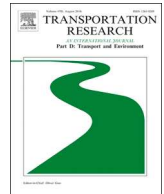


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Monograph

Talent and leadership effects on sustainable performance in the maritime industry

Angelos Pantouvakis^a, Ilias Vlachos^{b,*}

^a University of Piraeus, Department of Maritime Studies, 21 Grigoriou Lambraki str, 18532 Piraeus, Greece

^b La Rochelle Business School– Excelia Group, France



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ABSTRACT

This study examines how talent and leadership impact on sustainable performance conditioned by organisational culture in the maritime industry.

This empirical investigation is grounded on Service Dominant Logic (SDL) supported by a large-scale survey of 308 shipping companies in 2018.

Analysis uncovered four leadership styles (authoritarian, stakeholder, formal, growth), four talent (and its management) types (innate/developable, exclusive, inclusive, visible), two types of organisational culture (formal, learning), and five sustainability dimensions (environmental resources, environmental impact, environmental compliance, social sustainability, economic sustainability).

Talent impacts sustainability performance more than leadership. Organisational culture moderates the talent-sustainability relationship but not the leadership-sustainability relationship.

1. Introduction

Companies today face two paradigm shifts: First, sustainability constitutes a fundamental paradigm shift in the way companies, industries and nations, operate and function (Gladwin et al., 1995): a shift from efficiency and increased productivity towards resource preservation, externalities control and sustainable growth. The ‘sustainability revolution’ (Edwards, 2005) is fundamentally changing people’s perceptions concerning how business operations influence the economy and society. The international maritime industry plays a key role in embedding sustainability in business operations and economies across the globe (Yuen et al., 2019). For example, Wang et al. (2020) argue that the maritime industry is in a transitional stage, trying to meet the sustainability development goals set by United Nations (UN, 2015), without jeopardizing efficiency, which challenges leaders in the maritime industry who encounter the complex realities of transforming their companies (Metclaf and Benn, 2013). Second, talent and its management challenge traditional human resources practices and employment thinking. There is little disagreement concerning the existence of ‘talent wars’ and the rarity of talent as a resource (Gallardo-Gallardo et al., 2015; Lewis and Heckman, 2006). For example, Geoffrey Colvin, Fortune’s editor, claimed that “after 500 years or so the scarcest, most valuable resource in business is no longer financial capital. It’s talent” (Colvin, 2006). These two forces influence both sides of the maritime business model: on the demand side, sustainability is part of the value equation; on the supply chain, talent and leadership emerge as scarce, invaluable resources. Despite that people and human resources play a key role in both talent wars and social sustainability, prior literature has overlooked the links between them.

This study aims to understand how talent (and its management), leadership and their interactions impact on sustainable performance and the role that organisational culture may have on this relationship. The study uses the Service-Dominant Logic (SDL) to

* Corresponding author at: La Rochelle Business School, Excelia-Group, 102 rue de Coureilles – Les Minimes, 17024 La Rochelle Cedex 1, France.
E-mail addresses: apan@unipi.gr (A. Pantouvakis), vlachosil@excelia-group.com, ivlachos@gmail.com (I. Vlachos).

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extend the Resource-based-View (RBV) and based on a large empirical survey it uncovers how four leadership styles and four talent types (innate/developable, exclusive, inclusive, visible) impact upon five sustainability dimensions moderated by organisational culture.

Firstly, to answer the question: “*How should companies response to these sustainability and talent mega-trends?*”, this study has identified two gaps in the literature: first, although sustainability and talent are emerging topics, there is a lack of empirical studies examining the links between them. Despite the equal importance of the human dimension of sustainability, less attention has been paid to it, compared to environmental and economic dimensions (Spreitzer et al., 2012). This appears as a paradox since, despite the ‘war for talent’ and at the same time companies seeking ways to shift to sustainable operations, there are scarce studies concerning the role of talent and leadership in sustainability (Farndale and Atli, 2019; Fjærli et al., 2015). For example, evidence suggests that prospective employee attractiveness (Aiman-Smith et al., 2001) and employee retention (Bode et al., 2015) are higher in socially responsible companies than those lacking a sustainability orientation. Further, although the role of organisational culture as a moderator of human resources and firm performance has been explored in the past (Den Hartog and Verburg, 2004), and some culture types, such as ethics culture, are found to prevail with sustainability values (Closs et al., 2011), its role on the links between talent, leadership and sustainability is largely unexplored.

Second, most studies in talent and sustainability topic are anecdotal, lacking theoretical support (Altuntas Vural, 2017; Rezaei and Beyerlein, 2018; Rizet et al., 2012). This study adopts a resource-based view (RBV) and service dominant logic (SDL) (Kraaijenbrink et al., 2010; Madhavaram and Hunt, 2008; Vargo and Lusch, 2008) that seeks talent as a high-value, operant resource. The RBV supports the argument that resources explain value creation better than environmental or industry factors (Hunt and Morgan, 1995). Therefore, maritime companies develop their business models by investing in resources and developing unique capabilities that allow them to offer superior value (Yuen and Thai, 2016), therefore to achieve a superior sustainable performance they would also follow the same business model and invest in unique resources capabilities. SDL extends the RBV by showing that there are two types of resources and companies need to configure them in a way that produces valuable outcomes in the context in which they operate, i.e., the maritime sector (Chandler and Vargo, 2011). This theoretical support is important since talent and sustainability paradigm shifts, occurring at the same time, disrupt the traditional business model: In the value side, value now includes products or services produced and delivered in a sustainable way. In the resource side, talent is increasingly recognised as an invaluable resource, which disrupts the way companies structure their resources and develop their core capabilities.

The context of this study is the maritime (shipping) sector which plays an important role in the global economy (Fitzgerald et al., 2011; Reve, 2009). Sustainability is reported as a top five Challenge in the Global Maritime Industry (Cariou, 2011) whereas, recognising its importance, the European Union has established a special forum (The European Sustainable Shipping Forum-ESSF), dedicated to sustainable shipping (Yannoulis, 2015). Nevertheless, focus in this industry is mostly – if not only – on emissions reductions, thereby neglecting the people element (Lindstad et al., 2012; Rizet et al., 2012). Current maritime operating models are far from being efficient and sustainable (Quah and Goh, 2019; Yuen et al., 2019) while talent studies, especially those empirically supported, are scarce (Pantouvakis and Karakasnakis, 2019).

The next section reviews the literature on sustainability and discusses the hypothesis development. Then, methods are discussed, followed by the findings section. The final section discusses the findings and their limitations and recommends future research.

2. Literature review

2.1. Theoretical framework

2.1.1. Resource based View and Service-Dominant Logic

Resources has been the epicentre in resource theories such as resource-dependence theory, conservation of resources theory, with RBV being the most widely applied so far (Kozlenkova et al., 2014; Kraaijenbrink et al., 2010). The RBV posits that firm resources directly affect firm performance (Hunt and Morgan, 1995); therefore, firms should own or control resources, information, and knowledge and bundle them together to achieve sustainable competitive advantage (SCA) (Barney, 2014). Resources refer to “*tangible and intangible assets [that] firms use to conceive of and implement its strategies*” Barney and Arikan (Barney and Arikan, 2001). The RBV promotes value maximisation via resource commitment (Hunt and Davis, 2012), emphasising the role of intangibles resources, such as learning in the maritime sector (Yuen et al., 2019).

The RBV considers that not all resources are equally valuable, yet there is confusion concerning the resources companies consider worthy of investment (Kraaijenbrink et al., 2010). For example, the VRIO framework includes four conditions (valuable, rare, inimitable, organised) for assessing whether a resource has the potential to generate SCA, yet criticism argues that simple possession of a resource, even if it meets VRIO conditions, is not enough to produce value (Kozlenkova et al., 2014). One way to address this criticism, is proposed by SDL that classifies resources into operand and operant (Vargo and Lusch, 2004a). Operant resources are “*the fundamental source of competitive advantage*” (Vargo and Lusch, 2008) (p. 6), while operand resources need operant resources to act upon them to become valuable. Therefore, following RBV and SDL, talent and leadership should be considered as operant resources, since they act upon operand resources such as assets, systems, and technologies and they also meet VRIO conditions, i.e., they are valuable, rare, inimitable, organised.

2.1.2. Talent and its management according to service-dominant logic

The word talent originated from the Greek word “*talanton*” and used back then as a measure of extreme wealth and ended up around the Middle Ages to mean a person’ mental or particular abilities. Nowadays most of the publications on talent and its

management are conceptual incorporating many different academic angles and principles and thus a unanimous approach as to what “talent” is, does not exist. However a common ground for defining talent lies on the dichotomy between “*talent as people*” and “*talent as characteristics of people*” (Thunissen et al., 2013, Gallardo-Gallardo et al., 2013). In other words does talent refers to competence or performance or other masteries that can be acquired through practice or talent is a natural ability of human beings? If talent is conceptualized as a *natural ability* –a rather prevalent and widely supported approach in the relevant literature- then it is inherent, indicates innate characteristics that cannot be imitated and thus easily managed and is directly linked to measurable and consistently superior performance. As the latter –*consistent superior performance*- is rather very difficult to be evidenced, inclusive “talent” is conceptualized as personal, exceptional characteristics and developable abilities of *all* employees within organizations that enable them to reach excellent performance (Nijs et al., 2014).

Depending on the talent’s conceptualization either as “natural ability” or “innate” or “inherent” or “exclusive” as it is genetically determined and restricted to a small elite within organizations as opposed to “developable” or “cultivated” or “inclusive” of everyone within the organization different management approaches may emerge. For example when defining talent as everyone within an organization depending on his or her particular abilities and strengths then talent management includes from recruitment and selection to training and retention and is sometimes confused to normal HR management (E. Galardo-Galardo et al., 2013, Meyers and van Woerkom, 2014). On the opposite, when talent is exclusive or for the privileged few very high performers advancing quicker than their peers then management has to treat them differently than other (O’Connor and Crowley-Henry, 2017). It is therefore imperative for organizations to take a position as to whether they consider talent as exclusive and thus they opt to “buy talents” versus talent as characteristics of all people and therefore “develop talents” (McDonnell et al., 2017; Zheng, 2009).

Talent management refers to the strategic importance of human resources management, particularly as a euphemism for ‘people’ as resources that are simultaneously unique, valuable, rare, and inimitable (Lewis and Heckman, 2006). Talent Management (TM) is often referring to the systematic process to identify, attract, develop, engage/retain and deploy the rare human resource or talents (Thunissen, 2016). One type of TM focuses only on those employees who are high performers or have high potential (McDonnell et al., 2017), while Collings and Mellahi (Collings and Mellahi, 2009) identify four types of talent management: (a) People: focus on talented people; (b) practices: focus on high-performance human resource practices; (c) position: putting the right person to the right position; and (d) strategic pools: focus on developing internal talent pools.

Although, talent management is one of the fastest growing fields in management (Collings et al., 2015), considerable scepticism has emerged from the lack of conceptual clarity and unclear theoretical boundaries, which mixed empirical results support to some extent (Sparrow and Makram, 2015). As evidenced from the Collings and Mellahi (Collings and Mellahi, 2009) typology, there is no consensus about the meaning of the “talent management” concept, which may refer to people, practices, or roles, depending on the context (Tarique and Schuler, 2010) in which it appears.

Few studies have attempted to provide theoretical support to talent management and, from those, most studies hypothesise that attracting talented employees and/or maximising the talents of employees should be a source of sustained competitive advantage (Scullion et al., 2010). In a bibliometric review, Gallardo-Gallardo et al. (Gallardo-Gallardo et al., 2015) found that the RBV was the dominant theoretical framework, adopted by 30% of the studies, considering talent as ‘high-value human capital’. Rezaei and Beyerlein (Rezaei and Beyerlein, 2018) conducted a systematic literature review of talent development and found that, of 34 empirical studies, only seven (20%) were surveys. In a survey of Greek shipping companies, Pantouvakis and Karakasnaki (Pantouvakis and Karakasnaki, 2019) have empirically explored the links between talent philosophies and talent management. In similar reviews, Hedayati Mehdiabadi and Li (Hedayati Mehdiabadi and Li, 2016) note a lack of attention to organisational performance in talent studies and Gallardo-Gallardo and Thunissen (Gallardo-Gallardo and Thunissen, 2016) found that 63% of 96 empirical talent management studies are based on descriptive research.

The RBV predicts that talent, as a high-value human capital, should produce superior firm performance, yet empirical results are mixed and inconclusive. Consistent with the RBV, SDL also views the knowledge and skills of employees to be the source of competitive advantage (Vargo and Lusch, 2004a, 2008), thus talent should be considered as an operant resource that acts upon operand resources such as assets, machineries, and information. Madhavaram and Hunt (Madhavaram and Hunt, 2008) argue that not all operant resources have an equal effect on value generation; however, there is a hierarchy of resources: basic, composite and interconnected operant resources. Competences such as market orientation are classified as composite while knowledge creation and entrepreneurial proclivity are considered as interconnected operant resources. While Madhavaram and Hunt (Madhavaram and Hunt, 2008) do not directly refer to leadership as a high-level, interconnected, operant resource, Lusch et al. (Lusch et al., 2007) posit that the knowledge and skills of employees can be enhanced by servant leadership. Therefore, the combined effect of talent management and leadership may create higher-level operant resources. Following this rational, Meier et al. (Meier et al., 2010), examining Industrial Product-Service Systems, point out that SDL implies a shift of leadership focus from technology to value co-creation and value-in-use to enable innovative business models. Shaw et al. (Shaw et al., 2011) argue that organising a firm around the ideas of SDL also requires a new leadership culture putting knowledge and skills and, subsequently talent, at the core of value creation. A growing number of empirical studies shows that operant resources have a positive impact on firm performance, i.e., reviews by Lusch (Lusch, 2011), Altuntas Vural (Altuntas Vural, 2017), and Pohlmann and Kaartemo (Pohlmann and Kaartemo, 2017), yet the role of talent and leadership, and their different types, as operant resources remain under-researched.

2.1.3. Organisational culture moderating the resources-value links

Prior literature underlines the role of organisational culture (or culture in short) as moderating the effects of talent management on firm performance (Groysberg et al., 2008; Kontogiorghes, 2016; Latukha, 2015). Following Vroom’s expectancy theory (Vroom, 1964), and the person–organisation (P–O) fit perspective (Judge and Cable, 1997), there is consensus that a compatible culture will

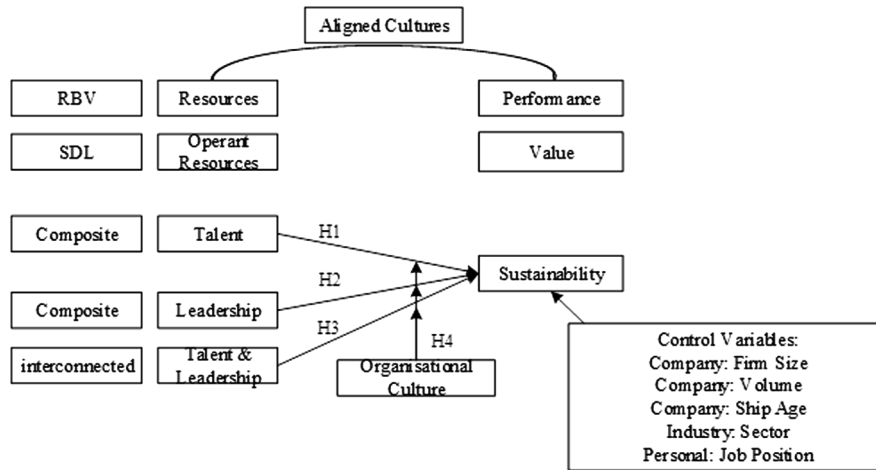


Fig. 1. Conceptual Framework.

attract high-quality performers, while empirical studies provide support on the role of culture as a moderator in human resources-firm performance studies (Kontoghiorghes, 2016). However, there is scarce evidence concerning the links between organisational culture, talent management, leadership and firm performance, including sustainable performance in particular. One type of organisational culture that appears compatible with the values of people (talent, leaders) and organisational outcomes (sustainability) is ethical culture. Ethics has a strong impact on employee behaviour and an ethical culture assures fairness and equality in the workplace (Pereira et al., 2017). Ethical values may also refer to sustainability values: protecting the environment and supporting regional economies (Closs et al., 2011).

SDL focuses on services and supports market-oriented cultures (Vargo and Lusch, 2004b) as opposed to goods-dominant logic which focus on product- or stakeholder-oriented cultures (Smith et al., 2014). Therefore, according to SDL, the organisational culture is an essential moderation of the resources-value relationship, i.e., the supply side (talent, leaders) and demand side (performance, sustainability) share the same values (see conceptual framework in Fig. 1, which also depicts the research variables and hypotheses).

2.2. Sustainability in maritime logistics: The role of context

Sustainability in shipping is considered by the International Maritime Organization (IMO), to be a “holistic” management concept; however, there remains a lack of acceptable sustainability frameworks in maritime sector (Sampson and Ellis, 2015). Sustainability is defined as the principle of future generations will have access to resources without current operations imposing economic, social and environmental constraints (Asgari et al., 2015; Basu et al., 2015). Growing pressure from policy makers, media and customers forces companies to transform their business models in order to create and deliver value in a sustainable way by adopting economic, environmental and socially sustainable practices (Mansouri et al., 2015).

Maritime companies like many international business are in transition to becoming more sustainable without jeopardizing efficiency and profitability (UN, 2015). The maritime sector imposes several idiosyncratic challenges such as huge capital investments in physical assets, uncertainty and volatility due to global demand and supply, and dynamism due to complementarity and substitutability between road, air and sea freight transportation modes (Álvarez-SanJaime et al., 2013; Wang et al., 2020).

In the context of maritime, sustainability pressures increase the complexity of creating and delivering sustainable value, which requires specialised skills to manage this increased complexity (Liu and Wang, 2019) and dynamism (Álvarez-SanJaime et al., 2013). For example, more scarce resources companies need to adopt green shipping practices (GSPs) to achieve the above environmental sustainability initiatives in maritime transport (Lai et al., 2013; Lam, 2015). Shortage of talent in the international business context has emerged as a key human resource challenge facing many multi-national organisations (Al Ariss et al., 2014; Reve, 2009). Pantouvakis and Karakasnaki (Pantouvakis and Karakasnaki, 2019) note that, despite the importance of the talent management in maritime organisations, there are scarce empirical studies on this topic.

2.3. Hypothesis development

2.3.1. Leadership impact on sustainability

Leadership is recognised as a key factor for firm performance, organisational transformation, and embedding cultural values and norms (Haffar et al., 2019). Mackey (Mackey, 2008) found that the CEO may have higher impact on firm performance than firm or industry effects. However, leadership has received various conceptualisations (Kirkpatrick and Locke, 1991) while leadership style, which indicates how leaders pursue their goals (Ogbonna and Harris, 2000), may also explain the variance of organisational outcomes. For example, transformational leadership refers to an ongoing process, whereby “leaders and followers raise one another to higher levels of morality and motivation beyond self-interest to serve collective interests” (Burns, 1978). On the other hand, servant

leadership prioritises the development and well-being of followers as a means to achieve long-term organisational goals (Hoch et al., 2018). Hoch et al. (Hoch et al., 2018), conducting a meta-analysis to compare positive leadership that emphasises ethical and moral behaviour with transformational leadership, found servant leadership explains performance outcomes (e.g., job performance, satisfaction and trust) better than authentic or ethical leadership. This finding is consistent with SDL which posits that servant leadership leverages the knowledge and skills of employees to create value (Lusch et al., 2007).

Leadership is one of the critical success factors to achieve sustainability (Tomšič et al., 2015) and is defined as ‘the ability to influence individuals and mobilise organisations to realise a vision of long-term ecological and social sustainability’ (Wolffgramm et al., 2015). Metclaf and Benn (Metclaf and Benn, 2013) argue that social sustainability requires leaders to possess more abilities than normally are expected while Ferdig (Ferdig, 2007) posits that sustainability leaders are rooted in personal ethics and do not necessarily hold leadership positions. Galpin and Lee Whittington (Galpin and Lee Whittington, 2012) argue that employee engagement is a prerequisite for sustainable performance in any corporation and, therefore, a full-range of sustainability leadership should engage individuals, build routines and cultivate culture for the sustainable organisation.

Strand (Strand, 2014) argues that companies appoint top management with dedicated sustainability responsibilities, such as chief sustainability officers, to realise external opportunities that require strategic leadership and cannot be realised without it. Przychodzen et al. (2016) suggest that appropriate leadership is a necessary condition to transform a business idea into successful business model and, in turn produce, sustainable products/services. However, most of the above studies are conceptual or anecdotal without providing empirical evidence to support their arguments. Awan et al. (2018), surveying manufacturing industries in Pakistan, found transactional leadership influences the improvement of social sustainability. Wang et al. (2017), examining 264 Chinese firms, found that ethical leadership has a positive influence on both a firm’s financial and social performance.

Touratier-Muller et al. (2019) examined the impact of recent regulation in France to reduce carbon dioxide (CO₂) emissions generated by freight transportation and found that shippers are adopting sustainable strategies which improve their environmentally proactive behaviour.

Leadership in the maritime sector has been overtly neglected; extant studies focus on gender issues (Ortega et al., 2015), skills gaps (Fjørli et al., 2015) or learning by maritime cadets (Ng and Yip, 2009).

Therefore, we hypothesise:

H1: Leadership impacts sustainable performance in maritime transport

2.3.2. Talent impact on sustainability

According to the RBV, talent is considered as high-value human capital, which should have a direct impact on firm outcomes including sustainable performance (Hohenstein et al., 2014; Yu et al., 2014). This position is also consistent with SDL which considers talent as operant resources (Smith et al., 2014; Vargo and Lusch, 2008). However, these theoretical hypotheses have not been tested empirically, particularly in the transportation context, despite the growing importance of sustainability (Basu et al., 2015; Cheng et al., 2015) that poses the need for skilled, talented people to have a central role in transforming business models (Gardas et al., 2019). Brokaw (2009) found that the biggest challenge within organisations when addressing sustainability issues consists of the outdated mental models and perspectives on sustainability, making leadership and talent imperative to make such a change happen. Benitez-Amado et al. (2015) surveyed 63 large Spanish firms and found that talent management, leveraged by IT infrastructure, enables execution of a more environmentally sustainable operations strategy. This finding supports the SLD tenet that operant resources (talent) leverage operand resources (IT systems) to create value. However, not all talent types might produce the same results; for example, Boudreau and Ramstad (2005) discuss how the DuPont initiative to create a pool of talent in order to fight starvation in Africa may create spillover effects since competitors may access the same talent and technology.

The talent literature remains fragmented and empirical evidence has produced mixed results, with little empirical support of talent type effects on firm performance. Bethke-Langenegger et al. (2011) studied 138 Swiss companies and found succession planning and developing talent have a positive effect on firm profitability. Latukha (2015) found a positive link between talent management and the performance of Russian companies, yet the author highlights the cultural differences of foreign companies. However, in a team study, Groysberg et al. (2008) demonstrated that hiring talent could undermine the morale and productivity of veteran employees and, conditioned by organisational culture, star employees might not perform like stars when they migrate to another company. Apart from mixed results, empirical studies have omitted to study sustainability performance as an outcome of talent management; for example, Rezaei and Beyerlein (2018) reviewed the literature on talent development and found that the dependant, performance variables were mostly financial and market performance variables such as return on investment (ROI), knowledge sharing, brand awareness, and satisfaction.

Tang et al. (2011) found that talent needs the support of leadership in terms of empowerment, inspiration, and strategic thinking; thereby enhancing the recruitment and retention of talent with sustainability values and skills. This finding is consistent with SLD that posits that firms can combine operant resources (i.e., talent and leadership) to create interconnected operant resources (Madhavaram and Hunt, 2008).

Therefore, we hypothesise:

H2: Talent management impacts sustainable performance in the maritime sector and

H3: The interactions between leadership and talent management impact sustainable performance in the maritime sector

2.3.3. Moderating role of organisational culture

Prior literature has explored various links between organisational culture, talent, leadership and performance (Abdul Rashid

et al., 2003; Den Hartog and Verburg, 2004).

Firstly, attracting and retaining the most talented people requires a supporting culture such as open communications, effective knowledge management and respect and integrity (Kontoghiorghes, 2016). Pantouvakis and Karakasnaki (Pantouvakis and Karakasnaki, 2017) undertook a survey and found that quality management is a positive culture towards talented people and where leadership supports them to occupy key positions which, in turn, improves firm performance. Ethical culture also moderates the links between talents and sustainable performance: Talent, supported by leadership, can cultivate a working culture that includes operational routines aiming to implement environmentally friendly operations (Benitez-Amado et al., 2015). In turn, a supporting culture will facilitate environmental training, green routines such as sustainable procurement, green freight and recycling, which further impacts sustainable performance. Other routines may promote fairness, equality and values that are consistent with social sustainability.

Finding and keeping talent are problems identified recurrently by CEOs in transportation surveys (Lieb and Lieb, 2015) and while there is consensus that every firm has to embed talent in its unique culture (Sanderson, 2015), there is a lack of empirical studies in this area; maritime transport therefore remains an untapped area for scholars to investigate (Chen et al., 2018). As a context, maritime transportation is becoming increasingly complex; therefore, according to SDL, organisational cultures that attract and employ high-level operant resources are more likely to succeed in creating sustainable competitive advantage (Vargo and Lusch, 2008).

Therefore, we hypothesise:

H4: Organisational culture moderates the links between (H4a) leadership, (H4b) talent, (H4c) leadership-talent interactions and sustainable performance

3. Methods

3.1. Research design

Our data were from a large list of some 2000 shipping companies of all types located in Greece, which is one of the leading maritime nations controlling 15.42% of the total fleet in the world. From the random sample of 1000 shipping companies, senior managers were contacted during early 2018 to fill in the questionnaire electronically. To increase response rate, 400 senior managers were randomly selected and approached by a research assistant to fill in the survey over the phone. An attempt was made, especially in large and very large companies, to receive replies from more than one member of the senior staff and when so their responses were aggregated so each response in the analysis to reflect a single company. Finally, 308 usable corporate responses were received which corresponds to a 30.8% response rate. Compared to previous studies (Pantouvakis and Karakasnaki, 2017), the response rate sufficiently represents the population of maritime companies.

52.4% of the companies in the sample are medium size companies whereas 18.6%, 19.9% and 9.1% are regarded as small, large and as significantly large respectively. The distribution of firm size was: 1–80 employees: 36%, 80–200 employees: 31%, 200–500 employees: 14.8% and more than 500 employees: 18.2%. All employees –seafarers and ashore personnel– belong to many different nationalities and cultures. Finally the majority of the companies under examination –the 30%– undertake ship management operations whereas the rest is a balanced and representative mix of the industry's demographics (tankers and bulk mixed operations: 20%, tanker: 19%, bulk: 13%, shipping brokers and agents: 12%, containers: 6%),

3.2. Scales and operationalisation of variables

All measurement instruments used are tested and verified in the relevant literature. For example, the Talent and Talent Management instrument was used from relevant conceptual work of Dries et al. (2014) as empirically supported from follow-up studies (Pantouvakis and Karakasnaki, 2017, 2019). Sustainability is measured by an instrument developed from Chow and Chen (2012) and adopted to the shipping environment by the authors (see Table 1 for sustainability scales and questions). The Leadership factor has been measured with the instrument introduced by Tomšič et al. (2015) (see Table 2 for leadership and Table 3 for talent scales respectively). All items were measured subjectively by the respondents on a seven-point Likert type scale and items with low inter-item correlations were removed from the analysis.

Firm size was measured with a four cluster categorisation: small, medium, large and very large in line with previous studies in the same context (Kontoghiorghes, 2016; Pantouvakis and Karakasnaki, 2017; Vlachos, 2008; Yannoulis, 2015) which support that management perceptions provide more accurate representations of a firm's size than simple objective measures like the number of permanent or total employees (Leal-Rodríguez et al., 2015) or organisation's turnover or work force size (Lee and Xia, 2006).

4. Findings

4.1. Factor and Cluster analysis

We ran confirmatory factor analysis to reduce the number of questions used in the questionnaire into factors that can be used in regression analysis. Table 1, Table 2, and Table 3 report the rotated factor loadings of sustainability, leadership, and talent management respectively.

Factor analysis on sustainability variables generated for the shipping industry consist of six factors (Table 1) but only the first five

Table 1
Rotated factor loadings: Sustainability.

	Factor Loadings				
	Environmental resources	Environmental impact	Environmental Compliance	Social sustainability	Economic sustainability
Our firm makes every effort to reduce the use of traditional fuels by substituting some less polluting energy sources.	0.719				
Our firm makes every effort to use renewable energy resources.	0.650	0.385			
Our firm undertakes voluntary actions (e.g., actions that are not required by regulations) for environmental restorations.	0.625		0.318		
Our firm makes every effort to reduce environmental impact by establishing partnerships.	0.620				
Our firm creates spin-off technologies that could be profitably applied to other areas of the business.	0.587				
Our firm makes every effort to reduce purchases of non-renewable materials, chemicals, and components.	0.552	0.433			
Our firm makes every effort to reduce wastes and emissions from operations.	0.762	0.762			
Our firm makes every effort to reduce the environmental impacts of its products/service.	0.737	0.737			
Our firm makes every effort to reduce energy consumption.	0.701	0.701			
Our firm makes every effort to reduce the impact on animal species and natural habitats.	0.637	0.637			
Our firm makes every effort to comply with the EU's and IMO's directives effectively.			0.770		
Our firm makes every effort to reduce the risk of environmental accidents and spills.	0.364	0.364	0.684		
Our firm makes every effort to implement ballast water management systems effectively.			0.597		
Our firm undertakes actions for environmental audit, public disclosure, employee training and immunity.	0.480		0.492		
Our firm protects claims and rights of seamen, local people or local community.				0.732	
Our firm communicates the firm's environmental impacts and risks to the general public.				0.569	
Our firm recognizes and acts on the need to fund local community initiatives.				0.540	
Our firm shows concern for the visual aspects of the firm's facilities and operations.	0.300	0.300		0.525	0.372
Our firm improves employee or community health and safety.	0.365	0.365		0.504	
Our firm makes every effort to reduce costs of inputs for same level of outputs.					0.729
Our firm handles waste product for revenue.					0.728
Our firm makes every effort to reduce costs for waste management for same level of outputs.	0.309	0.309			0.642
Our firm works with government officials to protect the company's interest.					0.713
Our firm considers interests of stakeholders in investment decisions by creating a formal dialog.					0.664

(continued on next page)

Table 1 (continued)

	Factor Loadings				
	Environmental resources	Environmental impact	Environmental Compliance	Social sustainability	Economic stakeholder sustainability
Our firm differentiates the product/service offered based on the marketing efforts of the product/service's environmental performance.					0.345
Eigenvalue	6.493	1.964	1.753	1.322	1.296
Initial percent of variance explained	25.972	7.858	7.012	5.286	5.185
Rotation sum of squared loadings (total)	3.220	3.162	2.183	2.044	1.773
Percent of variance explained	12.879	12.650	8.733	8.178	7.090
Cronbach α (sample N)	0.820	0.791	0.576	0.624	0.579

Notes: Extraction Method: Principal Component analysis. Rotation method: Varimax with Kaiser Normalization. Values lower than 0.3 were suppressed. Scores were calculated with Anderson -Rubin method. Total variance explained: 55.612%.

Table 2
Rotated factor loadings: Leadership.

Factor loadings	Factor loadings			
	Authoritative leadership	Stakeholder leadership	Formal leadership	Growth leadership
	0.808			
The leadership of this firm encourages teamwork.	0.797			
The leadership of this firm clearly defines objectives and strategy for their achievement.	0.761			
The leadership of this firm takes into account employees' views and suggestions.	0.760			
The leadership of this firm ensures correct, accurate and understandable information.	0.734			
The leadership of this firm clearly defines employees' responsibilities.	0.660			
The leadership of this firm directs employees' activities and oversees their efficiency and effectiveness.	0.633	0.339		
The leadership of this firm implements changes in the enterprise according to the demand of the environment in which it operates.				
The leadership of this firm involves employees in the decision-making process.	0.603			
Our customers are increasingly demanding environmentally friendly products and services.	0.800			
Our customers expect our firm to be environmentally friendly.	0.784			
Our customers feel that environmental protection is a critically important issue facing the world.	0.677			
The general public is very concerned about environmental destruction.	0.617			
Our customers are deeply concerned about the social issues facing the world.			0.842	
Environmental and safety legislation can affect the continued growth of our firm.			0.754	
Stricter environmental regulations are a major reason why our firm is concerned about the impact on the natural environment.			0.593	
Regulation by government agencies has great impact on our firm's environmental and safety strategy.			0.481	
Our industry is faced with stricter environmental/ safety regulations than other industries.				0.773
Our firm's environmental and safety initiatives/concerns can help shape future environmental legislation in our industry.		0.303		0.702
Tougher environmental and safety legislations are required so that only firms that are environmentally responsible will survive and grow.				
Eigenvalue	5.888	2.562	1.633	1.018
Initial percent of variance explained	30.992	13.487	8.595	5.359
Rotation sum of squared loadings (total)	4.459	3.167	2.104	1.372
Percent of variance explained	23.467	16.668	11.074	7.223
Cronbach α (sample N)	0.870	0.853	0.576	0.468

Notes: Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations. Values lower than 0.3 were suppressed.

Total variance explained: 58.432%

Table 3
Rotated factor loadings: Talent management.

	Innate / Developable Talent	Exclusive / Talent	Intuitive / visible Talent identification	Judgemental Talent identification hiring	Talent-company
People can substantially change the kind of person they are.	0.815				
Everyone, no matter who they are can significantly change their basic characteristics.	0.807				
No matter what kind of a person someone is, they can always change very much.	0.797				
People can change even their most basic qualities.	0.780				
The kind of person someone is, is something very basic about them and it can't be changed very much.	0.651	0.312			
As much as I hate to admit it, you can't teach an old dog new tricks. People can't really change their deepest attributes.	0.622		0.374		
People can do things differently, but the important parts of who they are can't really be changed.	0.607		0.434		
Everyone is a certain kind of person and there is not much that can be done to really change that.	0.573		0.409		
A talent is a special individual that can make a significant difference to a company.	0.719				
It is a logical choice that developmental assignments and resources are only invested in the most promising talent.	0.696				
A talent is not something everyone possesses, but just the lucky few.	0.539				-0.462
Everyone is gifted in one way or another, but we need to offer the right context to develop those gifts to talents.			0.723		
Everyone has to discover his or her own talent, so we can assign him or her to the right job.			0.720		
Everyone has a certain talent.			0.624	0.308	
Imagine a person who you believe is not talented. Suddenly, he or she obtains particularly good results. I immediately revise my thoughts. Maybe he or she is talented after all.			0.579	-0.306	-0.364
Imagine you identify a person as talented. After his or her first evaluation, results tend to be disappointing. This is probably a unique incident.			0.762		
There's no need to re-evaluate this person's identification as talented.					
If a person is not talented at this moment, he or she will never be.	0.311		0.463		
If I do not consider a person talented at a first evaluation, the odds of me considering him or her talented at a next evaluation is small.	0.434		0.456		
Standardised tests are better to evaluate the talent of employees than personal judgments.				-0.758	
In evaluating the talent of employees, more and better information can be obtained from an unstructured interview than from a battery of Standardised tests.				0.670	
In evaluating the talent of employees, personal judgment is the best standard.		0.407		0.523	
Overall, in our firm, we employee talented people.	4.835				0.790
Eigenvalue	21.976	2.266	1.433	1.173	1.099
Initial percent of variance explained	4.139	10.300	6.512	5.332	4.994
Rotation sum of squared loadings (total)	18.812	2.117	1.846	1.553	1.192
Percent of variance explained	0.880	9.624	8.391	7.057	5.417
Cronbach α (sample N)		0.660	0.555	0.113	-0.65

Notes: Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations. Values lower than 0.3 were suppressed.

Total variance explained: 58.493%

were included in further analysis based on Cronbach α : environmental resources ($\alpha=0.820$), environmental impact ($\alpha=0.791$), environmental compliance ($\alpha=0.576$), social sustainability ($\alpha=0.624$), and economic sustainability ($\alpha=0.579$). Variance explained as (σ) ranged from 12.879% (environmental resources) to 7.090 (economic sustainability).

The factor named environmental resources ($\sigma = 12.879$) reflects the practices and measures to use renewable energy resources efficiently. The factor named environmental impact ($\sigma = 12.650$) reflects the efforts to reduce the impact to the environment from business operations (i.e., waste, emissions). The factor named environmental compliance ($\sigma = 0.8.733$), reflects the practices (such as environmental audits, public disclosure, and employee training) to comply with environmental legislation (i.e., from EU and IMO directives) and market expectations effectively. The factor named social sustainability ($\sigma = 8.178$), reflects the practices and measures to protect the claims and rights of seafarers, local people or local community, to fund local community initiatives, and improve employee or community health and safety. The last factor, named economic sustainability ($\sigma = 7.090$), reflects the practices to reduce the costs of inputs for the same level of outputs such as promote circular economy by using waste products to make revenue.

Factor analysis of leadership variables generated four factors (Table 2): Authoritative leadership ($\alpha=0.870$), stakeholder leadership ($\alpha=0.853$), formal leadership ($\alpha=0.576$), and growth leadership ($\alpha=0.468$). Authoritative leadership ($\sigma = 23.467$) denotes that the leadership of the firm clearly takes decisions to define firm objectives and corporate strategy, directs employees' activities and oversees their efficiency and effectiveness to achieve their goals and meet their performance standards. Stakeholder leadership ($\sigma = 16.668$) denotes customers' and public concern and expectations for environmentally friendly operations and products. Formal leadership ($\sigma = 11.074$) denotes the existing legislation and environmental/safety regulations that the firm and industry have to comply with. Growth leadership ($\sigma = 7.223$) denotes that leadership looks into future expectations regarding sustainability, i.e., only firms that are environmentally responsible will survive and grow.

Table 3 presents the rotated factor loadings of talent management for four factors: innate/ developable talent ($\alpha=0.880$), exclusive talent ($\alpha=0.660$), inclusive talent ($\alpha=0.610$), and visible talent ($\alpha=0.555$). Two more factors were excluded due to low Cronbach alpha values.

Developable talent ($\sigma = 18.812$) denotes that people can substantially change the kind of person they are; they might not have been born with talent but can significantly acquire new skills and qualities. Exclusive talent ($\sigma = 9.624$) denotes people who are special individuals that can make a significant difference to a company. Inclusive talent ($\sigma = 9.193$) denotes that everyone is gifted in one way or another, but the company needs to offer the right context to develop those gifts to talents. Visible talent ($\sigma = 8.391$) denotes that an individual possesses skills that are clearly visible during the hiring process and demonstrates them during their work.

Table 4 reports the means, standard deviations and correlation matrix between the control variables, the sustainability factors (environmental resources, environmental impact, environmental compliance, social sustainability, economic sustainability), leadership factors (authoritative, stakeholder, formal, growth) and talent factors (learnt, natural, developed, visible). Table 4 shows a high correlation between the control variables which was expected, i.e., between firm size and number of employees ($r = 0.594^{**}$) and number of employees and industry ($r = 0.250^{**}$). There were some low and moderate correlations among sustainability factors and talent factors, i.e. visible talent was correlated with social sustainability ($r = -0.166^{**}$), economic sustainability ($r = 0.147^{**}$), leadership ($r = -0.152^{**}$), and formal leadership ($r = 0.143^*$).

We ran a hierarchical regression analysis with the variables included in Table 4. However, the results were mixed and, therefore, we ran a cluster analysis to uncover cluster companies with different perceptions of talent management that might moderate the regression analysis. We followed the Brusco et al. (2017) recommendation regarding choosing variables and implementing the clustering algorithm. We tested K-means and hierarchical clustering, which both produced a robust solution with two clusters.

Table 5 presents the findings of cluster analysis showing two clusters and the cluster membership. Cluster 1, named 'formal culture', includes companies which reported that talent is inherent or unique (exclusive), it cannot be acquired or developed. Conversely, Cluster 2, named as learning culture, reported that talent is developable, includes all employees (inclusive) can be acquired, thus companies should nurture and develop it.

4.2. Hierarchical regression analysis

We re-ran the hierarchical regression analysis for each cluster separately and added results in the initial regression analysis. The findings for the five dependent variables (environmental resources, environmental impact, environmental compliance, social sustainability and economic sustainability) are reported in Table 9, Table 10, Table 11, Table 12, and Table 13 respectively. To test Hypothesis 3, we ran a separate hierarchical regression, inputting control variables in Step 1, talent and leadership factors in Step 2 and talent-leadership interactions in Step 3, the results of which are presented in the Appendix. Table 6, Table 7, and Table 8 present the summary of regression analysis.

Cluster 1 - Formal culture showed high values of adjusted r-square (r^2) and change in r^2 (Δr^2) with environmental resources ($\Delta r^2 = 0.312$, $p < .01$; $F = 7.855$, $p < .001$), environmental impact ($\Delta r^2 = 0.140$, $p < .01$; $F = 5.082^{***}$, $p < .001$) and environmental compliance ($\Delta r^2 = 0.092$, $p < .01$; $F = 2.533$, $p < .01$) and nothing significant concerning social sustainability or economic sustainability.

Cluster 2 - Learning culture showed significant regression results with environmental resources ($\Delta r^2 = 0.178$, $p < .01$; $F = 1.914$, $p < .01$), environmental impact ($\Delta r^2 = 0.324$, $p < .01$; $F = 8.680$, $p < .001$) and economic sustainability ($\Delta r^2 = 0.0083$, $p < .1$; $F = 2.477$, $p < .01$) and no significant environmental compliance or social sustainability. However, the inclusion of talent factors in Step 3 produced low yet significant changes for environmental compliance ($\Delta r^2 = 0.163$, $p < .01$; $F = 3.294$, $p < .01$) and social sustainability ($\Delta r^2 = 0.091$, $p < .1$; $F = 1.857$, $p < .01$).

Regarding environmental resources, formal leadership on cluster 1 ($\beta = 0.07$, $p < .1$) and leadership ($\beta = 0.08$, $p < .1$),

Table 4
Means, standard deviations and correlation matrix.

Correlations	Mean	Std. Dev	1	2	3	4	5	6	7	8
1. Firm Size	2.25	0.982	1.000	0.594**	-0.038	0.282**	0.024	0.012	0.149**	-0.021
2. Employees (No)	4.49	2.289	0.594**	1.000	-0.297**	0.250**	-0.080	-0.031	0.041	0.067
3. Sector	1.76	2.064	-0.038	-0.297**	1.000	-0.001	0.172**	0.017	-0.026	-0.137*
4. Industry	3.50	2.658	0.282**	0.250**	-0.001	1.000	0.145*	-0.032	0.094	-0.025
5. Job Position	2.84	1.572	0.024	-0.080	0.172**	0.145*	1.000	0.137*	0.001	-0.163**
6. Years	11.6	9.6	0.012	-0.031	0.017	-0.032	0.137*	1.000	0.013	0.037
7. Environmental resources	0.0	1.0	0.149**	0.041	-0.026	0.094	0.001	0.013	1.000	-0.000
8. Environmental impact	0.0	1.0	-0.021	0.067	-0.137*	-0.025	-0.163**	0.037	-0.000	1.000
9. Environmental compliance	0.0	1.0	0.047	0.176**	-0.292**	0.031	-0.197**	0.041	0.000	-0.000
10. Social sustainability	0.0	1.0	0.175**	0.223**	-0.134*	0.052	-0.099	-0.033	-0.000	-0.000
11. Economic sustainability	0.0	1.0	0.018	0.108	-0.108	0.113*	0.037	-0.005	-0.000	-0.000
12. Authoritative leadership	0.0	1.0	0.014	-0.039	-0.018	0.056	-0.123*	0.037	0.132*	0.241**
13. Stakeholder leadership	0.0	1.0	0.181**	0.241**	-0.172**	0.131*	-0.165**	0.093	0.165**	0.332**
14. Formal leadership	0.0	1.0	-0.180**	-0.104	-0.171**	-0.022	-0.206**	-0.097	0.046	0.073
15. Growth leadership	0.0	1.0	0.170**	0.120*	-0.115*	0.069	-0.045	0.010	0.365**	0.039
16. Innate Talent	0.0	1.0	0.062	-0.011	0.045	0.055	-0.046	-0.074	0.103	-0.021
17. Exclusive Talent	0.0	1.0	0.028	-0.070	0.070	-0.086	-0.052	-0.010	0.103	-0.036
18. Inclusive Talent	0.0	1.0	-0.034	-0.109	0.001	0.072	0.004	0.071	0.125*	0.100
19. Visible Talent	0.0	1.0	-0.018	-0.031	0.029	-0.065	-0.110	-0.059	0.043	0.073

Correlations	9	10	11	12	13	14	15	16	17	18	19
1. Firm Size	0.047	0.175**	0.018	0.014	0.181**	-0.180**	0.170**	0.062	0.028	-0.034	-0.018
2. Employees (No)	0.176**	0.223**	0.108	-0.039	0.241**	-0.104	0.120*	-0.011	-0.070	-0.109	-0.031
3. Sector	-0.292**	-0.134**	-0.108	-0.018	-0.172**	-0.171**	-0.115*	0.045	0.070	0.001	0.029
4. Industry	0.031	0.052	0.113*	0.056	0.131*	-0.022	0.069	0.055	-0.086	0.072	-0.065
5. Job Position	-0.197**	-0.099	0.037	-0.123*	-0.165**	-0.206**	-0.045	-0.046	-0.052	0.004	-0.110
6. Years	0.041	-0.033	-0.005	0.037	0.093	-0.097	0.010	-0.074	-0.010	0.071	-0.059
7. Environmental resources	0.000	-0.000	-0.000	0.132*	0.165**	0.046	0.365**	0.103	0.103	0.125*	0.043
8. Environmental impact	-0.000	-0.000	-0.000	0.241**	0.332**	0.073	0.039	-0.021	-0.036	0.100	0.073
9. Environmental compliance	1.000	1.000	0.000	0.128*	0.191**	0.022	0.032	-0.091	-0.209**	0.047	0.020
10. Social sustainability	0.000	-0.000	-0.000	0.015	0.232**	0.000	0.126*	0.079	-0.039	0.086	-0.166**
11. Economic sustainability	0.214**	0.128*	0.015	1.000	0.049	0.000	0.204**	-0.026	-0.030	0.097	0.147**
12. Authoritative leadership	0.191**	0.232**	0.049	-0.000	1.000	0.000	0.000	0.090	-0.084	0.099	-0.152**
13. Stakeholder leadership	0.162**	0.222	0.000	-0.000	0.000	1.000	-0.024	0.033	0.221**	0.077	0.143*
14. Formal leadership	0.032	0.126*	0.000	0.000	0.000	-0.000	0.030	0.000	0.120*	0.066	0.107
15. Growth leadership	-0.091	0.079	0.204**	0.000	0.000	-0.000	1.000	0.030	0.100	0.000	-0.000
16. Innate Talent	-0.209**	-0.039	-0.026	-0.084	-0.024	0.221**	-0.024	0.000	1.000	0.000	-0.000
17. Exclusive Talent	0.047	0.086	0.097	0.116*	0.099	0.077	0.066	0.000	0.000	1.000	0.000
18. Inclusive Talent	0.020	-0.166**	0.147**	-0.152**	0.024	0.143*	0.107	-0.000	-0.000	0.000	1.000

Note: *** denotes $p < .001$, ** denotes $p < .01$, * denotes $p < .1$

stakeholder leadership ($\beta = -0.22, p < .001$), and formal leadership ($\beta = -0.24, p < .001$) and from talent factors, visible talent ($\beta = -0.08, p < .001$) in cluster 1 and learnt talent ($\beta = -0.03, p < .001$) in cluster 2 - learning culture.

Developable talent showed a significant beta values in: Cluster 1- Formal Culture ($\beta = -0.27, p < .001$) for environmental impact; and for Cluster 2 - Learning culture with environmental compliance ($\beta = -0.27, p < .001$) and social sustainability ($\beta = -0.19, p < .001$).

Talent leadership interaction analysis (Table 8) produced some significant outcomes in support of Hypothesis 3 and Hypothesis 4c. In particular, talent leadership interactions produced the highest change in social sustainability in the learning culture ($\Delta r^2 = 0.221, p < .1$) followed by the effects on environmental compliance in the formal culture ($\Delta r^2 = 0.175, p < .01$) and environmental impact in the learning culture ($\Delta r^2 = 0.171, p < .1$). The interactions between visible talent with stakeholder leadership had a significant effect on environmental resources in the formal culture ($\beta = 0.23, p < .1$) but no significant impact in learning culture. The interactions between exclusive (natural) talent and growth leadership had a significant effect on environmental impact ($\beta = 0.13, p < .1$) in learning culture. There were three interactions between talent and leadership that produced a significant effect on environmental compliance in companies with formal culture: (i) developable talent and formal leadership ($\beta = 0.28, p < .1$), (ii) visible talent and authoritative leadership ($\beta = 0.26, p < .1$) and (ii) inclusive talent and growth leadership ($\beta = 0.17, p < .1$). Two talent-leadership interactions had a significant effect on environmental compliance in companies with learning culture: (i) developable talent and authoritative leadership ($\beta = 0.51, p < .01$), (ii) visible talent and stakeholder leadership ($\beta = 0.21, p < .1$). The interactions between developable talent and growth leadership had a significant effect on social sustainability ($\beta = 0.37, p < .1$) in formal culture and developed talent and growth leadership ($\beta = 0.37, p < .01$) and inclusive talent and formal leadership ($\beta = 0.27, p < .1$) in learning culture.

The interactions between leadership and talent showed some significant negative influence on sustainability outcomes, most notably: (i) regarding environmental resources the interactions between natural talent and formal leadership ($\beta = -0.29, p < .1$) in learning culture and between developable talent and stakeholder leadership ($\beta = -0.24, p < .1$) in formal culture (Table 14); (ii) for environmental impact, the interactions between developable talent and formal leadership ($\beta = -0.26, p < .1$) in formal culture, between natural (exclusive) talent and authoritative leadership ($\beta = -0.19, p < .1$) in learning culture, between inclusive talent and growth leadership ($\beta = -0.17, p < .1$) in formal culture (Table 15); (iii) for environmental compliance, the interactions between visible talent and formal leadership ($\beta = -0.17, p < .1$) in formal culture (Table 16); and, (iv) for social sustainability, the interactions between visible talent and growth leadership ($\beta = -0.31, p < .01$) and between visible talent and authoritative leadership ($\beta = -0.25, p < .01$) both in formal culture (Table 17).

5. Discussion

We adopted SDL and RBV theory to develop a framework of talent management and leadership effects on sustainability performance in order to answer three questions: (1) To what extent does talent and its management, and which talent types, impact on sustainable performance? (2) To what extent does leadership management, and which leadership styles, impact on sustainable performance? (3) Does organisational culture moderate the links between talent, leadership, and their interactions with sustainable performance?

This study makes the following contributions:

(a) This study, focusing on the “neglected” human factor side of sustainability in shipping, provides empirical evidence from a large-scale survey of maritime companies. Analysis uncovered four leadership styles (authoritarian, stakeholder, formal, growth), four talent types (innate talent, exclusive talent, inclusive talent, visible talent), two types of organisational culture (formal culture and learning culture), and five sustainability dimensions (environmental resources, environmental impact, environmental compliance, social sustainability, economic sustainability).

The study examined the effects of each leadership and talent type, and their interactions on each type of sustainable performance and the moderating effects of the two organisational culture types. The findings show that talent is significantly impacting sustainability performance and the strength of its effect is higher than leadership. Further, organisational culture moderates the talent-sustainability relationship but not the leadership-sustainability relationship.

(b) The study makes theoretical contributions: It shows the effects of composite and interconnected operant resources on value creation in a context characterised by complexity and dynamism. Further, it shows that organisational culture, which is under-researched in SLD studies, plays a critical role in aligning core values between inputs (talent, leadership) and outputs (value, sustainability), thus making the business model more integrated.

(c) The findings have important managerial implications: Companies, particularly in the maritime sector, should respond strategically in both paradigm shifts by re-designing their operations in a sustainable way and investing in talent by acquiring, developing and fitting their personnel with their strategic objectives. The findings indicate two types of talent (innate and visible) that are more resourceful than the other two (exclusive, inclusive), although organisational culture moderates this impact.

5.1. Summary and theoretical implications

Regarding Hypothesis 1, the factor analysis revealed four leadership styles: Authoritative, stakeholder, formal, and growth leadership. All leadership styles showed significant correlations with sustainability performance, but no single leadership type that influenced all aspects. Formal leadership influenced most of the sustainability dimensions (environmental resources, environmental impact, social and economic sustainability) followed by growth and stakeholder leadership respectively. **As a result, we accept Hypothesis 1, noting that no single leadership style had a distinct impact on all sustainability dimensions.**

Regarding Hypothesis 2, factor analysis revealed four talent types: developable or innate talent, exclusive or natural talent, inclusive talent, and visible talent. Developable talent, which conceptualises employees that might not have born talent but significantly acquire new skills and qualities, and visible talent, which defines individuals who possess skills that are clearly visible during the hiring process and demonstrate them during their work, showed significant correlations with sustainability factors compared to innate and developed talent which showed no significant relationship. Particularly, developable talent had a significant effect on all sustainability factors with the highest effect being on environmental impact on the formal business culture, followed by environmental compliance, economic and social responsibility in a learning culture. This evidence shows that developable talent thrives in a learning culture while it still has significant effects on a formal culture; thus, culture moderates talent-sustainability performance. On the other hand, visible talent had significance, but less significance than learnt talent effects on sustainability performance. Visible talent impacted on environmental resources, compliance, and social responsibility for a formal culture and environmental impact compliance, and social responsibility for a learning culture. **As a result, we accept Hypothesis 2, noting that each talent type has a different effect on sustainability performance as was found in this study.**

In support of Hypothesis 3 and Hypothesis 4c, talent-leadership interactions produced significant changes in some sustainability measures. The highest impact was among developable talent and authoritative leadership in a learning culture, which further supports that specific talent-leadership configurations are more compatible than others. Business culture does not moderate the leadership-sustainability relationship, which indicates that leaders are expected to be embedded in the organisational culture. On the other hand, talent management had higher and more consistent results on sustainability performance, particularly developable and visible talent. Organisational culture, in this case, moderates the talent effects on sustainability with a learning culture to be more supportive than a formal culture. This is an important finding since it indicates that talent produces more consistent results than leadership. Business culture moderation on the leadership-sustainability relationship produced mixed results across the sustainability dimensions but, overall, did not alter the direction and size of the effect; therefore Hypothesis 4a is rejected concerning the leadership-sustainability relationship. Conversely, evidence shows that culture moderates the talent-sustainability relationship. **As a result, we accept Hypothesis 4b.** Regarding Hypothesis 4c, culture moderated the impact of talent-leadership interactions on sustainable performance, i.e., the interactions between talent-leadership had higher impact on social sustainability and environmental impact in the learning culture and on environmental compliance in formal culture.

5.2. Theoretical implications

The above results have considerable theoretical implications.

First, following the RBV and SDL, the results provide evidence that talent (and its management) and leadership, considered as valuable, operant resources impact on sustainable performance. SDL suggests that people, as operant resources, are the true source of competitive advantage (Vargo and Lusch, 2008), and can be classified into basic, composite and interconnected (Madhavaram and Hunt, 2008), yet there is little empirical validation on the impact direction and strength of these operant resource types on value creation. This study provides evidence that talent and leadership, as composite resources, produce valuable outcomes, conditioned by organisational culture as a boundary condition of these effects. The RBV posits that resources should be aligned with culture, yet there is little theoretical support from the SDL lens (Kontoghiorghes, 2016); however, the analytical model shows specific talent types that, when combined with specific leadership styles, produce better outcomes than other configurations. This finding indicates that the interactions of talent and leadership should be considered as higher-level, interconnected operant resources, which extends our understanding of the role of culture as a boundary condition (Sanderson, 2015).

5.3. Practical implications

Sustainability and talent wars challenge the traditional transportation business model; this study provides insights into how companies should respond to these trends.

First, they need to include sustainability in their value equation. This demand not only comes from customers or the public but, also, from business partners and investors. For example, ING Group, a global banking and financial services group, proactively “encourages clients in the shipping sector to adopt ship recycling practices that are environmentally sustainable and socially responsible” and does not “permit the financing of ‘breaking yards’ or buyers of scrap vessels” (ING, 2019).

Second, companies can engage in collaborative projects with research institutes which will give them direct access to talent pools. Take for example the intens project (<http://intens.vtt.fi/>), a research-industry collaborative project consortium aiming to proactively improve marine industries’ sustainability in Finland. Intens combines leadership in the sector, with a unique talent base derived from a global leading educational system. Similar initiatives, such as the Sustainable Shipping Initiative (SSI) (<https://www.ssi2040.org/>) combine proactive, leading organisations aiming to improve the sustainability of the shipping industry. For example, the SSI roadmap aims to: “employ best practice in leadership and employee development to attract people to shipping careers”. This study includes best

practices for talent and leadership and shows their impact on sustainability performance in detail.

Third, transportation companies need to redefine their business models as a response to interacting with sustainability and talent challenges. Companies need to take a strategic stance when transforming their business operations; for example, the Executive Chairman of Chew Tuck, one of the success stories in the first maritime sustainability reporting guide in Singapore (Quah and Goh, 2019), states: “the organisation is serious about sustainability...Our business development strategy relies heavily on our people resource...we need various talents ... enabling the organisation to quickly adapt to rapid changes in the business environment”. In the same report, another chairman reports that the biggest lesson in evolving towards sustainability “started looking at our employees and talent differently, emphasizing on their need-based growth and development.” (Quah and Goh, 2019). Therefore, maritime companies should re-evaluate their business models by prioritising talent as the true source of sustainability.

5.4. Limitations and recommendations for future research

This study conducted a large-scale survey of maritime companies having single respondents from participating companies. Although this does not constitute a bias in itself (Boyer and Verma, 2000), it is recommended that future studies address more respondents from the same company since culture, leadership and talent are often objectively perceived as different by different subjects. Although the size of Greek fleet share is often considered representative of the global maritime industry (Pantouvakis and Karakasnakis, 2019), when respondents coming from the same country might project a specific national culture which could bias the measurement of organizational culture. Future studies should also replicate the study in other countries.

The study developed unique scales based on previous literature, yet organisational culture is often measured by validated scales (Bititci et al., 2006; Tucker et al., 1990). However, the aim of this study was not to examine organisational culture but to uncover how companies perceived talented people in a systematic way. Nevertheless, future studies should examine more moderating factors of leadership and talent management with respect to sustainability performance. This study focused on maritime industries; however, there is a need future studies to replicate and test this study’s hypotheses in broader contexts.

Table 5

Organisational culture: Clusters and cluster membership.

Characteristics	Formal Culture		Learning Culture		All Observations	
	mean	std	mean	std	mean	std
The kind of person someone is, is something very basic about them and it can't be changed very much.	5.42	0.08	3.11	0.13	4.55	0.09
No matter what kind of a person someone is, they can always change very much.	3.25	0.10	5.20	0.10	4.02	0.09
Everyone is a certain kind of person and there is not much that can be done to really change that.	4.76	0.08	2.83	0.10	4.02	0.08
As much as I hate to admit it, you can't teach an old dog new tricks. People can't really change their deepest attributes.	5.04	0.09	3.09	0.11	4.32	0.09
Everyone, no matter who they are can significantly change their basic characteristics.	3.44	0.10	4.99	0.11	4.07	0.08
People can do things differently, but the important parts of who they are can't really be changed.	5.28	0.07	3.71	0.12	4.71	0.08
People can substantially change the kind of person they are.	3.33	0.09	4.94	0.11	3.97	0.08
People can change even their most basic qualities.	3.11	0.10	4.68	0.12	3.75	0.08
A talent is not something everyone possesses, but just the lucky few.	4.47	0.13	3.62	0.15	4.18	0.10
A talent is a special individual that can make a significant difference to a company.	5.46	0.08	4.95	0.13	5.27	0.07
Everyone has a certain talent.	5.57	0.08	5.72	0.11	5.59	0.06
It is a logical choice that developmental assignments and resources are only invested in the most promising talent.	4.49	0.10	3.46	0.14	4.13	0.09
Everyone is gifted in one way or another, but we need to offer the right context to develop those gifts to talents.	5.82	0.08	6.12	0.08	5.90	0.06
Everyone has to discover his or her own talent, so we can assign him or her to the right job.	5.69	0.08	5.67	0.10	5.66	0.06
In evaluating the talent of employees, personal judgment is the best standard.	4.50	0.11	3.65	0.16	4.19	0.09
Standardised tests are better to evaluate the talent of employees than personal judgments.	4.36	0.10	4.50	0.13	4.36	0.08
In evaluating the talent of employees, more and better information can be obtained from an unstructured interview than from a battery of Standardised tests.	5.15	0.10	4.80	0.14	5.01	0.08
If a person is not talented at this moment, he or she will never be.	3.50	0.10	2.52	0.11	3.19	0.08
If I do not consider a person talented at a first evaluation, the odds of me considering him or her talented at a next evaluation is small.	4.08	0.10	3.33	0.13	3.83	0.08
Imagine a person who you believe is not talented. Suddenly, he or she obtains particularly good results. I immediately revise my thoughts. Maybe he or she is talented after all.	4.94	0.08	4.98	0.11	4.92	0.07
Imagine you identify a person as talented. After his or her first evaluation, results tend to be disappointing. This is probably a unique incident. There's no need to re-evaluate this person's identification as talented.	3.36	0.09	2.88	0.11	3.20	0.07
Overall, in our firm, we employee talented people.	5.09	0.09	5.23	0.10	5.14	0.06

Note: Std: Standard Deviation

Table 6
Summary of moderated hierarchical regression analysis.

	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Dependent Variable: Environmental resources								
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
F Value	0.821	7.855***	5.971	0.263	1.914**	1.816	1.229	7.588***	5.762
Adjusted R²	-0.00	0.312	0.315	-0.05	0.094	0.114	0.005	0.205	0.207
Δ R²	0.032	0.324***	0.021	0.018	0.178**	0.058	0.028	0.207***	0.014
Dependent Variable: Environmental impact									
F Value	3.425**	5.082***	4.284	3.454**	8.680***	6.273	4.249***	10.73***	8.050
Adjusted R²	0.087	0.212	0.233	0.143	0.466	0.456	0.071	0.276	0.279
Δ R²	0.124**	0.140***	0.039	0.201**	0.324***	0.016	0.092***	0.211***	0.013
Environmental compliance									
F Value	1.527	2.533**	2.124	3.442**	2.204	3.294**	3.809**	3.423*	3.928**
Adjusted R²	0.020	0.092	0.094	0.142	0.120	0.267	0.061	0.086	0.138
Δ R²	0.059	0.092**	0.026	0.201**	0.019	0.163**	0.084**	0.038*	0.063**
Social sustainability									
F Value	3.096**	2.469	2.214	1.787	1.576	1.857*	3.023**	3.024*	3.000*
Adjusted R²	0.076	0.088	0.101	0.050	0.061	0.120	0.045	0.073	0.098
Δ R²	0.113**	0.035	0.035	0.115	0.052	0.091*	0.067**	0.041*	0.038*
Economic sustainability									
F Value	0.895	1.079	1.030	2.553*	2.477*	1.974	1.013	1.221	1.259
Adjusted R²	-0.00	0.005	0.002	0.095	0.143	0.134	0.000	0.008	0.014
Δ R²	0.035	0.035	0.024	0.157*	0.083*	0.030	0.023	0.023	0.020

Notes: *** denotes p < .001, ** denotes p < .01, * denotes p < .1
summarises findings from Table 9, Table 10, Table 11, Table 12, and Table 13.

Table 7
Summary of leadership and talent effects on sustainability.

Control variables	Environmental resources	Environmental impact	Environmental compliance	Social sustainability	Economic sustainability	
Firm Size	0.01 0.09* -0.17 0.14*** -0.02 0.07***	-0.13 0.1*** -0.05 0.1*** -0.12 0.07***	-0.11 0.08*** 0.21 0.12 0.04 0.06*	0.35 0.1 0.13 0.12 0.2 0.07	-0.09 0.11*** -0.05 0.14*** -0.03 0.08***	
Sector	0.01 0.07* -0.04 0.1***	-0.01 0.08*** -0.15 0.07***	0.01 0.07* -0.1 0.08***	0.01 0.08** -0.07 0.08***	0 0.09** -0.13 0.1***	
Industry	0.01 0.05* 0 0.03*** 0.04 0.04	-0.02 0.05*** 0 0.03** -0.05 0.03***	-0.1 0.05*** 0.02 0.03* 0 0.03***	-0.1 0.05*** 0.01 0.02* 0.01 0.02*	-0.02 0.05*** 0.01 0.02* -0.02 0.03***	-0.08 0.06*** -0.01 0.03*** 0.06 0.04
Job Position	0.01 0.02* 0.07 0.05 -0.04 0.07***	-0.02 0.02*** -0.1 0.05*** 0.03 0.05*	0.02 0.04* -0.09 0.05*** -0.03 0.03***	0.01 0.02* -0.03 0.05*** 0.04 0.06*	0.03 0.02* -0.01 0.06*** 0.09 0.07	
Volume	0.03 0.04* -0.04 0.07*** -0.01 0.1*** 0.01 0.05**	-0.04 0.04*** -0.01 0.06*** -0.02 0.06*** 0.01 0.04*	0.12 0.05 0.05 0.07* 0.07 0.04 -0.03 0.06***	-0.02 0.04*** -0.17 0.06*** 0.03 0.07* -0.07 0.04***	0.02 0.04* 0.11 0.07 -0.07 0.08*** 0.04 0.05*	
Age Ship	-0.04 0.07*** -0.01 0.1*** 0.01 0.05**	-0.17 0.07*** -0.18 0.07*** -0.17 0.05***	0.07 0.04 0 0.08*** 0.01 0.05**	-0.09 0.07*** 0.02 0.08* -0.06 0.05***	0.13 0.08 -0.17 0.1*** 0.03 0.06*	
Leadership Factors						
Authoritarian	0.3 0.07 0.08 0.15*	0.21 0.07 0.45 0.1	0.11 0.06 0.14 0.12	0.1 0.07 0.16 0.12	-0.03 0.08*** 0.27 0.15	
Stakeholder	0.18 0.06 0.27 0.08 -0.22 0.14***	0.29 0.05 0.28 0.08 0.39 0.1	0.15 0.05 0.05 0.07* 0.07 0.12*0.02 0.05*	0.12 0.06 0.18 0.08 0.16 0.12	0.05 0.07* -0.08 0.09*** 0.19 0.14	
Formal	0.16 0.06 0.07 0.08* -0.24 0.12*** -0.03 0.06***	0.37 0.06 -0.06 0.08*** 0.09 0.08* 0.01 0.06**	0.11 0.07 0.16 0.1 0.12 0.06	0.05 0.08* 0.05 0.1* 0.04 0.06*	-0.03 0.09*** 0.19 0.12 0.01 0.07*	
Growth	0.44 0.07 0.35 0.12 0.39 0.06	0.18 0.08 -0.13 0.08*** 0.09 0.05*	-0.15 0.07*** 0.13 0.1 -0.04 0.05***	0.11 0.08 0.07 0.1* 0.1 0.06	0.18 0.09 0.06 0.12* 0.13 0.07	
Talent Factors						

(continued on next page)

Table 7 (continued)

Control variables	Environmental resources	Environmental impact	Environmental compliance	Social sustainability	Economic sustainability
Innate/Developable Talent	0.2 0.11	-0.27 0.12***	0.08 0.1*	-0.01 0.12***	-0.03 0.13***
	-0.03 0.18***	0.02 0.12*	-0.26 0.14***	-0.19 0.15***	0.25 0.18
	0.06 0.06*	-0.07 0.05***	-0.12 0.05***	0.04 0.05*	-0.04 0.06***
Exclusive Talent	0.03 0.09	0.02 0.09	-0.15 0.08	-0.12 0.1	-0.07 0.1
	0.19 0.12	-0.01 0.08	-0.26 0.1	-0.04 0.1	-0.09 0.12
	0.07 0.06	0.01 0.05	-0.18 0.05	-0.07 0.06	-0.02 0.07
Inclusive Talent	0 0.08	0.02 0.08	0.06 0.07	-0.09 0.08	0.1 0.09
	0.01 0.12	0.12 0.08	-0.12 0.1	0.22 0.1	-0.02 0.12
	0.08 0.06	0.02 0.06	-0.03 0.05	0.01 0.06	0.03 0.07
Visible Talent	-0.08 0.08***	0.19 0.09	-0.07 0.07***	-0.14 0.09***	0.11 0.1
	0.27 0.13	-0.07 0.09***	0.01 0.11*	-0.17 0.11***	0.11 0.13*
	0.03 0.06*	0.08 0.05*	0.03 0.05*	-0.17 0.06***	0.14 0.06
F Value	5.971	4.284	2.124	2.214	1.03
	1.816	6.273	3.294**	1.857*	1.974
	5.762	8.05	3.928**	3.000*	1.259
Adjusted R ²	0.315	0.233	0.094	0.101	0.002
	0.114	0.456	0.267	0.12	0.134
	0.207	0.279	0.138	0.098	0.014
ΔR^2	0.021	0.039	0.026	0.035	0.024
	0.058	0.016	0.163**	0.091*	0.03
	0.014	0.013	0.063**	0.038*	0.02

Notes: *** denotes $p < .001$, ** denotes $p < .01$, * denotes $p < .1$

1st row: Formal Culture. 2nd row: Learning Culture, 3rd row total sample.

summarises findings of Step 3 from Table 9, Table 10, Table 11, Table 12, and Table 13.

Table 8

Summary of interactions effects between leadership and talent on sustainability.

	Adjusted R ²			ΔR^2		
	Formal Culture	Learning Culture	Total Sample	Formal Culture	Learning Culture	Total Sample
Environmental resources	0.259	0.012	0.204	0.046	0.094	0.073*
Environmental impact	0.196	0.441	0.219	0.062	0.171*	0.065*
Environmental compliance	0.189	0.359	0.289	0.175**	0.133	0.117***
Social sustainability	0.192	0.202	0.122	0.138*	0.221*	0.056
Economic sustainability	0.080	0.092	0.056	0.092	0.160	0.050

Notes: *** denotes $p < .001$, ** denotes $p < .01$, * denotes $p < .1$

Acknowledgements

The authors would like to acknowledge the comments and suggestions from two anonymous reviewers and the associate editor in improving this manuscript.

Appendix

Tables 9–18.

Table 9
Moderated hierarchical regression analysis - Dependant: Environmental resources.

Variables	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Control variables									
Firm Size	0.11 1.04	0.05 0.09	0.01 0.09*	0.04 0.28	-0.15 0.14	-0.17 0.14***	0.12 1.49	0 0.07	-0.02 0.07***
Sector	0.05 0.53	0 0.07	0.01 0.07*	-0.12-1.06	-0.06 0.1	-0.04 0.1***	-0.02-0.36	0.02 0.05	0.01 0.05*
Industry	0.04 0.44	-0.01 0.03	0 0.03***	0.03 0.27	0.02 0.04	0.04 0.04	0.06 0.9	0 0.02	0.01 0.02*
Job Position	-0.01-0.14	0.07 0.05	0.07 0.05	0 0.04	-0.04 0.07	-0.04 0.07***	0.01 0.1	0.03 0.04	0.03 0.04*
Volume									
Age Ship	-0.07-0.81	-0.02 0.07	-0.04 0.07***	-0.03-0.29	-0.04 0.1	-0.01 0.1***	0-0.02	0 0.05	0.01 0.05**
Leadership Factors									
Authoritative leadership		0.3 0.06	0.3 0.07		0.02 0.15	0.08 0.15*		0.2 0.06	0.18 0.06
Stakeholder leadership		0.26 0.07	0.27 0.08		-0.19 0.14	-0.22 0.14***		0.17 0.06	0.16 0.06
Formal leadership		0.07 0.07	0.07 0.08*		-0.17 0.12	-0.24 0.12***		0 0.06	-0.03 0.06***
Growth leadership		0.45 0.07	0.44 0.07		0.4 0.12	0.35 0.12		0.42 0.06	0.39 0.06
Talent Factors									
Innate/Developable Talent			0.2 0.11			-0.03 0.18***			0.06 0.06*
Exclusive Talent			0.03 0.09			0.19 0.12			0.07 0.06
Inclusive Talent			0 0.08			0.01 0.12			0.08 0.06
Visible Talent			-0.08 0.08***			0.27 0.13			0.03 0.06*
F Value	0.821	7.855***	5.971	0.263	1.914**	1.816	1.229	7.588***	5.762
Adjusted R²	-0.00	0.312	0.315	-0.05	0.094	0.114	0.005	0.205	0.207
Δ R²	0.032	0.324***	0.021	0.018	0.178**	0.058	0.028	0.207***	0.014

Note: *** denotes $p < .001$, ** denotes $p < .01$, * denotes $p < .1$

Table 10
Moderated hierarchical regression results - Dependant: Environmental impact.

Variables	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Control variables									
Firm Size	-0.13-1.32	-0.17 0.1	-0.13 0.1***	-0.07-0.56	-0.07 0.09	-0.05 0.1***	-0.09-1.21	-0.13 0.07	-0.12 0.07***
Sector	0.05 0.55	0.02 0.08**	-0.01 0.08***	-0.36-3.54***	-0.15 0.07*	-0.15 0.07***	-0.06-0.96	-0.02 0.05***	-0.02 0.05***
Industry	0.05 0.57	0 0.03***	0 0.03**	0.01 0.08	-0.04 0.03*	-0.05 0.03***	0.03 0.45	-0.02 0.02***	-0.02 0.02***
Job Position	-0.23-2.94	-0.1 0.05*	-0.1 0.05***	-0.01-0.14	0.03 0.05	0.03 0.05*	-0.16-2.67	-0.04 0.03*	-0.04 0.04***
Volume	0.08 0.76	0.02 0.06	-0.01 0.06***	0.11 0.93	-0.02 0.05*	-0.02 0.06***	0.05 0.7	0.01 0.04	0.01 0.04*
Age Ship	-0.24-2.91	-0.19 0.07	-0.17 0.07***	-0.2-1.91	-0.18 0.07	-0.18 0.07***	-0.22-3.55	-0.18 0.05	-0.17 0.05***
Leadership Factors									
Authoritative leadership		0.2 0.07*	0.21 0.07		0.48 0.1	0.45 0.1		0.28 0.05	0.29 0.05
Stakeholder leadership		0.3 0.08	0.28 0.08		0.37 0.09	0.39 0.1		0.37 0.06	0.37 0.06
Formal leadership		-0.02 0.08	-0.06 0.08**		0.09 0.08	0.09 0.08*		0.02 0.06	0.01 0.06**
Growth leadership		0.19 0.07	0.18 0.08		-0.12 0.08	-0.13 0.08***		0.1 0.05	0.09 0.05*
Talent Factors									
Innate/Developable Talent			-0.27 0.12***			0.02 0.12*			-0.07 0.05***
Exclusive Talent			0.02 0.09			-0.01 0.08			0.01 0.05
Inclusive Talent			0.02 0.08			0.12 0.08			0.02 0.06
Visible Talent			0.19 0.09			-0.07 0.09***			0.08 0.05*
F Value	3.425**	5.082***	4.284	3.454**	8.680***	6.273	4.249***	10.73***	8.050
Adjusted R²	0.087	0.212	0.233	0.143	0.466	0.456	0.071	0.276	0.279
Δ R²	0.124**	0.140***	0.039	0.201**	0.324***	0.016	0.092***	0.211***	0.013

Note: *** denotes p < .001, ** denotes p < 0.01, * denotes p < .1

Table 11
Moderated hierarchical regression results - Dependant: Environmental compliance.

Variables	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Control variables									
Firm Size	-0.22-2.1*	-0.1 0.08*	-0.11 0.08***	0.25 2.08*	0.2 0.12	0.21 0.12	-0.04-0.46	0.01 0.07**	0.04 0.06*
Sector	-0.01-0.12	0 0.06	0.01 0.07*	-0.22-2.18*	-0.13 0.09	-0.1 0.08***	-0.15-2.44*	-0.12 0.05	-0.1 0.05***
Industry	0.09 1.04	0.02 0.03	0.02 0.03*	0.07 0.65	0.01 0.03	0 0.03***	0.06 0.85	0.01 0.02	0.01 0.02*
Job Position	-0.02-0.26	0.02 0.04	0.02 0.04*	-0.17-1.67	-0.08 0.06	-0.09 0.05***	-0.1-1.64	-0.03 0.03	-0.03 0.03***
Volume	0.25 2.38	0.11 0.05	0.12 0.05	0.08 0.68	0.05 0.07	0.05 0.07*	0.2 2.6	0.09 0.04*	0.07 0.04
Age Ship	-0.07-0.78	-0.03 0.06	-0.03 0.06***	0.05 0.51	0.03 0.09	0 0.08***	0 0.04	0.01 0.05	0.01 0.05**
Leadership Factors									
Authoritative leadership		0.13 0.06	0.11 0.06		0.14 0.13	0.14 0.12		0.14 0.05	0.15 0.05
Stakeholder leadership		0.06 0.07*	0.05 0.07*		0.03 0.12	0.07 0.12*		0.01 0.06*	0.02 0.05*
Formal leadership		0.08 0.07	0.11 0.07		0.06 0.1	0.16 0.1		0.07 0.05	0.12 0.06
Growth leadership		-0.17 0.06	-0.15 0.07***		0.06 0.1	0.13 0.1		-0.07 0.05	-0.04 0.05***
Talent Factors									
Innate/Developable Talent			0.08 0.1*			-0.26 0.14***			-0.12 0.05***
Exclusive Talent			-0.15 0.08			-0.26 0.1			-0.18 0.05
Inclusive Talent			0.06 0.07			-0.12 0.1			-0.03 0.05
Visible Talent			-0.07 0.07***			0.01 0.11*			0.03 0.05*
F Value	1.527	2.533**	2.124	3.442**	2.204	3.294**	3.809**	3.423*	3.928**
Adjusted R²	0.020	0.092	0.094	0.142	0.120	0.267	0.061	0.086	0.138
Δ R²	0.059	0.092**	0.026	0.201**	0.019	0.163**	0.084**	0.038*	0.063**

Note: *** denotes $p < .001$, ** denotes $p < .01$, * denotes $p < .1$

Table 12
Moderated hierarchical regression results - Dependant: Social sustainability.

Variables	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Control variables									
Firm Size	0.36 3.6***	0.32 0.1*	0.35 0.1	0.1 0.8	0.03 0.11	0.13 0.12	0.24 3.11**	0.2 0.07	0.2 0.07
Sector	0-0.04	-0.02 0.08	0.01 0.08**	-0.21-1.92*	-0.08 0.09	-0.07 0.08***	-0.07-1.08	-0.04 0.05	-0.02 0.05***
Industry	0.05 0.62	0.01 0.03	0.01 0.03*	0.11 1.01	0.02 0.03	-0.02 0.03***	0.08 1.21	0.01 0.02	0.01 0.02*
Job Position	-0.09-1.18	-0.03 0.05**	-0.03 0.05***	0.07 0.7	0.05 0.06	0.04 0.06*	-0.07-1.15	-0.02 0.04**	-0.02 0.04***
Volume	-0.26-2.51	-0.16 0.06	-0.17 0.06***	0.11 0.88	0.06 0.07	0.03 0.07*	-0.12-1.57	-0.07 0.04	-0.07 0.04***
Age Ship	-0.13-1.5	-0.09 0.07	-0.09 0.07***	0.02 0.15	0 0.08	0.02 0.08*	-0.08-1.24	-0.06 0.05	-0.06 0.05***
Leadership Factors									
Authoritative leadership		0.09 0.07	0.1 0.07		0.22 0.12	0.16 0.12		0.14 0.06	0.12 0.06
Stakeholder leadership		0.16 0.08**	0.18 0.08		0.09 0.12	0.16 0.12		0.12 0.06*	0.12 0.06
Formal leadership		-0.01 0.08	0.05 0.08*		0.03 0.1	0.05 0.1*		0 0.06	0.04 0.06*
Growth leadership		0.07 0.08	0.11 0.08		0.07 0.1	0.07 0.1*		0.07 0.06	0.1 0.06
Talent Factors									
Innate/Developable Talent			-0.01 0.12***			-0.19 0.15***			0.04 0.05*
Exclusive Talent			-0.12 0.1			-0.04 0.1			-0.07 0.06
Inclusive Talent			-0.09 0.08			0.22 0.1			0.01 0.06
Visible Talent			-0.14 0.09***			-0.17 0.11***			-0.17 0.06***
F Value	3.096**	2.469	2.214	1.787	1.576	1.857*	3.023**	3.024*	3.000*
Adjusted R²	0.076	0.088	0.101	0.050	0.061	0.120	0.045	0.073	0.098
Δ R²	0.113**	0.035	0.035	0.115	0.052	0.091*	0.067**	0.041*	0.038*

Note: *** denotes $p < .001$, ** denotes $p < .01$, * denotes $p < .1$

Table 13
Moderated hierarchical regression results - Dependant: Economic sustainability.

Variables	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Control variables									
Firm Size	-0.06-0.54	-0.09 0.1*	-0.09 0.11***	0.04 0.32	0.02 0.14	-0.05 0.14***	0-0.02	-0.04 0.08	-0.03 0.08***
Sector	0.03 0.33	0.02 0.08	0 0.09**	-0.28-2.68**	-0.14 0.1	-0.13 0.1***	-0.09-1.4	-0.07 0.06	-0.08 0.06***
Industry	-0.03-0.33	-0.01 0.03	-0.01 0.03***	0.21 2.02*	0.05 0.04	0.06 0.04	0.08 1.27	0.03 0.02	0.03 0.02*
Job Position	0.01 0.07	-0.01 0.06	-0.01 0.06***	0.07 0.71	0.08 0.07	0.09 0.07	0.02 0.33	0.02 0.04	0.02 0.04*
Volume	0.19 1.75	0.12 0.06	0.11 0.07	-0.12-0.96	-0.1 0.08	-0.07 0.08***	0.05 0.65	0.04 0.05	0.04 0.05*
Age Ship	0.14 1.56	0.12 0.08	0.13 0.08	-0.13-1.25	-0.15 0.1	-0.17 0.1***	0.04 0.55	0.03 0.06	0.03 0.06*
Leadership Factors									
Authoritative leadership		-0.01 0.08	-0.03 0.08***		0.29 0.14	0.27 0.15		0.04 0.06	0.05 0.07*
Stakeholder leadership		-0.05 0.09*	-0.08 0.09***		0.2 0.14	0.19 0.14		0.03 0.07	0.02 0.07*
Formal leadership		-0.01 0.09	-0.03 0.09***		0.17 0.11	0.19 0.12		0.03 0.07	0.01 0.07*
Growth leadership		0.18 0.08	0.18 0.09		0.07 0.11	0.06 0.12*		0.15 0.07	0.13 0.07
Talent Factors									
Innate/Developable Talent			-0.03 0.13***			0.25 0.18			-0.04 0.06***
Exclusive Talent			-0.07 0.1			-0.09 0.12			-0.02 0.07
Inclusive Talent			0.1 0.09			-0.02 0.12			0.03 0.07
Visible Talent			0.11 0.1			0.11 0.13*			0.14 0.06
F Value	0.895	1.079	1.030	2.553*	2.477*	1.974	1.013	1.221	1.259
Adjusted R²	-0.00	0.005	0.002	0.095	0.143	0.134	0.000	0.008	0.014
A R²	0.035	0.035	0.024	0.157*	0.083*	0.030	0.023	0.023	0.020

Note: *** denotes p < .001, ** denotes p < 0.01, * denotes p < .1

Table 14
Moderated hierarchical regression results: Leadership-Talent interactions. Dependant: Environmental resources.

Variables	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Control variables									
Firm Size	0.13 1.39	0.03 0.36	0.02 0.19	0.02 0.19	-0.1-0.79	-0.09-0.57	0.11 1.58	0.02 0.36	0.03 0.43
Sector	0.01 0.13	0.06 0.85	0.05 0.71	-0.04-0.37	-0.07-0.62	-0.16-1.26	-0.01-0.25	0.04 0.75	0 0.01
Industry	0.04 0.48	0-0.04	-0.01-0.09	0.04 0.36	0.1 0.93	0.08 0.74	0.05 0.91	0.01 0.15	0.02 0.33
Job Position	-0.01-0.11	0.13 1.75*	0.16 2.03*	0 0.05	0.03 0.26	0.06 0.59	-0.01-0.14	0.07 1.17	0.1 1.67*
Volume	0.04 0.45	0.07 0.85	0.06 0.71	0.01 0.05	0.12 1.06	0.09 0.71	0.04 0.55	0.07 1.05	0.07 1
Age Ship	-0.07-0.92	-0.05-0.81	-0.09-1.24	-0.05-0.49	-0.03-0.35	-0.04-0.34	-0.02-0.29	-0.01-0.18	-0.01-0.26
Leadership & Talent Factors									
Authoritative leadership -AL		0.26 3.76***	0.21 1.65		0.03 0.27	-0.09-0.39		0.13 2.41*	0.11 1.75*
Stakeholder leadership - SL		0.29 4.25***	0.09 0.84		-0.16-1.32	0.09 0.36		0.16 2.83**	0.19 3.25**
Formal leadership - FL		0.13 1.85	0.22 1.63		-0.06-0.54	-0.3-1.16		0.05 0.92	0.01 0.13
Growth leadership - GL		0.39 5.72	0.35 2.8**		0.3 3.04	0.22 1		0.35 6.39	0.36 6.35***
Innate Talent - IT		0.19 2.47	0.18 2.08*		0.04 0.41	0.06 0.43		0.08 1.47	0.13 2.33*
Exclusive Talent -ET		0 0.01	0-0.06		0.21 1.85	0.2 1.38		0.07 1.26	0.07 1.25
Inclusive Talent -CT		0 0.07	0 0		-0.03-0.28	0.04 0.27		0.07 1.33	0.03 0.57
Visible Talent -VT		-0.11-1.49	-0.12-1.41		0.2 2.01	0.17 1.4		0.02 0.39	-0.01-0.15
Leadership * Talent Factors									
IT * AL			-0.1-0.91			0.05 0.24			-0.16-2.67**
IT * SL			-0.24-2.19*			-0.14-0.69			-0.13-2.43*
IT * FL			0.13 0.89			0.01 0.07			-0.05-0.85
IT * GL			0-0.03			0.1 0.49			0.04 0.69
ET * AL			0.03 0.38			-0.12-0.77			-0.02-0.32
ET * SL			0.13 1.57			0-0.03			0.06 1
ET * FL			0.03 0.39			-0.29-1.84*			-0.08-1.37
ET * GL			0.05 0.6			0.11 0.75			0.08 1.42
CT * AL			0.08 0.87			-0.1-0.79			0.03 0.53
CT * SL			0.01 0.09			-0.13-1.03			-0.05-0.92
CT * FL			0.07 0.94			0 0.01			0.05 0.95
CT * GL			-0.02-0.31			0.06 0.49			0.02 0.31
VT * AL			0.04 0.54			0.02 0.18			0.07 1.09
VT * SL			0.13 1.72*			0.14 0.89			0.11 1.86*
VT * FL			-0.04-0.53			-0.05-0.33			0 0.08
VT * GL			0.02 0.19			-0.11-0.78			-0.02-0.31
F Value	1.066	5.953***	3.057	0.134	1.593*	1.043	1.380	5.515***	3.635*
Adjusted R²	0.002	0.282	0.259	-0.05	0.071	0.012	0.007	0.170	0.204
Δ R²	0.036	0.303***	0.046	0.007	0.183*	0.094	0.026	0.181***	0.073*

Notes: *** denotes p < .001, ** denotes p < 01, * denotes p < .1

AL: Authoritative Leadership, SL: Stakeholder Leadership, FL: Formal Leadership, GL: Growth Leadership. IT: Innate Talent, ET: Exclusive Talent, CT: Inclusive Talent, VT: Visible Talent

Table 15
Moderated hierarchical regression results: Leadership-Talent interactions. Dependant: Environmental impact.

Variables	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
	Control variables								
Firm Size	-0.08-0.87	-0.06-0.72	-0.08-0.82	-0.13-1.27	-0.13-1.31	0.02 0.17	-0.05-0.81	-0.07-1.09	-0.08-1.16
Sector	-0.06-0.76	-0.07-1	-0.05-0.73	-0.34-3.67***	-0.24-2.47*	-0.18-1.87*	-0.11-1.73*	-0.05-0.9	-0.06-1.05
Industry	-0.01-0.1	-0.05-0.68	-0.06-0.71	0.04 0.47	-0.08-0.93	-0.08-0.92	0.04	-0.05-0.93	-0.04-0.77
Job Position	-0.25-3.37	-0.13-1.73*	-0.16-1.94*	0.09 0.92	0.11 1.34	0.11 1.34	-0.13-2.32	-0.03-0.57	-0.05-0.81
Volume	0.05 0.56	-0.03-0.33	-0.03-0.37	0.16 1.53	0.06 0.57	-0.03-0.28	0.03 0.48	-0.01-0.19	-0.02-0.33
Age Ship	-0.17-2.33	-0.13-1.92*	-0.12-1.62	-0.19-2.03	-0.21-2.52*	-0.23-2.74**	-0.18-3.22	-0.17-3.2**	-0.18-3.43***
Leadership & Talent Factors									
Authoritative leadership -AL	0.22 3**	0.29 4.06***	0.17 1.32		0.36 4.1***	0.16 0.96		0.24 4.49***	0.26 4.06***
Stakeholder leadership - SL	0.02 0.21	0.12 1.65	0.34 2.9**		0.27 2.7**	0.3 1.57		0.33 6.03***	0.28 4.89***
Formal leadership - FL	0.12 1.65	-0.16-2.03	-0.2-1.42		0.08 0.89	0.24 1.23		0.04 0.67	0.04 0.73
Growth leadership - GL	0-0.05	-0.13-1.43	0.22 1.65		-0.16-1.95	-0.21-1.29		0.04 0.74	0.05 0.86
Innate Talent - IT	0.03 0.45	-0.03-0.33	-0.13-1.43		0.04 0.49	-0.08-0.79		-0.04-0.87	-0.07-1.35
Exclusive Talent -ET	0.16 1.96	0.02 0.19	0.02 0.19		-0.09-0.9	0.16 1.52		-0.02-0.43	-0.01-0.15
Inclusive Talent -CT		0.08 0.95	0.08 0.95		0.15 1.69	0.26 2.61		0.03 0.54	0.02 0.45
Visible Talent -VT					-0.05-0.57	-0.05-0.56		0.09 1.62	0.05 0.83
Leadership * Talent Factors									
IT * AL			0.01			0.16 1.03			0.06 0.99
IT * AL			0.07 0.62			0.05 0.37			0.05 0.84
IT * SL			-0.26-1.79*			-0.1-0.67			-0.03-0.56
IT * FL			0.07 0.49			-0.01-0.09			-0.03-0.52
IT * GL			-0.05-0.59			-0.19-1.69*			-0.13-2.02*
ET * AL			-0.08-0.96			0.06 0.66			-0.03-0.46
ET * SL			0.04 0.5			0.27 2.25*			0.06 1.12
ET * FL			0.09 1.08			0.23 2.07*			0.13 2.32*
ET * GL			-0.1-1.1			-0.18-1.79*			-0.18-2.94**
CT * AL			-0.11-1.25			-0.01-0.14			-0.02-0.43
CT * SL			-0.02-0.31			0.08 0.87			0.05 0.95
CT * FL			0.05			-0.17-1.84*			0.02 0.42
CT * GL			0.04 0.45			-0.08-0.89			-0.07-1.1
VT * AL			-0.08-0.97			-0.02-0.16			-0.01-0.1
VT * SL			0.13 1.52			-0.07-0.68			0.04 0.66
VT * FL			0.08 0.87			0 0.03			0.04 0.77
F Value	3.484**	4.304***	2.436	3.704**	4.962***	3.847*	3.966**	6.260***	3.885*
Adjusted R ²	0.078	0.208	0.196	0.130	0.339	0.441	0.054	0.193	0.219
Δ R ²	0.109**	0.161***	0.062	0.178**	0.246***	0.171*	0.073***	0.156***	0.065*

Notes: *** denotes p < .001, ** denotes p < .01, * denotes p < .1

AL: Authoritative Leadership, SL: Stakeholder Leadership, FL: Formal Leadership, GL: Growth Leadership, IT: Innate Talent, ET: Exclusive Talent, CT: Inclusive Talent, VT: Visible Talent

Table 16
Moderated hierarchical regression results - Leadership-Talent interactions. Dependant: Environmental compliance.

Variables	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
	Control variables								
Firm Size	-0.17-1.88*	-0.13-1.29	-0.12-1.26	0.18 1.78*	0.13 1.26	0.15 1.19	-0.07-1.13	-0.02-0.3	-0.03-0.51
Sector	-0.12-1.53	-0.12-1.56	-0.08-1.14	-0.33-3.74***	-0.19-1.87*	-0.16-1.51	-0.24-4.44***	-0.19-3.41***	-0.16-3.03**
Industry	0.02 0.22	0-0.06	-0.04-0.25	0.05 0.54	-0.02-0.24	-0.02-0.24	0.03 0.51	-0.02-0.36	-0.01-0.25
Job Position	-0.08-1.1	0-0.03	-0.02-0.27	-0.17-1.85	-0.17-1.99*	-0.23-2.63*	-0.17-3.05	-0.11-1.97*	-0.1-1.87*
Volume	0.22 2.39	0.2 2.04*	0.21 2.23*	0.07 0.68	0.08 0.78	0.12 1.08	0.19 2.97	0.14 2.25*	0.16 2.6**
Age Ship	-0.02-0.2	0 0.06	0.02 0.23	0.02 0.26	-0.04-0.51	-0.02-0.23	0.01 0.15	0.01 0.23	0.01 0.25
Leadership & Talent Factors									
Authoritative leadership -AL		0.13 1.63	0.12 0.91		0.09 1.03	-0.35-1.95*		0.19 3.5***	0.13 2.13*
Stakeholder leadership - SL		0.14 1.84*	0.07 0.6		0.1 0.99	0.44 2.16*		0.12 2.21*	0.13 2.4*
Formal leadership - FL		0.14 1.74	0.39 2.75**		0.18 1.99	0.2 0.99		0.15 2.71	0.12 2.1*
Growth leadership - GL		-0.13-1.74	-0.28-2.12*		0.18 2.12	0.34 1.92*		0.03 0.6	0.02 0.3
Innate Talent - IT		0.03 0.34	-0.01-0.16		-0.02-0.23	-0.14-1.3		-0.1-1.95	-0.12-2.28*
Exclusive Talent -ET		-0.08-1.02	-0.07-0.84		-0.35-3.66	-0.44-3.82		-0.21-3.92	-0.16-2.91
Inclusive Talent -CT		0.06 0.76	0.01 0.11		-0.11-1.21	-0.11-0.98		0.01 0.21	0.02 0.31
Visible Talent -VT		-0.01-0.11	0.05 0.6		-0.08-0.91	-0.09-0.9		0.01 0.2	0.05 0.97
Leadership * Talent Factors									
IT * AL			0.15 1.31			0.51 3**			0.17 2.99**
IT * AL			-0.14-1.27			-0.25-1.57			-0.08-1.56
IT * SL			0.28 1.87*			0.07 0.44			-0.01-0.15
IT * FL			-0.21-1.4			-0.15-0.87			0.07 1.23
IT * GL			0.01 0.12			-0.01-0.08			0.05 0.9
ET * AL			-0.12-1.38			0.14 1.34			0 0.09
ET * SL			-0.13-1.53			-0.08-0.59			-0.01-0.24
ET * FL			-0.01-0.12			-0.08-0.64			-0.11-1.99*
ET * GL			-0.02-0.25			0.07 0.63			0.04 0.72
CT * AL			-0.01-0.16			0.07 0.69			0-0.04
CT * SL			0.07 0.96			-0.12-1.29			-0.02-0.3
CT * FL			0.17 2.09*			-0.03-0.25			0.04 0.8
CT * GL			0.26 3.05**			-0.12-1.24			0.21 3.43***
VT * AL			-0.13-1.62			0.21 1.69*			-0.1-1.75*
VT * SL			-0.17-1.98*			0.02 0.18			-0.06-1.07
VT * FL			0-0.03			0.08 0.71			-0.04-0.8
F Value	1.790	2.065*	2.369**	5.419**	4.540**	3.016	7.888***	6.653**	5.171***
Adjusted R ²	0.026	0.078	0.189	0.197	0.314	0.359	0.118	0.204	0.289
Δ R ²	0.059	0.092*	0.175**	0.241***	0.161**	0.133	0.135***	0.105**	0.117***

Notes: *** denotes p < .001, ** denotes p < .01, * denotes p < .1

AL: Authoritative Leadership, SL: Stakeholder Leadership, FL: Formal Leadership, GL: Growth Leadership, IT: Innate Talent, ET: Exclusive Talent, CT: Inclusive Talent, VT: Visible Talent

Table 17
Moderated hierarchical regression results - Leadership-Talent interactions. Dependant: Social sustainability.

Variables	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
	Control variables								
Firm Size	0.33 3.71***	0.32 3.37***	0.32 3.38***	0.11 0.92	0.15 1.42	0.04 0.19	0.2 2.99**	0.08 1.38	0.15 2.27*
Sector	-0.1-1.33	-0.09-1.21	-0.1-1.3	-0.19-1.91*	-0.07-0.57	-0.09-0.74	-0.12-2.05*	-0.06-1.01	-0.08-1.35
Industry	0.03 0.39	0 0.03	0 0	-0.01-0.1	-0.13-1.2	-0.08-0.81	0.02 0.4	-0.03-0.59	-0.04-0.73
Job Position	-0.13-1.73	-0.08-0.99	-0.09-1.13	0.1 1.01	0.12 1.24	0.11 1.13	-0.08-1.36	-0.04-0.68	-0.04-0.74
Volume	-0.21-2.27	-0.23-2.48*	-0.22-2.4*	0.1 0.9	0.04 0.35	0.16 1.3	-0.08-1.11	-0.08-1.19	-0.09-1.35
Age Ship	-0.07-0.98	-0.04-0.54	0.01 0.09	0.01 0.13	0 0.01	-0.08-0.75	-0.04-0.74	-0.04-0.67	-0.04-0.75
Leadership & Talent Factors									
Authoritative leadership -AL	0.14 1.9*	0.14 1.9*	0.13 0.98	0.15 1.42	0.15 1.42	0.04 0.19	0.08 1.38	0.08 1.38	0.15 2.27*
Stakeholder leadership - SL	0.18 2.42*	0.18 2.42*	0.14 1.2	0.2 1.7*	0.2 1.7*	0.32 1.41	0.2 3.44***	0.17 2.88**	0.17 2.88**
Formal leadership - FL	0.01 0.08	0.01 0.08	-0.05-0.37	0.14 1.34	0.14 1.34	0.16 0.71	0.07 1.2	0.07 1.2	0.1 1.66*
Growth leadership - GL	0.09 1.26	0.09 1.26	0.34 2.59*	0.19 1.89	0.19 1.89	0.26 1.31	0.12 2.05	0.12 2.05	0.09 1.55
Innate Talent - IT	-0.07-0.82	-0.07-0.82	-0.06-0.63	-0.08-0.75	-0.08-0.75	-0.02-0.19	0.05 0.99	0.05 0.99	0.04 0.66
Exclusive Talent -ET	-0.06-0.78	-0.06-0.78	-0.05-0.58	-0.04-0.35	-0.04-0.35	-0.17-1.35	-0.07-1.21	-0.07-1.21	-0.08-1.36
Inclusive Talent -CT	-0.04-0.57	-0.04-0.57	-0.05-0.59	0.05 0.53	0.05 0.53	0.07 0.61	0.05 0.85	0.05 0.85	0.01 0.2
Visible Talent -VT	-0.11-1.37	-0.11-1.37	-0.06-0.73	-0.2-2.02	-0.2-2.02	-0.28-2.62*	-0.18-3.25	-0.18-3.25	-0.19-3.11**
Leadership * Talent Factors									
IT * AL			-0.07-0.61			0.12 0.62			-0.01-0.22
IT * AL			0.03 0.25			-0.17-0.99			-0.08-1.46
IT * SL			-0.05-0.33			-0.08-0.47			0.06 1.01
IT * FL			0.37 2.52*			-0.08-0.43			-0.01-0.15
IT * GL			-0.02-0.25			-0.03-0.19			-0.08-1.22
ET * AL			0.05 0.57			-0.15-1.29			-0.02-0.27
ET * SL			0.01 0.09			-0.07-0.52			-0.01-0.17
ET * FL			-0.14-1.55			-0.05-0.41			-0.02-0.33
ET * GL			0.08 0.92			-0.06-0.47			0.09 1.47
CT * AL			-0.1-1.13			0.09 0.78			-0.09-1.54
CT * SL			-0.07-0.93			0.27 2.54*			-0.01-0.17
CT * FL			0.12 1.49			0.37 3.29**			0.06 1.01
CT * GL			-0.25-2.91**			-0.02-0.2			-0.17-2.46*
VT * AL			-0.08-0.95			0.17 1.21			0.01 0.24
VT * SL			0.16 1.89*			0.11 0.85			0.11 1.97*
VT * FL			-0.31-3.17**			0.11 0.9			-0.05-0.85
F Value	3.656**	2.754*	2.400*	1.346	1.702*	1.912*	3.138**	3.748***	2.433
Adjusted R ²	0.083	0.122	0.192	0.018	0.083	0.202	0.040	0.111	0.122
Δ R ²	0.114**	0.077*	0.138*	0.073	0.128*	0.221*	0.058**	0.093***	0.056

Notes: *** denotes p < .001, ** denotes p < .01, * denotes p < .1

AL: Authoritative Leadership, SL: Stakeholder Leadership, FL: Formal Leadership, GL: Growth Leadership, IT: Innate Talent, ET: Exclusive Talent, CT: Inclusive Talent, VT: Visible Talent

Table 18

Moderated hierarchical regression results - Leadership-Talent interactions. Dependant: Economic sustainability.

Variables	Cluster 1 - Formal Culture			Cluster 2 - Learning Culture			Total Sample		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Control variables									
Firm Size	-0.11-1.15	-0.13-1.35	-0.11-1.11	-0.03-0.23	-0.09-0.7	-0.05-0.34	-0.06-0.83	-0.1-1.38	-0.08-1.07
Sector	-0.16-2.04*	-0.15-1.96*	-0.15-1.88*	-0.13-1.31	-0.03-0.26	0.02 0.2	-0.11-1.87*	-0.1-1.63	-0.08-1.29
Industry	0.02 0.3	0.02 0.22	0.04 0.51	0.19 1.89*	0.11 1.04	0.07 0.62	0.11 1.76*	0.1 1.62	0.09 1.49
Job Position	0 0.05	-0.01-0.13	0.02 0.2	0.12 1.18	0.14 1.37	0.19 1.88*	0.04 0.61	0.06 0.93	0.04 0.7
Volume	0.16 1.67	0.16 1.64	0.15 1.52	-0.03-0.24	-0.02-0.22	-0.08-0.63	0.07 1.08	0.09 1.29	0.07 1.01
Age Ship	0.11 1.4	0.11 1.5	0.09 1.14	-0.11-1.15	-0.11-1.13	-0.09-0.82	0.01 0.22	0.02 0.29	0.02 0.39
Leadership & Talent Factors									
Authoritative leadership -AL		-0.01-0.07	0.01 0.06		0.2 1.92*	0.33 1.56		0.03 0.5	0.11 1.59
Stakeholder leadership - SL		-0.07-0.94	0.1 0.81		0.18 1.55	0.24 0.97		0.02 0.36	0.03 0.45
Formal leadership - FL		-0.05-0.57	-0.13-0.88		0 0	0.15 0.63		-0.04-0.68	-0.01-0.11
Growth leadership - GL		0.25 3.26	0.26 1.85*		0.08 0.85	0.33 1.57		0.18 3.15	0.18 2.89**
Innate Talent - IT		-0.03-0.32	-0.02-0.18		0.01 0.1	-0.02-0.14		-0.03-0.47	-0.06-1.05
Exclusive Talent -ET		-0.04-0.53	-0.07-0.84		0 0.04	-0.05-0.38		-0.01-0.21	-0.03-0.51
Inclusive Talent -CT		0.1 1.25	0.15 1.81		0.12 1.2	0.18 1.37		0.08 1.38	0.08 1.38
Visible Talent -VT		0.13 1.53	0.06 0.69		0.1 1.02	0.12 1.03		0.15 2.59	0.14 2.19*
Leadership * Talent Factors									
IT * AL			-0.07-0.54			-0.13-0.63			0.06 0.99
IT * AL			0.09 0.78			0.1 0.53			0.07 1.14
IT * SL			-0.15-0.94			-0.03-0.18			-0.01-0.13
IT * FL			-0.01-0.05			-0.23-1.14			-0.06-1.05
IT * GL			-0.02-0.23			0.12 0.83			-0.04-0.63
ET * AL			-0.1-1.03			0.18 1.48			0.01 0.16
ET * SL			0.04 0.41			0.13 0.85			-0.03-0.44
ET * FL			-0.02-0.21			-0.06-0.44			-0.03-0.52
ET * GL			0-0.05			0.03 0.28			0.08 1.24
CT * AL			0.14 1.56			-0.3-2.48*			0.04 0.6
CT * SL			0.07 0.84			-0.1-0.87			-0.03-0.54
CT * FL			-0.15-1.77*			-0.04-0.32			-0.06-0.97
CT * GL			0.04 0.38			0.18 1.56			-0.07-1.01
VT * AL			0.06 0.72			-0.13-0.87			0.01 0.12
VT * SL			-0.06-0.69			0.18 1.31			-0.02-0.38
VT * FL			0.24 2.3*			-0.02-0.16			0.12 1.84*
F Value	1.469	1.955*	1.512	1.417	1.507	1.365	1.556	2.288**	1.611
Adjusted R²	0.015	0.070	0.080	0.022	0.061	0.092	0.010	0.055	0.056
Δ R²	0.049	0.095*	0.092	0.076	0.106	0.160	0.030	0.068**	0.050

Notes: *** denotes $p < .001$, ** denotes $p < .01$, * denotes $p < .1$. AL: Authoritative Leadership, SL: Stakeholder Leadership, FL: Formal Leadership, GL: Growth Leadership. IT: Innate Talent, ET: Exclusive Talent, CT: Inclusive Talent, VT: Visible Talent. summarises findings of Step 3 from Table 14, Table 15, Table 16, Table 17, and Table 18 in the Appendix.

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Angelos Pantouvakis studied Civil Engineering at the National Technical University of Athens, (M. Eng.) He continued his studies at the Nottingham Business School, UK, M.B.A. (Masters in Business Administration) and he did his Ph.D. at the Judge Business School, University of Cambridge, (1997) He spends more than twenty years in the professional arena in Greece and abroad in the services sector industries. (Leading consulting firms (Deloitte & Touche, HAY), Banking (NATWEST) and Maritime Sector. He is a Professor and currently chairs the Department of Maritime Studies, University of Piraeus.

Ilias Vlachos is Research Professor in Supply Chain Management at La Rochelle Business School, Excelesia-Group, France. Ilias has extensive research and leadership experience and published over 120 articles and publications including 3 edited books on topics such as lean thinking, sustainability and the strategic use of technology in supply chains. Ilias advises companies and organisations such as: the European Technology Platform *Food for Life*, Scientific Working Group on Sustainable Food Processing and Packaging to shape the Strategic Research Agenda that promotes innovation in Europe and OECD- International Transport Forum (Paris, France) on topics such as Resilience of Multi-modal Supply Chains.