



**Transformational leadership and individual performance: The role of
intrapreneurship**

**Liderança transformacional e desempenho individual: O papel do
intraempreendedorismo**

Tiago Filipe Gomes da Silva¹

Orlando Manuel Martins Marques de Lima Rua²

Abstract

The main purpose of this study is to analyse the mediating effect of intrapreneurship on the relationship between transformational leadership and the individual performance of the employee in Portuguese technology sector firms. A quantitative methodological approach was used with a survey of 148 employees. In the data analysis, the structural equation model was applied using partial least squares. The results show positive relationships between (1) transformational leadership, intrapreneurship and individual performance and (2) intrapreneurship and individual performance, in this specific context. Additionally, (3) the mediating effect of intrapreneurship on the relationship between transformational leadership and individual performance was confirmed. This paper fills a gap in the literature, i.e. while other studies establish direct relationships between transformational leadership, intrapreneurship and individual performance, this study analyses the mediating effect of intrapreneurship on the relationship between transformational leadership and individual

¹ Mestre em Empreendedorismo e Internacionalização pelo Instituto Superior de Contabilidade e Administração do Porto (Portugal), Instituto Superior de Contabilidade e Administração do Porto (ISCAP), Rua Jaime Lopes Amorim, s/n, 4465-004 S. Mamede de Infesta, Portugal. E-mail: tiagofgsilva96@gmail.com

² Agregado em Gestão pela Universidade da Beira Interior (Portugal), CEOS.PP - Centro de Estudos Organizacionais e Sociais do Politécnico do Porto, Rua Jaime Lopes Amorim, s/n, 4465-004 S. Mamede de Infesta, Portugal. E-mail: orua@iscap.ipp.pt Orcid: <https://orcid.org/0000-0002-1593-7440>

performance. We recommend that future studies explore the relevance of digital services for the development of in the relationship between transformational leadership, intrapreneurship and individual performance.

Keywords: Transformational Leadership. Intrapreneurship. Individual Performance. Technology Sector. Structural Equation Modeling.

Resumo

O principal objectivo deste estudo é analisar o efeito mediador do empreendedorismo intra-empresarial na relação entre a liderança transformacional e o desempenho individual do empregado nas empresas portuguesas do sector tecnológico. Foi utilizada uma abordagem metodológica quantitativa com um inquérito a 148 empregados. Na análise dos dados, o modelo da equação estrutural foi aplicado utilizando mínimos quadrados parciais. Os resultados mostram relações positivas entre (1) liderança transformacional, espírito empresarial e desempenho individual e (2) espírito empresarial e desempenho individual, neste contexto específico. Além disso, (3) foi confirmado o efeito mediador do espírito empresarial intra-empresarial na relação entre liderança transformacional e desempenho individual. Este trabalho preenche uma lacuna na literatura, ou seja, enquanto outros estudos estabelecem relações directas entre liderança transformacional, intrapreneurship e desempenho individual, este estudo analisa o efeito mediador do intrapreneurship na relação entre a liderança transformacional e o desempenho individual. Recomendamos que futuros estudos explorem a relevância dos serviços digitais para o desenvolvimento da relação entre liderança transformacional, intra-empendedorismo e desempenho individual.

Palavras-chave: Liderança Transformacional. Intrapreneurship. Desempenho Individual. Sector Tecnológico. Modelação de Equações Estruturais.

Introduction

Currently, the world we live in is markedly volatile, uncertain, complex and ambiguous; the Army War College qualifies it as Volatility, Uncertainty, Complexity and Ambiguity (VUCA) to describe this reality, so this designation is intrinsically linked to combat scenarios; thus, today, we live and work in a highly inconstant, interconnected and correlative environment that constantly forces us to adapt (Nandram & Bindlish, 2017).

Recently, the Covid-19 pandemic has emerged and erupted in our lives, forcing us to adapt continuously, thus demonstrating that we live in a VUCA world (Tsou et al., 2020). Since the measures implemented to combat this pandemic are quite recent, given the difficulty of drawing parallels with any other situation in recent history, it is still impossible to accurately predict its economic impacts and the changes in people's behaviour and relationships (Atkeson, 2020).

This "Era of Discontinuity and Globalisation" generates an uninterrupted and unpredictable flow of changes affecting organisations on an economic, strategic and evolutionary level where (1) dealing with these characteristics generally implies that organisations can re-imagine their processes, the involvement of stakeholders and the business model itself, (2) the resulting transformation is, on the one hand, extremely demanding and, on the other hand, imperative and (3) organisations without the capacity for transformation, are organisations destined to fail (Saini & Khurana, 2015). Thus, according to these authors, there is not a starting point and an endpoint, but rather an endless transformation journey.

The conditions of the global business environment have thus been calling for renewed strategies to ensure competitiveness and prosperity (Ireland et al., 2009). Entrepreneurial strategies are key tools in this path for organisations (e.g., McGrath & MacMillan, 2000; Morris et al., 2010). Ireland et al. (2009, p. 21) concentrate on these intrapreneurship strategies as guidelines "for the vision, across the organisation, of entrepreneurial behaviour that rejuvenates the organisation purposefully and continuously and shapes the scope of its operations through recognition and exploration of opportunities".

The competitiveness and globalisation of markets mean that companies are involved in contexts marked by complexity and constant change, and the leadership of these companies must adapt and respond quickly to these changes. On the other hand, one of the main challenges of leadership is the ability to transmit complex messages and influence subordinates to achieve objectives more quickly and efficiently (Bass & Riggio, 2006).

Several authors have found positive relationships between intrapreneurship and performance (e.g., De Jong et al., Wennekers & Wu 2011; Neessen et al., 2019). Intrapreneurship, as a set of extra-paper behaviours affecting different organisational layers, has positively impacted individual, collective, and organisational performance (Neessen et al., 2019). There is a positive relationship between intrapreneurship and individual performance at work, provided by a proactive and autonomous work environment (Jong et al., 2011). Besides, evidence has emerged on the positive association between individual and team

function performance (Janssen & van Yperen 2004) and organisational success (Rauch & Frese, 2007), promotions and salary increases (Seibert et al., 2001).

In general, the results arising from intrapreneurship have been exploited at both the organisational and individual levels and the macro-level (Baggen et al., 2016; Rigtering & Weitzel, 2013; Sundin & Tillmar, 2008). Fischer (2011) points out that intrapreneurship is associated with profitability, strategic renewal and innovation.

As Neessen et al. (2019) pointed out, awareness and knowledge of the process underlying intra-entrepreneur behaviour allow for the adoption of specific promotion practices, with leadership being pointed out as an essential factor to be taken into account. However, the dynamic relationship between these elements remains to be clarified (Neessen et al., 2019; Simsek et al., 2015). On the other hand, individual performance is not only influenced by knowledge and skills and entrepreneurial application but also by feedback on them, which directly refers to the role of leadership in this relationship. The relationship between these constructs has been largely addressed in the literature (Camps & Rodriguez, 2010; Vigoda-Gadot, 2007). Kelloway and Barling (2000) found that transformational leadership promotes individual, collective and organisational performance. In this context, workers' perceptions are fundamental in modulating the relationship mentioned above (Vigoda-Gadot, 2007). Deepening the knowledge on this subject allows clarifying the interdependence between transformational leadership and individual performance to analyze the mediating effect on intrapreneurship in the relationship. Neessen et al. (2019) indicate that the simultaneous relationship between transformational leadership, intrapreneurship and performance remains proven, and this study will seek to present scientific evidence on this relationship.

The rest of this paper is organised as follows. In the next section, we develop the theoretical framework where the concepts of transformational leadership, intrapreneurship and individual performance are discussed; then the hypotheses are formulated, and the research model is presented. Then, the methodology is developed. Finally, we offer the empirical analysis, followed by the discussion and conclusions.

Theoretical Background

2.1 Transformational leadership, intrapreneurship and individual performance

Burns (1978), indicates that constant exchanges between leaders and collaborators characterise the transactional leadership style, the leader seeks to encourage the motivation of his followers by rewarding good performance and rebuking mistakes. In this way, they desire that the reward, such as salary and other benefits, is in parallel proportional to the quantity and quality of the work.

According to Bass and Riggio (2006), in transactional leadership the relationship between the leader and his leaders rests on three pillars: (1) the leader knows what his subordinates want and clearly explains what the subordinate will receive if the work meets expectations, (2) the efforts of the subordinates are recognised by the leader and (3) the leaders respond to the personal interests of the subordinates in proportion to the value of the work done. On the other hand, one of the characteristics of transactional leadership is the little flexibility for errors; the verification of a mistake leads the leader to act immediately to correct and improve the work done (Purwanto et al., 2020).

In this sense, the concept of transformational leadership, presented by Burns (1978), is characterised by generating mutual motivation in leaders and leaders seeking to achieve high levels of freedom, justice, solidarity and equality, thus creating a rupture with the concept of transactional leadership. Bass (1985, p. 147) defines the transformational leader as “a father who respected and treated all employees equally, was a true model that everyone wanted to follow, always towards greater and better performance. He is someone who gives strength, who advises and supports all employees (...) and inspires great confidence in all the elements he leads and transmits wisdom and knowledge useful for performance”.

For Bass et al. (2003), transformational leadership encompasses four main dimensions: charisma, that is, how the leader attracts employees to a shared and seductive vision of the future; inspirational motivation, that is, how the leader energises and drives the involvement of employees beyond what are their interests; intellectual stimulation, i.e., how the leader urges employees to challenge assumptions and explore new perspectives; and individual consideration, i.e., how the leader supports, encourages and develops each of their employees according to their potential and specificities (Chang et al., 2017).

Thus, transformational leaders are critical to “carrying out strategies (top-down influence), but also to providing unique information and perspectives, useful to establish their

adaptation in response to operational needs and environmental demands and opportunities (bottom-up influence)” (DeChurch et al., 2010, p. 1081).

We can thus conclude that transformational leadership focuses on the leader who, on the one hand, inspires his followers to adopt the vision of the organisation as if it were his own and, on the other, focuses his energy on the pursuit of collective goals (Neessen et al., 2019). In the search for a greater understanding of intrapreneurship’s underlying mechanisms and promoters, the specific perspective of transformational leadership has been explored (Ling, Simsek et al., 2008). In this way, it is possible to associate this type of leadership with the stimulation of intrapreneurship and the ability of employees to carry out entrepreneurial behaviours (e.g., Cheung & Wong, 2011; Hornsby et al., 2002).

These predictions stem from the premises that transformational leadership focuses on the leader who, on the one hand, inspires his followers to adopt the vision of the organization as if it were his own and, on the other hand, focuses his energy on the pursuit of collective goals (Neessen et al. 2019). This perspective is positively associated with the stimulation of intrapreneurship and the ability of employees to engage in entrepreneurial behavior (e.g., Cheung & Wong, 2011; Hornsby et al., 2002). On the other hand, several authors have also identified that one of the characteristics of transformational leadership, constant feedback, allows employees to adopt behaviours in line with what is expected and desired, thus generating a performance improvement (Camps & Rodriguez, 2010; Freitas & Rua, 2019; Kelloway & Barling, 2000).

Thus, we intend to test the following hypotheses:

H1. *Transformational leadership is positively related to intrapreneurship;*

H2. *Transformational leadership is positively related to individual performance.*

Neessen et al. (2019) refer to the diversity of definitions of intrapreneurship. These scholars, through a study extended to 73 different definitions of intrapreneurship, concluded that the complete way of defining it would be as a “Process by which workers recognise and exploit opportunities, being innovative, proactive and taking risks, so that the organisation creates new products, processes or services, starts its renovation or risks new ventures to improve the competitiveness and performance of the organisation” (p. 551).

For Carrier (1994), intrapreneurship is a process that will improve their sustainability and competitive position through the creation of new businesses in existing companies. This author was the first to study the impact of intrapreneurship on micro, small and medium-sized enterprises (SMEs) and refer that it is also essential to study it in large companies.

Antoncic and Hisrich (2001) concluded that intrapreneurship positively influences growth in sales, the number of employees and market share and the profitability of companies, enabling them to achieve higher ROI (*Return On Investment*) rates. On the other hand, the same study found no significant influences on the firm's size, age, strategy, or industry in which they operate. The intrapreneurial process and its promotion by companies will increase profitability, strategic renewal, international success and increase internal innovation (Hornsby et al., 2002).

Lumpkin (2007) sought to systematise and identify the main activities related to the intrapreneur process and identified the following: (1) perceiving opportunities, (2) designing a new product or improving the use of existing resources, (3) creating ideas and (4) persuading company management and planning and organisation.

In recent years the study of intrapreneurship has been focused on the individual level, namely identifying the characteristics and attributes of intra-entrepreneurs to recruit professionals with these characteristics for their staff. In general, the characteristics of an intrapreneur include a high level of initiative, analytical thinking, autonomy, research, risk-taking and the constant search for problem-solving (Bosma, Stam & Wennekers, 2010; Vargas-Halabí, Mora-Esquivel & Siles, 2017).

More recently, Badoiu et al. (2019) studied the organisational factors that most influence intrapreneurship success and concluded that the motivational factor is the most important in the relationship between intrapreneurs and managers. On the other hand, they also indicated that it would be necessary to study this relationship more deeply since it also presents itself as a distinguishing factor concerning entrepreneurship, which is usually carried out without any leadership.

Anu (2007) indicated that intrapreneurship could be seen as the spirit of entrepreneurship within established organisations and that intra-entrepreneurs work innovatively and proactively to turn business ideas, products or services into reality using the firms' resources. With the increase in the age and structure of companies, the entrepreneurial spirit eventually fades and loses relevance; therefore, companies must adopt behaviours and standards that positively influence intrapreneurship to ensure growth and adaptation to changing market conditions. Intrapreneur behaviour of workers has been gaining importance given its strategic importance (Fischer, 2011; Neessen et al., 2019).

In general, the intrapreneur compared to the entrepreneur is more moderate when it comes to risk-taking, expects a lower return, but more specific and is endowed with fewer

entrepreneurial characteristics. On the other hand, he has less confidence in his entrepreneurial characteristics and has more difficulty recognising business opportunities (Martiarena, 2013).

As mentioned above, in recent years, the study of intrapreneurship has focused on understanding which personal and organisational factors (Bosma et al., 2010; Miller & Friesen, 1983; Stam et al., 2012; Vargas-Halabí et al., 2017) foster organisational entrepreneurship to improve their performance and profitability (Hornsby et al., 2002).

Intrapreneurship can be fostered through organisational measures to promote a culture more conducive to its encouragement. Eesley and Longenecker (2006, p. 23) indicate that “intrapreneurship is fostered by creating an organisational culture that encourages and supports it. An organisational culture of intrapreneurship creates a stable environment in which employees can develop realistic expectations that their innovative and risky initiatives will be encouraged, supported and rewarded”.

Moriano et al (2014, p. 105), highlighted the individual role of employees in intrapreneurship, noting that “proactive *bottom-up*, work-related initiatives by individual workers are the driving force behind product development or improvement and/or market penetration”. Thus, it is concluded that the success or failure of employees and organizations is directly related to the individual’s capacity to generate, identify and/or adopt emerging opportunities (Dess et al., 2003; Nandram & Bindlish, 2017), a capacity that can be developed and motivated by leadership in the organization (Ling et al., 2008).

For Katz and Kahn (1987), performance can be measured by considering the degree of quantity and quality of paper and non-paper behaviour. After a more exhaustive analysis of the extra-paper behaviours, it was possible to realise that intrapreneurship can be considered one of these behaviours, since it encompasses an extra, spontaneous and self-motivated investment, thus influencing the degree of performance of the employees (Stull & Singh, 2005). On the other hand, individual performance is positively influenced by personal skills, namely by one of the intrapreneur’s characteristics: proactivity (De Jong et al., 2011).

This leads to the following hypothesis which we intend to test:

H3. Intrapreneurship is positively related to individual performance.

2.2 The mediating effect of intrapreneurship in the relationship between transformational leadership and individual performance

Whenever human performance is spoken of, the competencies involved in the pursuit of tasks, motivation, autonomy, production, and other interdependent elements (Souza et al.,

2007). Therefore, performance is an abstract and latent concept that cannot be considered objectively in isolation (Koopmans et al., 2011; Rua, 2018). Encompasses the motivation for action (to want to do), the conditions, such as knowledge and skills, that enable the individual to act (to know how to do) and the integration of these to achieve the objectives outlined in the intended context (to do with knowledge) (Marras, 2000; Monteiro et al., 2017, 2019). Moreover, the optimisation of the individual's performance depends on the adequate allocation of existing resources to the requirements of the action.

In the workplace, individual performance is made up of dimensions that can be deconstructed into directly measurable indicators specific to the job and relevant to the organisation concerned (Campbell, 1990; Fay & Sonnentag, 2010; Viswesvaran, 2002).

Murphy (1989a,b) initially highlighted the dynamic nature of performance, reflecting the evolutionary interaction between abilities and dispositional variables, as well as the different behaviours (task-oriented, interpersonal, unavailable and destructive) evident in its scope.

Campbell (1990), has established a taxonomy that integrates the components (proficiency in tasks, communication, effort, supervision and leadership, personal discipline, articulation with others and management) and the antecedents (declarative knowledge, procedural knowledge and skills and motivation) of performance. Later et al. (1993) used the dichotomy of (technical) task performance and contextual performance (integrative of the extra-tasking dimensions, persistence and effort, regulatory compliance, aid and cooperation, and pursuit of organisational objectives) to translate its complexity. Fay and Frese (2001), Frese and Zapf (1994), Roe (1999), Rua et al. (2018) and Sonnentag (1998) see performance as an active process (arising from the definition of objectives, information search, planning, monitoring and *feedback*) promoted by the individual's initiative (self-initiation, proactivity and persistence).

Some scholars (e.g., Pulakos et al., 2000, 2002; Griffin et al., 2007) focused on the adaptive aspect of performance, characterising it as situational, i.e. a demonstration of individual adaptability (interpersonal, cultural and physical) in the face of different emerging contextual work demands. Beal et al. (2005) go beyond this perspective, using the term episodic to define performance as behavioral segments aligned for objectives that vary according to resources and their allocation, task requirements and effects, individual self-regulation and resources, and effective issues.

Recently, Koopmans et al. (2011) have heuristically framed the dimensions of individual performance in work explored by several authors related to task performance,

contextual performance, adaptive performance and counterproductive behaviour. Thus, task performance focuses on (1) the proficiency in performing activities that are fundamental to the work, (2) contextual performance encompasses interdependent behaviors within the organisational and social environment in which the work takes place, (3) adaptive performance focuses on reactive behaviors demonstrated in the face of changes inherent to the work context, and, finally, (4) counterproductive behavior integrates all the manifestations that negatively contribute to the organisation's well-being. However, such a framework is not consensual, and many others organise and systematise information in a disparate way.

Performance is, therefore, conceived as a multidimensional behavioural construct that is effective in the complex and interactive relationship of the individual with the task and context (Sonnetag & Frese, 2002). Thus, there are currently three fundamental focuses in performance research: its interpersonal and situational predictors, its stability, and its adaptation to specific operational categories (Bendassolli, 2017). The former is related to personality, experience, cognitive skills, motivation and self-efficacy, feedback and job characteristics. The second integrates the temporal oscillations of performance, as well as intra-individual changes over time. The third and last distinguishes between juniors and seniors, also seeking to explore an overall performance factor.

It was possible to see that the study of performance is more often done at the organisational level than at the individual level, where Para-González, Jiménez-Jiménez and Martínez-Lorente (2018) found evidence that transformational leadership leverages company performance. On the other hand, LePine et al. (2016), through a study carried out in the US Navy were able to conclude that charismatic leadership not only influenced the performance of sailors but also proved to be an essential emotional management factor in situations of high pressure or stress.

The focus of our work will be mainly on individual performance, some authors argue that increasing the performance of each employee will inherently also increase organisational performance and enable the organisation to achieve its objectives efficiently and effectively (Gavrea et al., 2011; Ismael et al., 2010). Several authors have also identified that one of the characteristics of transformational leadership, constant feedback, allows employees to adopt behaviours in line with what is expected and desired, thus generating a performance improvement (Camps & Rodriguez, 2010; Kelloway & Barling, 2000).

Finally, it is postulated that intrapreneurship has a positive mediating effect on the relationship between transformational leadership and individual performance, this hypothesis has not yet been empirically tested and emerges from the analysis of the previous ones and

the literature supporting them. As pointed out by Fortin (2006, p. 40), what is presented here “is a formal statement of the predicted relationships between two or more variables; it is a prediction based on theory or a proportion of it”. Thus, this constituted a fusion of the research problem, the objectives we set ourselves and what we hope for, based on the theoretical framework we established to achieve them.

The following hypothesis is also formulated for further testing:

H4. *Intrapreneurship has a positive mediating effect on the relationship between transformational leadership and individual performance.*

As a consequence of the theoretical framework, our research model has an explanatory variable (transformational leadership), an explanatory and explained variable (intrapreneurship) and an explained variable (individual performance). The model is schematically exemplified in Figure 1.

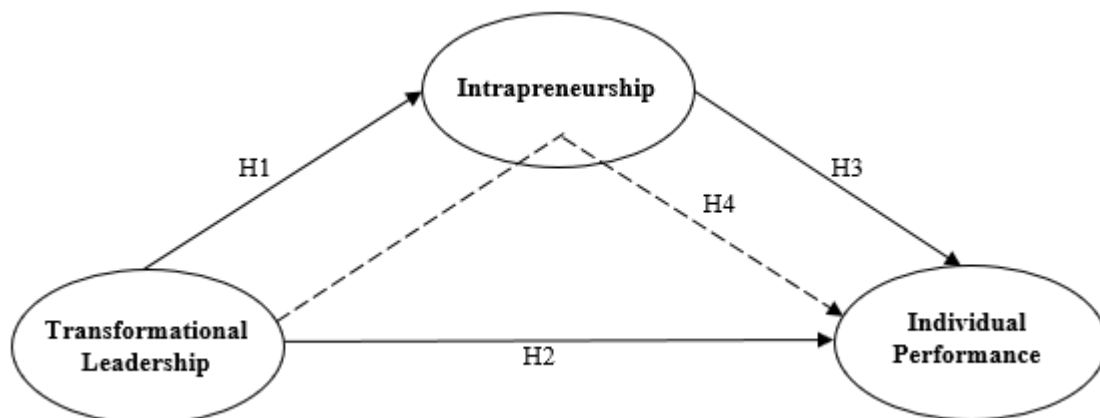


Figure 1. Research model
Source: Own elaboration.

Methodology

3.1 Methodological approach

In different contexts, there are different ownerships of entrepreneurial strategies and leadership mobilisation and, of course, the associated individual results. Thus, these elements are deeply dependent on the context in which they occur (Simsek et al., 2015). According to the rigorously measuring the phenomena it provides, the quantitative methodology stands out as particularly relevant and relevant for characterising a given reality.

Therefore, our methodology aims at converting the information collected into numerical data, so that it can be processed statistically and the results subsequently presented in tables, measures, or tables (Marconi & Lakatos, 2011).

In short, we propose to collect, analyse and discuss quantitative data to obtain specific information on the subject under analysis (Hill & Hill, 2008). To this end, we focus on the Portuguese technology sector. In this sense, participants will be individuals belonging to small, medium or large organisations in this sector. The information gathered is therefore emergent from this specific context, being temporal and spatially delimited by it.

3.2 Sample and data collection

As mentioned above, this study was applied to employee of Portuguese firms belonging to the technology sector [economic activity classification (CAE) = 62]. In Portugal, there are 2,664 active firms with “Computer consulting and programming and related activities”. For our study, we only took into account firms with at least 10 employees and who have the electronic address in the SABI (2018) database to send the survey to these companies, resulting in 628 companies in which 38,375 employees work.

Research’s operational procedure began with a collaboration request with selected firms from the Portuguese technology sector, which included an explanation of the scope and objectives of the study. Further, data collection was operationalised using a questionnaire survey without manipulating variables (Bryman & Cramer 2012). Thus, anonymously and after informed consent, responses were collected and systematised by the *google forms* platform over three months, from March to May/2020.

The sample is thus made up of 148 responses from employees belonging to firms in the Portuguese technology sector, and its characterisation will be presented in the following chapter. Considering the willingness of people to reply to the questionnaire sent in the required time interval, and since it was not possible to infer whether this sample is representative of the entire population, the sample is non-probabilistic for convenience.

After collecting the data, they were statistically analysed using the *SmartPLS*.

3.3 Measures

The instrument used was the *online* questionnaire survey, which appears to be the most appropriate method (Quivy & Campenhoudt, 2008) for this purpose. The survey consists of three scales of measurement (one for each construction), described below.

To evaluate transformational leadership, we chose to use the logic exposed in the study by Podsakoff et al. (1990) and previously adapted and used in Portuguese by Rezende (2010) and Rua and Araújo (2015, 2016). The selected scale consists of 28 items and is based on 7 dimensions, one of which concerns transactional leadership; therefore, items 2, 6, 13, 15 and 17 will not be considered. Thus, the dimensions associated with transformational leadership are: (1) identifies and articulates the vision (5 items), (2) provides a suitable model (3 items), (3) promotes acceptance of group objectives (4 items), (4) high-performance expectations (3 items), (5) provides individualized support (4 items) and (6) intellectual stimulation (4 items). Each of these dimensions is assessed on a 5-point Likert scale, ranging from 1 (totally disagree) to 5 (totally agree). It should also be mentioned that questions 3 and 11 are inverted as proposed in the study by Podsakoff et al. (1990).

A more extensive instrument was adopted to evaluate intrapreneurship in a multi-level logic, developed by Stull and Singh (2005). The selected scale focuses on the employee's thoughts and work activities within the framework of their intra-entrepreneur conduct; it is directly aligned with the construct to be analysed within the framework of our objectives. It comprises 15 items and has already been validated in previous studies conducted in Spain (Moriano et al., 2009) and the Netherlands (Wakkee et al., 2008). This one is based on three dimensions, namely proactivity, risk-taking and innovation. These dimensions are measured using five items, assessed on a 5-point Likert scale, ranging from 1 (totally disagree) to 5 (totally agree).

Finally, to evaluate the employees' performance, from the perspective of their contribution to the organisation, we have chosen to adopt the logic exposed by Islam et al. (2006). These scholars point out the following criteria to consider: quantity/quality of work, planning/organisation, initiative/commitment, teamwork/cooperation, communication and external factors. Thus, items have been subdivided into three subitems, pointed out by them as subcriteria, so that the employees can evaluate themselves on also a 5-point Likert scale, from 1 (below expected) to 5 (above expected).

This adaptation to a self-assessment logic based on a graphical situation component is widely used, for example, in 360.º performance assessment systems (Milliman et al., 1994).

Results

4.1 Sample Characteristics

According to Hall et al. (2011), it is possible to group and synthesise the information collected, in a scientific research context, through descriptive statistics acting as a kind of guiding guide.

As mentioned above, this study was applied to employees of Portuguese companies belonging to the technology sector (CAE = 62) and 148 responses were obtained whose specific characteristics are presented below.

- (1) As far as age is concerned, it can be seen that most (60.8%) are aged between 20 and 30.
- (2) Regarding the gender of respondents, it is possible to see that exactly half of the respondents are female, the other half being male.
- (3) Highly qualified employees characterise the technology sector since 90.5% of the respondents have at least a bachelor's degree and 50% have a master's degree.
- (4) The technology sector is characterised by a dynamic and constantly changing labour market, making its employees continually change projects. 80.4% of the surveyed have only been working at their current employer for less than 3 years.

The Cronbach's alpha analysis was carried out to ensure the consistency and stability of the responses gathered, taking into account the heterogeneity of the respondents and, consequently their opinions. The scale proposed by Pestana and Gageiro (2008) was used for this purpose. The sample reliability is very good for all variables (0.881).

4.2 Structural equation modeling (SEM)

The structural equation model is called a multiple regression method to establish relations between variables (Marôco, 2010). It has a minimum relational value of 0.7 to ensure that it is greater than the error variance (Carmines & Zeller 1979).

The partial regression of least squares is a method of exploratory analysis that allows the development of a theory, currently little tested (Roldán et al., 2014). This method can generate structural models based on small samples of less than 250 observations, as is the case in the present study (148) (Reinartz et al., 2009). And at the same time, it allows for

maximizing the variance of the various dependent variables (Chin & Newsted, 1999; Reinartz et al., 2009) and calculating formative and reflective calculus models (Chin, 2010).

Through stability and internal consistency based on Cronbach’s alpha, the reliability of the variables used in the research is calculated, with a minimum required level of 0.7 (Nunnally, 1978; Chin, 2010).

In the present study, Cronbach’s alpha levels between 0.715 and 0.867 were achieved, which is considered very good to excellent (Pestana & Gageiro, 2008) (see Table 1).

Transformational leadership	.867	.000
Intrapreneurship	.715	.000
Individual performance	.845	.000

Table 1. Cronbach’s alfa

Source: Research data.

We also use the composite reliability coefficient to assess construct validity (Chin 1998). This coefficient reflects the construct’s adequacy for a level higher than 0.6 using confirmatory factor analysis (Gefen & Straub 2005), as in our case. Table 2 shows that the studied constructs (all multidimensional) highly exceeded the minimum required for a good fit.

Transformational leadership	.888	.000
Intrapreneurship	.786	.000
Individual performance	.872	.000

Table 2. Composite reliability

Source: Research data.

For validity assessment, two subtypes are usually examined: convergent and discriminant validity.

Convergent validity implies that a set of indicators represents the same underlying construct (Henseler et al., 2009). Fornell and Larcker (1981) suggest using the Average Variance Extracted (AVE) criterion and that an AVE value of at least 0.5 indicates sufficient convergent validity. The next table demonstrates that all constructs are above the minimum required.

Transformational leadership	.584	.000
Intrapreneurship	.502	.000
Individual performance	.562	.000

Table 3. Convergent validity

Source: Research data.

Discriminant validity is how any single construct is different from the other constructs in the model. To have discriminant validity a construct must exhibit weak correlations with other latent variables that measure different phenomena. There are two measures of discriminant validity in PLS. The Fornell–Larcker criterion (1981) recommends that the AVE be greater than the variance between a given construct and the other it shares the model. The second criterion suggests that the loading of each indicator is expected to be greater than all of its cross-loadings (Henseler et al., 2009).

We can observe the explanatory power of each variable in the model. Transformational leadership is the only purely explanatory variable, and intrapreneurship and individual performance are the explained variables. Chin (1998) distinguishes the explanatory power from moderate to substantial. Table 4 expresses the good results regarding the discriminant validity of the research model, confirming that constructs do differ significantly.

Individual performance	.541		
Intrapreneurship	.401	.517	
Transformational leadership	.356	.447	.551

Table 4. Discriminant validity

Source: Research data.

We used bootstrapping technique to determine the significance of the studied relationships and the confidence intervals of the path coefficients. The weighted coefficients indicate the relative strength of each exogenous construct. According to Chin (1998), relationships between constructs, with structural coefficients higher than 0.2, are considered robust. From Table 5, we thus conclude that the original model does not present non-significant paths.

Direct effects						
H1: TL --> +IE	.273	.389	.100	2.730	.006*	Supported
H2: TL --> +IP	.266	.285	.123	2.168	.030*	Supported
H3: IE --> +IP	.329	.385	.114	2.883	.004*	Supported
Mediating effect						
H4: TL --> +IE --> +IP	.202	.223	.085	1.681	.069**	Supported

Table 5. Path coefficients

Source: Research data.

Note: TL - Transformational leadership; IE - Intrapreneurship; IP - Individual performance.

* p<0.05; ** p<0.1.

Discussion

The analysis of the results indicates that there is a positive relationship between transformational leadership and intrapreneurship and is in line with the literature, namely by Cheung and Wong (2011), Hornsby et al. (2002) and Ling et al. (2008). Thus, on the one hand, and following the idea put forward by Saini and Khurana (2015), so that organisations are not destined to fail, it is fundamental to encourage transformational leadership in organisations, since they have the potential to promote behaviour that is fundamental to individual and collective success.

As regards the hypothesis that transformational leadership positively influenced individual performance, our results confirm this hypothesis. The importance of these topics, due to their impact on employees' results, has been continuously reiterated. The research has previously addressed the relationship between these topics at the organisational level (Camps & Rodriguez, 2010; Kelloway & Barling, 2000) and at the individual level (Vigoda-Gadot, 2007).

Regarding the dynamics between intrapreneurship and individual performance, our study proved the significant and positive impact of the former on the latter. This finding aligns with what was previously found by Stam et al. (2012) and later Neessen et al. (2019). In addition, De Jong et al. (2011) also found a positive relationship between intrapreneurship and individual performance at work. Due to its association with the proactivity of the individual and the autonomy provided in the workplace. Although these aspects have not been specifically explored in our study, it is vital to consider their integration to foster evidence-based organisational interventions. As Hornsby et al. (2002) indicate, the more profound analysis of this theme allows the intra-entrepreneur process to be promoted more effectively, which translates into an increase in internal innovation, generating strategic renewal and enhancing success nationally and internationally, thus ensuring the profitability of

organisations. Moreover, with this study, we can conclude that it translates into an increase in individual performance, a fundamental variable for any organisation's good functioning, development, and competitiveness.

As mentioned above, the direct relationships between the three stressful constructs had already been proven in the literature; however, the suggestion that intrapreneurship could indeed play a mediating effect on the relationship between transformational leadership and the individual performance had not yet been explored empirically (Neessen et al., 2019). Thus, the present study has contributed to filling this gap in the literature; the results have empirically proven that intrapreneurship positively affects the relationship between transformational leadership and individual performance. In this sense, it was possible to develop knowledge about the problem under study, contributing to the respective field of research.

In addition to proving the defined assumptions, our study is also characterised by using three data collection instruments (one for each construction), with the intra-entrepreneur conduct scale (Stull & Singh, 2005). The individual performance evaluation scale being translated directly from the English language could imply a loss of validity (Islam & Bin Mohd Rasad, 2006). However, this was not the case, as the good reliability of their items was verified and their grouping in the expected factors, i.e., indicated by the original authors.

Therefore, and based on the findings presented in this study, organisations need to foster intrapreneurship and transformational leadership practices to foster the individual performance of their workers and consequently the success and prosperity of their organisations. As Slamti (2020) points out, this can be promoted by leaders' support to their employees, enhancing their sense of belonging and well-being. At the same time, encouraging intrapreneur behaviour involves the operationalisation of the enabling factors described. Processes' creation facilitates the ideas' creation. In short, in practice, it is still necessary for the organisational culture to be conducive to these behaviours, giving freedom and autonomy to its leaders and employees and promoting innovation.

Conclusions

The VUCA world in which we live presents numerous challenges to organisations that constantly seek to achieve maximum efficiency and performance from their employees (Nandram & Bindlish, 2017). The continuously changing configuration of today's markets has generated varied demands for organisations that must seek states of constant renewal to

ensure their competitiveness and prosperity. This situation implies an organisational intent (Ireland et al., 2009) to develop and implement entrepreneurial strategies that leadership can foster as a connection between employees and the corporate culture of entrepreneurship. In turn, the resulting intra-entrepreneur behaviours are associated with the individual performance of each employee. Thus, even if the concepts are theoretically associated, it is vital to analyse the linkage between transformational, leadership intrapreneurship, and individual performance to draw empirically-based conclusions about their relationship (Neessen et al., 2019).

This study aimed to explore the relationship between transformational leadership, intrapreneurship and individual performance in the technology sector. Thus, through an analysis of the literature, it was possible to perceive that transformational leadership stimulates intrapreneurship (Cheung & Wong, 2011; Hornsby et al., 2002; Ling et al., 2008) and individual performance (Camps & Rodriguez, 2010; Vigoda-Gadot, 2007). On the other hand, the positive effects of intrapreneurship on individual performance have been noted (Neessen et al., 2019; De Jong et al., 2011; Stam et al., 2012). Regarding these direct relationships, our study is thus in line with what is expected and pointed out by the literature; it is possible to evidence that this is the case in the technology sector. Moreover, the intrapreneurship mediating effect of the relationship between transformational leadership and individual performances had not yet been proven in the literature (Neessen et al., 2019). It was possible to develop knowledge about the problem, thus empirically proving that intrapreneurship positively affects the relationship between transformational leadership and individual performance.

We consider that the results and the emerging reflections and suggestions presented may significantly impact technology sector firms'. Today's economic relevance is unavoidable, especially in the new era of Industry 4.0, so all empirical investments with tangible practical impact are of utmost importance.

This study presents some limitations. We would highlight the fact that it was carried out in a specific sector of activity in one particular country, therefore the results presented are relevant in this context but cannot be generalised to other contexts. The responses collected relate to a non-probabilistic sample for convenience, which may also mean that the study is valid for this sample, but not for the population. On the other hand, we also consider that the data collection tool used to construct individual performance is not robust. It is based on a self-assessment system that may be subject to personal bias because there is a tendency to claim that the work done was of a higher quality than the real one. This leads to the suggestion

that more complex performance assessment tools should be used in future research, such as performance assessment systems and award distribution. However, access to this information involves limiting ethical and confidentiality considerations.

In the future, research in this area may involve applying this study to other sectors of activity and other countries. Moreover, empirical evidence from an individual and organisational level should be integrated, promoting a more comprehensive knowledge to frame specific organisational, sectoral or even national policies, depending on the research context. There is, therefore, a gap in the literature that may be due to the high degree of complexity of associated methodological implementation, and the knowledge it may generate, as well as the tangible *inputs* to practice, justify investment in this type of study.

Finally, taking into account Stam et al.'s (2012) recommendations, we think it is crucial to broaden the scope of the present study by involving other backgrounds and other results of intrapreneurship, such as a firm's performance. It would be also relevant to study whether the effects of transformational leadership would be valid for other antecedents, such as the rewards (Seibert et al., 2001), or whether psychological characteristics, motivation to act and entrepreneurs' personality traits (Rua, 2016; Zhao & Seibert, 2006) could be an individual performance's predictors, considering the mediating effect of intrapreneurship.

Acknowledgements

This work is financed by portuguese national funds through FCT - Fundação para a Ciência e Tecnologia, under the project UIDB/05422/2020.

References

- Antonicic, B., & Hisrich, R. D. (2001). Intrapreneurship: Construct refinement and cross-cultural validation. *Journal of Business Venturing*, 16(5), 495-527.
- Anu, L. (2007). *Fostering intrapreneurship—the new competitive edge*. Paper presented at the Conference on Global Competition & Competitiveness of Indian Corporate, 149–156.
- Atkeson, A. (2020). What will be the economic impact of covid-19 in the us? Rough estimates of disease scenarios. *Working Paper 26867*. Cambridge: National Bureau of Economic Research.
- Badoiu, G. A., Segarra-Ciprés, M., & Escrig-Tena, A. B. (2019). Understanding employees' intrapreneurial behavior: A case study. *Personnel Review*, 49(8), 1677-1694.

- Baggen, Y., Lans, T., Biemans, H. J. A., Kampen, J., & Mulder, M. (2016). Fostering entrepreneurial learning on-the-job: evidence from innovative small and medium-sized companies in Europe. *European Journal of Education, 51*(2), 193–209.
- Bass, B.M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership*. Londres: Psychology press.
- Beal, D. J., Weiss, H. M., Barros, E., & MacDermid, S. M. (2005). An episodic process model of affective influences on performance. *Journal of Applied psychology, 90*(6), 1054.
- Bendassolli, P. F. (2017). Desempenho no trabalho: Revisão da literatura. *Psicologia argumento, 30*(68), 171-184.
- Borman, W. C., & Motowidlo, S. J. (1993). Expanding the criterion domain to include elements of contextual performance. In Schmitt, N., & Borman, W. (Eds.) *Personnel selection in organizations* (pp. 71-98). New York: Jossey-Bass.
- Bosma, N. S., Stam, F. C., & Wennekers, A. R. M. (2010). *Intrapreneurship: An international study*. Presented at seminar at Utrecht University on 23 October 2009.
- Bryman, A., & Cramer, D. (2012). *Quantitative Data Analysis with IBM SPSS 17, 18 & 19: A Guide for Social Scientists*. London: Routledge.
- Burns, J. M. (1978). *Leadership*. New York: Harper & Row.
- Campbell, J. P. (1990). Modeling the performance prediction problem in industrial and organizational psychology. In Dunnette, M. D., Hough, L. M. (Eds.) *Handbook of Industrial and Organizational Psychology* (pp. 687-732). Palo Alto, CA: Consulting Psychologists Press.
- Camps, J., & Rodríguez, H. (2010). Transformational leadership, learning, and employability. *Personnel Review, 40*(4), 423-442.
- Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment*. Beverly Hills (CA): SAGE.
- Carrier, C. (1994). Intrapreneurship in large firms and SMEs: A comparative study. *International Small Business Journal, 12*(3), 54-61.
- Chang, Y. Y., Chang, C. Y., & Chen, C. W. (2017). Transformational leadership and corporate entrepreneurship: Cross-level mediation moderation evidence. *Leadership & Organization Development Journal, 38*(6), 812-833.
- Cheung, M. F., & Wong, C. S. (2011). Transformational leadership, leader support, and employee creativity. *Leadership & Organization Development Journal, 32*(7), 656-672.
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. Em G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Mahwah, New Jersey: Lawrence Erlbaum Associates.

- Chin, W. W. (2010). How to write up and report PLS analyses. Em V. E. Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of partial least squares: Concepts, methods and applications in marketing and related fields* (pp. 655–690). Berlin: Springer.
- Chin, W. W., & Newsted, P. R. (1999). Structural equation modeling analysis with small samples using partial least squares. Em R. H. Hoyle (Ed.), *Statistical strategies for small sample research* (pp. 307–341). Thousand Oaks: SAGE.
- De Jong, J. P. J., Parker, S. K., Wennekers, S., & Wu, C. (2011). Corporate entrepreneurship at the individual level: Measurement and determinants. *EIM research reports*, 11, 13.
- DeChurch, L. A., Hiller, N. J., Murase, T., Doty, D., & Salas, E. (2010). Leadership across levels: Levels of leaders and their levels of impact. *The Leadership Quarterly*, 21(6), 1069-1085.
- Dess, G. G., Ireland, R. D., Zahra, S. A., Floyd, S. W., Janney, J. J., & Lane, P. J. (2003). Emerging issues in corporate entrepreneurship. *Journal of Management*, 29(3), 351-78.
- Easley, D. T., & Longenecker, C. O. (2006). ‘Gateways to intrapreneurship’. *Industrial Management*, 48, 1, 18–23
- Fay, D., & Frese, M. (2001). The concept of personal initiative: An overview of validity studies. *Human performance*, 14(1), 97-124.
- Fay, D., & Sonnentag, S. (2010). A look back to move ahead: New directions for research on proactive performance and other discretionary work behaviours. *Appl Psychol An Int Rev*, 59, 1-20.
- Fischer, A. (2011). Recognizing opportunities: initiating service innovation in PSFs. *Journal of Knowledge Management*, 15(6), 915-927.
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: algebra and statistics. *Journal of Marketing Research*, 18, 382-388.
- Fortin, M. F. (2006). *Fundamentos e etapas do processo de investigação*. Loures: Lusodidacta.
- Freitas, M., & Rua, O.L. (2019). Liderança Transformacional e Desempenho: Evidência Empírica de Instituição de Ensino Superior, Técnico e Tecnológico Brasileira. *European Journal of Applied Business Management*, 5(2), 12-36.
- Frese, M., & Zapf, D. (1994). Action as the core of work psychology: A German approach. In Triandis, H. C., Dunnette, M. D., & Hough, L. M. (Eds.) *Handbook of industrial and organizational psychology* (pp. 271-340). Palo Alto, CA: Consulting Psychologists Press.
- Gavrea, C., Ilies, L., & Stegorean, R. (2011). Determinants of organizational performance: The case of Romania. *Management & Marketing*, 6(2), 285-300.
- Gefen, D., & Straub, D. (2005). A practical guide to factorial validity using PLS-graph: Tutorial and annotated example. *Communications of the Association for Information Systems*, 16(1), 91-109.

- Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of management journal*, 50(2), 327-347.
- Hill, A., & Hill, M. M. (2008). *Investigação por Questionário* (2ª ed.). Lisboa: Edições Silabo.
- Henseler, J., Ringle, C. M., Sinkovics, R. R. (2009). The use of Partial Least Squares Path Modeling in international marketing. In R. R. Sinkovics & P. N. Ghauri (ed.). *New Challenges to International Marketing (Advances in International Marketing)*, 20 (pp. 277-319). Emerald Group Publishing Limited,
- Hornsby, J. S., Kuratko, D. F., & Zahra, S. A. (2002). Middle managers' perception of the internal environment for corporate entrepreneurship: assessing a measurement scale. *Journal of business Venturing*, 17(3), 253-273.
- Ireland, R. D., Covin, J. G., & Kuratko, D. F. (2009). Conceptualizing corporate entrepreneurship strategy. *Entrepreneurship theory and practice*, 33(1), 19-46.
- Islam, R., & Bin Mohd Rasad, S. (2006). Employee performance evaluation by the AHP: A case study. *Asia Pacific Management Review*, 11(3), 163-176.
- Ismael, Y. A., Yusof, N., e Nikbin, D. (2010). A review paper on organizational culture and organizational performance. *International Journal of Business and Social Science*, 1(3), 26-46.
- Janssen, O. & N.W. van Yperen (2004). Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction. *Academy of Management Journal*, 47(3), 368-384.
- Katz, D., & Kahn, R. (1987). *Psicologia Social das Organizações* (3.ª Ed.) (Auriphedo Simões, Trad.). São Paulo: Atlas.
- Kelloway, E. K., & Barling, J. (2000). What we have learned about developing transformational leaders. *Leadership & Organization Development Journal*, 21(7), 355-362.
- Koopmans, L., Bernaards, C. M., Hildebrandt, V. H., Schaufeli, W. B., Henrica, C. W., & Beek, A. J. (2011). Conceptual frameworks of individual work performance: A systematic review. *Journal of occupational and environmental medicine*, 53(8), 856-866.
- Kuratko, D. F. (2005). The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship theory and practice*, 29(5), 577-597.
- LePine, M. A., Zhang, Y., Crawford, E. R., & Rich, B. L. (2016). Turning their pain to gain: Charismatic leader influence on follower stress appraisal and job performance. *Academy of Management Journal*, 59(3), 1036-1059.
- Ling, Y. A. N., Simsek, Z., Lubatkin, M. H., & Veiga, J. F. (2008). Transformational leadership's role in promoting corporate entrepreneurship: Examining the CEO-TMT interface. *Academy of Management Journal*, 51(3), 557-576.

- Lumpkin, G. T. (2007). Intrapreneurship and Innovation. Em J. Robert Baum, Michael Frese, & Robert A. (Eds.) *The psychology of entrepreneurship* (pp. 237- 262). Nova Jersey: Lawrence Erlbaum Associates Publishers.
- Marconi, M. & Lakatos, E. (2011). *Metodologia Científica*. São Paulo: Editora Atlas.
- Marôco, J. (2010). *Análise de equações estruturais: Fundamentos teóricos, software & aplicações*. Pêro Pinheiro: ReportNumber, Lda.
- Marras, P. Jean (2000). *Administração de Recursos Humanos - Do operacional ao estratégico* (3ª Ed.). São Paulo: Editora Futura.
- Martiarena, A. (2013). What's so entrepreneurial about intrapreneurs? *Small Business Economics*, 40(1), 27-39.
- McGrath, R. G., & Macmillan, I. C. (2000). *The Entrepreneurial Mindset: Strategies for Continuously Creating Opportunity in an Age of Uncertainty*. Boston: Harvard Business School Press.
- Miller, D. & Friesen, P. H (1983). Innovation in conservative and entrepreneurial firms: Two models of strategic momentum. *Strategic Management Journal*, 3, 1-25.
- Milliman, J. F., Zawacki, R. F., Norman, C., Powell, L. and Kirksey, J. (1994). Companies evaluate employees from all perspectives. *Personnel Journal*, 73(11), 99-103.
- Monteiro, A. P., Soares, A.M., & Rua, O. L. (2017). Linking intangible resources and export performance: The role of entrepreneurial orientation and dynamic capabilities, *Baltic Journal of Management*, 12(3), 329-347.
- Monteiro, A. P., Soares, A. M., & Rua, O. L. (2019). Linking intangible resources and entrepreneurial orientation to export performance: the mediating effect of dynamic capabilities, *Journal of Innovation & Knowledge*, 4(3), 179-187.
- Moriano, J. A., Molero, F., Topa, G., & Mangin, J. P. L. (2014). The influence of transformational leadership and organizational identification on intrapreneurship. *International Entrepreneurship and Management Journal*, 10(1), 103-119.
- Moriano, J. A., Topa, G., Valero, E., & Lévy-Mangin, J. P. (2009). Identificación organizacional y Conducta “Intraemprendedora”. *Anales de Psicología*, 25, 277–287.
- Morris, M. H., Lewis, P. S., & Sexton, D. L. (1994). Reconceptualizing entrepreneurship: An input-output perspective. *SAM Advanced Management Journal*, 59(1), 21.
- Morris, M., Kuratko, D., & Covin, J. (2010). *Corporate entrepreneurship & innovation*. Boston, MA: Cengage Learning.
- Murphy, K. (1989a). Dimensions of job performance. In Dillon, R., & Pelligrino, J. (Eds.) *Testing: Applied and theoretical perspectives* (pp. 218-247). New York: Praeger.
- Murphy, K. (1989b). Is the relationship between cognitive ability and job performance stable over time? *Human Performance*, 2(3), 183-200.

- Nandram, S. S., & Bindlish, P. K. (2017). Introduction to VUCA. Em Sharda, S. N., & Puneet, K. B. (Eds), *Managing VUCA Through Integrative Self Management* (pp. 3-14). Suíça: Springer International Publishing.
- Neessen, P. C., Caniëls, M. C., Vos, B., & De Jong, J. P. (2019). The intrapreneurial employee: toward an integrated model of intrapreneurship and research agenda. *International Entrepreneurship and Management Journal*, 15(2), 545-571.
- Nunnally, J. C. (1978). *Psychometric theory*. Nova York: McGraw-Hill
- Para-González, L., Jiménez-Jiménez, D., & Martínez-Lorente, A. R. (2018). Exploring the mediating effects between transformational leadership and organizational performance. *Employee Relations*, 40(2), 412-432.
- Pestana, M. H., & Gageiro, J. N. (2008). *Análise de dados para ciências sociais - A complementaridade do SPSS (5ª ed.)*. Lisboa: Edições Silabo.
- Pinchot, G. (1987), Innovation Through Intrapreneuring, *Research Management* 30(2), 14-19.
- Podsakoff, P., Mackenzie, S., Moorman, R., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behavior. *Leadership Quarterly*, 1(2), 107-142.
- Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. *Journal of applied psychology*, 85(4), 612.
- Pulakos, E. D., Schmitt, N., Dorsey, D. W., Arad, S., Borman, W. C., & Hedge, J. W. (2002). Predicting adaptive performance: Further tests of a model of adaptability. *Human performance*, 15(4), 299-323.
- Purwanto, A., Bernarto, I., Asbari, M., Wijayanti, L. M., & Hyun, C. C. (2020). Effect of Transformational and Transactional Leadership Style on Public Health Centre Performance. *Journal of Research in Business, Economics, and Education*, 2(1), 304-314.
- Quivy, R., & Campenhoudt, L. (2008). *Manual de pesquisa em ciências sociais*. Paris: Bordas.
- Rauch, A. & M. Frese (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, 16(4), 353-385.
- Reinartz, W., Haenlein M., & Henseler J. (2009). An empirical comparison of the efficacy of covariance-based and variance-based SEM. *International Journal of Research in Marketing*, 26(4), 332-344.
- Rezende, H. (2010). *A Liderança Transformacional e Transaccional e as suas Influências nos Comportamentos de Cidadania Organizacional*. Manuscrito não publicado, Instituto Universitário de Lisboa, Lisboa.

- Rigtering, J. P. C., & Weitzel, U. (2013). Work context and employee behaviour as antecedents for intrapreneurship. *International Entrepreneurship and Management Journal*, 9(3), 337–360
- Roe, R. A. (1999). Work performance. In Cooper, C. L., & Robertson, I. T. (Eds.) *International review of industrial and organizational psychology* (pp. 231-335). Chichester: Wiley.
- Roldán, J. L., Cegarra, J. G., & Cepeda, G. (2014). *Building organisational agility through an unlearning Context*. Paper presented at the European Conference on Knowledge Management.
- Rua, O. L. (2016). Entrepreneurial potential among polytechnic higher education students. *European Journal of Applied Business and Management*, 2(1), 12-29.
- Rua, O. L. (2018). From intangible resources to export performance: Exploring the mediating effect of absorptive capabilities and innovation. *Review of International Business and Strategy*, 28(3/4), 373-394.
- Rua, O. L. & Araújo, J. M. (2015). Linking Transformational Leadership and Organizational Commitment. *European Journal of Applied Business and Management*, 1(1), 201-207.
- Rua, O. L. & Araújo, J. M. (2016). Linking transformational leadership and organizational trust: has organizational commitment a mediating effect on it? *Cuadernos de Gestión*, 16(1), 43-62.
- Rua, O. L., França, A. & Fernández, R. O. (2018). Key drivers of SMEs export performance: the mediating effect of competitive advantage. *Journal of Knowledge Management*, 22(2), 257–270.
- SABI (2018). *Sistema de Análisis de Balances Ibéricos*. Madrid: Bureau Van Dijk.
- Saini, A. K., & Khurana, V. K. (2015). Managing Organizational Transformation in the Era of VUCA. *Journal of Management*, 7(1), 69-80.
- Simsek, Z., Jansen, J. J., Minichilli, A., & Escriba-Esteve, A. (2015). Strategic leadership and leaders in entrepreneurial contexts: A nexus for innovation and impact missed? *Journal of Management Studies*, 52(4), 463-478.
- Slamti, F. (2020). Linking transformational leadership, sense of belonging and intrapreneurship. In Hammes, K., Machrafi, M., & Huzjan, V. (Eds.) *Economic and Social Development: Book of Proceedings* (pp. 286-293). Rabat: Varazdin Development and Entrepreneurship Agency.
- Sonnentag, S. (1998). Expertise in professional software design: A process study. *Journal of applied psychology*, 83(5), 703.
- Sonnentag, S., & Frese, M. (2002). Performance concepts and performance theory. *Psychological management of individual performance*, 23(1), 3-25.
- Souza, V. L., Mattos, I. B., Sardinha, R. L. L. L., & Alves, R. C. S. (2007). *Gestão de desempenho*. Rio de Janeiro: FGV.

- Stull, M., & Singh, J. (2005). *Intrapreneurship in nonprofit organizations examining the factors that facilitate entrepreneurial behaviour among employees*. Manuscrito não publicado, Case Western Reserve University, Ohio.
- Sundin, E., & Tillmar, M. (2008). A nurse and a civil servant changing institutions: entrepreneurial processes in different public sector organizations. *Scandinavian Journal of Management*, 24(2), 113–124.
- Tsou, I. Y. Y., Liew, C. J. Y., Tan, B. P., Chou, H., Wong, S. B. S., Loke, K. S. H., ... & Tay, K. H. (2020). Planning and coordination of the radiological response to the coronavirus disease 2019 (COVID-19) pandemic: The Singapore experience. *Clinical Radiology*, 75, 415-422.
- Vargas-Halabí, T., Mora-Esquivel, R., & Siles, B. (2017). Intrapreneurial competencies: Development and validation of a measurement scale. *European Journal of Management and Business Economics*, 26(1), 86-111.
- Vigoda-Gadot, E. (2007). Leadership style, organizational politics, and employees performance. *Personnel Review*, 36(5), 661.
- Viswesvaran, C. (2002). Assessment of individual job performance: A review of the past century and a look ahead. In Anderson, N., Ones, D. S., Sinangil, H. K., Viswesvaran, C., (Eds.) *Handbook of Industrial, Work and Organizational Psychology - Vol 1: Personnel Psychology* (pp. 110-126). Thousand Oaks, CA: Sage Publications Ltd.
- Wakkee, I., Elfring, T., & Monaghan, S. (2008). Creating entrepreneurial employees in traditional service sectors. The role of coaching and self-efficacy. *International Entrepreneurship and Management Journal*, 6, 1–21.
- Zaleznik, A. (2004). Managers and leaders. *Harvard Business Review*, 77(1), 1-9.
- Zhang, X., & Bartol, K. M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of management journal*, 53(1), 107-128.
- Zhao, H., & Seibert, S. E. (2006). The Big Five Personality Dimensions and Entrepreneurial Status: A Meta-Analytical Review. *Journal of Applied Psychology*, 91(2), 259-271.

Submetido em: 16.12.2022

Aceito em: 19.01.2023