



The effect of talent management and leadership styles on firms' sustainable performance

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Abstract

Purpose – This study aims to develop a framework that examines how different leadership styles influence talent management and how these leadership styles and talent management influence firms' sustainable performance considering the moderating role of environmental dynamism.

Design/methodology/approach – To achieve these objectives an empirical survey was conducted among 480 participant firms in Greece. Hierarchical regression was performed to test the hypotheses.

Findings – This study reveals the significance of authoritative and transformational leadership on talent management. The results also show the positive effect of talent development on sustainability. Moreover, entrepreneurial leadership is found to be the most influential style for economic sustainability, while transformational and transactional leaderships are the most influential leadership styles for social and environmental sustainability performance.

Research limitations/implications – The data was collected at only one point in time, while sustainability is a continuous process. Moreover, only four leadership styles were addressed.

Practical implications – Proper leadership style should be selected in order to facilitate different sustainability dimensions. Talent development is a valuable investment towards sustainable performance of firms.

Originality/value – This study contributes to the upper echelon theory, identifying whether and how different leadership styles affect TM and sustainability. The study also advances the human resource development literature by critically reviewing and identifying the influence of TM on firms' sustainable performance. Moreover, the role of environmental dynamism is revealed on all the above relationships.

Keywords: Talent management, sustainability, leadership

Paper type – Research paper

1. Introduction

With the onset of industrialization and the rapid development of nations and organizations, it is very important to explore various enabling factors seen in existing literature regarding firms' sustainable performance (Gupta et al., 2021; Eide et al., 2020). Without understanding the antecedents, the firms' sustainability cannot be systematically managed (Kafetzopoulos, 2021). Recent studies have examined various drivers/antecedents and they have shown that sustainability can be predicted and affected by individual differences in management, including human resource management (HRM) and leadership styles (Mousa and Ayoubim, 2019; Wesselink et al., 2017).

According to Alberton et al. (2020), human resource is a basic competency for the implementation and development of organizational sustainable performance, while recently there is a growing interest in talent management (TM) and its potential towards organizational sustainability (Mousa and Ayoubim, 2019). TM is different from traditional HRM, it challenges traditional human resource practices and focuses only on a selective group of employees that contribute to the organization's success (Van Zyl et al., 2017). Nevertheless, research on TM remains fragmented and underdeveloped, with no stable theoretical foundation (Collings et al., 2018) and no consensus on the meaning and scope of TM in practice (Anlesinya et al., 2019). Especially, the impact of TM on sustainable performance remains under-investigated, while most studies regarding talent and sustainability are lacking theoretical support (Pantouvakis and Vlachos, 2020).

Even though leadership theories are represented in the human resource literature, there is a wide gap in the practice of leadership and need to be revisited time and again from the TM perspective. Firms seek to adopt a leadership style that ensures that teams work seamlessly for smooth attainment of the organization's vision and core mandate, while remaining relevant in the ever-changing market dynamics (Onyango, 2015). We have learned much from the vast and expanding field of leadership research, but it still remains uncertain what constitutes effective leadership for a firm's TM and sustainability efforts (Eide et al., 2020).

Previous studies point out that leadership is an important element for sustainability (Wesselink et al., 2017) and executives' leadership style has a positive association with sustainability strategy (Christensen et al., 2014). Nevertheless, more research needs to be done in order to provide a more nuanced picture of the role of leaders and investigate the role and influence of different leadership styles on firms' TM and sustainable performance over time (Eide et al., 2020). Furthermore, it is imperative to study the effect of external factors, such as

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3 environmental dynamism, on sustainable performance (Peris-Ortiz et al., 2018). Scholars have
4 argued that the performance benefits of sustainability practices depend on the environmental
5 context.
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8 Thus, responding to calls in literature to investigate sustainability and its antecedents
9 (Eide et al., 2020) and taking into consideration the scarcity in studies concerning the role of
10 talent and leadership on sustainability (Pantouvakis and Vlachos, 2020; Farndale and Atli,
11 2019), this paper aims to further investigate the sustainability processes and theory.
12 Specifically, the paper examines how four different leadership styles influence TM and how
13 these leadership styles and TM may influence firms' sustainable performance. Moreover, in
14 this study we take into consideration the potential moderating effect of environmental
15 dynamism on the possible relationships between leadership, TM and sustainable performance.
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22 This paper makes three important contributions: first, by critically reviewing and
23 identifying the influence of TM on firms' sustainable performance, it supports the view that
24 talents should be considered as operand resources, since they act upon operand resources such
25 as assets, systems, and technologies (Pantouvakis and Vlachos, 2020), they create value that
26 cannot be easily imitated or appropriated by competitors, are valuable, rare and organised. Thus,
27 the resource-based view (RBV) theory and the human recourse development literature are
28 extended. Second, this study extends the upper echelon theory by identifying whether and how
29 leadership affects TM and sustainability goals. Such research has the added benefit of bringing
30 together differences among leaders in their experiences, values, personalities and other human
31 aspects, in an attempt to better understand the effects of different leadership styles on TM and
32 sustainability performance. Moreover, it expands the research of Waldman et al. (2004) and
33 Finkelstein's (1992) that upper echelons' perspective should be expanded to take into account
34 how leadership affects organizational factors and outcomes. Third, this study examines the
35 moderating role of environmental dynamism on leadership - TM – sustainable performance
36 relationships. Given that nowadays most firms operate under intense environmental dynamism,
37 its role on the above relationships needs to be considered.
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50 The remainder of this paper has the following structure. Section 2 reviews the literature
51 on sustainable performance, leadership and TM. Section 3 presents the basic research
52 hypotheses. In section 4 we test the hypotheses using survey and archival data. Section 5
53 discusses the conclusions, limitations and future research.
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2. Theoretical background and research hypotheses

2.1 Leadership and TM of firms

The evolution of leadership theory and practice has attracted researchers on a quest to explain the influence of leadership by developing models to determine causal mechanisms that link leadership to various organizational outcomes (Avolio et al., 2009). Various available leadership styles have been studied in literature and we have learned much from this vast and expanding field of research (Gupta and Bhal, in press). The concept of TM has recently provoked a “significant research interest, as both large and small and medium-sized enterprises are competing in attracting and retaining top-performing employees” (Cui et al., 2017). TM is of strategic importance for HRM, particularly as a euphemism for ‘people’ as resources that are simultaneously unique, valuable, rare, and inimitable (Lewis and Heckman, 2006). Our review of recent TM research revealed three major sets of HRM activities regarding TM challenges: attracting (includes recruitment, and selection activities), developing (includes training and career development activities) and retaining (includes satisfaction and compensation activities). Thus, for the purposes of this research, we refer to TM as top management's deliberate and organized efforts to optimally attract, develop, and retain competent and committed employees who bear significant influence on the overall sustainable performance of the organization (Thunnissen, 2016).

The intensive review of literature reveals that empirical evidence on the subject of leadership and TM is very limited and there is not adequate research (Bingab, 2019). However, there are certain studies showing that leadership can contribute to a talent culture, and offer positive employee outcomes such as increased task focus, meaning in work and organisational commitment (Festing and Schäfer, 2014). Matching manager's leadership style with appropriate company's given situation enhances effectiveness. The effective HRM and particularly the quality of leadership on talents in the firms is increasingly seen as major influence on the success or failure in business (Collings et al., 2009). Bos et al. (2020) assumed that an empowering leadership style has a positive effect on the cognitive and affective employee reactions to TM. According to King (2016) commitment and active involvement of top and middle management are crucial for the successful implementation of TM. Moreover, King (2016) hypothesised that talent-based leadership results in a ‘talent deal’ and a talent climate perceptible by employees. Literature suggests that leadership decision making is a critical area for global TM, and that decision making in this area needs to be strategic and

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3 effective in order for firms to successfully implement their global strategies (Farndale and Atli,
4 2019; Stahl et al., 2007).

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6 As far as specific leadership styles are concerned, authoritative is the leadership style
7 that is inspiring and moving talents towards a common goal. It sets direction for the teams,
8 telling them where they're going, but not how they're going to get there – it leaves it up to the
9 team members to find their way towards the common goal. Consistent with Hodges (2008),
10 authoritative leaders tend to communicate with talented employees about company's goals and
11 strategies when they decide to retain these employees, thereby exerting a positive influence on
12 successful TM. Goleman (2000) contended that an effective authoritative leadership style
13 enlists talents in support of a vision. It keeps talents informed about the vision and objectives
14 of the company, it contributes to the stability of the workforce, that is, to talent retention, which
15 in turn contributes to improving the skills and competences required of talents to perform well
16 in the combined firm (Zhang et al., 2015). Transformational leadership is one of the most
17 sought-after approaches to leader behavior that transforms and inspires talents to develop
18 knowledge and skills and to be of greater value to the organization (Ghadi et al., 2013). Bingab
19 (2019) whilst investigating the effects of leadership styles on TM, found that there is a
20 significant relationship between transformational leadership and TM. Festing and Schäfer
21 (2014) show that in particular a transformational leadership style can contribute to a talent
22 development culture and results in positive employee outcomes. Moreover, Onyango (2015)
23 found that a positive and significant relationship exists between transformational leadership
24 style and TM. He insists that a transformational leader is a role model in the TM process as he/
25 she inspires followers and provides meanings towards attainment of the organizational goals.
26 Entrepreneurial leadership is a unique leadership style that focuses on making heterogeneous
27 talents work in an organization more creatively and innovatively in collective processes, in
28 order to respond to an uncertain business environment and to create coherent strategies and
29 novel outcomes (innovation performance) (Fontana and Musa, 2017). Entrepreneurial leaders
30 tend to be characterised by a focus on talent management (Mumford et al., 2002). Ready and
31 Conger (2007) point out that entrepreneurial leadership is responsible for initiating, managing,
32 and sustaining the overall process of the firm's talent development, while Foug et al. (2020)
33 believe that in the face of the impact of digital technology and market, entrepreneurial
34 leadership enhances the TM model of firms. Lastly, transactional leadership can be defined as
35 a leadership approach founded on a contractual agreement between a leader and his talent
36 followers (Penn, 2015). Each side expects of the other a fulfilment of the agreed terms of
37 transaction in order to ensure the survival of their relationship. According to Irum (2015) the
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3 transactional leadership style has a significant positive effect on talent work motivation and
4 performance. Moreover, the transactional leadership style helps in creating as well as sustaining
5 the context in which talent capabilities are maximized as the talents are always able to achieve
6 the tangible and intangible rewards (Longe, 2014). Based on the above literature, this study
7 considers four different leadership styles to explain the effect of leadership on TM and
8 sustainable performance, named: authoritative, entrepreneurial, transformational, and
9 transactional style. Therefore, we hypothesise:

16 *H1: Leadership, comprising authoritative, transformational, entrepreneurial and*
17 *transactional styles, is positively related to firms' TM*

21 2.2 TM and firms' sustainable performance

23 Sustainability represents an important strategic consideration for all enterprises. It
24 concerns the creation of current and future profits for a firm, while improving the lives of all
25 concerned (Tomšič et al., 2015). To operationalize sustainable performance, the triple bottom
26 line is widely applied, which simultaneously integrates economic, environmental, and social
27 performance (Margolis and Walsh, 2003). Nowadays, business sustainability is most often
28 presented in an integrated way, combining these three aspects, due to their partial overlap.
29 Economic sustainable performance concerns return on assets, organizational cost reduction and
30 profit in the context for income improvement and market share promotion (Green et al., 2012).
31 Social sustainability performance evaluates organizations regarding their social commitment,
32 participation, training and development, and healthy work environment (Iqbal et al. 2020).
33 Lastly, environmental sustainability performance concerns the reduction of harmful materials,
34 hazardous consumption, usage of resources, and efficient energy (Akanmu et al., 2020).

44 Compared to other human resources, talent resources are perceived as strategic because
45 of their ability to impact sustainable performance (Collings et al., 2009) and create competitive
46 advantage for the organization (Festing and Schäfer, 2014). By far, the RBV is the dominant
47 theoretical framework applied in the TM literature. These resources can be the basis of a
48 company's competitiveness if they have value, are unique and difficult to imitate, therefore,
49 they affect organizational results and business success (Barney, 1991). The RBV is the most
50 commonly used theoretical framework and equates talent with "human capital" which is highly
51 valuable, unique and difficult to imitate. RBV scholars have advocated that the combination of
52 valuable and unique resources within the firm can generate unique capabilities (Crane and
53 Hartwell, 2019). The RBV posits that firm's resources directly affect firm performance;

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3 therefore, firms should own or control resources, information, and knowledge and bundle them
4 together to achieve sustainable competitive advantage (Pantouvakis and Vlachos, 2020).
5 According to the RBV, firms can be conceptualised as bundles of productive resources, which
6 are semi-permanently tied to the firm ensuring long-term and sustainable development (Shan
7 et al., 2019). Thus, the relationship between TM and sustainable performance is explained
8 through RBV, where organisations seek to maximise their internal resources through
9 developing valuable, rare, inimitable, and non-substitutable resources that are both socially
10 complex and causally ambiguous (Crane and Hartwell, 2019). The central tenet of the RBV on
11 TM is that people can be a source of sustainable competitive advantage; the latter
12 operationalized first and foremost as organizational sustainable performance (Gallardo-
13 Gallardo et al., 2015). Talent can provide a resource-based sustainability if it is valuable
14 (individual' s unique abilities), rare (particularly at high levels of specialized expertise) and
15 non- or imperfectly imitable (Ambrosius, 2018). Moreover, Sparrow and Makram (2015) point
16 out that talents enable an organization to implement value creating strategies and achieve a
17 sustainable performance. Based on the above, we hypothesise:

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30 *H2: TM is positively related to s firms' sustainable performance*

31 32 33 2.3 *Leadership and firms' sustainable performance*

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35 Leadership is one of the critical success factors to achieve sustainability (Tomšič et al., 2015).
36 The impact of leadership on employees' behavior and organizational operations and outputs
37 has long been a focus of management theorists (Samimi et al., 2021; Alghamdi, 2018). **This**
38 **paper follows the upper-echelons** theory to support that leadership affects sustainable
39 performance of a firm. Under the upper echelon's theory, managers' background partially
40 affects organizational outcomes, strategic choices, and performance levels (Hambrick and
41 Mason, 1984). Leaders need to send the right signals to promote sustainable performance and
42 to set guidelines in how sustainable principles are to be followed (Szekely and Knirsch, 2005).
43 Maletic et al. (2014) stated that one of the main enablers for the achievement of the triple-
44 bottom line sustainable performance is leadership support. In this context, leadership
45 characteristics are expected to play a key role in determining a firm's sustainable performance
46 (economic, environmental, and social performance) (Bonelli, 2014). Upper echelons theory
47 holds that leaders can have a key role in developing sustainability, through three main steps:
48 defining the definition of the enterprise's vision and goals, choosing the cognition and
49 explaining the definition of the strategy (Shimizu and Hitt, 2004). Furthermore, Metclaf and
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3 Benn (2013) argue that social sustainability requires leaders to possess more abilities than
4 normally are expected, while Przychodzen et al. (2016) suggest that appropriate leadership is a
5 necessary condition to transform a business idea into a successful business model and in turn,
6 produce sustainable products/services.
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10 Most of the work in this area has focused on understanding leadership styles that are
11 necessary to drive sustainable performance. For example, research from the UK, China and the
12 Netherlands has looked at how different leadership styles, such as transformational,
13 transactional, authoritative, and entrepreneurial may influence the outcomes of sustainability
14 (Bossink, 2007; Chan and Chan, 2005). Studies have found that a transformational leadership
15 style, which includes dimensions of inspirational motivation, intellectual stimulation, idealized
16 behaviour and individualized considerations, is the most important for professionals and
17 managers in charge of highly sustainable development projects (Pakir et al., 2012).
18 Przychodzen et al. (2016) point out that transformational leadership that includes addressing
19 ecological/societal issues appears critical for sustainable performance. Pantouvakis and
20 Vlachos (2020) found that authoritative leadership impacts sustainable performance in all
21 dimensions and Iqbal et al. (2021) argue that the growth and sustainability of the organization
22 is linked with the authoritative leadership style as it enhances and maintains the competitive
23 advantage of organizations. Entrepreneurial leadership is a mix between entrepreneurship traits
24 and leadership characteristics. Due to the current competitive and fast-moving business
25 environment, entrepreneurial leadership is considered more effective in maximizing firms'
26 sustainable performance. According to Leitch and Volery (2017) it is more effective compared
27 to the existing traditional leadership styles. Pauceanu et al. (2021) emphasized the contribution
28 of entrepreneurial leadership, by enhancing organizational innovation performance and
29 employees' creativity and, consequently, the overall sustainable performance of the
30 organization. Literature also supports the view that transactional leadership significantly
31 enhances organizational learning, an important organizational resource for firms' sustainability
32 (Barney, 1991). Asencio (2016) also found in his study that transactional leadership is
33 significantly related to organizational sustainable performance. In addition, Awan et al. (2018)
34 conclude that transactional leadership style influences the improvement of social sustainability
35 of manufacturing industries in Pakistan. Hence, the following hypothesis is proposed:
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55 *H3: Leadership, comprising authoritative, transformational, entrepreneurial and*
56 *transactional styles, is positively related to firms' sustainable performance*
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2.4 *The role of environmental dynamism*

Environmental dynamism refers to the rate and unpredictability of change, uncertainty, volatility and the degree of instability of the environment. Dynamic environments may be characterized by changes in technologies, frequent variations in customer preferences, and fluctuations in product demand or supply of materials (Jansen et al., 2006). Despite the fact that environmental dynamism has been shown to be an important moderator to the linkage between leadership and various performance dimensions (Waldman et al., 2004), there is scarce evidence concerning its role regarding the links between leadership, TM, and sustainable performance in particular. To the best of our knowledge, there is yet no empirical investigation in the leadership, human resource or sustainability literature that has considered the joint interaction of these four factors. Therefore, the results of the current study are expected to provide reciprocal advancement to all of these management research areas.

Some of the most interesting works on environmental dynamism have examined the moderating effect of environment on the relationship between leadership and organizational performance. Ensley et al. (2006) found environmental dynamism to significantly moderate the relationship of leadership with growth performance, as leadership was most effective in dynamic environments than in stable ones. When the environment is relatively stable with no significant technological progress or little customer preference changes, dynamic leadership decisions are probably expensive, thus, the relationship between firm's leadership and sustainable performance may become weaker, or even negative. In a highly volatile environment with opportunities fleeting quickly and threats from competitors always staying around, environmental turbulence reduces the competitive position and potential value of leadership actions, forcing enterprises to carry out frequent and complex changes and making the role of talents more significant (Li and Liu, 2012). Empirical researches also demonstrate that in a stable environment, the relationship between capabilities and firm performance is insignificant, while in a dynamic environment it is both positive and significant, indicating its moderating role (Drnevich and Kriauciunas, 2011).

The study of Kakkar and Sivanathan (2017) reveals that talented employees prefer more dominant leadership in times of uncertain socioeconomic environments. Talented employees may be more open to direction from leadership in times of higher environmental dynamism, responding with a stronger commitment, valence and belief in the efficacy of the proposed change. Research in the RBV has increasingly recognized that the strategic value of a firm's resource, such as TM, or capability depends on specific market contexts (Priem and Butler,

2001). In a dynamic environment change happens rapidly and with greater magnitude. The cause of change can be ambiguous and operational metrics could be unreliable in devising a stable response. Leaders encourage individuals to view the changing environment as a source of opportunity. In this sense, turbulent environments allow leadership greater latitude for discretion, since leaders generate a collective feeling that radical change and exploratory innovations are necessary to deal with external changes (Jansen et al., 2009). In contrast, in a stable environment, smoother demand and fewer changes act as enablers to human resource development or leadership decisions (Azadegan et al., 2013). In a stable environment the ability to forecast and attribute which factors lead to what changes can enhance human resources or leadership problem solving. In short, a stable environment enhances the sustainable performance benefits of TM and leadership for the following reasons: (a) ease of synchronizing production processes, (b) reduced ambiguity, and (c) greater emphasis on waste elimination (Azadegan et al., 2013). The above discussion, with regard to environmental dynamism, leads to the following hypotheses:

H4: Environmental dynamism moderates the links between leadership and TM (H4a), TM and sustainable performance (H4b), leadership and sustainable performance (H6c).

Based on the above theory, a model of relations was formed (Figure 1) allowing us to determine the role of environmental dynamism on these relations. Each relationship is double checked using prior empirical findings regarding leadership, TM and sustainable performance.

Take Figure 1 about here

3. Methodology

3.1 Sample data

Our data are taken from a broad range of 2500 private firms in Greece which were randomly selected from the list of companies included in the database of ICAP (the largest business information and consulting firm in Greece). A structured questionnaire was used as the data collection method. The questionnaire was addressed to members of the organizations' top management team (TMT). In line with the upper echelon's literature, respondents at this level were expected to be well informed about leadership practices and TM processes. A total of 514 completed questionnaires were received, by the members of TMT of each organization, giving a response rate equal to 20.6 percent. Examining each variable of the survey questionnaire individually for unique or extreme observations, 34 observations were defined as cases with a

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3 threshold value of a standard score up to 3 (Hair et al., 2006) and thus they were deleted, leaving
4 480 observations for the analysis. Non-response bias and common method bias were also
5 checked and the respective results indicated that they were not a substantive problem in this
6 study. The sample characteristics are presented in table 1.
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11 **Take table 1 about here**
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13 3.2 *Measures*

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16 A 7-item Likert scale was used in this study to record responses for all scales, ranging from (1)
17 totally disagree to (7) totally agree. All used measurement instruments had been previously
18 tested and verified in the relevant literature.
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21 More specifically, the 18 items used to measure TM were taken from the relevant
22 conceptual work of Son et al. (2020) and El Dahshan et al. (2018). For example, TM is measured
23 by looking for talent attracting, ways to attract top talent, success in attracting the best talent,
24 development of talented employees, planning to ensure skills utilization, introduction
25 opportunities for development, development of talented employees, salaries and benefits and
26 work satisfaction in firms.
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29 Authoritative leadership style was measured through 7 items adopted from Pantouvakis
30 and Vlachos (2020) and Tomšič et al. (2015) including team encouragement, strategy and
31 objectives setting and implementation of change. The 6-scale for entrepreneurial leadership was
32 adopted from Phangestu et al. (2020) and Renko et al. (2015) including search for opportunities,
33 planning business in the future and handling problems creatively. Transformational leadership
34 was measured with the 6-item scale developed by Amankwaa et al. (2019) and Bass and Avolio
35 (1995) including power and confidence, vision of the future and goals to be achieved. Lastly,
36 transactional leadership was rated with a 4-scale developed by Alrowwad et al. (2020) and
37 Masadeh et al. (2016), including keeping records of mistakes and offering special rewards for
38 good performance.
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41 Sustainable performance was rated with a 15-scale developed by Iqbal et al. (2020),
42 Pantouvakis and Vlachos (2020) and Iqbal et al. (2018). It was divided into three dimensions,
43 namely financial performance, environmental performance, and social performance. The
44 measures included sales growth, return on investment, protection of claims and rights, risks to
45 the general public, wastes and emissions and waste management.
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48 The scales of environmental dynamism were measured with four items of Jansen et al.
49 (2006) considering the industrial environment, competitor behaviours, technological progress
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3 **and changing customer demands.** We controlled for possible confounding effects by including
4 various relevant control variables. Since larger firms may have more resources for TM or
5 sustainability issues, we included the number of full-time employees within firms to account
6 for firm size. The years of experience, measured by the number of years of the respondent in
7 the firm, was also included. Increased cumulative experience may enhance the ability of
8 managers to lead or manage talent people. We included also in our analysis the sector of the
9 firm and the job position of the respondent for potential alternative explanations (Pantouvakis
10 and Vlachos, 2020).
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17 3.3 *Analyses*

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20 Data analysis was performed by the use of the SPSS 24.0 software. The mean score of
21 each of the latent factors was computed and analysed to estimate the level of implementation
22 perceived by the respondents. Moreover, a correlation matrix between the control variables and
23 the nine dependent and independent variables was produced in order to examine the
24 relationships among factors. Table 2 displays descriptive statistics and correlations between the
25 study variables. As it can be seen, high, low and moderate correlations were revealed among
26 factors. Nevertheless, the correlation coefficients (r) were all above 0.3 and below the cut-off
27 of 0.90 at $p < 0.01$, indicating the interdependence of all factors; hence, collinearity and
28 multicollinearity do not represent data problems in this research (Hair et al., 2006).
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36 **Take table 2 about here**

37 **4. Results**

38 *4.1 Factor and sample clustering*

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41 First, we ran exploratory factor analysis (EFA) to reduce the initial set of instrument variables
42 to a more manageable set of scales and to extract the latent factors that were then used in
43 regression analysis. Factor analysis on TM variables revealed three factors, namely talent
44 attracting ($\alpha=0.833$), talent development ($\alpha=0.900$) and talent retention ($\alpha=0.863$) respectively.
45 Factor analysis on leadership variables revealed four factors: authoritative leadership
46 ($\alpha=0.901$), transformational leadership ($\alpha=0.923$), entrepreneurial leadership ($\alpha=0.885$), and
47 transactional leadership ($\alpha=0.782$). Finally, the extracted latent factors regarding sustainable
48 performance were labelled as follows: economic sustainability ($\alpha=0.913$), social sustainability
49 ($\alpha=0.833$) and environmental sustainability ($\alpha=0.853$). Internal consistency was estimated using
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3 Cronbach's α coefficient. In each factor, the α value exceeded 0.780 (the acceptable limit of
4 Cronbach's α coefficient is 0.6 to 0.7; Hair et al. 2006) making the scales internally consistent.

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6 The interaction effects among leadership – TM – sustainable performance may vary under
7 different levels of environmental dynamism. In order to run a hierarchical regression analysis
8 with the variables included in table 2, and also to examine the role of environmental dynamism,
9 we followed the Kafetzopoulos (2020) recommendation dividing the overall sample into two
10 groups, based on the score of the responses regarding the environmental dynamism latent factor.
11 K-means cluster analysis was used as a suitable method to group respondents, since it allows
12 the user to specify the required number of clusters (Hair et al., 2006). More specifically, cluster
13 1 includes respondents with a low score in their answers regarding environmental dynamism
14 (160 cases, low environmental dynamism group), and the second cluster includes those with a
15 high score in the same answers (320 cases, high environmental dynamism group). The results
16 of the T-test (12.32, $p < 0.001$) support the goodness of the K-means clustering.
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26 4.2 Hierarchical regression analysis

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28 To test the hypotheses, first, we run hierarchical regression between the four leadership styles
29 and TM. Then we run hierarchical regression between TM and sustainable performance and
30 leadership and sustainable performance. Table 3 presents the summary of the four different
31 leadership styles' effects on the three dimensions of TM and table 4 presents the summary of
32 leadership and talent management effects on the three dimensions of sustainable performance.
33 In all regressions, control variables were considered. The control variables were firm size, firm
34 sector, respondent's job position and respondent's experience. It was considered necessary to
35 include these control variables in the regression equations since these variables may affect TM
36 or sustainable performance dimensions directly. The results show that all the correlations from
37 control variables showed very small effects.
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49 4.3 Results regarding hypotheses testing

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52 Regarding hypothesis 1, only two leadership styles proved to have significant influence in all
53 aspects and dimensions of TM. Authoritative leadership influenced all TM dimensions,
54 followed by transformational leadership. More specifically, authoritative leadership was found
55 to have a significant effect in all TM dimensions, in all groups of respondents, while
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3 transformational leadership was found to have a significant effect in all TM dimensions, in the
4 total firms group. As a result, hypothesis 1 is accepted only for the authoritative and the
5 transformational leadership styles.
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8 In support of hypothesis 2, this study points out that only talent development, which
9 conceptualises employees that might not have born talent but significantly acquire new skills
10 and qualities, showed significant correlations with all sustainability factors compared to talent
11 attracting and talent retention which showed no significant relationship. Particularly, talent
12 development had a significant effect on all sustainability dimensions with the highest effect
13 being on economic impact, followed by social and then environmental sustainability. As a
14 result, we accept hypothesis 2, noting that only talent development has a significant impact on
15 sustainable performance as was found in this study.
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22 Regarding hypothesis 3, we found out that transformational leadership produced
23 significant effects in all sustainability measures. Entrepreneurial leadership had the highest
24 effect on economic sustainability and then on environmental sustainability. Transactional
25 leadership showed significant correlations only with social and environmental sustainability,
26 while authoritative sustainability proved to have no significant effect on any sustainability
27 dimension. As a result, we accept hypothesis 3, noting that each leadership style has a different
28 effect on the various dimensions of sustainability performance, while authoritative leadership
29 has no significant effect.
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36 Dividing the research sample of the responding firms into two large sub-samples, the
37 analysis reveals that the impact of leadership and TM on sustainable performance varies across
38 the different levels of environmental dynamism. More specifically, the results of this study
39 show that leadership styles produced significant differences regarding their effect on certain
40 TM measures between LEDG and HEDG. More specifically, authoritative leadership had
41 higher impact on talent attracting and talent retention in the LEDG and on talent development
42 in HEDG. Also, transformational leadership had higher impact on talent development in the
43 LEDG and on talent retention in the HEDG. Thus, based on these results, hypothesis H4a is
44 accepted. In the case of TM, environmental dynamism also moderates the talent development
45 effect on all aspects of sustainability. In particular, the effect of talent development on economic
46 sustainability is higher for the HEDG. However, the data showed that environmental dynamism
47 does not moderate the effect of talent attracting and talent retention on sustainability. Noting
48 that only talent development can affect the dimensions of sustainability and this relationship is
49 depended by environmental dynamism, we can accept the H4b. This study revealed that,
50 environmental dynamism moderation on the leadership-sustainability relationship produced
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3 mixed results across the sustainability dimensions, altering the direction and size of the effect;
4 i.e., entrepreneurial leadership and authoritative leadership have different impact on LEDG and
5 HEDG of sustainable performance dimensions, therefore, the H4c is accepted.
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10 11 **5. Discussion**

12 13 *5.1 Findings*

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15 Due to the lack of a conceptually and empirically validated framework, to shed light into the
16 interactions among leadership, TM and sustainable performance, and taking into consideration
17 the moderating role of environmental dynamism, the findings of this paper help to better
18 understand these interactions and their effects. This study suggests that leadership is a key
19 driving force to ensure organizational sustainable performance. It is crucial for the inclusion of
20 sustainable measures into firms' core business strategies. Leadership provides direction and
21 sets organisational priorities, it establishes strategic goals, it effectively communicates them to
22 employees and develops their talents in order to achieve them, and creates an overall supportive
23 environment for sustainability initiatives. The findings highlight the claim of certain researchers
24 that capabilities, values and attitudes of leaders are highly influential factors in determining
25 whether firms embrace sustainability practices (Perez-Sanchez et al., 2003). Furthermore, it is
26 revealed the significance of authoritative and transformational leadership on TM. These two
27 leadership styles can boost TM performance for companies operating in low and high dynamic
28 environments. These results are consistent with the positive findings in earlier studies on
29 managers' reactions to TM (Bos et al., 2020). Leadership is positively associated with
30 subordinate performance both at the talent individual level and team level (Malik and Singh,
31 2017). Leaders should actively adjust or improve their leadership style and make full use of the
32 advantages of authoritative and transformational leadership characteristics to achieve TM
33 effectiveness (King, 2016). Between these two styles, one dominates the other in different
34 circumstances. Transformational leadership can motive talents under certain conditions when
35 authoritative leadership style does not work. In addition, this study shows that talent
36 development has a statistically significant, positive effect on almost all the performance
37 indicators reviewed. Talents are valuable, unique and difficult to imitate, thus the development
38 of these resources within companies can be the basis for their competitiveness (Barney, 1991).
39 HRM considers people to be organizations' key resources, emphasizing their ability to improve,
40 given the opportunity to train and work in challenging environments (Nijs et al., 2014). The
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3 above findings underline the importance of human factor and suggest that human resource
4 departments have to perceive TM as an integrated process, to devote higher budgets and to
5 develop an attractive talent training program on offer and career development (Pruis, 2011).
6 Talent development is a key action that transforms people from factors of production into forces
7 of contribution to sustainability. Moreover, this study answers key questions by several scholars
8 about moderators and important boundary conditions for the adoption of sustainability. Our
9 examination of environmental dynamism as a moderating factor on leadership – TM –
10 sustainable performance relationship offers new, interesting insights.
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17 5.2 *Theoretical implications*

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19 The present study expands existing theory concerning the importance of leadership styles and
20 TM in order to lead firms in sustainability. Following the upper echelon theory, our results
21 contribute to research in three major ways: first, it offers an answer to previous research
22 questions regarding the interdependencies between leadership styles and sustainability
23 performance. According to upper echelons theory, the characteristics of leaders predict
24 organizational outcomes such as firms' sustainability and overall organizational effectiveness
25 (Hambrick and Mason, 1984). This is among the first works to develop and test, in detail, the
26 direct links between four different leadership styles and all three pillars of sustainability
27 performance in firms. Second, this paper adds to leadership and TM literature by identifying
28 which leadership styles affects TM. From a theoretical perspective, there is a need to integrate
29 other research streams with upper echelons theory (Hambrick and Mason, 1984) to more fully
30 determine the mechanisms that explain how leadership contributes to or detracts from TM. The
31 third theoretical contribution of this research regards the positive effect of talent development
32 on all dimensions of sustainable performance. This effect is significant both in low and high
33 dynamic environments. This finding reveals the significance of focusing on talents' needs and
34 meeting their expectations.
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47 5.3 *Managerial implications*

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49 Based on the research discussion, several practical implications arise in order to help
50 organizations promote sustainability and TM. The results of this study help managers
51 understand how the four different leadership styles contribute towards a firm's TM and
52 sustainable performance. The findings of this study should encourage managers to foster
53 specific leadership styles in employment settings. Specific training and development programs
54 could assist leaders to improve the skills that would enable them to better exhibit sustainable
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3 behaviors. Proper leadership style should be selected in firms to motivate their subordinates by
4 combining the vision and goals of their enterprises and their subordinates' needs in order to
5 facilitate sustainability (Xie et al., 2018). Furthermore, leaders have to create a conducive
6 environment by encouraging employees to share their ideas, information, and risk taking,
7 fostering sustainable development (Iqbal et al., 2020). The paper proves that TM and
8 particularly talent development is a valuable investment, highlighting its contribution towards
9 sustainable performance. The importance of talent as a strategic resource is thus supported.
10 Organizations have to offer training related to employees' job and responsibilities in order to
11 enhance their talent's capabilities. This requires from leadership to encourage investment in
12 human capital for regular professional talents' training in sustainability skills. They have to
13 choose strategies and allocate resources in order to improve sustainability performance and lead
14 their firms into restructuring and growth.
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25 **6. Conclusion**

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27 This study is among the first to construct a framework that includes environmental, social and
28 economic aspects of firm's performance, addressing whether firms should adopt particular
29 leadership styles and the necessary TM practices to simultaneously drive and enhance the three
30 aspects of performance. The significance of sustainable performance has been extensively
31 reported (Gupta et al., 2021), but what is particularly scarce is research of leadership and TM
32 as specific drivers on sustainability in different levels of environmental dynamism (Anlesinya
33 et al., 2019). To address this research gap, this paper suggests which particular leadership styles
34 companies should rely on in order to enhance their sustainability and achieve competitive
35 advantage. Furthermore, the paper identifies whether these relationships are further moderated
36 by a firm's environmental dynamism using hierarchical regression analysis. The results help to
37 extend the frontiers of the literature regarding leadership, TM and sustainability.
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47 The study presented in this paper suffers from certain limitations which should be
48 considered when interpreting its results. First, data was collected at only one point in time,
49 while sustainability is a continuous process. We suggest future studies to collect data at several
50 points in time in order to capture the evolving nature of sustainability. Another limitation is that
51 only four leadership styles were addressed. It will be important to expand the model by taking
52 into consideration different leadership styles, for example, servant, leader-member exchange,
53 ambidextrous or empowering leadership. Future studies could also investigate the moderating
54 and/or mediating role of other possible variables. This could, for example, help to explain the
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3 role of innovation process or strategic flexibility on the relationships between leadership, TM
4 and sustainability.
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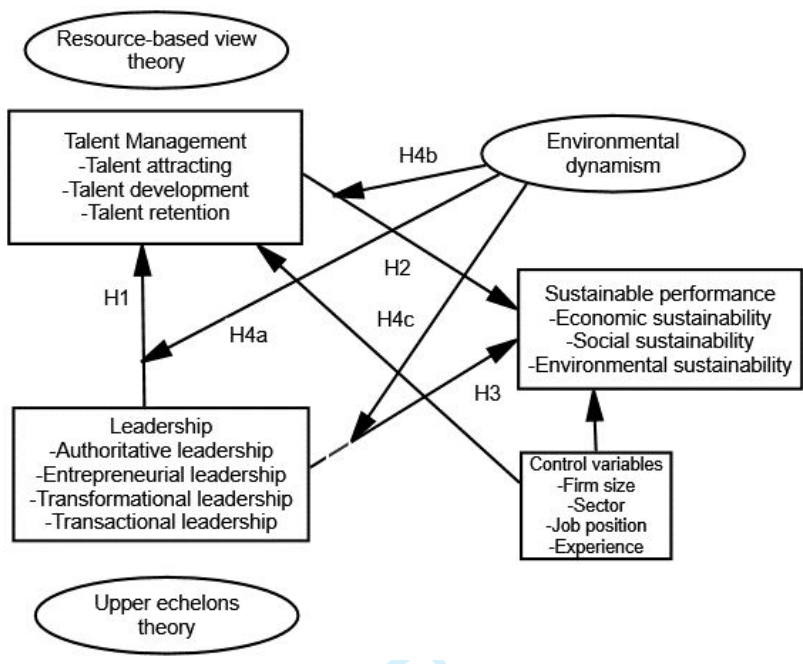


Figure 1. The research model

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Table 1. Sample characteristics

Demographic characteristics of sample SMEs	Number	Percent
Firm size (number of employees)		
11- 49	336	70
50 -250	100	20.8
251 - 500	30	6.2
500 >	14	3
Sector		
Manufacturing	126	26.2
Services	206	42.9
Trade	148	30.9
Demographic characteristics of respondents		
Male	328	68.3
Female	152	31.7
Education		
High school	114	23.7
University	302	63.0
Msc/PhD	64	13.3
Job Position		
Senior executive	108	22.5
Manager	196	40.8
Owner	176	36.7
Experience (years)		
5<	128	26.6
5-10	122	25.4
5>	230	48

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Table 2. Descriptive statistics

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.Firm size	-													
2.Sector	0.050	-				-								
3.Job position	-0.001	0.038	-											
4. Experience	-0.044	-0.016	-0.418	-										
5. Talent attracting	-0.004	-0.038	-0.083	0.053	-									
6.Talent development	-0.050	0.022	-0.099	0.073	0.547	-								
7.Talent retention	-0.010	0.057	-0.165	0.098	0.575	0.595	-							
8.Authoritative leadership	-0.071	0.013	-0.178	0.085	0.571	0.507	0.665	-						
9.Entrepreneurial leadership	0.046	-0.006	-0.181	0.013	0.513	0.620	0.534	0.540	-					
10.Transformational leadership	0.047	0.020	-0.106	0.016	0.500	0.658	0.546	0.500	0.542	-				
11.Transaction leadership	0.047	-0.025	-0.270	0.105	0.313	0.309	0.310	0.375	0.380	0.305	-			
12.Economic sustainability	0.018	0.008	-0.177	0.010	0.429	0.561	0.480	0.565	0.637	0.563	0.328	-		
13 Social sustainability	-0.040	-0.008	-0.178	0.119	0.400	0.517	0.472	0.526	0.491	0.500	0.346	0.440	-	
14.Environmental sustainability	0.097	-0.031	-0.157	0.079	0.316	0.416	0.397	0.429	0.460	0.445	0.323	0.438	0.574	-
Mean	3.31	2.11	1.77	2.13	5.40	5.55	5.73	5.81	5.60	5.91	4.51	5.63	5.65	5.53
S.D	1.22	0.77	0.75	0.85	1.30	1.26	1.26	1.15	1.26	1.14	1.71	1.13	1.32	1.37

Remarks: S.D. = standard deviation; Correlation is significant at the 0.01 level (two-tailed)

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Table 3. Summary of leadership effects on TM

Control variables	Talent attracting			Talent development			Talent retention		
	LEDG	HEDG	TS	LEDG	HEDG	TS	LEDG	HEDG	TS
<i>Control variables</i>									
Firm Size	-0.074	-0.018	0.003	0.068	-0.035	-0.016	0.039	0.006	0.015
Sector	-0.053	-0.221	-0.230	0.426	0.083	0.112	0.257	0.192	0.231
Job position	-0.339	0.004	0.305	-0.103	0.371	0.337	-0.533	0.292*	-0.075
Experience	0.497	0.116	0.096	0.570	-0.667**	0.356	0.277	0.156	0.288*
<i>Leadership Factors</i>									
Authoritative leadership	0.285***	0.185***	0.237***	0.296***	0.364***	0.369***	0.419***	0.330***	0.354***
Entrepreneurial leadership	0.002	0.120*	-0.079	0.078	0.084	0.081	0.050	0.018	0.040
Transformational leadership	0.085	0.108*	0.113**	0.381***	0.271***	0.309***	-0.008	0.220***	0.146***
Transactional leadership	0.006	0.100**	0.078*	-0.031	0.005	0.010	-0.061	-0.027	0.033
<i>F Value</i>	20.494***	14.985***	65.557***	53.567***	62.602***	145.439***	58.553***	94.662***	181.551***
<i>Adjusted R²</i>	0.394	0.119	0.352	0.596	0.447	0.551	0.630	0.548	0.613
<i>Δ R²</i>	0.313***	0.124***	0.355***	0.545***	0.434***	0.545***	0.546***	0.537***	0.586***

Note: Significance at: *p<0.05, **p<0.01, ***p<0.001

LEDG = Low environmental dynamism group, HEDG = High environmental dynamism group, TS = Total sample

Table 4. Summary of leadership and talent effects on sustainable performance

Control variables	Economic sustainability			Social sustainability			Environmental sustainability		
	LEDG	HEDG	TS	LEDG	HEDG	TS	LEDG	HEDG	TS
<i>Control variables</i>									
Firm Size	-0.028	0.025	0.006	-0.085	0.001	-0.017	0.015	0.055*	0.045
Sector	-0.342	0.222	0.091	-0.260	0.022	-0.058	-0.454	-0.153	-0.265
Job position	-1.846**	-0.092	-0.769*	-0.656	0.085	-0.264	-2.056***	0.809*	-0.273
Experience	-0.439	-0.460	-0.378	0.759	0.032	0.346	0.062	0.243	0.229
<i>TM Factors</i>									
Talent attracting	0.020	0.005	0.034	0.074	0.071	0.019	-0.124	0.008	-0.024
Talent development	0.209*	0.322***	0.202***	0.294**	0.130*	0.199**	0.133*	0.141*	0.138*
Talent retention	-0.139	-0.131	-0.121	0.151	-0.028	0.050	0.207	-0.117	0.078
<i>Leadership Factors</i>									
Authoritative leadership	0.005	0.147*	0.082	0.053	0.128*	0.093	-0.001	0.121	0.034
Entrepreneurial leadership	0.418***	0.370***	0.407***	-0.080	0.133*	0.063	-0.105	0.148*	0.161**
Transformational leadership	0.215	0.053	0.121*	0.236**	0.087	0.163**	0.135	0.171*	0.162**
Transactional leadership	0.088	-0.004	0.028	0.263***	0.057	0.134***	0.118	0.098*	0.123**
<i>F Value</i>	9.924***	12.165***	24.072***	5.775***	5.898***	11.84***	2.154	7.760***	16.889***
<i>Adjusted R²</i>	0.485	0.341	0.452	0.485	0.210	0.353	0.343	0.189	0.255
<i>Δ R²</i>	0.129***	0.100***	0.110***	0.075***	0.058***	0.060***	0.036	0.079***	0.064***

Note: Significance at: *p<0.05, **p<0.01, ***p<0.001
LEDG = Low environmental dynamism group, HEDG = High environmental dynamism group, TS = Total sample