

SUSTAINABLE PROJECT MANAGEMENT AS A LEVER FOR COMPETITIVENESS: A CASE STUDY IN THE PORTUGUESE FURNITURE INDUSTRY

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Abstract. The growing environmental, social, and regulatory pressures have made sustainability a central concern for industrial organisations, particularly in sectors with significant resource consumption, such as the furniture industry. In this context, the integration of ESG (Environmental, Social and Governance) criteria into project management has emerged as a critical factor for improving organisational performance and long-term competitiveness. This research explores how sustainable project management can act as a strategic lever within the Portuguese furniture industry. A mixed-method approach was adopted, combining a bibliometric analysis of recent scientific literature with an in-depth case study of AM Furniture Group. The bibliometric analysis highlights a clear increase in academic interest in sustainability within project management, with a strong emphasis on environmental and governance dimensions, while the social dimension remains comparatively less explored. Complementing this, the case study provides practical insights into how ESG principles are embedded in real organisational contexts. The findings show that sustainability is being operationalised through concrete practices, including the use of certified materials, investment in energy efficiency, adoption of eco-design principles, and the implementation of hybrid project management methodologies that balance structure with flexibility. These practices not only reduce environmental impact but also enhance innovation capacity, operational efficiency, and responsiveness to market demands. Overall, the study demonstrates that sustainable project management should not be viewed merely as a compliance requirement but as a strategic approach that supports value creation, strengthens competitive positioning, and aligns business objectives with broader environmental and social responsibilities. This perspective is particularly relevant for traditional industries undergoing transformation, such as the Portuguese furniture sector, where sustainability can play a decisive role in future growth and differentiation.

Keywords: Sustainability, Project Management, ESG, Furniture Industry, Innovation

Introduction

Presentation and Opportunity of the Theme

The Portuguese furniture industry has a strong tradition of craftsmanship and is internationally recognised for its quality and attention to detail. Over the past years, however, this traditionally oriented sector has been required to evolve and modernise to remain competitive in increasingly demanding international markets. At the same time, growing global awareness of environmental and social issues has brought new challenges, making sustainability no longer optional but essential for long-term success.

In this context, sustainable project management has gained relevance as a practical way to integrate environmental, social, and economic concerns throughout all stages of a project. Rather than focusing only on cost, time, and quality, organisations are now expected to consider their broader impact. ESG (Environmental, Social, and Governance) criteria have therefore become an important reference point in decision-making, shaping how projects are planned, implemented, and assessed.

Project management is no longer limited to cost, time, and quality, but now incorporates environmental and social dimensions aimed at long-term value creation. The main objective of this study is to analyse how the integration of sustainability principles into project management contributes to competitiveness in the Portuguese furniture industry.

Main objectives

The main objective of this article is to analyse how integrating sustainability principles and ESG criteria into project management enhances the competitiveness of the furniture industry, with a particular focus on the Portuguese context. Considering this main objective, the study seeks to respond specifically to six objectives:

- [1] Conduct a state-of-the-art analysis of sustainability in the furniture industry in Portugal;
- [2] Identify the project management methodologies and *frameworks* most used in the implementation of sustainable projects in this sector;

[3] Identify barriers and facilitating factors in the adoption of sustainable practices in the context of project management;

[4] Develop a case study that allows us to understand how sustainability principles are integrated and operationalised in project management;

[5] Compare the results of the case study with good practices in sustainable project management recognised in the literature, identifying opportunities for improvement;

[6] Propose practical recommendations for optimising sustainable project management, promoting greater alignment with ESG (*Environmental, Social and Governance*) principles.

Innovative contributions

This article presents three main contributions:

- ✓ It integrates a conceptual approach that positions sustainability as an intrinsic element of project management, rather than merely an external objective.
- ✓ It combines a bibliometric analysis with a case study applied to the furniture industry, a sector that has been little explored in the literature.
- ✓ It highlights the role of sustainable project management as a strategic tool for the competitiveness of the furniture industry in Portugal, going beyond a purely environmental perspective.

Literature review

Sustainability, ESG, and Competitiveness

Sustainability reflects the need to use resources in ways that preserve the well-being of future generations as defined by the Brundtland Report (Commission on Environment, 1987). In recent decades, its integration into multiple fields, including project management, has intensified (Bernat et al., 2023). Sustainability is often defined by the three interconnected pillars of the “*triple bottom line*”, the need to sustain and even reconcile environmental, social, and economic requirements (Saxena et al., 2020). The 2030 Agenda and its 17 Sustainable Development Goals (SDGs) established global priorities, requiring organisations to align their strategies and monitor progress accordingly. Understanding how industries adopt these principles is essential to assess their contribution to these goals (Burck et al., 2023). In this context, the Portuguese furniture industry reflects both the challenges and the opportunities associated with the transition to more sustainable practices. Increasingly, sustainability is seen not as a constraint, but as a driver of innovation, competitiveness, and resilience. Companies that actively integrate environmental, social, and governance principles into their operations tend to improve performance and build a stronger, more credible reputation in the market. (Dangelico, Pujari, 2010).

Sustainable Project Management and Application in the Furniture Industry

According to the *Project Management Institute* (2023), a project is a temporary effort structured in phases to achieve specific results. Its life cycle – which typically includes planning, execution, monitoring, and closure – supports the efficient allocation of resources, helps reduce risks, and ensures alignment with defined objectives. This structured approach becomes particularly important in complex environments, especially when sustainability is involved, as it requires balancing traditional project constraints such as cost, time, and quality with environmental and social considerations. In this sense, project management extends beyond purely technical processes, functioning as an integrated system that fosters efficiency, transparency, and value creation (Project Management Institute, 2021).

In this context, frameworks such as *Sustainable Project Management* (SPM) or *Green Project Management* (GPM) offer practical tools to incorporate sustainability across all project phases, including impact assessment and the use of specific performance indicators aligned with sustainability goals.

Traditional versus Agile Methodologies

A project management methodology can be described as a structured set of methods, techniques, procedures, and best practices that support how projects are carried out. In general, these methodologies are based in a defined approach that provides guidance on how projects should be planned, executed, and monitored (Špundak, 2014).

Traditional methodologies, also known as predictive or '*waterfall*' approaches, follow a linear, sequential structure in which each phase is completed before the next begins (Project Management Institute, 2021). This approach is based on detailed, rigorous planning from the initial phase and is suitable for projects with clearly defined and stable requirements. One of the most widely used frameworks in this category is the PMBOK® Guide (Project Management Body of Knowledge), developed by the Project Management Institute (PMI). It organizes project management into five main phases—initiation, planning, execution, monitoring and control, and closure—providing a structured, systematic approach to manage projects.

In contrast, agile methodologies emerge as a response to the growing need for flexibility and adaptability in highly uncertain environments. This flexibility can be particularly relevant in sustainability-oriented projects, where requirements may evolve throughout the process due to environmental constraints, stakeholder expectations, or changes in regulatory requirements. These methodologies are based on short development cycles, called sprints, and promote continuous interaction between teams and stakeholders. Grounded in the Agile Manifesto (agilemanifesto.org), these methodologies favor the continuous delivery of value, close collaboration with stakeholders, and the ability to respond quickly to changes in requirements and priorities.

To clarify these distinctions, Table 1 compares traditional and agile approaches, highlighting the main criteria for differentiation across project structure, *stakeholder* relations, documentation, planning, and other aspects.

Table 1. Difference Between the Traditional and Agile Approaches

Characteristic	Traditional Approach	Agile Approach
Requirements	Clear initial requirements; low rate of change	Creative, innovative; poorly defined requirements; dynamic and evolving
Users	Not very involved	Close and continuous collaboration throughout the project
Documentation	Requires formal documentation	Tacit knowledge; focused on delivering value
Project size	Larger-scale projects	Smaller-scale projects
Organisational support	Uses existing processes; larger organisations	Organisations prepared to adopt agile approaches, dynamic
Project Team	Limited participation; expected variation in members	Team located in the same place; small teams
System Criticality	System failures have serious consequences	Fewer critical systems
Project Plan	Sequential and linear; detailed at the beginning of the project	Complex; interactive; continuous

Source: Adapted from Špundak (2014)

In projects where requirements are stable, innovation is low, and tasks and results are highly predictable, traditional (or predictive) methodologies are particularly effective. Their sequential, carefully planned structure, combined with strict control over project phases, helps to minimise risks and ensure compliance with established deadlines, costs, and quality standards (Project Management Institute, 2021). On the other hand, in highly complex projects characterised by constant innovation, evolving requirements, and a strong need for adaptation, agile methodologies have significant advantages. Their iterative nature, based on incremental value delivery and close stakeholder involvement, enables greater flexibility and a more effective response to changing conditions (Dong et al., 2024). It is also important to consider hybrid approaches that combine elements of traditional and agile methodologies, dynamically adjusting project management to the specific characteristics and evolving needs over time (Reiff, Schlegel, 2022). Thus, in addition to the technical dimension, project management today plays a strategic role in creating value and consolidating organisational competitiveness, especially when it incorporates sustainability principles and ESG criteria.

Furniture Industry

The furniture industry is traditionally dependent on natural resources such as wood, metals, plastics and textiles and is characterised by a significant environmental impact throughout the entire product life cycle, especially noticeable in the pre-production phase, when materials are extracted and processed (Yang, 2022). This impact results from several factors that manifest at the stages of raw material extraction, production, distribution, use and end-of-life of products (United Nations and the Food and Agriculture Organisation of the United Nations, 2021). According to the Roadmap for Carbon Neutrality 2050 (Roadmap for Carbon Neutrality 2050, 2019) the industrial sector is one of the most challenging sectors for decarbonisation, given the limitations of technological options for reducing emissions, particularly those related to industrial

processes. However, the industrial sector is expected to reduce its emissions by around 70% by 2050 (compared to 2005). In this context, it is important to understand in more detail the main environmental impacts of the furniture industry to identify the challenges and opportunities facing the sector on the path to sustainable transition. Table 2 summarises the most relevant impacts and their causes, according to the recent APIMA diagnosis (APIMA, 2023).

Table 2. Environmental Impact of the Furniture Industry

Impact	Cause
Intensive consumption of natural resources	Use of non-certified wood and non-renewable materials
Carbon and pollutant emissions	Manufacturing processes (cutting, gluing, varnishing, painting)
High production of solid waste	Wood scraps, packaging, production waste
Use of toxic chemicals	Application of glues, paints, and solvents with harmful compounds
Energy inefficiency	High energy consumption in production processes; equipment with high energy consumption
Difficulty in recycling products	Complex design and use of composite materials that are difficult to separate

Source: Adapted from Diagnosis of the Furniture Industry in Portugal (APIMA, 2023)

Based on data summarised by APIMA (2023), the furniture industry in Portugal faces several cross-cutting environmental challenges, many of which are directly linked to conventional and inefficient production practices. The use of non-certified materials, dependence on harmful chemicals, and high levels of waste generated highlight the urgent need to rethink industrial processes in line with sustainability principles. In this context, the Portuguese furniture industry is a critical turning point. Moving towards more sustainable production models is no longer just a matter of regulatory compliance, but also a strategic opportunity to innovate, strengthen market positioning, and take a leading role in an increasingly sustainability-driven market.

According to the UN's 17 Sustainable Development Goals (SDGs), the furniture industry is associated with challenges related to SDG 11, Sustainable Cities and Communities (Goal 11, target 6 “by 2030, reduce the adverse per capita environmental impact of cities, including paying special attention to air quality and municipal and other waste management”). It also violates SDG 12, Responsible Consumption and Production (Goal 12, Target 3 “By 2030, achieve the efficient management and use of natural resources”) (Liu et al., 2023). This demonstrates the urgent need to adopt sustainable practices to minimise social impact and material damage.

These challenges reinforce the importance of integrating sustainability into project management practices, particularly in sectors such as furniture production, where environmental impact, resource dependence, and international competitiveness are closely intertwined.

Research Methodology

Methodological Approach

The research adopts a mixed methodological approach, combining quantitative and qualitative methods. The combination of the two studies allowed us to develop a methodological approach that combines a theoretical component, based on international scientific analysis, with an empirical component, based on direct observation of the national reality. This dual perspective adds depth to the research by integrating academic knowledge with business practice and reinforces the relevance and applicability of the contributions.

Study I – Bibliometric Analysis

Two main dimensions were considered for the processing of information:

1. Analysis and synthesis techniques, used to extract, organise and examine the content of the selected documents.
2. The use of a bibliographic manager, which allowed references and files to be managed in a structured and efficient manner.

Mendeley software was selected for this purpose, given its ability to store, organise, and integrate bibliographic references with other stages of the research process. Based on the 68 selected articles, a quantitative bibliometric analysis was conducted using R software and the Biblioshiny graphical interface, integrated into the Bibliometrix package. The articles considered significant were selected between 10 and 21 January 2024 from the Web of Science (WoS) database. Publications between 2020 and 2023 were included if written in Portuguese or English, available in open access, and belonging to Quartiles 1 and 2 (Q1/Q2),

according to the verification carried out using Scimago Journal & Country Rank. The literature review process combined keywords such as “sustainable project management”, “ESG”, “competitiveness”, and “furniture industry”. All duplicate records, articles outside the scope of the research, and publications without full-text access were excluded. The final sample included the studies considered most relevant to the relationship between sustainability and project management practices.

Study II – Case Study at AM Furniture Group

The second study is a case study of the Portuguese furniture company, AM Furniture Group. The study used document analysis, semi-structured interviews, and direct observation to understand how sustainability principles are integrated into the organisation's project management and production processes. According to Yin (2018), the case study is a particularly appropriate methodological strategy when the researcher intends to answer questions such as “how” and “why” in contexts where the phenomenon of interest is embedded in concrete reality. This approach is particularly useful for exploring complex phenomena in depth and for understanding participants in their natural context (Creswell, Poth, 2018). This methodological option does not aim for statistical generalisation of results, but rather for in-depth exploration of an informative and illustrative case capable of revealing patterns, challenges and good practices with potential for transfer and learning to other organisational contexts. As highlighted by Creswell and Poth (2018), qualitative research emphasises the use of multiple data sources. Like interviews, observations, and documents, rather than relying on a single source. This triangulation approach allows for a more comprehensive and contextualised understanding of the phenomenon under study, while also strengthening the credibility and internal validity of the findings.

From this perspective, the research adopts a qualitative approach grounded in an interpretative paradigm and guided by deductive thinking. This made it possible to develop a consistent methodological framework that combines a bibliometric analysis with an exploratory case study. The use of semi-structured interviews, document analysis, and direct observation enabled the collection of rich and complementary data, which were then examined through thematic analysis grounded in ESG (Environmental, Social, and Governance) principles.

The information obtained from interviews, internal documents, and direct observation was organized according to the Environmental, Social, and Governance (ESG) dimensions. This process enabled the company to identify recurring practices, operational challenges, and strategic sustainability priorities.

Results

Results of Study I – Bibliometric Analysis

The bibliometric analysis uncovered key patterns, trends, and gaps in recent literature, confirming the growing importance of sustainability as a strategic dimension of project management. The identified thematic clusters focus on performance, frameworks, and indicators, while also highlighting emerging areas such as the circular economy and innovation. The analysis of the keyword co-occurrence network further helped map the main thematic areas, leading to the identification of three primary and six secondary clusters. Together, these clusters illustrate the conceptual structure of research in this area and expose the diversity of current approaches. Overall, the findings indicate a stronger emphasis on environmental and governance dimensions, particularly in areas such as eco-efficiency, innovation, corporate responsibility, and certification practices. In contrast, the social dimension remains comparatively less explored, offering a clear opportunity for further research. These results suggest that sustainability in project management is becoming ever more mature and interdisciplinary, reinforcing its role as a relevant and evolving area of study. At the same time, they highlight the importance of understanding how these concepts are applied in practice, particularly in specific industrial contexts such as the Portuguese furniture sector, where integrating sustainability into project management is still developing. Based on these understandings, the research moves forward to the case study (Study II), aiming to explore how ESG principles are implemented in real organisational settings and to better connect theoretical perspectives with business practice.

Results of Study II – Case Study

AM Furniture Group was founded in 1962 as a small family carpentry workshop under the name Armando Ferreira da Silva & Filhos, Lda., dedicated to the design, production, and sale of classic wooden furniture. Over time, the company has experienced sustained growth, combining traditional craftsmanship with technological innovation while preserving its original know-how. Currently, AM Furniture Group exports to

more than 60 countries, with almost 95% of its production destined for international markets. To support this growth, the company operates a 22 500 m² industrial facility, equipped with advanced technology, and employs 160 workers in Paços de Ferreira, known as the Capital of Furniture. The company's mission is to combine tradition and innovation, incorporating craftsmanship with contemporary design and modern production processes to respond to global market demands. AM Furniture Group stands out for its commitment to durability and its clear positioning against fast furniture, focusing instead on developing timeless products. Its portfolio includes the AM Living and AM Bespoke brands, as well as private label and contract projects. Its core values - authenticity, excellence, unity, community impact, and responsible growth - guide its strategic positioning. This combined approach has increased its competitive position, supported by a strong focus on quality, sustainability, and trust in international markets. Based on the findings of Study II, an interpretative framework was elaborated to illustrate how ESG principles are embedded in the company's project management practices, as presented in Figure 1.

ESG Integration Framework in Project Management at AM Furniture Group

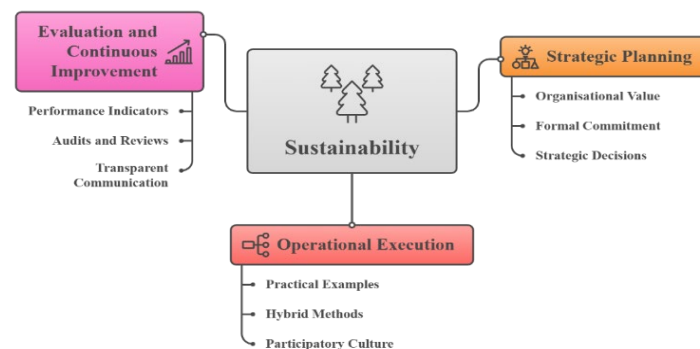


Fig. 1. ESG Integration Framework in AM Furniture Group's Project Management

Source: Prepared by the author

The framework is organised around three interrelated dimensions that illustrate how AM Furniture Group incorporates sustainability into its processes and projects:

- **Strategic Planning** – Sustainability is embedded as a central organizational value, guiding long-term decision-making and supported by policies and certifications such as ISO 14001, FSC, and PEFC. This ensures a constant alignment between competitiveness and responsible practices.
- **Operational Execution** – sustainability is turned into practice using certified materials, renewable energy, and circular economy principles. This balance between structure and flexibility, characteristic of hybrid methodologies, seems particularly relevant in the furniture industry, where projects often involve customized solutions, fluctuating client expectations, and tight deadlines.
- **Assessment and Continuous Improvement** – Performance is continuously monitored through ESG, aligned KPIs, audits, and regular reviews. This approach supports constant improvement while strengthening transparency and building trust with stakeholders.

This framework reflects the organisational reality studied, contributing to the understanding of ESG integration in project management.

To consolidate the empirical analysis, an ESG integration matrix is presented below, which summarises the key sustainability attributes identified in the case study. The elements are organized according to the three ESG dimensions - Environmental, Social, and Governance - offering a structured and integrated view of the practices, indicators, and challenges observed at AM Furniture Group in the context of sustainable project management.

Table 3 presents this summary, highlighting for each dimension:

- ✓ the specific practices adopted by the company.
- ✓ the associated objectives and impacts.
- ✓ and the source of evidence (interview, document analysis, or direct observation), ensuring the methodological triangulation of the data collected in Study II.

This matrix thus constitutes an analytical tool to support the interpretation of the results, highlighting how the cross-cutting integration of ESG principles strengthens sustainability and competitiveness in the company's project management.

Table 3. ESG Matrix - Case Study

ESG Dimension	Identified Practice	Objective or Impact	Source/Observation
Environmental	Eco-design and process optimisation	Reduce waste and consumption of raw materials	Interview and document analysis
Environmental	Use of certified materials (e.g. FSC)	Ensuring sustainable sourcing and environmental responsibility	Interview
Environmental	Investment in energy efficiency	Reduction of energy consumption and emissions	Internal company report
Social	Continuing education programs	Developing employee skills	Interview
Social	Donation of materials to local entities	Social responsibility and inclusion	Interview
Social	Personalisation and co-creation with customers	Customer satisfaction and alignment with their expectations	Interview
Governance	Certifications (ISO 14001, FSC, and PEFC)	Transparency and compliance with environmental standards	Documentary analysis
Governance	Strategic planning based on ESG indicators	Informed and responsible decision-making	Interview
Governance	Collaborative project management	Greater sharing of responsibilities and focus on sustainable results	Direct observation

Source: Prepared by the author

These practices demonstrate that sustainability is not treated merely as an environmental concern, but increasingly as an operational and strategic factor capable of improving efficiency, strengthening credibility, and supporting long-term competitiveness.

Summary of results and articulation with the literature

To facilitate the interpretation and validation of the results, Table 4 was prepared to summarise the correspondence between the research objectives, the themes identified, the representative citations, and the associated ESG pillar. This analysis structure contributes to an integrated, coherent reading aligned with the research's central issue, allowing us to understand how sustainability manifests and is operationalized in project management within the furniture industry.

Table 4. Relationship between Research Objectives and Emerging Themes

Research Objective	Emerging Themes Identified	Evidence/Summary Quotes from the Interview	ESG Pillar
Analyse the state of the art on sustainability in the furniture industry in Portugal	Strategy and commitment to sustainability; Integration of sustainability into the company's mission; Alignment between strategy and operations	"Sustainability is present from the planning stage onwards; it is part of the company's identity." "We began to integrate these practices several years ago, first in the choice of materials, then throughout the entire process."	Cross-cutting (E, S, G)
Identify project management methodologies and frameworks	Hybrid project management; Iterative planning; Alignment between project management and sustainable objectives	"We use a management approach that combines traditional planning with more agile processes." "Sustainable projects require more flexibility and continuous monitoring."	Governance (G)
Assess the integration of ESG principles into project management – Environmental Dimension (E)	Energy efficiency; Waste and resource management; Eco-design; Use of certified materials; Circular economy	"We have a zero-waste policy." "We use certified wood and optimise energy consumption."	Environmental (E)
Assess the integration of ESG principles into project management – Social Dimension (S)	Employee appreciation; Continuous training; Well-being and safety at work; Local community involvement	"Safety and well-being are priorities." "We promote training and community involvement."	Social (S)

Research Objective	Emerging Themes Identified	Evidence/Summary Quotes from the Interview	ESG Pillar
Assess the integration of ESG principles into project management – Governance Dimension (G)	Ethics and transparency; Responsible communication; Certifications and audits; Performance monitoring	“The company is very strict in its audits and certifications.” “Good practices are communicated to reinforce credibility.”	Governance (G)
Identify barriers and enablers in the adoption of sustainable practices	Limited costs and resources; Lack of technical skills; Leadership support and organisational culture; Training and awareness	“Costs and the lack of skilled labor are a challenge.” “Support from leadership has been crucial.”	Cross-cutting (E, S, G)
Assessing the impact and evolution of sustainable practices	Sustainability as a factor in competitiveness; Continuous improvement; Organisational learning; Future sustainability plans	“The benefits outweigh the investment.” “We learn from each project to improve the next one.”	Cross-cutting (E, S, G)

Source: Prepared by the author

The case study analysis shows that AM Furniture Group's sustainability practices align with several Sustainable Development Goals (SDGs) defined by the United Nations 2030 Agenda. Although the company does not formally adopt the language of the SDGs in its reports or institutional communications, several of its initiatives align with the principles and goals of these global objectives.

SDG 12 – Sustainable Production and Consumption

AM Furniture Group demonstrates strong alignment with SDG 12 through its made-to-order model, zero-waste practices, and use of certified, recyclable materials. Additional measures include the elimination of plastics, material recovery, and process optimisation, contributing to reduced environmental impact.

SDG 13 – Climate Action

The company improves energy efficiency and reduces carbon emissions using solar panels ($\approx$ 40% self-consumption) and the continuing adoption of more efficient equipment, supported by internal knowledge and optimization practices.

SDG 8 – Decent Work and Economic Growth

Human capital development is a key pillar, supported by ongoing training, improved working conditions, and solid safety practices. At the same time, a participating culture promotes employee engagement, collaboration, and innovation.

SDG 17 – Partnerships for the Goals

The company builds responsible collaborations with suppliers and local entities, promoting sustainability through the value chain. Projects such as collaboration with local institutions boost their social impact.

Overall, these practices illustrate how sustainable project management supports alignment with the SDGs while contributing to the organisation's competitiveness.

Conclusions

Sustainable project management is increasingly important in driving competitiveness in the furniture industry. The incorporation of ESG principles contributes to greater efficiency, strengthens market positioning, and helps organisations respond to growing regulatory and societal expectations. Rather than being seen as a constraint, sustainability should be understood as a strategic opportunity, one that promotes innovation, improves performance, and supports long-term resilience.

Although these advances have been made, challenges such as limited resources and difficulties in measuring impact persist, requiring permanent investment and sustained organisational commitment. Future research should expand the scope of analysis to include multiple companies and sectors, allowing for more robust comparisons and deeper insights. Table 5 summarises these findings, highlighting key areas of alignment, existing gaps, and opportunities for improvement.

Table 5. Alignment Between Scientific Literature and Observed Business Reality

Theme/Dimension	Evidence in Literature	Evidence in the Case Study	Reference Sources
Eco-design and sustainable design	80% of environmental impacts are defined in the design phase	The company favors recyclable materials and functional design	Bruno et al. (2022); Armenia et al. (2019)
ESG integration in project management	The ESG model should guide decisions and the structure of sustainable projects	Explicit use of ESG criteria to guide initiatives and practices	Silvius and Schipper (2016); Eslami et al. (2019)
Stakeholder involvement	<i>Stakeholders</i> are crucial for aligning expectations and legitimizing decisions	Active involvement of employees and customers from the early stages	Ali et al. (2016)
Governance and certifications	Certifications such as ISO 14001 and FSC increase organisational credibility	The company has several recognised environmental certifications	ISO (2015); FSC (2024)
Challenges in implementation	Cost of certifications, lack of technical skills, and impact measurement	The company faces precisely these operational challenges	Madureira et al. (2022); Nica et al. (2025)
Sustainable GP methodologies	Recommendation of hybrid methodologies (traditional + agile) with a focus on ESG	The company adopts mixed practices adjusted to reality, culture, and context	Toljaga-Nikolic et al. (2020); Xue et al. (2020)

Source: Prepared by the author

Overall, the empirical findings reveal strong alignment between the company's practices and the sustainability principles most frequently discussed in the literature. This is particularly true regarding eco-design, ESG integration, and stakeholder involvement. The consistent application of sustainability pillars, such as the use of certified materials, eco-design, and process optimisation, shows how sustainability is effectively incorporated into both design and production processes.

In this context, sustainability should not be seen as an obligation, but rather as a strategic opportunity for innovation, growth, and competitive differentiation in the Portuguese furniture industry. Its integration into project management improves efficiency, supports responsiveness to market demands, and strengthens long-term resilience. The results suggest that companies that integrate sustainability into project management can strengthen not only their environmental performance but also their adaptability, innovation capacity, and international positioning.

Furthermore, sustainability drives innovation, boosting the development of new products, the improvement of processes, and the creation of economic, social, and environmental value. Practices such as eco-design, material reuse, and energy efficiency not only improve environmental performance but also reduce costs.

However, this transition also requires a change in organisational culture. Companies need to promote collaboration, transparency, and continuous learning, ensuring that sustainability is embedded throughout all stages of the product lifecycle. Table 6 summarises these implications, highlighting key impacts, benefits, and opportunities for improvement.

Table 6. Implications of Research for the Portuguese Furniture Industry

Area of Application	Identified Potential Impact	Opportunities for Improvement / Recommended Actions
Strategic Management	Sustainability as a driver of competitive and reputational differentiation in the international market.	Integrate ESG statements into strategic plans. Strengthen the communication of sustainability commitments and results.
Production and Operations	Reduce waste while improving energy efficiency.	Investing in clean technologies and environmental management systems (ISO 14001). Adopt circular economy models.
Product Design and Development	Strengthen eco-design and durability as key drivers of innovation and value creation.	Promoting R&D initiatives centered on recyclable materials and modular design. Reduce dependence on unsustainable raw materials.
Human Resources and Organisational Culture	Valuing human capital and improving a collaborative culture.	Develop continuous training programs on sustainability and encourage participatory, cross-functional practices.

Area of Application	Identified Potential Impact	Opportunities for Improvement / Recommended Actions
Supply Chain	Enhance traceability while reinforcing trust among partners.	Select suppliers with environmental certifications and strong social responsibility policies. Promote sustainable local collaborations.
Governance and Transparency	Improve integrity, ethical, and regulatory compliance.	Implement ESG reporting systems and internal ethics and compliance policies.
Communication and Market	Increase brand value and loyalty among conscious customers.	Communicate good practices and environmental results across sustainability reports, product catalogs, and institutional campaigns.
Sector Innovation	Repositioning Portuguese industry as a European benchmark in sustainable furniture.	Establishing collaborative networks between companies, universities, and industry associations to share knowledge and best practices.

Source: Prepared by the author

Table 6 emphasizes sustainability as a strategic lever for the innovation and competitiveness of the Portuguese industry. Companies that adopt this long-term perspective show that it is possible to align responsible growth with profitability. From this point of view, sustainability is no longer simply a trend, but a management paradigm that integrates efficiency, ethical responsibility, and a long-term vision. Organisations that successfully embed these principles into both project management and overall business strategy are better positioned to enhance their economic performance while also contributing positively to society and the environment.

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TVARI PROJEKTŲ VADYBA KAIP KONKURENCINGUMO VARIKLIS: PORTUGALIJOS BALDŲ PRAMONĖS ATVEJIS

Santrauka

Didėjantis aplinkosauginis, socialinis ir reguliacinis spaudimas lėmė tai, kad tvarumas tapo esminiu pramonės organizacijų prioritetu, ypač sektoriuose, kuriuose suvartojama daug išteklių, pavyzdžiui, baldų pramonėje. Šiame kontekste ESG (aplinkos, socialiniai ir valdymo) kriterijų integravimas į projektų valdymą iškilo kaip svarbus veiksnys, gerinantis organizacijos efektyvumą ir ilgalaikį konkurencingumą. Šiame tyrime analizuojama, kaip tvarus projektų valdymas gali veikti kaip strateginis svertas Portugalijos baldų pramonėje. Tyrime taikytas mišrus metodologinis požiūris, derinant bibliometrinę naujausios mokslinės literatūros analizę su išsamia *AM Furniture Group* atvejo studija. Bibliometrinė analizė atskleidžia aiškiai augantį akademinį susidomėjimą tvarumo integravimu į projektų valdymą, ypatingą dėmesį skiriant aplinkos ir valdymo dimensijoms, tuo tarpu socialinė dimensija išlieka mažiau išnagrinėta. Papildomai atvejo studija pateikia praktinių įžvalgų apie tai, kaip ESG principai įgyvendinami realiose organizacijose. Tyrimo rezultatai rodo, kad tvarumas įgyvendinamas per konkrečias praktikas, tokias kaip sertifikuotų medžiagų naudojimas, investicijos į energijos efektyvumą, ekodizaino principų taikymas ir hibridinių projektų valdymo metodologijų diegimas, leidžiantis suderinti struktūrą su lankstumu. Šios praktikos ne tik mažina poveikį aplinkai, bet ir stiprina inovacijų gebėjimus, veiklos efektyvumą bei gebėjimą reaguoti į rinkos poreikius. Apibendrinant galima teigti, kad tvarus projektų valdymas neturėtų būti vertinamas vien kaip atitiktis reikalavimams priemonė, bet kaip strateginis požiūris, kuris kuria vertę, stiprina konkurencines pozicijas ir padeda suderinti verslo tikslus su platesnėmis aplinkosauginėmis ir socialinėmis atsakomybėmis. Ši perspektyva yra ypač aktuali transformaciją išgyvenančioms tradicinėms pramonės šakoms, tokioms kaip Portugalijos baldų sektorius, kuriame tvarumas gali atlikti lemiamą vaidmenį būsimo augimo ir diferenciacijos procese.

Reikšminiai žodžiai: tvarumas, projektų valdymas, ESG, baldų pramonė, inovacijos

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