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HOW LEADERSHIP FACTORS IMPACT DIFFERENT ENTREPRENEURSHIP PHASES: AN ANALYSIS WITH PLS-SEM

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Abstract. This research work empirically contributes to the entrepreneurial leadership field by analysing how certain combinations of leadership factors impact entrepreneurship in both its launch and consolidation phases. Two relational models are proposed to study whether entrepreneurial leadership factors are positively related to different entrepreneurial activity process stages. The first analyses the effect on the venture's launch and start-up phases, and the second examines the impact on the entrepreneurship consolidation stage. Utilising data from 50 countries of the Global Entrepreneurship Monitor, a quantitative partial least squares structural equation method was employed to validate the proposed models. The main conclusion was that the use of some leadership capabilities has an unequal influence on entrepreneurship during its life cycle. This study contributes to the field in two ways: we firstly show that leadership factors are contextual, and their contribution depends on the stage of the entrepreneurial process in which the activity is located; secondly, this research reveals that the development of leadership factors, such as self-efficacy, networking, vision and innovative behaviour, positively condition the start-up and launch phases of entrepreneurship. The outcomes of this research demonstrate significant theoretical and empirical implications by bridging the existing gaps in the niche of entrepreneurial leadership factors.

Keywords: entrepreneurial leadership, entrepreneurial leadership factors, PLS SEM, entrepreneurship, new firms' growth, entrepreneurship life cycle.

JEL Classification: M13, L26.

Introduction

Leadership has been identified in several research studies as one of the most significant organisational elements to condition entrepreneurial activity (Ensley et al., 2006). For new ventures to succeed, leaders need certain competencies, skills or factors defined as specific leadership capabilities (Cogliser & Brigham, 2004; Fernald et al., 2005; Gupta et al., 2004). However, scholars have encountered several difficulties in studying these leadership factors

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in entrepreneurship. For a long time, leadership and entrepreneurship have been considered separate constructs, making it complicated to identify them. Later some authors identified an area of "conceptual overlap" between the two domains by locating some common factors, such as vision, planning, creativity and innovation, influence, and dispositional and cognitive approaches (Cogliser & Brigham, 2004). Subsequently, this intersection evolved into the "new paradigm" of entrepreneurial leadership (EL), which established a similar set of common characteristics for leaders and entrepreneurs (Fernald et al., 2005).

EL is, thus, a relatively recent embryonic construct with its own identity (Aparisi-Torrijo & Ribes-Giner, 2022), that benefits from the mutual cross-fertilisation of the two leadership and entrepreneurship domains (Simba & Thai, 2019). Its contribution is recognised as an important factor in the success or failure of both small- and medium-sized enterprises (C. Harrison et al., 2018; Leitch & Harrison, 2018; Leitch et al., 2013; Renko et al., 2015; Simba & Thai, 2019) and large corporations (Kuratko, 2007). EL emerges to respond to the possibilities and difficulties of entrepreneurial situations and to be able to overcome them (Fernald et al., 2005).

However, this new construct not only has an unclear definition (Leitch & Harrison, 2018), but it also lacks a conceptual and theoretical framework (R. Harrison et al., 2015). Different definitions often focus on the demographics of the entrepreneurial leader, i.e. their traits, characteristics and behaviour (R. Harrison et al., 2015), and do not pay much attention to the entrepreneurial context (Antonakis & Autio, 2007; Vecchio, 2003). For Antonakis and Autio (2007), this context should be considered an important moderator of leader effectiveness. The context can be shaped by different phases of the entrepreneurial process as entrepreneurship is understood as an evolutionary process in which certain factors impact different entrepreneurial life cycle stages (Antonakis & Autio, 2007; Gardner et al., 2011; Vecchio, 2003). If EL refers to leadership characteristics for various entrepreneurial conditions and contexts (Currie et al., 2008; Gupta et al., 2004), it is important to identify and better understand which leadership factors are considered the most valuable ones to overcome the challenges of entrepreneurship in its start-up, growth or consolidation phases (Wasdani & Mathew, 2014).

If the truth were to be told, insufficient research has been conducted to better understand which leadership factors are considered the most important ones according to the entrepreneurial process stage, and whether they evolve or are culturally contingent or universal (Gupta et al., 2004). No real consensus on these characteristics has yet been reached (C. Harrison et al., 2016) and adequate tools that measure leaders' entrepreneurial attributes are lacking (Leitch & Volery, 2017; Renko et al., 2015). To date, knowledge on what the identified attributes are, at what point in the entrepreneurial process they manifest themselves, whether they can be learned or exercised, and how they can help entrepreneurs to overcome challenges, is insufficient (C. Harrison et al., 2018; Kempster & Cope, 2010).

The purpose of this study is to address this critical gap. We aim to provide more information in this field by exploring how these leadership attributes impact entrepreneurial activity: on the one hand, in its start-up and launch stages and, on the other hand, in its consolidation stage. To this end, an empirical study is carried out with two relational models to validate several causal hypotheses on the combination of some leadership fac-

tors and to understand their impact on different entrepreneurial cycle stages by means of partial least squares structural equation modelling (PLS-SEM). In today's entrepreneurship research, PLS-SEM is increasingly used to perform an emerging confirmatory analysis (Manley et al., 2021). Our research is based on Global 2019–2020 Entrepreneurship Monitor data, which were collected from 50 nations around the world (GEM) (Bosma et al., 2020). The SmartPLS programme allowed us to investigate the overall model fit, construct reliability, and the convergent and discriminant validity of the suggested measurement models to validate the hypotheses.

This article contributes to the current literature on entrepreneurial leadership by challenging the universality of EL factors, to explain how some leadership factors influence birth and start-up processes. This research significantly enhances the understanding of the field and its empirical advancement by providing two precise research models with specific entrepreneurial leadership factors whose effect may vary at different stages of entrepreneurship depending on the different exogenous variables involved. Scholars can advance with the contextual approach in this field, policy makers can make better informed decisions, and economic agents engaged in entrepreneurial activities, training or investing, and entrepreneurs themselves, can better understand some drivers of entrepreneurial development and growth.

This study is organised as follows. Section 1 presents the hypotheses supported by the theoretical underpinnings of this research. The methodology employed and the data are described in Section 2. Section 3 presents and discusses the obtained results. The last section concludes the article with some final reflections.

1. Theoretical framework and research hypotheses

In order to understand the field under study, this section theoretically explores the EL construct and the factors that are used to build theoretical models, obtained through a literature review.

1.1. Entrepreneurial leadership construct

EL has recently attracted the attention of the scientific community due to evidence that it influences the creation of a new venture, the production of a new product or service, or the overall development of an organisation (Kapil & Salgotra, 2018). It is, therefore, important to understand the leadership factors that are considered important for an organisation's success (R. Harrison et al., 2015). However, scholars often do not offer explanations about the importance of these characteristics, or at least not empirically. Neither do they highlight commonalities between entrepreneurs and leaders nor suggest how to leverage common characteristics or to establish models with a potentially predictive value (Roomi & Harrison, 2011).

A literature review of an extraction of articles from the Web of Science core collection from the periods 2000 to 2020 was conducted with the terms: Topic: ("leader*" and "entrepre*"), combined with factors or skills including all relative terms: AND Topic: ("abilit*" or "capabilit*" or "attribut*" or "skill*" or "factor*" or "competenc*" or "behavior*" or "trait*"

or "feature*"), following Aparisi-Torrijo and Ribes-Giner (2022). By filtering the articles and reviews obtained in English and adding some seminal articles after reading the abstracts, a bibliographic base was obtained and reviewed finding a wide variety of drivers of entrepreneurship (C. Harrison et al., 2016), but no conceptual framework to capture, organise or analyse them (C. Harrison et al., 2018). However, some highly recurrent factors are identified, such as vision (Gupta et al., 2004; Ruvio et al., 2010), perceived opportunities (Arenius & Minniti, 2005; Koellinger et al., 2005; Renko et al., 2015; Shane & Venkataraman, 2000), self-efficacy (Bandura, 1977; Baum & Locke, 2004; Klyver & Schenkel, 2013; Travis & Freeman, 2017), relationships with other entrepreneurs or the environment (Arenius & Minniti, 2005; Davidsson & Honig, 2003; Klyver & Schenkel, 2013; Pirolo & Presutti, 2010) and innovativeness (Becherer et al., 2008; Cogliser & Brigham, 2004; Fernald et al., 2005; C. Harrison et al., 2018; Vecchio, 2003). Some of the factors that shape EL are explored below.

Vision is the image of a "desired future" for an organisation (Ruvio et al., 2010). Entrepreneurs' tough journey towards the creation of new ventures is guided by their vision (Baum & Locke, 2004). This factor may be present in the incubation and conception venture cycle phases as entrepreneurs envision a mental image of what the venture should look like at the start by constituting a roadmap to reach the goal (Ruvio et al., 2010). After leaders visualise that vision, they promote a proactive transformation of the firm's operations as a whole (Venkataraman & Van De Ven, 1998). In subsequent cycle phases, the effective communication of the vision is also important to foster entrepreneurial action (Gupta et al., 2004). Furthermore, innovation is a continuous process that refers to organisations' ability to create and develop new ideas, and to transform them into "processes, products and services" (Sawaean & Ali, 2020). Innovation is, therefore, a sequential process that begins by detecting a problem or discovering an idea or solution, followed by a phase of creating, reflecting on and solving the problem, or creating the new product or service to launch it to the market (Sawaean & Ali, 2020), which can be present throughout the entire entrepreneurial process. Innovation is a construct of several dimensions, including innovativeness. Innovativeness can be perceived by a team towards a leader. Entrepreneurial leaders can directly condition team participants to be creative and innovative while they work on identified opportunities to generate value for their organization (Chen, 2007). It involves the ability to generate new knowledge or to combine existing knowledge in a novel way to form an innovative idea (Jansen et al., 2009). Another major factor is perceived opportunities. One of the entrepreneurial goals is to recognise and take advantage of opportunities (Shane & Venkataraman, 2000). Being aware of untapped entrepreneurial prospects is, according to Kirzner (1979), a basic perceptual quality of entrepreneurial behaviour and an essential precursor of entrepreneurial activity (Kirzner, 1979). Empirical research has shown that being alert to good entrepreneurial opportunities is an important driver of individuals' entrepreneurial efforts (Arenius & Minniti, 2005; Koellinger et al., 2005). Several authors indicate that perceived self-efficacy positively conditions the entrepreneurial intention (Travis & Freeman, 2017). When individuals believe in their ability to complete tasks (Bandura, 1986) and perform actions to produce results with a given output (Bandura, 1977), they feel that they have the necessary knowledge and skills to positively contribute to the decision to enter the process of creating new ventures (Klyver & Schenkel, 2013). In addition, people with high self-efficacy levels anticipate potential ob-

stacles by showing excellent strategic flexibility and good ability to manage the environment (Bandura, 1977). So self-efficacy is recognised as a reliable predictor of new venture launching and growth (Baum & Locke, 2004; Becherer et al., 2008). Finally, social networks are of vital importance to identify entrepreneurial possibilities (Davidsson & Honig, 2003). Social interactions and networks have a beneficial impact on entrepreneurial performance (Liao & Welsch, 2005). People who have close relatives with their own businesses (Davidsson & Honig, 2003), or who personally know an entrepreneur (Arenius & Minniti, 2005), are more likely to start their own business.

To conclude, the EL construct is measured in this study with the dimensions of vision, innovative behaviour, opportunity perception, self-efficacy and networking.

1.2. Entrepreneurial process and hypotheses

As previously discussed, context is an important factor to explain the evolution of leadership in entrepreneurship (Antonakis & Autio, 2007; Gardner et al., 2011). An organisation's specific context can be described by, for example, the life process of entrepreneurial activity in which different leadership factors manifest themselves depending on the stage it is in (Antonakis & Autio, 2007; Vecchio, 2003). The configuration of the venture and its development are significantly impacted by founders, their behaviour and their leadership capacity (Cabrera & Mauricio, 2017; Kempster & Cope, 2010). As leadership is considered an important driver of venture growth, it is critical to identify the factors of this construct in early entrepreneurship stages (Zaech & Baldegger, 2017). However, such studies are scarce in both theoretically and empirically terms (Zaech & Baldegger, 2017). Therefore, we propose studying these specific EL factors in different life cycle stages in new ventures (Gartner et al., 1992; Parker, 2011) to provide a valuable contribution.

Several stages in entrepreneurship are commonly identified in the literature, and three major stages of the entrepreneurial cycle are generally identified: prelaunch; launch or nascent; post-launch or maturity phases (Baron, 2002; Reynolds & White, 1997). As Kesidou and Carter (2018) argue, entrepreneurs' behaviours are expected to differ in early entrepreneurial process stages from those observed when the firm is in a mature cycle stage (Kesidou & Carter, 2018).

With this research, we propose studying the factors that form the EL construct by investigating the launch stage, which we call early stage, and the maturity stage of the cycle, which we call the consolidation phase.

Start-up or nascent phase

EL is considered one of the most important organisational elements in conditioning the launch of a new venture (Ensley et al., 2006). According to Baum and Locke (2004), entrepreneurs' arduous journey towards the creation of new ventures is guided by their vision, which reflects an imagined desired future. Therefore, this factor is considered one of the most important ones in the initial phase (Gupta et al., 2004). In this early stage, entrepreneurs have certain skills for creating a new business, such as the ability to recognise the opportunities they are presented with, and the networks that encourage them to push the venture forward

and obtain both the resources and emotional support that they need (Wasdani & Mathew, 2014). Likewise, self-efficacy also plays an important role because, according to Chen 1998, the underlying cause of all the above-cited behaviours is individuals' self-efficacy. Belief in skills is even more important than possessing them or any past experience (Bandura, 1986). Finally, innovativeness generates new knowledge or products in the team in the initial phase (Chen, 2007) as leaders with an innovative mindset are able to lead rapid change (Kesidou & Carter, 2018). Following these statements, the first hypothesis we put forward arises:

H1. EL factors are positively related to the launching or nascent phase of entrepreneurship.

Post-launch or maturity phase

In the maturity stage, entrepreneurs also require leadership factors to stabilise and develop their business. As they already have enough experience in the start-up process, their networking is chosen and consolidated (Wasdani & Mathew, 2014). Kesidou and Carter (2018) identify that it is in mature stages when innovative behaviours are present and entrepreneurial leaders focus on communicating the vision. Self-efficacy can also remain present in more advanced stages as entrepreneurs overcome challenges, which increases their confidence in their skills and competencies (Becherer et al., 2008). Entrepreneurs' ability to recognise and exploit market opportunities remains important (Shane & Venkataraman, 2000) because they continue to be exploited to realise them in more established stages (Arenius & Minniti, 2005). For these reasons the second hypothesis is put forward.

H2. EL factors are positively related to the consolidation phase of entrepreneurship.

Based on these theoretical foundations, we establish two conceptual research models with EL as the unobservable theoretical construct and leadership factors as the exogenous variables. Figure 1 analyses how these EL factors impact the endogenous conceptual variable, which is the conception and launch phases of the new venture. Figure 2 investigates the impact they have on the venture in its consolidation phase.

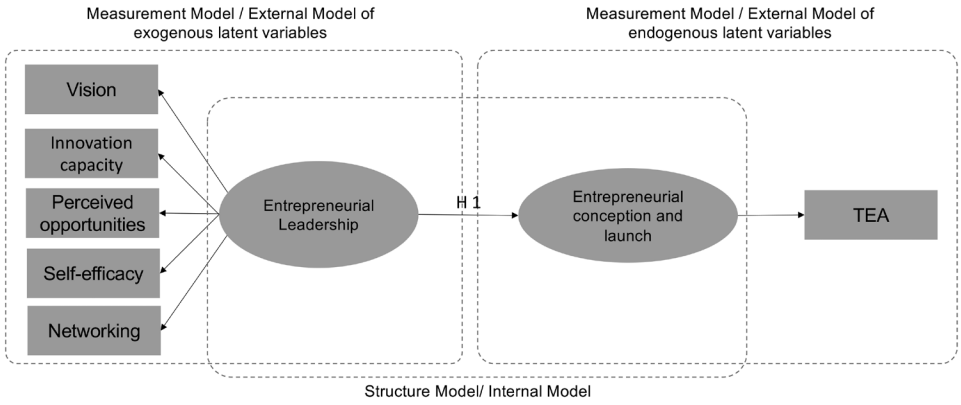

Figure 1. Proposed early stage of the entrepreneurship research model (source: the authors, 2022)

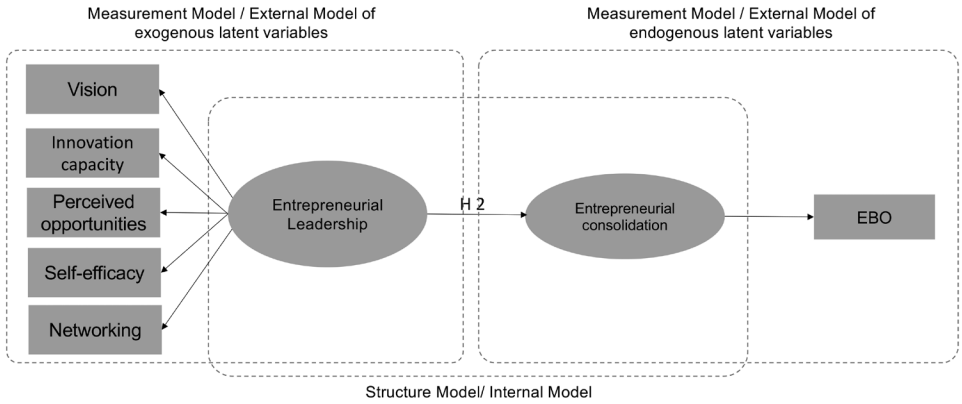

Figure 2. Proposed consolidation stage of the entrepreneurship research model (source: the authors)

2. Research methodology and data

2.1. Data collection, sample and measures

The used data come from the Adult Population Survey (APS) collected in the GEM's Global Entrepreneurship Monitor 2019/2020 Global Report, which is the largest annual survey on entrepreneurship to provide data on entrepreneurship patterns and trends in the studied economies (Singer et al., 2015). The APS collects individual data with a standardised survey instrument that is administered to representative samples of at least 2,000 adults from adult populations in each participating country at different economic and social development levels. For the present research work, APS survey data were collected from men and women aged 18–64 in 50 countries around the world to incorporate different socio-economic contexts (See Table 1).

GEM data were also used to identify exogenous latent explanatory variables. The variable "Vision" in this research can be formulated as a long-term perception that guides the planned behaviour of an organisation by the entrepreneur who is going to set its strategy and formulate its goals (Ruvio et al., 2010). We adopt the GEM variable "Decision with long-term career plan", which is the percentage of the population aged 18–64 who agree that every decision they make forms part of their long-term career plan.

For perceived innovation behaviour, we use the GEM variable "Highly innovative by others", which measures the percentage of adults aged 18–64 who agree that others think that they are extremely innovative. This variable is referred to as "Innovativeness" in the remainder of this paper.

In terms of perceived entrepreneurial opportunities, the variable "Perceived opportunities" is taken as the percentage of the population aged 18–64 who agree that they see good opportunities to start a business in the area where they live.

Entrepreneurial self-efficacy, taken in this study as perceived entrepreneurial skills, knowledge and experience, is "Perceived capabilities". It is the percentage of the population aged 18–64 who agree that they have the necessary knowledge, skills and experience to start a business. This variable is referred to as "Self-Efficacy" in the rest of this paper.

Table 1. GEM Sample Profile of the 50 countries (source: GEM)

Year of Data Collection	2019/2020
Low-income countries	India (Central and East Asia) Egypt, Madagascar, Morocco (Middle East and Africa)
Middle-income countries	Pakistan (Central and East Asia) Russian Federation, Belarus, North Macedonia (Europe and North America) Brazil, Colombia, Ecuador, Guatemala, Mexico, Puerto Rico (Latin America and Caribbean) Armenia, Iran, Jordan, South Africa (Middle East and Africa)
High-income countries	China, Japan, Republic of Korea, Taiwan (Central and East Asia) Canada, Croatia, Cyprus, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States of America (Europe and North America) Chile, Panama (Latin America and Caribbean) Australia, Israel, Oman, Qatar, Saudi Arabia, United Arab Emirates (Middle East and Africa)
Sample characteristics	Representation of women adult population workers, no workers, entrepreneurs with or without income (18–64 years old)
Education	Primary and Secondary School and Higher Education

Finally for the GEM "Networking", we also take the variable "Personally know an entrepreneur", which is the percentage of the population aged 18–64 who personally know someone who has started a business in the last 2 years.

The endogenous indicator Total Early Stage (TEA) of the GEM is taken for the early stage when a business is less than 42 months old, and is known as the nascent and new venture phase. The late stage, when the venture is older than 42 months and is known as the consolidated venture stage, is the GEM endogenous Established Business Ownership (EBO) indicator.

2.2. Use of SEM PLS for the statistical analysis

Structural equation modelling (SEM) is used to perform the analyses of both models (see Figures 2 and 3). This second-generation statistical methodology allows a highly efficient multivariate analysis to be carried out by simultaneously examining a series of dependence relations between independent and dependent variables to test predictive or causal hypotheses in the behavioural sciences, management and social sciences fields (Moya-Clemente et al., 2020).

With the SEM method, the PLS technique is used. PLS is employed mainly for explanatory, confirmatory, exploratory, descriptive and predictive purposes (Benitez et al., 2020; Chin et al., 2020), based on an analysis of variance with more flexible modelling (Hair et al., 2019). PLS-SEM is a very useful tool in social sciences with recent articles in entrepreneurship and human resources (Hair et al., 2012; Manley et al., 2021), which have pointed out the value of an analytical method that assesses both explanation and prediction in testing theoretical models (Criado-Gomis et al., 2018; Hair, 2021).

The main aspects of this approach are that it does not require any uniformity of variable metrics and can estimate models with small samples, as long as they are representative of a population, without forgetting basic statistical rules (Petter & Hadavi, 2021). The SmartPLS 3.3.3 software is utilised, which is one of the leading software packages for PLS based structural equation modelling (Ringle et al., 2015). This research follows the steps proposed by Henseler, Hubona, and Ray (Henseler et al., 2016).

Firstly, a nomological network construction is performed in which the structural model and the measurement model are represented.

Secondly, the overall model evaluation is carried out by including a model fit test to determine whether data are compatible with a factor model (see Section 3.3).

Thirdly, both the validity and reliability of the measurement model are assessed to analyse whether the observable variables accurately measure theoretical ideas (see Section 3.4).

Finally, a structural model evaluation is carried out to see if the hypotheses are supported by the significance and magnitude of the relations between different variables (Section 3.5).

2.3. Global model fit assessment

One of the first steps in PLS-SEM methodologies is the global model fit (Moya-Clemente et al., 2020) because it indicates whether the underlying theory is reflected in the data (Henseler et al., 2016). The estimated and saturated models are compared to obtain evidence as to whether the estimated model fits the collected data. The model fit test uses fit indices and bootstrap-based tests to include inferential statistics for the estimated models (Henseler et al., 2016). The applied model fit criterion is the standardised root mean square residual (SRMR), where a threshold below 0.08 is usually considered a good fit (Hu & Bentler, 1998). The bootstrap-based inference statistics of geodesic discrepancy (dG), unweighted least squares (dULS) and SRMR have to be ≤ HI95 ≤HI99, where failure to meet one of these indicators suggests that the model may not be accurate (Henseler, 2017).

2.4. Evaluation of measurement models

The two proposed models have reflective indicators because they "can be seen as a representative sample of the possible items available in the conceptual domain of the construct" (Sarstedt et al., 2016), so the measurement model is assessed by looking at the reliability and convergent validity and discriminant validity values provided by the relation between the indicators and the construct (Hair et al., 2019).

The reliability of each measure is assessed by indicator loadings (λ) and the most widely accepted rule of thumb states that it must be ≥0.707 to be considered as part of a construct (Carmines & Zeller, 1979). This means that the variance, shared between the construct and its indicators, is greater than the error variance. As loadings are correlations, this level implies that more than 50% of the observed variance is shared by the construct. The indicators that do not meet the above criteria can be removed by what is called "item purging". However, several researchers believe that this rule of thumb should not be so rigid in early scale development stages (Chin, 1998).

To assess internal consistency, i.e., construct reliability, the following indicators are used, which must all be equal to or higher than 0.7: Cronbach's alpha (Hair et al., 2019), composite reliability (ρc) (Ali et al., 2018) and Dijkstra Henseler's Rho_A (ρA) (Dijkstra & Schermelleh-Engel, 2014).

To determine convergent validity, the average variance extracted (AVE) is used and which should be ≥0.5 (Ali et al., 2018).

Finally, discriminant validity is examined using cross-loadings, which state that no item should load more on a concept than that which it is trying to measure (Hair et al., 2019). The other two markers of discriminant validity are: the Fornell-Larcker criteria, which √AVE must be higher than the correlation with other constructs (Fornell & Larcker, 1981) and the Heterotrait-monotrait ratio (HTMT ≤ 0.9) (Henseler et al., 2015).

2.5. Structural model assessment

In this phase, structural models are examined to see how well they predict the formulated hypotheses. Collinearity, sign and magnitude of the path coefficient, significance of the path coefficient, coefficient of determination and effect size are the key analyses followed to evaluate the structural model. The variance inflation factor (VIF < 3) (Ali et al., 2018) is used to test collinearity. To be considered significant, the standardised paths must take values above 0.20 (Ali et al., 2018), and the coefficient of determination R2 must be between 0 and 1 for each construct to be acceptable (Hair et al., 2017). Effect sizes (f2) between 0.02 and 0.15 are considered weak, those between 0.15 and 0.35 are believed moderate, and those above 0.35 indicate strong effects (Hair et al., 2019).

3. Results

The normality of the data was evaluated through Kurtosis, standard deviation, and skewness since the values of standard deviation and skewness are >±1.5, and Kurtosis >±3. Thus, the data follows the normality pattern (Ahmed et al., 2021).

After evaluating the global fit of the two models, the obtained main results were as follows.

3.1. The first model

To assess the overall model fit, a bootstrap procedure is performed (see Table 2). All the results of SRMR, dG, and dULS of the estimated model are below both percentiles: 95% and 99%. On the other hand, we obtained an SRMR = 0.087, slightly above 0.08, and although different authors assume that this value is correct for a PLS-SEM analysis (Hair et al., 2017; Williams et al., 2009), so the overall good fit of the model is not rejected.

We secondly assess the measurement models. The reliability analysis of the indicators detected that the loadings of indicators "networking" (λ = 0.58) and "perceived opportunities" (λ = 0.399) were lower than 0.707. The "perceived opportunities" item was cleaned, and we decided to not remove "networking" from the model following the recommendation of Hair et al. (2017). In fact, the reliability results were not affected (see Table 3).

Table 2. Global model fit measures (source: the authors with PLS, 2022)

	Value	Estimate Model		Saturated Model	
		HI95	HI99	HI95	HI99
SRMR	0.087	0.092	0.124	0.092	0.141
dULS	0.113	0.128	0.231	0.128	0.298
dG	0.077	0.098	0.169	0.098	0.176

Investigating construct reliability reveals that Cronbach's alpha, composite reliability indicators (ρc) and The Dijkstra-Henseler indicator are adequate with good values above 0.7.

Table 3. Results for the measurement models (source: the authors with PLS, 2022)

	Outer loadings 1st model	Outer loadings 2nd model	Cronbach's alpha	rho_A	ρc	AVE
Entrepreneurial Leadership (EL)			0.847	0.891	0.899	0.697
Vision	0.864	0.860				
Innovation Capacity	0.915	0.914				
Self-efficacy	0.926	0.931				
Perceived Opportunities	0.399					
Networking	0.58	0.588				
Early-stage entrepreneurship (ES)			1	1	1	1

Convergent validity is confirmed with an AVE above 0.5. The variance described by the variables is greater than the variance explained by measurement error, which demonstrates that each set of indicators reflects an independent construct.

To assess discriminant validity, both cross-loadings are used to check that each item loads more on the construct it is intended to assess, as well as the Fornell-Larcker criterion (see Table 4) and Heterotrait-Monotrait conformity (HTMT = 0.40 < 0.9). Confirmation of discriminant validity verifies the construct measures' reliability.

Table 4. Discriminant validity – Fornell-Larcker criterion (source: the authors with PLS, 2022)

Construct	Entrepreneurial Leadership	Early-stage entrepreneurship
Entrepreneurial Leadership	0.835	0.429
Early-stage entrepreneurship	0	1

Finally, the structural model assessment shows the non-existence of multicollinearity in both relations because the VIF = 1. The standardised path takes a value above 0.20 (= 0.429) (see Table 5) and is recognised as relevant. This means that these leadership factors influence the company's conception and start-up. The path coefficient is significant and positive (p-value = 0 < 0.05), which confirms the theoretical postulates of the hypothesis. The 5% and 95% confidence intervals (CI) also demonstrate restricted variability.

Table 5. Structural model: hypotheses test result (source: the authors with PLS, 2022)

Direct Effects	Path coefficient	t-Value	p-Value	f^2	95% CI	Supported
EL → ES (R^2 = 0.184)	**0.429**	**3.940**	**0.00**	0.226	[0.266–0.619]	YES H1

The R^2 of early-stage entrepreneurship is 0.184, which is considered a moderate value. It implies that the EL factors explain about 18% of the variance of launching and conception in entrepreneurship. The EL factors have a medium-large effect size on early-stage entrepreneurship according to the effect size analysis (f^2 = 0.226), which assesses changes in R^2 terms (see Figure 3). Developing the leadership factors included in the EL construct can increase launching and new entrepreneurship by 18%.

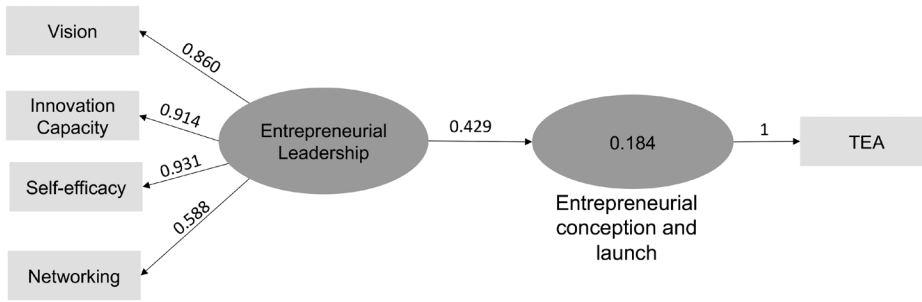

Figure 3. The first model results (source: the authors, 2022)

3.2. The second model

For the second model, validity analyses detect that the loadings for indicators "networking" and "perception of opportunities" are below 0.707 (see Table 6). These indicators were removed from the model as neither rho_A nor AVE gave correct values. After removal and recalculation, both constructs had appropriate values.

Table 6. Composites and measures (source: the authors with PLS, 2022)

	Outer loadings 1st model	Outer loadings 2nd model	Cronbach's alpha	rho_A	ρc	AVE
Entrepreneurial Leadership (EL)			0.904	0.928	0.925	0.805
Vision	0.959	0.949				
Innovation capacity	0.779	0.833				
Perceived Opportunities	0.19					
Self-efficacy	0.926	0.905				
Networking	0.19					
Consolidation stage of entrepreneurship (CE)			1	1	1	1

The global model fit is able to fit the data: SRMR = 0.067 ≤ 0.153 (HI95) ≤ 0.417 (HI99), dULS = 0.045 ≤ 0.233 (HI95) ≤ 1.738 (HI99) and dG = 0.073 ≤ 0.204 (HI95) ≤ 0.616 (HI99).

For the measurement model assessment, the investigation of construct reliability reveals an adequate fit with Cronbach's alpha, ρc and Dijkstra-Henseler's ρA indicator. The AVE and external loadings confirm convergent validity. The square root of the AVE of each construct is higher than the correlation between the other constructs, and the cross-loadings and the HTMT confirm constructs' discriminant validity.

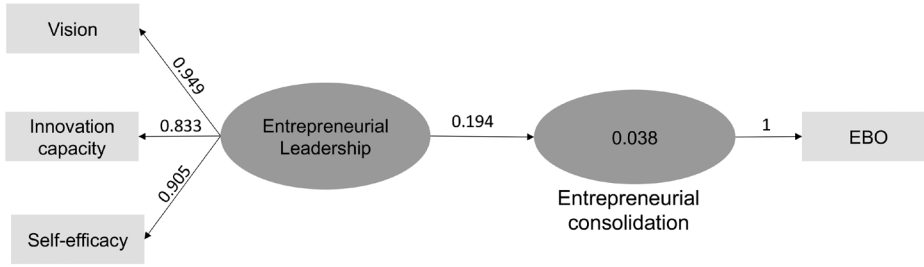

Figure 4. The second model results (source: the authors, 2022)

The structural model reveals that neither of the two relations shows multicollinearity (VIF = 1). The path value =0.194 (see Figure 4 and Table 7) is weak. This implies that these leadership factors hardly condition the venture's consolidation phase. R^2 is 0.038, which is a weak value and implies that leadership factors barely explain 3% of the variance in the venture's consolidation phase. The p-value = 0.166 and a t-Value not >±1.96 after bootstrapping invalidate Hypothesis 2. Therefore, the premise that the EL factors of vision, innovativeness and self-efficacy are associated with the consolidation phase is not supported by this model because they have no proven moderation.

Table 7. Structural model: hypotheses test result (source: the authors with PLS, 2022)

Direct Effects	Path coefficient	t-Value	p-Value	f^2	95% CI	Supported
EL → CE (R^2 = 0.038)	0.194	0.976	0.165	0.039	[–0.255-0.404]	NO H2

4. Discussion

The aim of this study is to develop two relational models to demonstrate that leadership factors in entrepreneurship, such as vision, innovativeness, opportunity spotting, self-efficacy and networking, influence different entrepreneurial process stages. The first model investigates the impact of these factors on a venture's start-up and launch. The second model investigates how these factors influence the continuity of entrepreneurial activity. A model is built using the variance-based technique PLS-SEM to confirm the established hypotheses. GEM data from 50 countries around the world are employed for this research work. To describe the start-up and early stages of entrepreneurship, the endogenous indicator of TEA is taken. EBO is employed to describe the continuation stage. Both are provided by GEM.

The analysis of the first model validates the relations between the indicators of vision, innovativeness, self-efficacy and networking of the EL construct and the initiation and start-up phase of entrepreneurship as determined in the theoretical framework study. The pro-

posed model has good predictive ability, reliable and valid measurements, and a close and significant relation between the constructs that validate Hypothesis 1. The results reveal a substantial positive association between the EL factors and the venture's initiation and start-up because this phase undergoes a total change of 18% due to EL. The significant and positive association between EL factors, such as vision, innovativeness, self-efficacy and networking, and venture conception and initiation, is consistent with several authors (Antonakis & Autio, 2007; Kesidou & Carter, 2018; Vecchio, 2003; Wasdani & Mathew, 2014). These results are logical because in early-stage entrepreneurship, if entrepreneurs know some entrepreneurs, are confident in capabilities, knowledge and skills, and are clear about the desired future of the business and maintain focus, they are seen by others as having the innovative capacity to launch and develop ideas or products (Antonakis & Autio, 2007; Baldegger & Gast, 2016; Kesidou & Carter, 2018; Ruvio et al., 2010; Wasdani & Mathew, 2014). A development of these leadership factors included in the EL construct could, according to our study, increase launching and new entrepreneurship by 18%. This is a very important finding because to date, the impact of some of these factors on nascent entrepreneurship has been theoretically or empirically tested separately, but no empirical studies have jointly and significantly supported the combination of several factors of the embryonic EL construct.

Despite the second model being feasible and reliable, it does not confirm Hypothesis 2. The moderation between the combination of factors and the consolidated stage in entrepreneurship is not tested. This is logical because if the impact of the above factors is important in early nascent stages, these same EL factors are probably not necessary when the firm is established and has been running for more than 3.5 years. This result coincides in some points with the work of Vecchio and Antonakis, who point out the importance of entrepreneurs' context and stage because it uses different skills, knowledge and behaviours.

The implication of this research clearly shows that leadership factors in entrepreneurship are neither universal nor unchanging (Den Hartog et al., 1999; Gupta et al., 2004). We herein prove that, in each entrepreneurial life stage cycle, the EL construct factors have a different impact depending on the specific context. This responds to some authors' calls for lack of empirical studies in this regard (Zaech & Baldegger, 2017).

Conclusions

The aim of this article is to contribute empirically to the EL field by analysing how certain combinations of leadership factors impact, on the one hand, the birth and launch stages of entrepreneurial activity and, on the other hand, the consolidation phase. The contribution to the current body of knowledge is very relevant because, on the one hand, it proves that the combinations of certain attributes of EL do not have the same impact on different entrepreneurial activity phases. On the other hand, it shows how specific factors, such as vision, innovativeness, self-efficacy and networking, significantly impact the nascent and start-up phases of entrepreneurship.

One of the limitations of this study is the number of countries included in the study given the data available in the employed databases. Although this work covers all international geographical areas, it can be extended to more countries. Furthermore, this study

could be developed in future research using more combinations of leadership factors because we observed that the R2 obtained coefficient is satisfactory, but could be higher if more EL markers are included.

As a future recommendation, it would be fascinating to analyse different years and to verify the model's robustness for these times. The introduction of a gender focus is highly recommended given the important differences in entrepreneurship between men and women in certain geographical areas. As base countries have different levels of socio-economic development, the same analysis could be carried out for countries with a similar development level, and interesting conclusions could be drawn. Furthermore, empirical models could be developed by choosing different EL variables according to the distinct entrepreneurship stages and by studying the level of impact in relation to each other. This is an avenue to explore that could help the EL field to considerably advance.

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Author contributions

SA and GR conceived this study and were responsible for its conceptual design. SA wrote the literature review. SA and GR were responsible for the research design and method. SA and JC collected the data and were responsible for data processing, statistical analysis and for data interpretation. SA, GR and JC wrote the section Conclusion. All authors have read and agreed to the published version of the manuscript.

Disclosure statement

Authors declare that they do not have any competing financial, professional, or personal interests from other parties.

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