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ARTICLE

The role of the internal audit in the Armed Forces and its influence on organisational sustainability: a case study

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Abstract

Purpose – This paper develops a case study focusing on the Portuguese Air Forces, first to identify the roles of the internal audit (IA) and then to analyse its influence on organisation sustainability, while also exploring the moderating effect of human resource management practices (HRMPs).

Theoretical framework – This research draws on empirical work on the roles and activities performed by IA in the private sector and human capital theory to assess the effect of HRMPs on performance.

Design/methodology/approach – The study uses the survey method and data were collected through a questionnaire made available on an online platform. The study applies an ordinary least squares regression model.

Findings – This study shows that IA provides assurance and advisory services and that IA is positively related to sustainability orientation, particularly in the governance and social dimensions. The moderating effect of HRMPs is felt only in the environmental dimension.

Practical & social implications of research – This study reinforces the literature on the relationship between IA effectiveness and sustainability, provides insights into the effectiveness of IA as reported by auditors themselves, identifies the portfolio of functions performed by IA, and points to improvements to be made in IA management.

Originality/value – The topics studied are explored for the first time in the context of the Armed Forces, and the analysis of the moderating effect of HMRPs on the relationship between IA and sustainability is pioneering.

Keywords: Internal audit, sustainability, human resource management practices, Armed Forces.

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1 Introduction

The internal audit (IA) has changed and is no longer the same as it was a few decades ago. While IA may still evoke negative thoughts for some, it is now seen as an essential function for an organisation to survive and thrive (Anderson et al., 2017). In addition to its traditional functions, IA is now responsible for advising and driving value on what really matters in the organisation (Eulerich & Lenz, 2020). Indeed, the abrupt transformation that IA has undergone in recent years has led it to carry increased societal expectations (Pickett, 2010). In line with organisations' sustainability goals, IA also plays a vital role in sustainability issues (The Institute of Internal Auditors, 2021a).

Over the years, IA has attracted increasing interest from academics. However, despite the increasing number of studies in this field in both the private and public sectors, the literature on this topic remains scarce (Roussy & Brivot, 2016). This gap is even more structural in the public sector, as there are fewer studies concerning its reality on this topic (Hazaea et al., 2023; Roussy & Brivot, 2016). Moreover, this study focuses on the perspective of internal auditors, while the existing studies focus on the perspectives of other stakeholders (mainly external auditor). Little is known about internal auditors' perceptions of IA effectiveness (IAE) (Roussy & Perron, 2018; Trotman & Duncan, 2018). Additionally, few studies have taken into consideration the relationship between IA and sustainability (Soh & Martinov-Bennie, 2015; Harasheh & Provasi, 2023). Finally, no studies were found that examined the extent to which there should be no concern in the organisation to involve internal auditors in sustainability matters.

This gap in the literature also extends to the Armed Forces. Although there are organisational similarities between the Armed Forces and other public sector organisations (Felício et al., 2021), the characteristics of the former are found nowhere else. These organisations have unique command and control systems, serve as a crucial strategic component of a country under a strict, bureaucratic and hierarchical structure, and have top-down strategy making (Eisenberg et al., 2018; Godinho, 2023). Moreover, compared to the private sector, the Armed Forces are often seen as traditionalist and resistant to change (Salvada, 2018). This context raises the question of whether they are following the developments in IA, whether or not the role played by IA in military institutions is similar to other public or private organisations, and how this corporate governance (CG) mechanism contributes to organisational sustainability. Given that the defence sector has been subject to various reforms in the last few years (Eisenberg et al., 2018), and the highly specific nature of these organisations mentioned above, this study may provide new and highly valuable insights into how IA works in different contexts. This is all the more important as the Armed Forces, like the rest of the public administration, are under pressure to improve the way they operate (not only in economic, but also in social and environmental terms) in order to "do more with less" and have a greater impact on society.

The present study consists of a case study carried out in the Portuguese Air Force (PAF) and aims to address three main objectives: i) identify the roles/functions of the internal audit in the PAF; ii) assess the contribution of IA to the sustainability of the PAF; and iii) assess the possible moderating effect of human resource management practices (HRMPs) in the relationship between IA and sustainability. This last objective was analysed to see if any contextual factor could strengthen this relationship.

Based on data collected through questionnaires sent to the PAF's internal auditors, the results show that IA is a value-added assurance and advisory service that covers a wide range of areas, such as auditing compliance with the regulatory requirements and auditing financial risks. Moreover, IA can contribute to the sustainability of the PAF. The results reveal that this contribution is focused on the social and governance dimension of ESG, and that this contribution can be extended to the environmental dimension with the help of HRMPs.

This paper is divided into five sections. After the introduction, the second section reviews the literature and presents the hypotheses to be tested. The third section describes the methodology used, and the fourth section presents the results and the statistical tests that give them validity. The fourth section also compares the results with the literature and discusses them. Finally, the fifth section presents the conclusions, implications and limitations.

2 Literature review and hypothesis development

2.1 Roles of the internal audit

The need for effective control processes gave rise to the concept of internal auditing (Moeller, 2016) and

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many studies have investigated its roles (e.g., Roussy & Perron, 2018; Vadasi et al., 2019). Acting as an oversight governance mechanism was the first identified role of IA (Roussy & Perron, 2018). As such, IA enhances the quality and consequent reliability of financial information (Prawitt et al., 2009) and mitigates both significant internal control weaknesses and financial fraud (Lin et al., 2011). The roles of IA are constantly evolving and go beyond governance oversight to supporting top management and the organisation (Roussy, 2013). IA can also be referred to as a trusted advisor and value driver. With the aim of improving the overall performance of the organisation, the advisory activity often focuses on governance, risk management and internal control. Already as a value driver, it contributes to what really matters in the organisation, thereby addressing the more unknown and complex issues (Eulerich & Lenz, 2020). Thus, IA strengthens the quality of CG and contributes to the achievement of the organisation's objectives (The Institute of Internal Auditors, 2013; Lenz et al., 2018).

However, the added value of IA varies greatly between professionals and organisations, depending on the specific characteristics of the latter (Anderson et al., 2017; Eulerich & Lenz, 2020). In the public sector, organisations have different goals and, consequently, different CG (Cohen & Sayag, 2010). It is noteworthy that these organisations operate in an environment where there are significantly greater external pressures from several different stakeholders, greater public scrutiny, and greater and more specific regulations (Tompkins, 2023). Given this paradigm and the broader nature of public sector governance, it is expected that IA activities will be more extensive (Asare, 2009). Indeed, IA in the public sector has shifted its attention to all organisational processes, primarily to ensure compliance, and subsequently to performance or value-for-money audits. In addition, IA also provides internal advising and adds value by minimising and managing the risks associated with the challenges that the public sector may face (Janse van Rensburg & Coetzee, 2016). IA can play a protector role, protecting management from possible obstacles, and a helper role, supporting organisational performance and providing guidance when needed (Roussy, 2013).

The specific characteristics of the public sector and, in this case, of the Armed Forces, can lead to different results regarding the activities of IA and how it operates in this environment. Thus, given the multiple roles documented, the lack of consensus in the literature (Roussy & Perron, 2018) and the continuous redefinition of the roles of IA today (Moeller, 2016), the first objective of this paper is to identify the roles/functions of IA in the PAF.

2.2 Internal audit and sustainability

The term "effectiveness" or similar has often been used in the definition and roles of IA and refers to the degree of achievement of the objectives set (Turetken et al., 2019). The effectiveness of IA derives from general definitions as the level of achievement of what IA was designed for (Mihret & Yismaw, 2007). IA was designed to add value and improve an organisation's operations (The Institute of Internal Auditors, 2017). Since meeting these objectives depends on how effective an IA is (Mihret & Yismaw, 2007; Turetken et al., 2019), research in internal auditing is moving towards an understanding of IAE (e.g. Alzeban & Gwilliam, 2014).

The responsibilities assigned to IA are constantly evolving (Eulerich & Lenz, 2020). Indeed, there has been increased stakeholder interest in sustainability assurance and consequently in quality and reliable information (DeSimone et al., 2021; Hazaea et al., 2022). However, rather than IA being expected to ensure sustainability, there is growing pressure to manage sustainability challenges and risks (The Institute of Internal Auditors, 2021b).

Sustainability is "[…] the principle of ensuring that our actions today do not limit the range of economic, social, and environmental options open to future generations" (Elkington, 1997, p. 20). The environmental, social and governance (ESG) perspective brings in the concept of governance, which refers to variables such as business ethics, leadership, internal controls, intellectual property protection and shareholder rights (The Institute of Internal Auditors, 2021a). The challenges and complexities of ESG are considerable, and the results of poor management of it may be severe. In this respect, sustainability management is not something that can be taken for granted, and organisations should count on a governance structure that effectively pursues an ESG strategy (The Institute of Internal Auditors, 2021a). Broader questions related to social and environmental dimensions are among the most significant issues of the times and are increasingly taking place in CG (Naciti et al., 2022). In public sector organisations, given the pressure from citizens, fulfilling stakeholders' expectations has become more important and a greater degree of sustainability, accountability and transparency in the use of public resources is required

(Piper, 2015). Thus, it is crucial to understand the direct relationship between IA and sustainability and whether it effectively creates value in this area.

It is increasingly recognised that the engagement of IA in the three dimensions of sustainability can add value to an organisation (DeSimone et al., 2021; Hazaea et al., 2022; The Institute of Internal Auditors, 2021a). The better the IA activity, the better the CG and, consequently, the higher the level of sustainability (Samagaio & Diogo, 2022). By involving IA in this area, sustainability activities can be improved and associated risks reduced (Stanwick & Stanwick, 2001).

IA thus plays a key role as a support instrument (DeSimone et al., 2021) and, similar to the value added by IA in its traditional activities, IA is a cornerstone of CG in relation to ESG matters. IA can well support management in clarifying and managing ESG risks, thereby assessing the organisation's ESG culture and alignment with ESG initiatives, measuring ESG activities and ensuring reporting (The Institute of Internal Auditors, 2021a).

In the same way that IA is effective and adds value in other areas of activity, it can do the same in sustainability matters. This leads us to our first hypothesis, which materialises the second objective of this paper:

> H1: IAE is positively related to the PAF's sustainability orientation (SO).

2.3 Moderator effect of human resource management practices

Several studies have linked IAE to the competence and proficiency of internal auditors (e.g., Alzeban & Gwilliam, 2014; Turetken et al., 2019). Firstly, some suggest that an adequate level of competence in an IA team is positively related to the effectiveness of IA (Ahmad et al., 2009; Al-Twaijry et al., 2003). Secondly, in the other direction, some studies suggest that the lack of competence of the IA team is counterproductive to IAE (Mihret & Yismaw, 2007; Onumah & Krah, 2012). The IIA Standards (The Institute of Internal Auditors, 2017) highlight this idea. Considering current activities, trends and emerging issues, internal auditors must have the competencies needed to carry out their individual responsibilities (The Institute of Internal Auditors, 2017).

The human capital of IA departments could be enhanced through human resource management practices (HRMPs). Human capital theory assumes that people's capabilities, knowledge, skills, life experiences and motivation are capital too, and of value as other resources that organisations can use to achieve their goals (Becker, 2009). First, it drives the marginal performance of labour, and then marginal performance drives profits. As employees are expected to have the right competencies to carry out their responsibilities, organisations must develop policies and practices that help them get better at what they do and perform well (Mathis et al., 2017).

The environment that emerges together with HRMPs provides an important upstream context for both individual and organisational performance (Albrecht et al., 2015). Firstly, HRMPs influence the competencies and motivations of individual employees, their efforts and their opportunities in their work. Secondly, HRMPs help to build organisational capabilities, influence organisational culture and, finally, help to shape the climate in which individuals work (Evans & Davis, 2005). Organisational performance is influenced by team performance and, before that, by individual performance. In a nutshell, HRMPs increase the human capital of organisations (Rauch et al., 2005), leading to improvements in individual performance and therefore increasing organisational performance (Albrecht et al., 2015).

To conclude, the impact of IA effectiveness on SO should be enhanced in organisations that cultivate ESG-related issues in their HRMPs. As HRMPs enable improved individual, departmental and organisational performance, and thus the achievement of organisational objectives, the following hypothesis (the third and last objective) arises:

> H2: HRMPs moderates the positive relationship between IA effectiveness and the PAF's SO, such that the relationship is stronger in the presence of HRMPs.

3 Method

3.1 PAF internal audit framework

The PAF is a branch of the Armed Forces that involves the direct administration of the State through the National Ministry of Defence. Its main mission is to participate, in an integrated manner, in the military defence of the Portuguese Republic. Additionally, the PAF has other responsibilities, such as participating in

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international military missions, including humanitarian and peacekeeping missions, and ensuring the functioning of the air search and rescue service.

To fulfil its mission, the PAF may draw on IA. In the PAF, IA is not a single department. It is divided into three different departments, each located in different institutional bodies and with distinct responsibilities. They are the Financial and Patrimonial Inspection and Auditing Service (FPIAS), the Air Force Inspectorate (AFI) and the Cabinet of Quality, Airworthiness and Environment (CQAE) (which belongs to the Programs and Engineering Directorate). In relation to this last cabinet and its field of activity, the Air Force is complemented by the Environment and Quality Cabinets (EQCs), although they do not report directly to it but to the unit commanders.

The internal audit responsibilities of the FPIAS fall within the scope of activities related to the administration of financial resources available to the Air Force. The CQAE and EQCs work in the areas of quality and airworthiness management and environmental, health and safety at work management. Finally, the AFI's audit function is much broader than the other departments. It ensures compliance with laws and regulations and the effectiveness, relevance and efficiency of the Air Force's actions in all its activities (Portugal, 1999, 2011, 2012, 2013, 2015).

As far as the HRMPs most commonly used by the PAF are concerned, they are limited but varied. The Air Force, as it belongs to the public sector, cannot resort to monetary compensation. The PAF's HRMPs tend to focus on, but are not limited to, what the military needs to carry out its activities. HRMPs may be related to cultural aspects of the organisation or other aspects considered important at the time.

3.2 Data collection

The data collection technique used was the questionnaire, and evidence was collected from all the IA departments in the PAF. The target population of the questionnaires was all internal auditors in the organisation. The unit of analysis was the individual. The auditors were all identified through the internal database and then contacted by e-mail.

The data collection was carried out in two phases. Firstly, the role of IA in the PAF was addressed. For certain matters, responses were sought from the heads of the three departments, and for other matters, other auditors were questioned to obtain a more in-depth view. This last group of respondents includes the auditors of the EQCs. Secondly, the study evaluated the contributions of IA to the SO of the PAF and the possible moderating effect of HRMPs on it. In this questionnaire, all respondents answered in the same way and all questions were closed.

The questionnaires were internet-based and both were developed through a literature review. To ensure the validity of the questionnaires on the Qualtrics platform, they were translated and back-translated to ensure equivalence of meaning. The Air Force Academy language department reviewed the translation and a native speaker carried out the back-translation. In addition, both questionnaires were pre-tested by three experts. Finally, the second questionnaire was reviewed by three accredited auditors. The questions for both questionnaires can be found in Appendices A to I.

As all variables were collected using the same method, common method variance may occur (Jordan & Troth, 2020). To minimise it, the questionnaires contained an introductory note explaining the purpose of the research and that participation was voluntary, thus ensuring the anonymity of responses and encouraging honest answers. Also, contact details were provided in case of any questions. Finally, no logic was followed in the inclusion of the variables, and the measurement items were mixed to avoid illusory correlations. Acquiescence bias and the anchor effect were minimised by labelling the scale items and using nominal and five-point Likert scales, respectively (Jordan & Troth, 2020; Podsakoff et al., 2003). To check whether common method variance was present, Harman's single-factor test was conducted (Podsakoff et al., 2003). Exploratory factor analysis with an unrotated factor solution yielded seventeen factors with eigenvalues greater than 1, together explaining about 90.8% of the variance. As the first factor accounted for 34.3% of the total variance, less than the suggested threshold of 50% (Fuller et al., 2016), common method variance was not present.

Out of a population of 53 auditors, 45 responses were received in the first survey and 49 in the second. However, 10 and 14 responses, respectively, had to be discarded due to excessive missing data and straight-line responses. This resulted in 35 usable responses for both the first and second surveys. The 35 responses do not correspond to the same internal auditors, as the questionnaire was developed at two different moments. Business reasons, holidays and paternity leave were the main reasons for this outcome. Finally, early and late responses were compared

for all items using the Mann-Whitney test. Overall, the results suggested that there was probably no non-response bias (Armstrong & Overton, 1977).

3.3 Measurement

To obtain information to address the first objective, six different questions were asked (see Appendices A to F. Supplementary Data 1 – Questionnaire 1). The CAEs defined the role of IA in the PAF. They identified how resources were divided between assurance and advising, what IA policies or documents existed, and what IA activities were performed or were expected to be performed. All CAEs were then asked to identify the top five risks on which the PAF's IA was focusing most attention in the current year, and their opinion on the extent to which IA was aligned with the PAF's strategic plan. They then gave their opinion on five statements regarding the definition of IA in the IIA Standards (The Institute of Internal Auditors). All questions were based on selecting the available options, except for the last one, which was measured on a five-point Likert scale. All questions and their items were based on several studies (Alkafaji et al., 2011; Eulerich & Lenz, 2020; The Institute of Internal Auditors, 2015, 2021b; Leung et al., 2003).

The results for the first objective allowed us to adapt the questions for objectives two and three. As these results pointed to work on sustainability issues and that there was indeed concern with them, the following questions were developed with this outcome in mind. Three questions were asked to address objectives two and three.

The dependent variable is SO and is proxied by the importance given to 32 ESG issues in the management of the PAF (ESG construct). SO refers to management's attitude and belief that the organisation should consider sustainability-related issues and act accordingly (Kautonen et al., 2020). The 32 issues presented to the auditors can be distributed across these three dimensions and then serve as the basis for three other different constructs: ENV, SOC and GOV. These constructs will be important to understand the contribution of IA to each ESG dimension, one by one. The importance of the 32 issues to the PAF's management was rated on a five-point Likert scale. The list of ESG issues was based on two studies (Roberts et al., 2022; Soh & Martinov-Bennie, 2015).

Most definitions of IAE provide freedom of interpretation with regard to measurement criteria (Barišić & Tušek, 2016). In this study, the measurement of IAE included 34 items (IAEG construct) covering a wide range of criteria (e.g., audit quality, added value, IA stakeholders' evaluations, and processes). The internal auditors were asked to indicate their level of agreement with these items on a five-point Likert scale. These items were developed based on previous literature (Alzeban & Gwilliam, 2014; Cohen & Sayag, 2010).

The moderating variable was HRMPs. This variable consisted of 13 items from Tang et al.'s (2018) instrument to measure green HRM (encompassing its training, performance management and involvement constructs). The items were adapted to reflect HRMPs on ESG. Their effect was measured on a scale ranging from 1 to 5.

The measurement items and their codes (used for descriptive purposes) are shown in Appendices G to I (Supplementary Data 2 – Questionnaire 2). Table 1 illustrates the relationship between the research objectives and the questionnaire questions.

3.4 Baseline regression model

The IAE construct was measured by 34 items, which, through principal component analysis, led us to three factors – IAE1, IAE2 and IAE3 – explaining 50.5% of the total variance, following the procedures of Marôco (2021) (Appendix J). The majority of the IAE1 items dealt with the quality of the IA, and the majority of the IAE2 and IAE3 items dealt with the added value of the IA.

Our hypotheses were tested based on the results obtained in the ordinary least squares (OLS) regression models. First, we ran the baseline model to analyse the effect of IAEG on ESG. Then, the same was done for IAE1, IAE2 and IAE3. Finally, to get a deeper insight into how IA might contribute to each ESG dimension, the analysis was performed individually. In all cases, the possible moderator effect of HRMPs was tested. The models testing the IAEG construct are called global IAE models (models 1 to 4), and the models testing IAE1, IAE2 and

Table 1
Questions used to address research objectives

Research objectives	Questionnaire questions (Appendices)
Objective one	Appendices A to F
Objective two (hypothesis 1)	Appendices G and I
Objective three (hypothesis 2)	Appendix H

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IAE3 are called split IAE models (models 5 to 8). This way, we used the following baseline regression models:

$$Model\,1 - ESGi = \beta 0 + \beta 1 * IAEGi + \beta 2 * HRMPi + \beta 3 * MODGi + \varepsilon i$$

$$Model\,2 - ENVi = \beta 0 + \beta 1 * IAEGi + \beta 2 * HRMPi + \beta 3 * MODGi + \varepsilon i$$

$$Model\,3 - SOCi = \beta 0 + \beta 1 * IAEGi + \beta 2 * HRMPi + \beta 3 * MODGi + \varepsilon i$$

$$Model\,4 - GOVi = \beta 0 + \beta 1 * IAEGi + \beta 2 * HRMPi + \beta 3 * MODGi + \varepsilon i$$

$$Model\,5 - ESGi = \beta 0 + \beta 1 * IAE1i + \beta 2 * IAE2i + \beta 3 * IAE3i + \beta 4 * HRMPi + \beta 5 * MOD1i + \beta 6 * MOD2i + \beta 7 * MOD3i + \varepsilon i$$

$$Model\,6 - ENVi = \beta 0 + \beta 1 * IAE1i + \beta 2 * IAE2i + \beta 3 * IAE3i + \beta 4 * HRMPi + \beta 5 * MOD1i + \beta 6 * MOD2i + \beta 7 * MOD3i + \varepsilon i$$

$$Model\,7 - SOCi = \beta 0 + \beta 1 * IAE1i + \beta 2 * IAE2i + \beta 3 * IAE3i + \beta 4 * HRMPi + \beta 5 * MOD1i + \beta 6 * MOD2i + \beta 7 * MOD3i + \varepsilon i$$

$$Model\,8 - GOVi = \beta 0 + \beta 1 * IAE1i + \beta 2 * IAE2i + \beta 3 * IAE3i + \beta 4 * HRMPi + \beta 5 * MOD1i + \beta 6 * MOD2i + \beta 7 * MOD3i + \varepsilon i$$

We used the standardised scores of the variables in the regression models. Previously, the indicator scores of all variables were summed to increase the reliability of the measurement (Supplementary Data 3 – Variable Scores). IBM SPSS Statistics 28.1.1 software was used to obtain descriptive statistics of the variables and to run the OLS regression models. SmartPLS 3.0 software was used to assess the measurement model of the dependent and independent variables.

4 Empirical results

4.1 Descriptive analysis

The results from the CAEs revealed that only one of the departments could rely on the IA operating manual, the IA strategy description, the code of conduct/ethics and the description of key performance indicators (Appendix A). The IA charter and mission statement for the IA were missing in all departments. Moreover, two out of three CAEs stated that resources were divided equally between assurance and advisory activities. The last one stated that almost all resources were spent on assurance and little on advisory (Appendix B). The roles of the IA and the general perception of its activities are described in Appendix C. Out of a total of 38 foreseen activities, 30 were carried out by the PAF's IA. These activities represent the whole bundle performed independently of the three departments, and some activities were performed in more than one department.

Regarding individual perspectives on the top five risks on which the PAF's IA was focusing (Appendix D), R_5 ranked first with 25 responses in favour. R_2 and R_4 came next with 18 responses each, followed by R_6, R_9 and R_11 with nine responses each.

Appendix K shows the descriptive statistics of the two questions related to internal audit alignment (IAA) and internal audit definition (IAD). IAA presented a mean of 3.93, showing that, in general, the internal auditors believe that IA is almost entirely aligned with the organisation's strategy. IAD presented a mean of 4.17 on a scale of 1-5, with item means ranging from 3.83 (IAD_1) to 4.46 (IAD_2) and SDs ranging from 0.677 (IAD_4) to 1.098 (IAD_1).

Appendix L shows the descriptive statistics of the latent variables used to test our two research hypotheses. The latent variables with the highest mean were IAE1 and IAE3, both with values of 4.1, while the variable with the lowest mean was HRMP with 2.85. Regarding the indicators (Appendices A to I), those with the highest values were IAE_10 and IAE_21, each with a mean of 4.31. Those with the lowest values were HRMP_2 and HRMP_12, with a mean of 2.66 and 2.57, respectively. In general, there is a positive kurtosis and a negative skewness. Both measures have values within the acceptable range.

4.2 Multivariate analysis

4.2.1 Measurement model assessment

Before delving into the OLS regressions, the measurement model assessment was conducted by first calculating the Cronbach's alpha (CA), composite reliability (CR), and average variance extracted (AVE) of the variables (Appendix M). The CA and CR were all greater than 0.7, indicating sufficient internal consistency reliability (Hair et al., 2019). To assess convergent validity, the AVE and item loadings were analysed, taking into account Hair et al. (2019). The AVE values were all above the minimum required (0.5), and the generality of the item loadings was above the suggested threshold (0.7) (Appendix N). The final step was to assess discriminant validity. For that, we used the Fornell-Larcker criterion and heterotrait-monotrait (HTMT) ratio (Appendix O). According to the Fornell-Larcker criterion, the square root of the AVE of each construct must be higher than its correlation with the remaining constructs. The heterotrait-monotrait ratio should be lower than the minimum

threshold value of 0.85 (Hair et al., 2019). Convergent and discriminant validity were confirmed.

4.2.2 Evaluation of the estimated model

The regression results are presented in Tables 2 and 3. Regarding the statistical significance of the regression coefficients on the set of global IAE models, IAEG is statistically significant at the 0.01 level in models 1, 3 and 4. In model 2, HRMP and MODG are statistically significant at the0.05 and 0.1 levels, respectively. However, in the set of split IAE models, MOD2 is statistically significant at the 0.1 level in model 6 and IAE1 at the 0.05 level in models 5, 7 and 8. All significant coefficients show a positive association with the dependent variables.

The coefficient of determination (R^2) ranges from 0.337 to 0.429 for the global IAE models and from 0.435 to 0.516 for the split IAE models, indicating that our dependent variable effectively captures the independent variables. To assess the significance of the overall model, the coefficient of determination was tested. All models are jointly significant at the 0.01 level, except for models 6 and 8, which are jointly significant only at the 0.05 level (Hair et al., 2019).

4.3 Discussion

Looking at the information collected, it can be seen that the PAF's IA performs, or is expected to perform, a wide range of activities (30 out of 38). It is important to note that among these activities, some are related to assurance and others to advising. This idea was confirmed when the CAEs were asked how IA allocates resources to these activities: two out of three departments divide their resources equally between assurance and advising. Other activities to highlight, in line with the first objective of this paper, are those related to sustainability matters. Accordingly, "Tasks related to sustainability matters

Table 2
Regression Results for Global IAE Models

	Model 1		Model 2		Model 3		Model 4	
	B	t	B	t	B	t	B	t
Constant	-4.424	-0.158	6.330	0.866	-3.074	-0.369	-7.680	-0.529
IAEG	1.412	3.394***	0.180	1.654	0.500	4.026***	0.732	3.386***
HRMP	0.329	0.850	0.213	2.095**	0.034	0.292	0.083	0.412
MODG	4.047	1.435	1.448	1.962*	1.312	1.559	1.288	0.878
R2	0.392		0.337		0.429		0.351	
Adjusted R2	0.333		0.273		0.373		0.289	
F-stat	6.664***		5.258***		7.756***		5.598***	

Note. ***, **, * significant at the 1%, 5% and 10% levels, respectively.

Table 3
Regression Results for Split IAE Models

	Model 5		Model 6		Model 7		Model 8	
	B	t	B	t	B	t	B	t
Constant	-4.138	-0.140	7.135	0.903	-2.208	-0.246	-9.065	-0.589
IAE1	2.077	2.105**	0.147	0.559	0.630	2.11**	1.300	2.535**
IAE2	0.627	0.572	0.169	0.578	0.266	0.801	0.192	0.337
IAE3	1.269	0.780	0.319	0.735	0.527	1.069	0.424	0.501
HRMP	0.174	0.411	0.166	1.469	0.005	0.042	0.003	0.013
MOD1	-5.486	-1.120	-1.691	-1.296	-1.439	-0.971	-2.356	-0.926
MOD2	9.283	1.575	3.046	1.939*	2.346	1.315	3.891	1.271
MOD3	3.955	0.880	1.144	0.956	1.538	1.131	1.272	0.545
R2	0.501		0.435		0.516		0.468	
Adjusted R2	0.371		0.288		0.391		0.330	
F-stat	3.865***		2.967**		4.12***		3.388**	

Note. ***, **, * significant at the 1%, 5% and 10% levels, respectively.

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(ESG – Environmental, Social and Governance)" appear with increased emphasis. Finally, regarding the exclusive questions asked of the CAEs, it was noted that while one department had some policies and documents, the other two did not.

Overall, the PAF's IA is evolving and following the evolution of IA worldwide. It has changed into an independent, objective and value-added assurance and advisory service, as expected not only by the literature (Eulerich & Lenz, 2020) but also by the IIA Standards (The Institute of Internal Auditors, 2017). This is also reflected in the number of activities performed. However, there are some areas for improvement, as not all documents and policies required by the IIA Standards are present.

Regarding the top risks on which the PAF's IA was focusing and comparing the results with the IIA's "On Risk" report (2021), which defines the top risks likely to affect organisations in 2022, nine out of 12 were selected at least once. Finally, the IAA and IAD questions allowed us to understand various ideas. First, the IAA question showed that IA is almost fully aligned with the organisation's strategy and therefore focuses on both operational and strategic dimensions. The literature, in turn, states that CG relates to decision-making processes (Naciti et al., 2022) and, moreover, IA is one of the cornerstones of CG (Cohen et al., 2004). Moreover, IA is seen as capable of contributing to the achievement of organisational goals (The Institute of Internal Auditors, 2013). Therefore, if that is the case, it would be expected that organisational strategy and IA, both intrinsically related to CG, would be aligned.

Secondly, the results for the last question, with regard to the first objective, are good overall. If this question is based on the definition of IA in the IIA Standards (The Institute of Internal Auditors, 2017), in a preliminary attempt to understand internal auditors' perceptions of it, the PAF's IA is aligned with it. This means that IA is satisfactorily fulfilling the main functions assigned to it by the IIA Standards. Here, IAD_2 appears with greater emphasis and shows the highest score, indicating that IA is really adding value to the PAF. On the other hand, IAD_1 was underrated compared to the others. That might indicate that IA may be lacking independence in the PAF. In addition to the IIA Standards themselves, several studies have focused on the added value and usefulness of IA (e.g., Anderson et al., 2017; Eulerich & Lenz, 2020). This study confirms this idea and complements the literature on the topic of the added value of IA.

The first hypothesis (H1) theorises that IAE is positively related to the SO of the PAF. Overall, model 1 confirms this: IAEG is significant and can explain ESG. The same happens when IAEG is split into three different components (model 5), but only for IAE1. This supports the shared general view in the literature that IA can contribute to an organisation's SO (ESG/sustainability). In fact, when the topic is taken to its generality, IA's contribution to sustainability matters is a given. The literature points to an expanding role of IA in ESG issues, highlighting its improvement of sustainability levels (e.g., Samagaio & Diogo, 2022; Soh & Martinov-Bennie, 2018). This idea is also emphasised in studies related to IIA: IA is expected to be a catalyst for innovation and improvement in sustainability matters (The Institute of Internal Auditors, 2021a; World Business Council for Sustainable Development, 2022).

However, when it comes to understanding the impact of IAE on each ESG dimension, the results differ from the environmental dimension. In models 2 and 6, IAEG and IAE1, IAE2 and IAE3 are not significant on their own and do not contribute to ENV. This is not consistent with what the literature suggests as the impact of IA on the environmental dimension. As if the literature highlighting the importance of IA in this dimension were not enough (e.g., DeSimone et al., 2021; Hazaea et al., 2022), none of these audits would be carried out if they were expected to have no impact on sustainability. According to this stream of research, one would expect a positive contribution of IA to the environmental dimension of ESG. This was not verified.

The second hypothesis (H2) posits that HRMPs enhances the positive relationship between IAE and the PAF's SO. Regarding this exact moderating effect of HRMPs on the relationship between IAE and SO, no studies were found that investigated it. However, concerning the environmental dimension, this is an expected result. Human resources are considered to be central to achieving successful environmental management, and HRMPs, when applied in this sense, may enhance environmental performance (Tang et al., 2018). Moreover, a look at the literature shows that a large part of it is based on environmental/green HRMPs, which gives more strength to this rationale.

5 Conclusion

Several conclusions can be drawn from this topic. First, the results confirm that the PAF's IA is an added-value

function that provides objective assurance and advisory services on a wide range of activities. These activities range from auditing compliance with regulatory requirements or auditing financial risks to tasks related to sustainability matters. With regard to the latter activity, the study shows that IA is positively related to SO overall. Indeed, when sustainability/ESG is addressed in its generality, the results point to a positive contribution of IA. When the analysis focuses on each of the ESG dimensions individually, IA contributes to the governance and social dimensions of ESG. This is not the case in the environmental dimension, except in the presence of HRMPs, which strengthen it. This moderating effect of HRMPs is only felt in the environmental dimension.

The findings have theoretical and practical implications. First, this paper contributes to a stream of research that examines the contribution of IA to sustainability. In this particular case, this topic is explored in a branch of the Armed Forces, a public sector organisation, and reflects its reality. This is a point to note as this study helps to fill the gap that existed in the public sector and defence. Second, the results showed that IA now has a well-defined strategic dimension other than assurance, which is an advisory-oriented activity that is worthy of study by the academic community. Additionally, IA can work in other strategic areas if needed and can thus enhance sustainability. This study reinforces the importance of IA for an organisation's CG, both as an operational and strategic tool. In addition to the traditional focus on compliance and inspection, IA supports the organisation in achieving management goals. It is also important to note that IA is a flexible function that can operate and add value even in very specific environments, such as the public sector and defence. This may indicate that IA can evolve and adapt to the context in which it is deployed. Thus, our findings enrich the literature in a field where there is little work. Third, the study provides a more in-depth analysis, as it was conducted not only for the sustainability topic in its generality, but also for each of its dimensions. By broadening the focus of the analysis, this study draws attention to how IA may affect sustainability in organisations. Fourth, the contribution of IA to the environmental dimension, which only occurs under the effect of HRMP, brings other important information: the effect of IAE on SO is influenced by context, as was evident in the moderating effect of HRMPs.

This study also provides new data by focusing on a specific organisation. To fulfil its mission, the Air Force develops activities that, by their very nature, are likely to cause significant environmental impacts. In view of the rapidly changing global climate and its negative consequences, the PAF and all the Armed Forces should consider acting responsibly to mitigate its impacts.

Of course, the PAF has a lot of work to do to respond to the context in which it is embedded. The fact that IA does not contribute to the environmental dimension does not mean that the PAF is neglecting this dimension, but the PAF may be missing a great opportunity to further enhance this strategic goal. IA is well placed to take the PAF's environmental sustainability a step further. It can help improve on what has been done and, additionally, look for further improvements while doing what is best. If the PAF does not take advantage of what IA has to offer in this area, it will be further away from achieving its objectives and others imposed by its context. Having an IA that contributes to environmental sustainability is a status that the PAF should pursue. Given that there is already work being done in this area, it is important to analyse how IA is working on these matters and how it can be improved. This analysis should focus not only on the way it works, but also on everything that surrounds it, so that the PAF can achieve the desired outcome: a positive impact on environmental sustainability.

Finally, the results of the effect of HRMPs on IAE are really important as they provide evidence that, in order to pursue environmental sustainability through IA activity, the PAF must now endeavour to implement these practices. In this way, the PAF can not only determine the contribution of IA to the environmental dimension, but also look for these HRMPs to intensify it. This is also something that the PAF can make more use of in the future. This can also be useful for the future organisational policies of the Portuguese Armed Forces.

This study has a major limitation. The sample size (related to the size of the study organisation) is not large and this alone limits the analysis. This could influence the items in the construction of the constructs themselves. If the sample were larger, PLS-SEM could be used.

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Supplementary Material

Supplementary Data 1 – Questionnaire 1
Supplementary Data 2 – Questionnaire 2
Supplementary Data 3 – Variable Scores
Supplementary Material can be found online at https://doi.org/10.7910/DVN/XZMXGW

APPENDIX A. POLICIES AND DOCUMENTS

Question: Which of the following internal audit documents or policies exist in your organization? (choose all that apply)

Code	Indicators	Frequency
PD_1	Internal audit charter	0
PD_2	Mission statement for the internal audit department	0
PD_3	Internal audit operating manual	1
PD_4	Internal audit strategy description	1
PD_5	Code of conduct/ethics	1
PD_6	Description of key performance indicators (KPIs)	1
PD_7	None	2

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APPENDIX B. RESOURCES DIVISION BETWEEN ASSURANCE AND CONSULTING

Question: How in your organization are internal audit resources allocated between assurance and consulting? Assurance refers to assessments of governance, risk management and control processes. Consulting refers to advice, counseling, facilitation, and training at the request of the client.

Code	Indicators	Frequency
RAC_1	All resources are spent on assurance	0
RAC_2	Almost all resources are spent on assurance, and few resources are spent on consulting	1
RAC_3	Resources are equally divided between assurance and consulting	2
RAC_4	Almost all resources are spent on consulting, and few resources are spent on assurance	0
RAC_5	All resources are spent on consulting	0
RAC_6	I don't know	0

APPENDIX C. ACTIVITIES PERFORMED

Question: Please indicate whether the Internal Audit Department performs (or is planning to perform in the short term) the following activities: (choose all that apply).

Code	Indicators	Frequency
ACTIVITY_1	Operational audits	1
ACTIVITY_2	Audits of compliance with regulatory code (including privacy) requirements	3
ACTIVITY_3	Auditing of financial risks	2
ACTIVITY_4	Investigations of fraud and irregularities	2
ACTIVITY_5	Evaluating effectiveness of control systems (using COSO, COBIT, etc., frameworks)	2
ACTIVITY_6	Auditing of IT/ICT risks	1
ACTIVITY_7	Auditing of information risks	1
ACTIVITY_8	Management audits	2
ACTIVITY_9	Audits of risk management processes	2
ACTIVITY_10	Provide advice and consulting on risk management activities	1
ACTIVITY_11	Project management assurance/audits of major projects	1
ACTIVITY_12	Security assessments and investigations	2
ACTIVITY_13	External audit assistance	3
ACTIVITY_14	Corporate governance reviews	1
ACTIVITY_15	Reviews of governance policies and procedures related to the organisation's use of information technology (IT)	0
ACTIVITY_16	Disaster recovery testing and support	0
ACTIVITY_17	Facilitating risk/control/compliance training and education for organisation personnel	1
ACTIVITY_18	Auditing of outsourced operations	0
ACTIVITY_19	Ethics audits	1
ACTIVITY_20	Budget execution assessments	0
ACTIVITY_21	Reviews addressing linkage of strategy and company performance (e.g., balanced scorecard)	0
ACTIVITY_22	Due diligence reviews for corporate acquisitions/mergers, etc.	0
ACTIVITY_23	Quality/ISO audits	1
ACTIVITY_24	Tasks related to sustainability matters (ESG – Environmental, Social and Governance)	1
ACTIVITY_25	Migration to Accounting Standardisation System for Public Administrations (SNC-AP)	1
ACTIVITY_26	Implementation of Extensible Business Reporting Language (XBRL)	0
ACTIVITY_27	Adequacy and effectiveness of the internal control system assurance	2
ACTIVITY_28	Identifying emerging risks	2
ACTIVITY_29	Provide assurance on individual risks	0
ACTIVITY_30	Mining and analysing data for management	1
ACTIVITY_31	Recommending improvement	2
ACTIVITY_32	Informing and advising management	2
ACTIVITY_33	Informing and advising the audit committee	1
ACTIVITY_34	Informing key stakeholders	2
ACTIVITY_35	Assessing fraud risks and deterring fraud	2
ACTIVITY_36	Assuring the adequacy and effectiveness of the organisation's regulatory compliance processes	1
ACTIVITY_37	Testing the adequacy and effectiveness of management's assessment of controls	2
ACTIVITY_38	Assuring the adequacy and effectiveness of the organisation's governance processes	1

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APPENDIX D. FOCUSED RISKS

Question: Please identify the five priority risks upon which your internal audit department is focusing the greatest level of attention this year.

Code	Indicators	Frequency
R_1	Strategic risks	8
R_2	Risk management assurance/effectiveness	18
R_3	Corporate governance	6
R_4	Operational	18
R_5	Compliance/regulatory	25
R_6	Information technology (IT), not covered in other audits	9
R_7	Third-party relationships	1
R_8	Crisis management	1
R_9	Fraud, not covered in other audits	9
R_10	Cost/expense reduction or containment	6
R_11	General financial	9
R_12	Cybersecurity	0
R_13	Talent management	0
R_14	Data privacy	1
R_15	Economic and political volatility	1
R_16	Culture	2
R_17	Supplier management	3
R_18	Disruptive innovation	0
R_19	Social sustainability	1
R_20	Supply chain disruption	1
R_21	Environmental sustainability	8
R_22	Other	3
R_23	I'm not sure	9

APPENDIX E. INTERNAL AUDIT ALIGNMENT

Question: How well do you believe your internal audit department is aligned with your organization's strategic plan?

Code	Indicators
IAA_1	Not aligned
IAA_2	Minimally aligned
IAA_3	Somewhat aligned
IAA_4	Almost fully aligned
IAA_5	Fully aligned

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APPENDIX F. INTERNAL AUDIT DEFINITION

Question: Considering the internal audit function in your organization, what is your view about the relevance of each of the following functions? (1 = strongly disagree; 5 = strongly agree)

Code	Indicators
IAD_1	Internal audit is an independent objective assurance and consulting activity in my organisation
IAD_2	Internal auditing adds value and improves the organisations operations
IAD_3	Internal audit brings a systematic and disciplined approach to evaluate and improve the effectiveness of risk management
IAD_4	Internal audit brings a systematic and disciplined approach to evaluate and improve the effectiveness of control
IAD_5	Internal audit brings an approach to evaluate and improve the effectiveness of corporate governance processes

APPENDIX G. SURVEY ITEMS USED FOR INDEPENDENT VARIABLES

Question: Please indicate the agreement degree with the following statements? Please answer according to your perception about the Internal Audit performance in the Portuguese Air Force. (1 = strongly disagree; 5 = strongly agree)

Code	Indicators	Mean	Median	SD	Skewness	Kurtosis
IAE_1	IA is aware of and sensitive to the organisation's needs and operates accordingly	3.80	4	0.964	-1.454	2.727
IAE_2	The evaluation of IA reports made by individuals in managerial positions who were audited is positive	3.80	4	0.833	-1.217	2.924
IAE_3	The evaluation of IA reports made by individuals in operative positions who were audited is positive	4.03	4	0.747	-0.496	0.285
IAE_4	The evaluation of IA reports made by external auditors and other external authorities is positive	3.89	4	0.718	-0.331	0.252
IAE_5	IA identifies risks and competently assesses the adequacy and effectiveness of internal control systems	4.00	4	0.686	-0.580	1.153
IAE_6	IA gets the attention of top management and focuses it on issues audited by IA	3.37	4	1.031	-0.316	-0.590
IAE_7	The issues to be audited are decided after identifying risks, quantifying them and determining appropriate risk levels	3.66	4	0.838	-1.484	2.422
IAE_8	All control and auditing activities in the organisation are performed by IA or are coordinated with IA, including external auditing	3.49	4	1.147	-0.707	0.002
IAE_9	IA is an autonomous and independent organisational unit	3.83	4	0.985	-0.812	0.713
IAE_10	The IA department and its military are reliable and behave with integrity	4.31	4	0.796	-2.128	7.829
IAE_11	The IA department is valued by management and makes valuable contributions during meetings	3.63	4	0.910	-0.902	1.041
IAE_12	IA is a source of valuable data and information for the decision-makers in the organisation	4.17	4	0.747	-0.294	-1.106
IAE_13	The information provided by IA is vital to organisational operations	3.97	4	0.857	-0.836	0.551
IAE_14	The costs of IA to the organisation are higher than the benefits and savings that result from its work (Reverse scored.)	4.23	4	0.731	-0.869	1.158
IAE_15	All auditing functions that were approved in the auditing plans are performed completely	3.74	4	0.950	-0.754	0.824
IAE_16	In addition to the issues determined and approved for inclusion in the annual audit, there are requests to the IA department to audit other issues	3.83	4	0.822	-0.675	0.382
IAE_17	The number of complaints about the IA department is very low	3.89	4	0.758	-0.232	-0.206
IAE_18	Those who are audited demonstrate a high level of satisfaction with the work of the IA department	3.63	4	0.770	-1.279	3.078
IAE_19	The time that passes between completing the audit and submitting the final report is too long (Reverse scored.)	3.29	4	1.152	-0.112	-1.215
IAE_20	The findings of internal audits are very significant for the organisation	4.03	4	0.857	-0.651	-0.007
IAE_21	The findings of internal audits are always based on documents and reliable data	4.31	4	0.676	-0.479	-0.697
IAE_22	The recommendations of the IA department can be easily implemented	3.29	3	0.789	-0.569	-1.140
IAE_23	The recommendations of the IA department provide practical, cost-benefit solutions for correcting the problems that were found	3.57	4	0.778	-1.445	2.639
IAE_24	Only a small portion of the IA department's recommendations is implemented (Reverse scored.)	3.00	3	0.907	-0.250	-1.214
IAE_25	The IA reports are rigorous and accurate	3.94	4	0.802	-0.256	-0.523
IAE_26	The IA reports are clear and well presented	4.20	4	0.584	-0.038	-0.163
IAE_27	The IA reports include an introduction, goals, subjects, conclusions and recommendations	4.06	4	0.802	-0.831	0.842
IAE_28	The IA reports are professional and of high quality	4.09	4	0.853	-1.376	3.693
IAE_29	The management's decision-making process is strongly affected by the reports and findings of the IA department	3.14	3	0.810	0.079	1.248
IAE_30	The IA department contributes to the organisation above and beyond its operating costs	3.71	4	0.789	0.187	-0.673
IAE_31	IA improves organisational performance	4.17	4	0.618	-0.906	3.558
IAE_32	IA develops appropriate annual audit plans	4.09	4	0.612	-0.041	-0.151
IAE_33	Timely action is taken to implement the recommendations of the IA reports	3.51	4	0.612	-0.057	-0.237
IAE_34	IA provides adequate follow-up to ensure that appropriate corrective action is taken and that it is effective	3.83	4	0.707	-1.335	2.438

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APPENDIX H. SURVEY ITEMS USED FOR MODERATOR VARIABLES

Question: Please indicate the agreement degree with the following statements. Please answer according to your perception. ESG (Environmental, Social and Governance) refers to the three dimensions of sustainability: environmental, social and governance. (1 = strongly disagree; 5 = strongly agree)

Code	Indicators	Mean	Median	SD	Skewness	Kurtosis
HRMP_1	The organisation develops training programs in ESG management to increase ESG awareness, skills and expertise of military	2.77	3	0.973	-0.323	-0.810
HRMP_2	The organisation has integrated training to create the emotional involvement of military in ESG management	2.66	3	0.838	-0.531	-0.090
HRMP_3	The organisation has ESG knowledge management (link ESG education and knowledge to behaviours to develop preventative solutions)	2.74	3	0.919	-0.172	-0.766
HRMP_4	The organisation uses ESG performance indicators in the performance management system and appraisals	2.94	3	0.938	-0.109	-0.343
HRMP_5	The organisation sets ESG targets, goals and responsibilities for managers and other military	2.97	3	0.954	-0.371	0.001
HRMP_6	In the organisation, managers are set objectives on achieving ESG outcomes included in appraisals	2.94	3	1.056	-0.358	-0.622
HRMP_7	In the organisation, there are dis-benefits in the performance management system for non-compliance or not meeting ESG management goals	2.74	3	0.950	-0.536	-0.461
HRMP_8	The organisation has a clear developmental vision to guide the military's actions in ESG management	2.89	3	0.932	-0.224	-1.006
HRMP_9	In the organisation, there is a mutual learning climate among military for ESG behaviour and awareness in Portuguese Air Force	3.09	3	1.011	-0.361	-0.812
HRMP_10	In the organisation, there are a number of formal or informal communication channels to spread ESG culture in Portuguese Air Force	2.91	3	0.981	-0.018	-0.735
HRMP_11	In the organisation, military are involved in quality improvement and problem-solving on ESG issues	3.03	3	1.124	-0.322	-0.725
HRMP_12	The organisation offers practices for military to participate in ESG management, such as newsletters, suggestion schemes, problem-solving groups, low-carbon champions and ESG action teams	2.57	3	0.979	-0.012	-0.940
HRMP_13	The organisation emphasises a culture of ESG protection	2.83	3	0.985	-0.420	-0.771

APPENDIX I. SURVEY ITEMS USED FOR DEPENDENT VARIABLES

Question: How important are the following issues in the management of the Portuguese Air Force? (1 = not important at all, 5 = extremely important)

Dimension	Code	Indicators	Mean	Median	SD	Skewness	Kurtosis
ENV	ESG_1	Procurement of environmentally friendly materials	3.46	3	0.886	0.003	-0.612
	ESG_2	Energy usage	3.74	4	0.886	-0.530	-0.202
	ESG_3	Materials usage	3.54	4	0.886	-0.272	-0.554
	ESG_4	Greenhouse gas emissions	3.26	3	1.094	-0.119	-0.445
	ESG_5	Hazardous waste management	4.00	4	0.907	-0.751	0.028
	ESG_6	Water management	3.74	4	0.919	-0.172	-0.766
	ESG_7	Impacts on biodiversity	3.40	3	1.006	0.199	-0.963
	ESG_8	Climate risk	3.26	3	0.950	0.099	-0.964
SOC	ESG_9	Occupational health and safety	3.94	4	1.259	-1.106	0.415
	ESG_10	Military retention and turnover	3.57	4	1.378	-0.515	-1.099
	ESG_11	Training and education of military	3.77	4	1.031	-0.193	-1.164
	ESG_12	Supply chain issues	3.51	4	1.040	-0.540	0.360
	ESG_13	Human rights issues	3.40	3	1.117	-0.473	0.060
	ESG_14	Community impacts and relations	3.34	3	0.802	-0.358	1.307
	ESG_15	Donations and other humanitarian actions	3.09	3	0.887	-0.711	-0.149
	ESG_16	Mission management (national and international)	3.89	4	0.932	-0.917	1.401
	ESG_17	Mission privacy	3.69	4	1.051	-0.767	0.704
	ESG_18	Data privacy and security	4.09	4	0.887	-0.711	-0.149
GOV	ESG_19	Governance structure	3.77	4	0.770	0.017	-0.511
	ESG_20	Organisation culture	3.74	4	0.980	-0.238	-0.911
	ESG_21	Ethics	3.94	4	1.110	-1.114	1.017
	ESG_22	Conflicts of interest	3.57	4	1.092	-0.624	0.078
	ESG_23	Remuneration structures and incentive systems	3.34	3	1.392	-0.245	-1.227
	ESG_24	Diversity and equal opportunity	3.11	3	1.367	0.002	-1.125
	ESG_25	Stakeholder dialogue	3.31	3	1.207	-0.227	-0.650
	ESG_26	Risk management	3.80	4	0.964	-0.618	0.582
	ESG_27	Strategic risks	3.69	4	1.105	-0.572	0.123
	ESG_28	Corruption and bribery	3.86	4	1.033	-0.717	0.230
	ESG_29	Anti-money laundering	3.77	4	1.003	-0.252	-1.000
	ESG_30	Fraud	3.89	4	0.932	-0.455	-0.575
	ESG_31	Whistleblower schemes	3.63	4	1.239	-0.805	-0.240
	ESG_32	Intellectual property protection	3.54	4	1.146	-0.484	-0.365

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APPENDIX J. PRINCIPAL COMPONENT ANALYSIS RESULTS

Code	New construct	% of variance explained	Code	New construct	% of variance explained
IAE_2	IAE1	32.502	IAE_1	IAE2	9.323
IAE_3			IAE_6		
IAE_5			IAE_7		
IAE_10			IAE_11		
IAE_21			IAE_33		
IAE_25			IAE_34		
IAE_26			IAE_12	IAE3	8.67
IAE_28			IAE_13		
IAE_31			IAE_14		
			IAE_20		

APPENDIX K. DESCRIPTIVE STATISTICS FOR QUESTIONS RELATED TO IAA AND IAD

Code	Mean	Median	SD	Skewness	Kurtosis	Theoretical range	Actual range
IAA – overall	3.93	4	0.923	-0.149	-1.249	1 – 5	1 – 5
IAD – overall	4.17	4,2	0.689	-1.392	3.267	1 – 5	1 – 5
IAD_1	3.83	4	1.098	-0.631	-0.858	1 – 5	2 – 5
IAD_2	4.46	5	0.817	-2.430	8.513	1 – 5	1 – 5
IAD_3	4.29	4	0.789	-1.332	2.283	1 – 5	2 – 5
IAD_4	4.20	4	0.677	-0.867	2.069	1 – 5	2 – 5
IAD_5	4.09	4	0.742	-0.598	0.511	1 – 5	2 – 5

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APPENDIX L. VARIABLES DESCRIPTIVE STATISTICS

	Mean	Median	SD	Skewness	Kurtosis
IAEG	3.95	3.89	0.514	-0.255	1.889
IAE1	4.10	4	0.582	-0.785	2.848
IAE2	3.63	3.83	0.711	-0.915	1.857
IAE3	4.10	4	0.639	-0.297	-0.643
HRMP	2.85	3	0.802	-0.301	-0.601
ESG	3.61	3.59	0.792	-0.265	-0.219
ENV	3.55	3.5	0.794	-0.119	-0.498
SOC	3.63	3.7	0.779	-0.485	0.212
GOV	3.64	3.86	0.911	-0.475	-0.321

APPENDIX M. CONSTRUCTS' CRONBACH'S ALPHA, COMPOSITE RELIABILITY AND AVERAGE VARIANCE EXTRACTED

Construct	CA	CR	AVE
IAEG	0.703	0.831	0.624
IAE1	0.925	0.937	0.625
IAE2	0.917	0.933	0.701
IAE3	0.805	0.871	0.640
RHMP	0.960	0.965	0.682
ESG	0.927	0.953	0.873
ENV	0.941	0.950	0.705
SOC	0.912	0.927	0.563
GOV	0.964	0.967	0.684

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APPENDIX N. ITEMS LOADINGS

Construct	Item	Loadings	Construct	Item	Loadings
IAEG	IAE1	0.892	ESG	ENV	0.866
	IAE2	0.760		SOC	0.979
	IAE3	0.705		GOV	0.954
IAE1	IAE_2	0.777	ENV	ESG_1	0.829
	IAE_3	0.810		ESG_2	0.744
	IAE_5	0.736		ESG_3	0.823
	IAE_10	0.762		ESG_4	0.853
	IAE_21	0.745		ESG_5	0.814
	IAE_25	0.862		ESG_6	0.923
	IAE_26	0.762		ESG_7	0.898
	IAE_28	0.889		ESG_8	0.861
	IAE_31	0..752	SOC	ESG_9	0.829
IAE2	IAE_1	0.878		ESG_10	0.696
	IAE_6	0.853		ESG_11	0.844
	IAE_7	0.816		ESG_12	0.839
	IAE_11	0.875		ESG_13	0.719
	IAE_33	0.828		ESG_14	0.799
	IAE_34	0.764		ESG_15	0.573
IAE3	IAE_12	0.761		ESG_16	0.717
	IAE_13	0.931		ESG_17	0.707
	IAE_14	0.491		ESG_18	0.736
	IAE_20	0.932	GOV	ESG_19	0.699
RHMP	HRMP_1	0.856		ESG_20	0.827
	HRMP_2	0.808		ESG_21	0.870
	HRMP_3	0.883		ESG_22	0.898
	HRMP_4	0.889		ESG_23	0.880
	HRMP_5	0.738		ESG_24	0.801
	HRMP_6	0.822		ESG_25	0.853
	HRMP_7	0.543		ESG_26	0.823
	HRMP_8	0.810		ESG_27	0.879
	HRMP_9	0.835		ESG_28	0.805
	HRMP_10	0.862		ESG_29	0.717
	HRMP_11	0.857		ESG_30	0.779
	HRMP_12	0.861		ESG_31	0.870
	HRMP_13	0.902		ESG_32	0.848

APPENDIX O. DISCRIMINANT VALIDITY

Panel A	ESG	IAEG	HRMP
ESG	0.935	0.685	0.427
IAEG	0.587	0.790	0.557
HRMP	0.424	0.475	0.825

Panel B	ENV	GOV	SOC	IAEG	HRMP
ENV	0.8402			0.4791	0.4785
GOV		0.8271		0.6714	0.3532
SOC			0.7502	0.7698	0.3798
IAEG	0.4246	0.5988	0.6626	0.7906	0.5568
HRMP	0.5130	0.3683	0.3827	0.4742	0.8258

Panel C	ESG	IAE1	IAE2	IAE3	HRMP
ESG	0.935	0.636	0.385	0.408	0.427
IAE1	0.619	0.790	0.565	0.517	0.485
IAE2	0.391	0.515	0.836	0.418	0.486
IAE3	0.385	0.477	0.376	0.801	0.305
HRMP	0.422	0.461	0.471	0.197	0.825

Panel D	ENV	GOV	SOC	IAE1	IAE2	IAE3	HRMP
ENV	0.840			0.432	0.302	0.300	0.478
GOV		0.827		0.664	0.355	0.384	0.353
SOC			0.826	0.677	0.450	0.521	0.380
IAE1	0.436	0.657	0.660	0.790	0.565	0.517	0.485
IAE2	0.312	0.369	0.453	0.517	0.837	0.418	0.486
IAE3	0.270	0.364	0.461	0.478	0.379	0.800	0.521
HRMP	0.514	0.365	0.385	0.460	0.469	0.203	0.751

Notes: Panels presents the correlations between the constructs (Fornell-Larcker criterion) below the diagonal, and the Heterotrait-Monotrait ratio above the diagonal. The boldface scores on the diagonal are the square root of AVE. Panel A refers to model 1; panel B to models 2, 3 and 4; panel C to model 5; and panel D to models 6, 7 and 8.

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