more creatively and innovatively in collective processes in order to respond to an uncertain business environment and to create coherent strategies and novel outcomes. Hence, organisations' managers need to adopt and develop it consistently (Fontana and Musa, 2017). However, research on the relationship between EL and BMI is still limited (Phangestu *et al.*, 2020). The study of Paudel (2019) supports the claim "entrepreneurial leadership is still in infancy" (Leitch and Volery, 2017) and argues that more research is still required to broaden EL theory on BMI. Bashir and Verma (2019) also point out that the role of leader's entrepreneurial skills in BMI is important but an unexplored phenomenon. Furthermore, scholars present various findings about the impact of leadership on BMI and firm performance, using moderating variables, such as environmental uncertainty (Chen *et al.*, 2019). Given that nowadays SMEs operate under intense environmental uncertainty, its role in this relationship needs to be considered.

The aim of our study is to explore the under-researched area of the role of leadership in BMI (Saiyed, 2019) and to provide interesting insights regarding the leadership styles that can help SMEs to develop the capabilities that are necessary for innovative business models and competitive advantage. More specifically, it proposes six research questions exploring how TL and EL affect BMI and competitive advantage of SMEs, and also, it examines the relationship between BMI and competitive advantage. The moderating role of environmental uncertainty in the relationships of the proposed model is also examined, enhancing the contribution and the originality of the present study.

This study offers important theoretical and practical implications. Our first theoretical contribution is towards the emerging BMI literature (Miroshnychenko *et al.*, 2021; Foss and Saebi, 2017) since this literature stream offers limited empirical insights. Second, the novelty of the present study stems from the fact that it is the first that attempts to explain how two specific leadership styles (TL and EL) can help to build and maintain BMI in SMEs since the role of these leadership styles has not yet been adequately examined and fully realised (Spieth and Schneider, 2016; Khanagha *et al.*, 2014). Also, the paper responds to the call of Foss and Saebi (2017) for a better understanding of leadership as an internal antecedent of BMI. From a practical perspective, the paper provides guidance for SMEs on how they can facilitate leadership and BMI in order to become more competitive. In doing so, this study offers contributions to the management literature in general and to the leadership and innovation research in particular. Third, the study

takes into consideration the moderating role of environmental uncertainty on TL/EL—BMI—competitive advantage relationships. Finally, the study uses a large sample of firms and provides up-to-date empirical evidence to validate a model not examined in previous research. All the above strongly support the originality of the present study and its contribution to the existing body of knowledge.

Theoretical Background and Hypothesis Development

Competitive advantage

SMEs wishing to compete in local markets must develop a strategy that allows them to take advantage of their resource portfolios and develop a competitive advantage relative to their competitors. Competitive advantage can be defined as the aggregation of various items which differentiate firms from their competitors and provide a unique and superior position in the market (Afsharghasemi *et al*., 2013). Long-term success and sustainable competitive advantage may occur only if SMEs' customers are deeply satisfied. Thus, managers should pay attention not only to products' quality and to innovative product designs but also to the price that customers are willing to pay for the products' features (Nwabueze, 2013). Dangayach and Deshmukh (2001) state that competitive priorities can be defined in terms of quality, delivery, price (cost), and flexibility. Sarmiento *et al*. (2007) identify also "time" as a critical competitive priority. Quality is a multidimensional construct, and each of its dimensions should be used strategically by a company in order to gain competitive advantage (Garvin, 1987). When a company chooses "low cost" as a priority, it places emphasis on reducing unit costs, material and overhead costs, or inventory costs (Ward *et al*., 1995). Performance measures related to "delivery" include emphasis on activities intended to increase either delivery reliability or delivery speed. "Flexibility" measures include shortening the new product introduction cycle, reducing manufacturing and procurement lead-time and reducing the time required to change products in the manufacturing process. Finally, "time" refers to the extent to which an organisation is capable of introducing new or existing products faster than major competitors. The relative weights given to each one of these priorities provides a broad measure of what a firm deems important at a particular time (Ward *et al*., 1995).

Theoretical framework on BMI

The business model is described as how an organisation creates, delivers, and captures value, enabling a firm to successfully implement its strategy. Every company has a business model, whether they articulate it or not, that organises its business

processes toward driving performance. Business model represents an increasingly important concept, particularly in the fields of innovation management (Globocnik *et al*. 2020). However, as firms mature, they may need to innovate their business model, adapting BMI to develop new forms of value creation and revenue streams (Randhawa *et al*., 2021). BMI is considered an emergent phenomenon that represents a new activity system that includes innovation, value creation, and the value capture structure of a firm and its alliances (Bouncken and Fredrich, 2016). According to Mitchell and Coles (2004), BMI is a novel replacement of the existing business model which provides product or service offerings to customers and users that were not previously available. In the last two decades, new technological developments have led to innovations in all elements of a firm's business model, such as new market places, new opportunities of how revenues can be captured or new ways of how value can be created. Thus, BMI is said to be a new and different type of innovation, which complements product and process innovation through a holistic perspective in the elements of the organisation (Massa *et al*., 2017). BMI is not a new product, process or market introduction, but it is a new strategic path for making business (Santos *et al*., 2009). The scope of BMI is not only to change radically one or all business model elements but also to achieve incremental reconfigurations of these elements (Velu and Jacob, 2016).

Foss and Saebi (2017) define BMI as "designed, nontrivial changes to the key elements of a firm's business model and/or the architecture linking these elements". On similar lines, Sánchez and Ricart (2010) found that BMI is achieved through combining, integrating and leveraging both internal resources with eco-system capabilities and resources to create new opportunities. Comes and Berniker (2008) believe that BMI addresses two questions: what value does the firm provide to its customers and how does this value profit the firm? They also believe that aside from financial value, BMI provides benefits in other areas, such as organisational structure, the value chain, and the use of infrastructure. To achieve BMI, organisations demand new resources and knowledge configurations to create novel strategies for creating and capturing value (Teece, 2018; Leih *et al*., 2015).

BMI refers to a new-to-the-firm change in at least one out of three business model dimensions: (a) the firm's value offering, that captures what a firm offers its customers, (b) the firm's value creation architecture, that describes how this offering is realised within the firm and its network with other organisations and, (c) the firm's revenue model logic. The revenue model shows how firms capture value for themselves through revenue logics and cost structures (Miroshnychenko *et al*., 2021; Spieth and Schneider, 2016). However, these value functions do not work in isolation but interplay and interact differently across organisations; whereby each organisation forms and, over time, develops a unique version of its value logic (Laasch, 2018).

Foss and Saebi (2017) distinguish four partly overlapping streams of BMI research: (a) conceptualisation and classification of BMI, (b) BMI as a process with an emphasis on its stages and on leadership, (c) BMI as an outcome, (d) BMI and organisational performance. While these streams are not mutually exclusive, our study is aligned with the second stream—BMI as a change process—and the fourth stream—BMI and competitive advantage. In the next sections, we develop a set of hypotheses outlining the theoretical links between the investigated constructs, i.e.,: (1) the baseline nexus between TL, EL and BMI; (2) the role of BMI on competitive advantage; (3) the way in which TL and EL lead into competitive advantage; (4) the moderating role of environmental uncertainty on the previous relationships.

Transformational leadership

The evolution of leadership theory and practice has attracted researchers on a quest to explain the influence of leadership by developing models to determine causal mechanisms that link leadership to various organisational outcomes (Avolio *et al*., 2009). Among all available leadership theories, TL has been documented to foster and enhance BMI. TL theory is grounded in the assumption that followers transform as the result of their experience with certain leaders. In other words, leaders stimulate particular transformations in followers. TL is one of the most sought-after approaches to leader behaviour that transforms and inspires followers to develop knowledge and skills and to be of greater value to the organisation (Ghadi *et al*., 2013; Bass and Avolio, 1995). Transformational leaders are dynamic and proactive and capable of leading not only themselves but also their followers in order to embrace changes. Such leaders promote and motivate their followers by projecting and communicating attractive visions, common goals, and shared values (Bass and Riggio, 2006).

Transformational Leaders are recognised as the main drivers of employees' new ideas generation (Jyoti and Dev, 2015); they play a dominant role in generating innovation while they create and shape a positive climate that encourages the abilities and practices to promote BMI. In fact, transformational leaders let their subordinates think creatively, analyse their problems from several angles, look into new and fresh solutions for problems and change a firm's value offerings on its customers (Gumusluoglu and Ilsev, 2009). TL yielded higher employee job satisfaction and increased their autonomous goal-directed motivation and ability to think out of the box (Jung *et al*., 2008). In addition, a transformational leader's intellectual stimulation can facilitate unconventional and innovative thinking and working processes that lead to new knowledge and technology, which is fundamental to firm innovation (Dougherty and Hardy, 1996). Trung *et al*. (2014) showed that TL plays

an important role in generating a climate in the organisation that favours experimentation and the introduction of new ideas, processes, procedures or structures that create and capture value for its stakeholders. Transformational leaders' characteristics are the main forces that directly or indirectly affect BMI, specifically (a) by means of idealised influence; persuading and motivating employees about the need to implement change and innovation, and (b) by transmitting inspirational motivation; transformational leaders foster employees' enthusiasm to fulfil their duties and organisational goals beyond expectations (Le *et al.*, 2018). Thus, by emphasising the necessity to improve BMI as an organisation's strategic goal, TL can motivate employees to be more proactive and creative to enhance and develop new ideas and solutions related to firm's value creation. To further and more clearly investigate the relationship between TL and BMI, the following hypothesis is proposed:

H1: *Transformational leadership is positively related to BMI.*

As the global competition becomes increasingly fierce, the keys to sustain competitive advantage or achieve sustainable competitive advantage obtain more attention. Leadership is the back bone of an organisation and brings a tremendous impact in achieving competitive advantage (Agbor, 2008). Moreover, TL is indicated as one of the leadership styles that best fit to cope with changes in the market. Devie *et al.* (2015) indicated that the influence of TL style in developing company's competitive advantages is very strong. This is similar to Agbor (2008) who found that TL style cultivates and exploits employees' competencies towards organisation's competitive advantages. Behavioural consequences from TL include greater encouragement of employees to think creatively, to solve present and future problems, to take risks and to challenge orthodox ways of conducting tasks (Menguc *et al.*, 2007). Bass (1999) defined TL as the style of leadership that encourages creativity in employees and leads to increased consciousness of shared interest among all members of an organisation, helping them to achieve their competitive goals. TL also positively affects both a differentiation and a low-cost strategy. A differentiation strategy demands an atmosphere in which employees have more autonomy to be effective. TL enables job flexibility and empowerment by bestowing confidence and motivation on employees (Menguc *et al.*, 2007). Alberts (1998) asserts that firms cannot achieve lower costs solely through technical engineering. Instead, human resources must complement technical resources, particularly in terms of enthusiasm and will, which encompass the behavioural and psychological nature of dynamic managers. Hence, the following hypothesis is proposed:

H2: *Transformational leadership is positively related to competitive advantage.*

Entrepreneurial leadership

EL could be defined as "the process of influencing organisations through leading and direct involvement in creating value for stakeholders by bringing together a unique innovation and package of resources to respond to a recognised opportunity" (Darling *et al*., 2007). According to Huang *et al*. (2014), entrepreneurial leader is a person who can restructure their organisation that enables them to seize new opportunities and to improve the ability to invent ways wherein they can compete in a highly unpredictable environment. EL is a unique leadership style that focuses on making heterogeneous talents work in an organisation more creatively and innovatively in collective processes to respond to an uncertain business environment and to create coherent strategies and novel outcomes (innovation performance) (Fontana and Musa, 2017). EL provides organisations with the vision and flexibility to change and thus fosters the innovation process. An entrepreneurial leader must be passionate, confident, willing to listen and consider others' opinions and views and clarify organisational viability, especially in periods of change (Schoemaker *et al*., 2018). Entrepreneurial is a leadership style where leaders lead the creation of organisational strategic value by encouraging employees to work more creatively to respond to business environment uncertainties, a recognised business opportunity or a future possibility (Alblooshi *et al*., 2021). The characteristics of the EL are described as follows: having the aptitude to visualise for the firm future success, having forward-thinking, having the ability to acknowledge opportunities inspiring and influencing their team members in implementing progressive entrepreneurial actions, solving problems through creative methods, and reinforcing a culture of organisational innovation (Sawaean and Ali, 2020).

Entrepreneurship is intrinsically linked to BMI. As business models reflect management's hypotheses about what the customers want and how the firm can organise best to create, deliver, and capture value (Teece, 2010), BMI is tightly linked to the idea of entrepreneurial vision, imagination, and judgment (Foss and Saebi, 2017). EL style enhances the possibility of leaders to manage the organisation successfully and solve problems through unique, dynamic and innovative policy, which enhances BMI (Chen, 2007). The strength of entrepreneurial leaders comes from their innovative and creative character in exploiting business opportunities. Kuratko (2007) asserted that entrepreneurial leaders do not only provide space for creativity but also motivate subordinates to be innovative in achieving organisational goals. Furthermore, Renko *et al*. (2015) note that entrepreneurial leaders enhance followers' beliefs in their own entrepreneurial skills and abilities and ignite passion for BMI. An entrepreneurial leader, unlike other types of leaders, specifically emphasises opportunity recognition, innovation practices and utilisation as important BMI goals (Renko *et al*., 2015). Organisations that aspire

for BMI need entrepreneurial leaders who support their co-workers in creatively recognising and exploiting new opportunities for the benefit of the organisation (Huang *et al*., 2014). Therefore, the following hypothesis is proposed:

H3: *Entrepreneurial leadership is positively related to BMI.*

Literature review reveals different types of research, including meta-analysis, empirical, and conceptual approaches, in an effort to understand the relationship between EL and organisational performance (Sawaean and Ali, 2020). These studies have documented how EL influences successful outcomes such as competitive advantage and have linked its influence to the proliferation of SMEs (Koryak *et al*., 2015). Effective EL means displaying the abilities of both entrepreneurs and successful leaders and seems to be important to the survival and development of new ventures (Sundararajan *et al*., 2012). Roomi and Harrison (2011) declare that EL is a fusion of two constructs, having and communicating the vision to engage teams to identify, develop and take advantage of opportunity in order to gain competitive advantage. EL requires the leader to have the entrepreneurial ability to identify opportunities and develop competitive advantages and growth (Jones and Crompton, 2009). Moreover, Huang *et al*. (2014) revealed how entrepreneurial leaders manage resources strategically to create competitive advantages. The EL processes and rules that enable firms to recognise and or create entrepreneurial opportunities and the resources used to successfully exploit opportunities, as well as the firm's position, are all sources of competitive advantage (Shane and Venkataraman, 2000). The above discussion clearly shows that EL is related to firm growth as it creates a competitive advantage and ensures sustainability (Palalic, 2017). Therefore, the following hypothesis is proposed.

H4: *Entrepreneurial leadership is positively related to competitive advantage.*

BMI and competitive advantage

Prior studies on BMI have explored that researchers are interested primarily in how BMI can enable companies to create and capture economic value and competitive advantage (Czinkota *et al*., 2020). Leading management and innovation consulting firms emphasise that BMI can deliver more sustained competitive advantage in times of continuous change (e.g., Vermuelen, 2018). A large-scale CEO survey on BMI (Global Business Services, 2006) reports that BMI is a key source of sustained value for firms around the globe, trumping new products and services as a source of future competitive advantage. Successful BMI allows firms to create novel activities that go far beyond the mere innovation of products, processes,

services, or experiences (Osiyevskyy and Dewald, 2015). BMI increases an organisation's resilience to changes in its environment, and it represents a source of competitive advantage (Mitchell and Coles, 2004). Teece (2010) argues that any business model is often difficult to imitate for some fundamental reasons, providing firms with a strong competitive advantage over their competitors. BMI follows a process that creates value for customers and partners in a novel way. Thus, a differentiation from the competitors is possible, allowing to consolidate customer relations, to build a competitive advantage, to foster inimitability, and to realise synergies between business model elements, in order to generate growth (Jun *et al*., 2020). Chesbrough and Rosenbloom (2002) found that BMI is established on the bases of strategic planning and business processes which assist managers in formulating strategies to achieve competitive advantage over their competitors. Chesbrough (2007) also listed different functions of BMI that formulate competitive advantage for a firm. Thus, BMI becomes a valuable capability of a firm, offering powerful competitive tools that lead to competitive advantage (Amit and Zott, 2012; Chesbrough, 2007). Based on the above arguments, the following hypothesis is proposed:

H5: *BMI positively affects competitive a firm's advantage.*

The moderating role of environmental uncertainty

Environmental uncertainty refers to the rate of change and uncertainty, and it is usually associated with high risk (Waldman *et al*., 2001). The change of environmental conditions poses uncertainty and thus risk to firms. When managers experience high market uncertainty in their business environment, it is difficult to integrate innovation issues into their strategic decisions. Studies on innovation show that the output of BMI activities in a firm is influenced by its environmental context and more specifically by market uncertainty (Kafetzopoulos *et al*., 2019). Prior research demonstrates that an uncertain environment might cause stress and anxiety to organisational members, thus requiring leaders to change crises into opportunities for the firm (Ensley *et al*., 2006; Waldman *et al*., 2001). Chen *et al*. (2019) admit that environmental uncertainty generates more opportunities for leaders to change the status quo and lead the firm out of crisis. This finding is elaborated by Ensley *et al*. (2006) who show that environmental dynamism positively moderates the relationship between EL and new venture performance. Waldman *et al*. (2001) show that CEO leadership could lead to better firm performance in a highly uncertain environment. On the other hand, Aragón-Correa and Sharma (2003) point out that low environmental uncertainty helps leaders determine their business strategy for firm performance. According to Atuahene-Gima *et al*. (2006),

market turbulence positively influences the causal link between leadership strategy and firm performance while Agle *et al*. (2006) found no significant effect. The above discussion regarding the role of leadership on business performance, with regard to environmental uncertainty, led to the following hypotheses:

H6: *Environmental uncertainty moderates the links between TL (H6a), EL (H6b) and BMI, TL (H6c), EL (H6d) and competitive advantage, BMI and competitive advantage (H6e).*

Methodology

Sample and data collection

A survey questionnaire was prepared to evaluate the perceptions of Greek SMEs employees. We focus specifically on SMEs because it is widely acknowledged that they are important for the Greek and European economic welfare and also important developers of innovation (Globocnik *et al*., 2020). The scales were drawn from prior studies in English language. Since the data were collected in Greece, translation processes were followed. Prior to final administration and to ensure comprehensibility of the questionnaire, a pre-test with the final translated versions of the measures was piloted on four university researchers and seven SMEs. The survey instrument was then distributed to 1,540 private SMEs, with more than 9 employees, which were randomly selected from the list of companies included in the database of ICAP (the largest business information and consulting firm in Greece), in order for the sample to be representative of the population. The data for this research were collected during the spring and summer of 2020. After the initial survey mailing, we followed up with reminder emails and telephone calls to companies' contacts. One questionnaire was administered to a senior-level manager in each SME who was asked about BMI and competitive advantage of the firm. A different questionnaire was administered to middle-level managers who were asked about their senior managers' leadership style.

We received 474 sets of completed questionnaires by middle and senior managers of the SMEs, giving a response rate equal to 30.8%. This response rate is acceptable compared to the response rates of similar research studies. We further assessed potential nonresponse bias by looking for differences between early and late respondents in terms of demographics and between firm size, sector and participant gender. No significant differences ($p < 0.05$) were found, indicating that differences in the answers of respondents were not related to nonresponse bias. Furthermore, calculating the Mahalanobis *d*-squared distance, no observations exceed the threshold value of 3 and thus all data included in the analysis. Regarding

Table 1.   Sample characteristics.

Demographic characteristics of sample SMEs	Number	Percent
Employees		
11–49	248	52.3
50–100	164	34.6
101–250	62	13.1
Sector		
Manufacturing	201	42.4
Services	173	36.5
Trade	100	21.1
Demographic characteristics of respondents		
Male	302	63.7
Female	172	36.3
Education		
Basic	23	4.9
High school	150	31.6
University	301	63.5
Other		
Average age of employees (in years)	38.8 (±12.4)	
Average seniority of employees (in years)	10.4 (±9.7)	

the normality of the data, the measured variables of the questioner exhibited univariate normality and did not suffer from skew and kurtosis ($< \pm 1$), indicating, but not guaranteeing, multivariate normality (Hair *et al.*, 2006). The sample characteristics are presented in Table 1.

Measures

The use of constructs plays an important role in designing a survey instrument in management research. In any research concerning behavioural elements, researchers usually employ two or more measures to gauge a construct or scale. Given that developing new constructs or scales of measurement is a complex task, this study uses pre-tested multiple-item constructs, such as leadership styles, BMI and competitive advantage, from past empirical studies (García-Morales *et al.*, 2012). It is also essential to know if the items can build a sturdy construct. The items taken were based on sound theoretical background; thus, we may consider the items are valid contently. Moreover, we will test the construct validity of the items

by using the convergent and discriminant validity test. A 7-item Likert scale was used to record responses for all scales used, from (1) totally disagree to (7) totally agree. We opted for a short and concise measure since lengthy surveys yield lower response rates and achieving an acceptable response rate was deemed critical (Miroshnychenko *et al*., 2021).

Transformational leadership. Based on a literature review on research measuring TL, six items were adopted from Amankwaa *et al*. (2019) and Bass and Avolio (1995) to measure middle-level managers' perceptions of the degree to which senior-level managers or leaders adopted an EL style.

Entrepreneurial leadership. To measure EL, the scale of Phangestu *et al*. (2020) and Renko *et al*. (2015) was adopted. The scale consists of six items representing a single construct of EL style, and it was used to measure middle-level managers' perceptions of the degree to which senior-level managers or leaders adopted an EL style.

Business model innovation. While scholars have shown considerable interest in BMI in the last two decades, validated measurement scales have only been developed quite recently (e.g., Clauss, 2017). Generally, literature review supports that BMI is composed from three main dimensions measuring innovation in terms of value creation or architecture, value proposition or offering, and value capture or revenue models (Miroshnychenko *et al*., 2021; Hock-Doepgen *et al*., 2020; Clauss, 2017; Spieth and Schneider, 2016). Thus, BMI can be presented as a second-order construct composed of these three first-order dimensions. According to Hair *et al*. (2006), we evaluated the target (*T*) coefficient [*T = Chi Square (baseline model)/Chi Square (alternative model)*] that indicates how well the higher-order factor model explains covariance in the first-order factors. We found *T* = 1, proving that the second-order construct (BMI) is present, providing a more parsimonious explanation of covariance in the first-order factors. For this study, the BMI scale was adopted from Miroshnychenko *et al*. (2021) and Spieth and Schneider (2016). Based on 10 items, the scale measures the extent of BMI over a period of three years across the dimensions of value offering innovation (three items), value architecture innovation (four items) and value capture innovation (three items).

Competitive advantage. Competitive advantage determines a firm's position in the market. The key competitive items of quality, cost, delivery and flexibility were used in this study in order to measure this construct, and they were assessed by senior-level managers, knowledgeable in the subject domain. The same variables have also been used in prior studies of Kafetzopoulos *et al*. (2013) and Sarmiento *et al*. (2007).

Environmental Uncertainty: The scale of environmental uncertainty is adopted from Kafetzopoulos *et al*. (2019) and Zhang *et al*. (2012). It is made up of three items which assess the instability of customer needs and demands, the unpredictability of product demand, and the modes of competition for the products in the market.

Assessing common method bias

To reduce the possibility of common method bias due to self-reported measures, variables were scrambled to prevent respondents from intuiting the research model and questions, as it reduced the likelihood that they would adjust their answers to what they believed were the expected results. Only previously tested scales were used, and "filler" items and changed instructions were added to separate the variables in the minds of the respondents (Alfes *et al*., 2013). Moreover, data of dependent or independent variables were collected from different sources and participants. While designing the questionnaire, the items of each variable were prepared in separate sections. The survey studies were carried out in a suitable environment in the workplace. Besides, information about privacy and security about the study was conveyed to the participants (Özsungur, 2020). Furthermore, a Harmon one-factor test was conducted to ensure the absence of common method bias (CMB). As a result, the first extracted factor accounted for 27.3% of the variance in the data (< 50%). In addition, many items suffered from poor factor loadings, below 0.4. which was far from the threshold of 0.90. Therefore, overall, the potential effect of CMB was not a major concern (Kafetzopoulos *et al*., 2019).

Data analysis

The mean scores of each of the latent factors are computed and analysed to estimate the level of implementation perceived by the respondents. Moreover, a correlation matrix for the six dimensions is produced in order to examine the relationships among the main variables. Table 2 displays the descriptive statistics and the results of the correlation analysis of the study variables. As it can be seen, the correlation coefficients (*r*) among the variables are above 0.3 and below the cut-off of 0.90. The results indicate the interdependence of the six dimensions; hence, collinearity and multicollinearity do not represent data problems in this research (Hair *et al*., 2006). Moreover, *K*-means cluster analysis was used as a suitable method for grouping the respondents (Hair *et al*., 2006) who evaluated the environmental uncertainty latent factor. More specifically, the first group includes the respondents with a high score of responses (269 cases, high uncertainty group), and the second group includes those with a low score of responses (205 cases, low uncertainty group). The *T*-test was used to confirm the effectiveness of grouping (9.14, *p* < 0.001), and the results support the goodness of the K-means clustering.

Model formulation

Based on the above theory, a model of relations was formed (Fig. 1). Given the existence of two exogenous constructs (TL and EL), a second-order endogenous

Table 2. Descriptive statistics and reliability analysis.

Variables	1	2	3	4	5	6
(1) Transformational Leadership	—					
(2) Entrepreneurial leadership	0.616	—				
(3) Revenue Model Innovation	0.450	0.572	—			
(4) Value Architecture Innovation	0.354	0.364	0.517	—		
(5) Value Offering Innovation	0.390	0.454	0.618	0.639	—	
(6) Competitive advantage	0.440	0.621	0.592	0.430	0.538	—
Mean	6.09	6.11	5.61	5.45	5.26	5.78
S.D.	0.048	0.05	0.54	0.068	0.51	0.51
Cronbach's alpha	0.863	0.813	0.874	0.848	0.909	0.782
MaxR(H)	0.932	0.917	0.938	0.920	0.956	0.899

Notes: S.D. = standard deviation; Correlation is significant at the 0.01 level (two-tailed); MaxR(H) = maximum reliability.
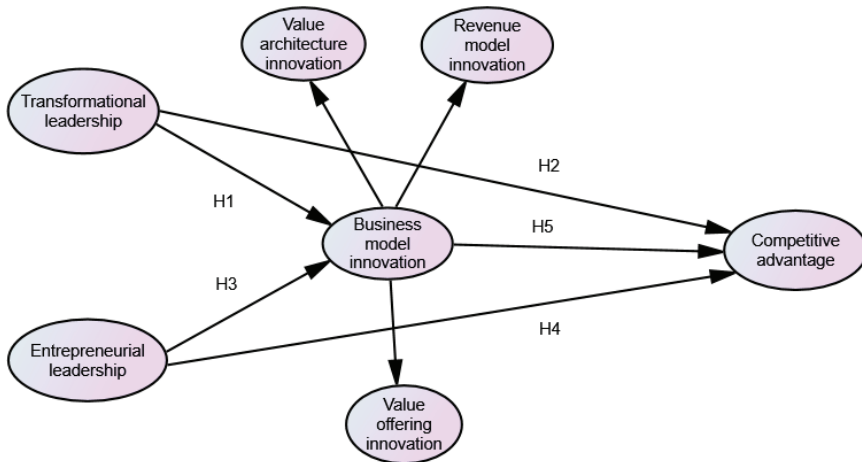

Fig. 1. Research model.

latent variable (BMI) and a first-order endogenous latent variable (competitive performance), the study analyses the data using structural equations modelling (AMOS) to establish causal relationships between these variables. Furthermore, this model will allow us to determine the role of environmental uncertainty on the above relationships. Each relationship is double checked using prior empirical findings from the leadership and business model literature. This procedure translates the theoretical construction into mathematical models in order subsequently

to estimate and evaluate them empirically (Jöreskog and Sörbom, 1996). Structural equation modelling takes into account errors in measurement, variables with multiple indicators and multiple-group comparisons; thus, it is suitable for our analysis.

Results

Assessment of psychometric properties of the measures

All psychometric properties of our reflective measured constructs were assessed according to common criteria in the literature (Hair *et al*., 2006). First, exploratory factor analysis (EFA) was applied; as a result, six latent factors and 26 items were established explaining 68.021% of the total variance (Kaiser–Meyer–Olkin = 0.912, Bartlett's test of Sphericity = 6525.010, $p < 0.00$, eigen-value > 1, MSA > 0.80, factor Loadings > 0.650). The amount of variance explained for each latent factor was 35.361%, 10,605%, 7.052%, 5,063%, 4.646%, and 4.178%, respectively. All items had significant contribution to the common explanatory variance (CEV) criterion of 0.500. The reliability of the factors is confirmed through Cronbach's α coefficients, ranging from 0.782 to 0.909 (Table 2) suggesting satisfactory level of construct reliability (Hair *et al*., 2006). In order to determine whether the extracted latent factors show acceptable fit to the empirical data, the confirmatory factor analysis (CFA) (maximum likelihood estimation technique) was also applied in addition to EFA. The following fit indexes were obtained for the full measurement model: $\chi^2 = 742.733$; $df = 285$, $\chi^2/df = 2.606$; $p = 0.000$; CFI = 0.928; AGFI = 0.885; GFI = 0.908; SRMR = 0.078; RMSEA = 0.058; IFI = 0.928; TLI = 0.918, indicating a good fit. In addition, a CFA was applied to assess the second-order measurement model (BMI). The fit statistics indicate also a good fit, and all the second-order factor's loadings are positive and statistically significant ($\chi^2 = 89.639$; $df = 30$, $\chi^2/df = 2.988$; $p = 0.000$; CFI = 0.980; AGFI = 0.932; GFI = 0.963; SRMR = 0.075; RMSEA = 0.065; IFI = 0.980; TLI = 0.970). Based on the results of CFA, this study also calculated the composite reliability (CR). The constructs' CR values were above the recommended minimum of 0.70 (Bagozzi and Yi, 1988), providing evidence that each construct had an acceptable level of reliability (Table 3).

Finally, validity was assessed in terms of content, convergent and discriminant validity. The review of literature as well as the results from the pilot study provided reassurance about the content validity of the instrument. The convergent validity of each construct of the model was assessed by evaluating the factor loadings and the average variance extracted (AVE) in all cases as suggested by Hair *et al*. (2006). Factor loadings of all items were > 0.5; the signs were positive and greater than twice its standard error. The AVE values exceed the threshold value

Table 3.   Quality criteria of reflective first-order constructs.

Constructs and indicator	SFL	AVE	CR	Corr²	MSV
Transformational leadership		0.558	0.927	0.372	0.379
My manager acts in ways that build my respect	0.799				
My manager displays a sense of power and confidence	0.770				
My manager emphasises the importance of a collective sense of mission	0.633				
My manager talks optimistically about the future of the organisation	0.817				
My manager expresses a compelling vision of the future	0.744				
My manager expresses confidence that goals will be achieved	0.692				
Entrepreneurial leadership		0.515	0.912	0.385	0.385
Looking for opportunities is easy for my manager	0.683				
It is not difficult for my manager to get a new idea	0.757				
My manager is among those who easily influence my teamwork	0.737				
My manager can see how my business will look like in the future	0.681				
Handling problems creatively is not difficult for my manager	0.686				
My manager is among those who like to take the risk	0.759				
Revenue Model Innovation		0.710	0.930	0.381	0.382
Revenue mechanisms have changed	0.849				
Cost mechanisms have changed	0.892				
There are improvements of operative processes' effectiveness (e.g., R&D/production/ marketing)	0.780				
Value Architecture Innovation		0.593	0.910	0.408	0.408
The firm's core competences and resources have changed	0.708				
Internal value creation activities have changed	0.846				
Roles and involvement of partners in the value creation process have changed	0.812				
Distribution has changed	0.705				
Value Offering Innovation		0.774	0.950	0.408	0.289
Target customers have changed	0.888				
The product and service offering has changed	0.926				
The firm's positioning in the market has changed	0.824				

Table 3.   (*Continued*)

Constructs and indicator	SFL	AVE	CR	Corr²	MSV
Competitive advantage		0.526	0.883	0.385	0.379
Offering product quality that creates higher value for customers	0.741				
Maintaining the operational and production cost at a low level	0.710				
Delivery on time the type and volume of product required by customer(s)	0.642				
Flexibility is responding to the market rapidly within a short period	0.800				

Notes: SFL = Standardized factor loading; AVE = $\Sigma\lambda_i^2 / n$, (number of items $i = 1,…,n$, λ_i = SFL); CR = $(\Sigma\lambda_i)^2 / [(\Sigma\lambda_i)^2 + (\Sigma\delta_i)]$, (number of items $i = 1, … n$, λ_i = SFL, δ_i = error term); Corr² = the highest squared correlation between the factor of interest and the remaining factors; MSV = maximum shared variance.

of 0.5 demonstrating high convergent validity of the items towards their particular constructs (Tomšič *et al*., 2015). Moreover, a discriminant analysis was conducted to ensure that one construct could be distinguished from any other construct. Discriminant validity is evaluated by comparing the AVE with the shared variance (i.e., square of the correlation between any pair of latent constructs) (Hair *et al*., 2006). In each case, the AVE was greater than the squared correlation between each pair of constructs; thus, discriminant validity according to the Fornell–Larcker criterion is given (Table 3). The above results provide strong evidence that all of the study constructs were reasonably reliable and valid.

Hypothesis testing

In order to test the research hypotheses, the structural equation modelling (SEM) method was applied to determine the structural relationships between the investigated constructs. This approach is particularly appropriate for a confirmatory approach which means the model proposed generally has higher levels of evidence in terms of the latent constructs involved in a causal model. Basically, SEM depends on strict assumptions such as normality, homoscedasticity, and free of outliers to obtain the proper solution and avoid non-convergence estimates (Hoyle, 1995). In the present study, we already meet these requirements; so, the path estimates obtained through the maximum likelihood technique were trustworthy. All constructs were modelled as a reflective measure. To test the construct relationship, the single arrow is chosen to represent a causal effect, that is, this must begin from the exogenous construct to the endogenous construct (Aziz *et al*., 2016). Three

Table 4.   The fit indices of the structural model and for two—environmental uncertainty—groups.

	Models	χ^2/df value	RMSEA	GFI	CFI	NFI	RMR	TLI	IFI
Model 1	Basic model	2.583	0.058	0.888	0.928	0.887	0.076	0.919	0.928
Model 2	High score group model	1.975	0.060	0.862	0.918	0.847	0.068	0.906	0.919
Model 3	Low score group model	1.823	0.064	0.836	0.920	0.840	0.078	0.908	0.921
Levels of acceptance*		< 3.0	< 0.08	> 0.50	> 0.90	> 0.50	< 0.08	> 0.90	> 0.90

Note: * Hair *et al.* (2006).

Table 5.   Structural parameter for two—environmental uncertainty—groups comparisons.

Relationships	Basic model $n = 474$ B	t	High uncertainty group, $n = 269$ β	t	Low uncertainty group, $n = 205$ β	t
TL → BMI	0.221***	3.313	0.100*	1.834	0.240**	2.066
TL → CA	–0.016*	–0.255	–0.005*	–0.020	–0.074*	–0.418
EL → BMI	0.478***	6.116	0.684***	5.170	0.384***	3.544
EL → CA	0.335***	4.345	–0.083*	–1.004	0.631***	5.259
BMI → CA	0.484***	—	0.844***	—	0.241**	—

Notes: n = sample size; β: standard beta; t: critical ratio; Significance at: *$p < 0.05$ (two-tailed); **$p < 0.01$ (two-tailed); ***$p < 0.001$ (two-tailed).

groups of respondents were created, model 1 which is based on the overall sample (basic model), model 2 which is based solely on respondents who indicated a high-score of environmental uncertainty (high score group Model) and model 3 which is based on respondents who indicated a low-score of environmental uncertainty (low score group model). Next, these three structural models were tested. The multiple fit indices show that all the models represent the data fairly well (Table 4) (Hair *et al*., 2006).

Results regarding the basic model

Starting with the results for all firms, the structural model results (basic model; see Table 5) prove that TL has a significant positive effect on BMI ($b = 0.221$, $p < 0.001$). This suggests that firms with leaders scoring high in TL issues achieve also high scores in all BMI dimensions (revenue model innovation, value architecture innovation and value offering innovation), thus supporting hypothesis H1.
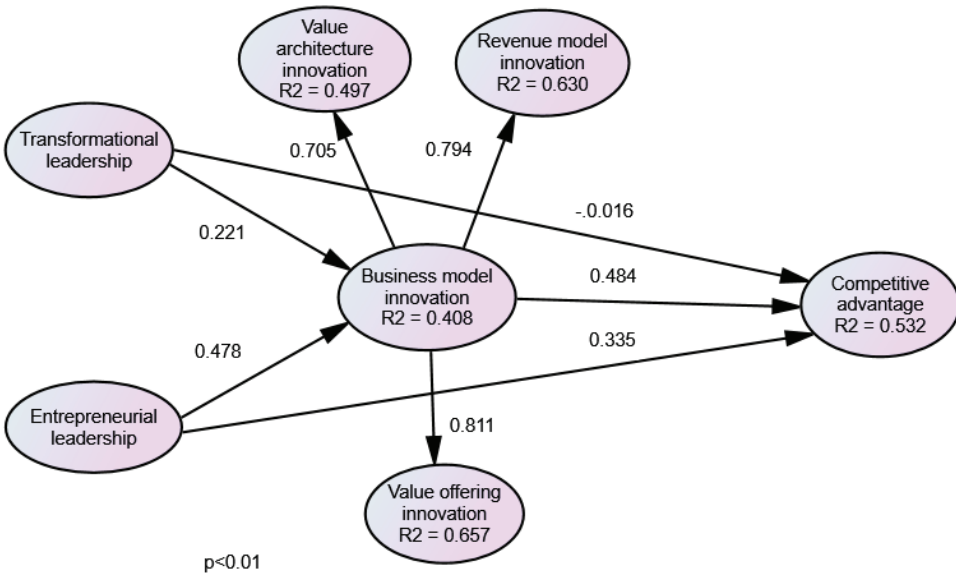
Fig. 2. Structural equation modelling results.

However, contrary to what might be expected, TL is not found to have a direct significant effect on a firm's competitive advantage ($b = -0.016$, $p < 0.799$), leading us to reject hypothesis H2. Regarding the relationship between EL and BMI, it is found again that EL has a significant effect on BMI ($b = 0.478$, $p < 0.001$). This suggests that firms with leaders scoring high in EL issues achieve also high scores in all BMI dimensions, and as a result, hypothesis H3 is accepted. EL is also found to have a strong influence on a firm's competitive advantage ($b = 0.335$, $p < 0.001$), thus supporting hypothesis H4. Finally, the results show that BMI is positively related to competitive advantage ($b = 0.484$, $p < 0.01$), offering also support for hypothesis H5. Figure 2 presents the final structural model (basic model), depicting the SEM results regarding the relationships between the latent factors. Furthermore, Fig. 2 indicates the associated hypotheses, as well as the estimated path coefficients, p-values and squared multiple correlations (R^2) for the dependent construct.

Results regarding the high & low score group models

Proceeding with the results regarding the moderating role of environmental uncertainty in the above relationships, the same tests were applied and compared for the two groups of respondents, with respect to their level of environmental uncertainty (high uncertainty group and low uncertainty group). Starting with hypotheses H6a

and H6b, the corresponding results prove that the effect of TL and EL on BMI is indeed moderated by the level of a firm's environmental uncertainty. However, an interesting finding is that this moderation is different for EL and TL. More specifically, it is found that although TL significantly affects BMI in firms operating in low environmental uncertainty (low uncertainty group; $b = 0.240$, $p < 0.017$), it does not significantly affect BMI in firms operating in high environmental uncertainty (high uncertainty group; $b = 0.100$, $p < 0.290$). The different results in these two groups support the moderating role of environmental uncertainty and confirm hypothesis H6a. In the same way, considering the effect of EL on BMI, it is found that although this effect is significant in both groups, it is stronger in firms with high environmental uncertainty (high uncertainty group; $b = 0.684$, $p < 0.001$; low uncertainty group; $b = 0.384$, $p < 0.001$), proving again the moderating role of environmental uncertainty and supporting hypothesis H6b.

Hypotheses H6c and H6d predict a moderating role of environmental uncertainty in the relationship between TL/EL styles and competitive advantage. However, the results in Table 5 show that in both groups of uncertainty (groups with high and low scores of uncertainty), the effect of TL on competitive advantage is not significant (high uncertainty group; $b = -0.005$, $p < 0.964$; low uncertainty group; $b = -0.074$, $p < 0.409$). Since both groups present similar results, H6c is rejected. In contrast, the effect of EL on competitive advantage is not found to be significant in the high uncertainty group ($b = -0.083$, $p < 0.616$), but it is found to be very strong and significant in the low uncertainty group ($b = 0.631$, $p < 0.001$), thus supporting hypothesis H5d. Finally, hypothesis H6e is also supported since there is a stronger interaction between BMI and competitive advantage in the high uncertainty group ($b = 0.844$, $p < 0.001$), compared to that of the low uncertainty group ($b = 0.241$, $p < 0.015$).

Discussion

While scholars acknowledge the necessity of effective leadership for innovation (Oluwafemi *et al.*, 2020), little is known about which particular leadership styles companies and especially SMEs should rely on in order to innovate their business model (Saiyed, 2019) and achieve competitive advantage. To address this research gap, this study focused on two specific leadership styles, TL and EL, which have frequently been linked to business innovation and performance. The study adds to the existing body of knowledge on BMI, leadership, and competition by developing an empirical model in which BMI is presented as a second-order latent factor, evaluated through its main dimensions (first-order latent factors) which are "value offering innovation", "value architecture innovation" and "revenue model

innovation". This study is the first to empirically examine and highlight the synergetic effects of BMI and leadership on competitive advantage.

The first theoretical contribution of this research is that it offers an answer to previous research questions regarding (a) the interdependencies between leadership style and BMI (Spieth and Schneider, 2016) and (b) the most appropriate leadership style to overcome barriers to BMI in case of environmental uncertainty (Chesbrough, 2010). The results of H3 hypothesis confirm that EL has a significant impact on BMI in SMEs. This effect is significant both in low and high uncertainty environments, but it is proved to be even higher in the later. Thus, leaders of all SMEs, and especially those who operate in high uncertainty and high-risk environments, should seek to develop EL characteristics in order to achieve BMI. Such characteristics might include their ability to establish goals for a BMI strategy, to effectively communicate them to their followers, to provide direction, to advise on organisational priorities and to create a supportive environment to undertake innovation initiatives. These results confirm that EL encourages followers to identify and exploit entrepreneurial opportunities for value creation and motivates employees to contribute to the development of a creative and innovative business model (Cai *et al.*, 2019).

Regarding the H1 hypothesis and the role of TL in BMI, this study proves that TL also has a significant positive impact on BMI in SMEs. This finding is in line with Gumusluoglu and Ilsev (2009) who assert that TL promotes innovative activity in a business model within the organisation and ensures market success of innovations and competitive advantage. This is because transformational leaders use inspirational motivation and intellectual stimulation to motivate their followers, to increase their willingness to perform beyond expectations and to challenge them to adopt BMI approaches. However, the results of this study prove that the positive effect of TL on BMI is significant only for firms operating in low uncertainty environments, while it proved to be insignificant for those operating in high uncertainty environments. The above findings suggest that while EL style can help SMEs seeking BMI in both high and low uncertainty environments, TL style can boost BMI performance only for companies operating in low uncertainty environments. Thus, EL proves to be the most appropriate leadership style in order to overcome barriers to BMI in case of environmental uncertainty (hypotheses H6a and Hb).

Overall, the study proves the importance of these two specific leadership styles for SMEs seeking BMI. Until now, it was not clear how different leaders and leadership styles impact BMI (Saiyed, 2019). This study empirically confirms the importance of both TL and EL styles in BMI and also their appropriateness with respect to the level of uncertainty in the firms' environment. When leaders encourage creativity, motivate employees and offer freedom to be creative, promote new ideas and look for opportunities, BMI can be successfully achieved. This finding

adds to previous research of Saiyed (2019) about the positive relationship between leadership and BMI and supports that BMI requires proper involvement of top leadership (Chesbrough, 2007).

The second theoretical contribution of this research regards: (a) the direct effect of the two leadership styles on SME competitive advantage (hypotheses H2 and H4) and (b) the most appropriate leadership style to achieve competitive advantage in case of environmental uncertainty (hypotheses H6c and H6d). The results of the present study prove that EL has a positive effect on SMEs' competitive advantage. As previous authors claim, EL drives actions and behaviours that enhance organisational competitive advantage (Alblooshi *et al.*, 2021). It is about influencing others toward a goal, recognising opportunities and sharing a common vision about future possibilities that organisations may exploit in order to sustain competitiveness (Fontana and Musa, 2017). The current study empirically proves these claims for SMEs but goes even further, proving that although the effect of EL on competitive advantage is very strong for SMEs operating in low uncertainty environments, it is not significant in cases where environmental uncertainty is strong.

Furthermore, an interesting and unexpected finding of this study is the non-significant nexus between TL and competitive advantage for all SMEs, regardless of the presence or not of environmental uncertainty. Several scholars have shown in the past that organisations with a TL style are in a better competitive position (Devie *et al.*, 2015; Agbor, 2008). However, our empirical analysis does not confirm the aforementioned findings for SMEs. Although TL has a direct positive effect on BMI, it does not have a direct positive effect on SMEs' competitive advantage, raising new research questions. Hence, future studies can examine possible contextual or moderating issues in the relationship between TL and competitive advantage.

Overall, the above findings prove that only EL has a direct positive effect on competitive advantage, which however is significant only for SMEs operating in low uncertainty environments. Low speed and rhythm of changes and environmental stability create fertile ground upon which EL can lead to increased competitive advantage. For SMEs operating in high uncertainty environments, neither leadership style seems to have a direct effect on competitive advantage. In this case, alternative leadership styles or other possible factors that mediate or moderate this relationship should be further considered.

The third theoretical contribution of this research regards: (a) the direct effect of BMI on SMEs' competitive advantage (hypothesis H5) and (b) the moderating role of environmental uncertainty in this relationship (hypothesis H6e). The results of the study prove that BMI, driven by either TL or EL styles, offers SMEs a sustainable competitive advantage. The effect of BMI on SMEs' competitive advantage proved to be even higher for those firms operating in high uncertainty

environments. BMI demands a firm to consider the uncertainty within its environment as potential source of opportunities that need to be explored and exploited. Companies operating in fast changing environments are exposed to a more continuous need for change (D'Aveni *et al.*, 2010). Environmental uncertainty makes SMEs more competitive through changes to their value offering (e.g., core offering, customer segments, value proposition), value architecture (e.g., core competencies and resources, internal and external value creation, distribution), and revenue model (the logic of earnings and costs) (Spieth and Schneider, 2016). Schindehutte and Morris (2001) also point out that changes in markets, competence and technology, make firms are more sensitive and cultivate organisational capabilities such as value creation, value offering and value capture in order to take advantage of face environmental threats. These three elements of BMI require SMEs to respond to changing sources by reconfiguring their established ways of doing business (Amit and Zott, 2010). Therefore, enterprises must enhance the perception of BMI and make some necessary adjustments to match them. BMI involves activities aimed at generating values for both the customer and the company, considering harmoniously all parties involved in business development. This study is in line with previous studies in different research field that have recognised the potential of BMI towards firms' competitive advantage (Tallman *et al.*, 2018).

A number of managerial implications result from our study. SMEs' managers need to understand how the two different leadership styles (TI, EL) shape a firm's BMI and competitive advantage. The findings should encourage managers to develop either EL or TL styles in order to bring about effective BMI. These two leadership styles should be the subject of management training and development in SMEs in order to increase the added value of their activities and improve innovation performance. Especially in the case of high uncertainty business environments, EL seems to have better results and higher contribution towards BMI for SMEs. The results of this study prove that EL has a stronger positive effect on BMI which, contrary to TL, holds both for low and high uncertainty business environments. Also, EL, contrary to TL, offers SMEs a direct positive effect on their competitive advantage. Thus, it seems that managers of SMEs, especially those operating in high uncertainty business environments, should most preferably develop EL over TL behaviours. Additionally, managers should take into consideration that BMI presents an organisational capability that leads to sustained competitive advantage, both for low and high uncertainty business environments. They have to choose strategies and allocate resources in order to improve BMI and lead the whole sector into restructuring and growth. This study proves that the contribution of BMI to competitive advantage is even higher in cases of continuous change and high environmental uncertainty. In rather stable business environments, where customer demands are more predictable and changes are less frequent, BMI strategies may

be less effective or necessary in order to achieve competitive advantage. On the contrary, in line with previous research, leaders of SMEs must seek and deploy those organisational resources and capabilities that will help them adopt BMI in order to gain in a higher competitive advantage (Spieth and Schneider, 2016; Teece, 2010).

Conclusions

The contribution of this study lies in advancing our knowledge of how leadership styles can influence the development of BMI and competitive advantage of SMEs. The moderating role of environmental uncertainty in the relationships of the proposed model is also examined. The findings reveal the contribution of TL and EL on BMI, the direct contribution of TL and EL on competitive advantage, as well as the contribution of BMI in competitive advantage in three groups: (a) all responding SMEs, (b) those SMEs with low scores of business environmental uncertainty and (c) those SMEs with high scores of business environmental uncertainty.

The results showed that TL has a significant direct effect on BMI for all groups of respondents, except for those operating in high environmental uncertainty, but proved to have no significant direct effect on SMEs' competitive advantage in any group of respondents. On the other hand, EL is found to have a significant direct effect on BMI for all groups of respondents, which is even stronger for the group of SMEs with high environmental uncertainty. Also, EL has a significant direct effect on competitive advantage for all groups of respondents, except for those with high environmental uncertainty. Moreover, BMI was found to have a significant positive direct effect on competitive advantage for all groups of respondents, which is even stronger for the group of SMEs with high environmental uncertainty. Finally, the moderating role of environmental uncertainty was confirmed in all of the above relationships in the proposed structural model, except for the direct relationship between TL and competitive advantage, which is also the only relationship that was not confirmed for any group of respondents in this study.

The study presented in this paper suffers from certain limitations which should be considered when interpreting its results. First, data were collected at only one point in time, while BMI is a continuous process. Although the items for BMI were formulated in a way to capture this process (i.e., by asking firms about their changes/improvements within the last years), we suggest future studies to collect data at several points in time in order to capture the evolving nature of BMI. Moreover, our study focused only on two leadership styles (TL and EL) of SMEs. Future research could also explore possible barriers to BMI, such as conflicts with existing assets and business models (Chesbrough, 2010) and the role of different leadership styles in alleviating them. The vision and the role of employees in the

company's BMI could also be investigated to extend the current work. Finally, further studies could focus on explaining additional context-dependencies (e.g., dynamic capabilities, knowledge management, specific industrial or organisational contexts) that condition the effect of leadership style on BMI and consequently on the competitive advantage of SMEs.

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