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## Applying Principles of Management to Sustainable Interior Design Practices

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### ABSTRACT

This study explores the application of management principles to sustainable interior design practices, examining how planning, organising, leading, and controlling functions influence environmental performance and design outcomes. Using a qualitative research methodology, six case firms were analysed to identify enablers, barriers, and typologies of sustainability integration. Findings reveal that early-stage planning and budget allocation are decisive for embedding sustainability, while organisational structures, procurement systems, and leadership commitment significantly shape implementation. Firms with institutionalised sustainability practices—such as dedicated sustainability officers, supplier databases, and post-occupancy evaluations—achieved more consistent and measurable results compared to project-based or opportunistic approaches. Leadership emerged as a critical cultural driver, inspiring designers and aligning stakeholder interests. However, challenges persist, including cost perceptions, rigid procurement frameworks, and limited access to environmental product data. The study concludes that sustainable interior design is as much a management challenge as a technical or creative one. By embedding sustainability within management systems and stakeholder engagement strategies, firms can enhance accountability, client value, and long-term competitiveness. The research contributes to design management and sustainability theory, offering practical recommendations for policy, education, and organisational practice.

**Keywords:** sustainable interior design, principles of management, stakeholder engagement, design management, organisational culture, leadership, procurement practices

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## 1. Introduction

Sustainability has become a defining imperative across design disciplines, driven by escalating environmental pressures, regulatory shifts, and changing client expectations (Brundtland Commission, 1987; Elkington, 1997). Interior design—concerned with the material, spatial, functional, and experiential aspects of built interiors—plays a critical role in shaping resource consumption, occupant health, and waste streams (Kibert, 2016). Yet achieving sustainability in interior environments requires more than material substitution: it requires managerial systems, project processes, and organisational cultures that embed sustainability in decision-making from briefing through maintenance and end-of-life.

Principles of management—traditionally articulated as planning, organising, leading, and controlling (Fayol, 1949/2007; Taylor, 1911; Drucker, 1954)—offer a structured lens for examining how design activity is coordinated, resources allocated, and outcomes evaluated. Contemporary management thinking (strategic management, stakeholder theory, operations management, and change management) adds layers of attention to long-term orientation, multi-stakeholder value creation, process optimisation, and behavioural change (Porter & Kramer, 2011; Mintzberg, 1979). Applying these principles to interior design practice suggests pathways for institutionalising sustainability rather than treating it as an ad-hoc add-on.

This article synthesises management theory and sustainability scholarship to develop a conceptual framework linking managerial practices to sustainable interior design outcomes. It then outlines a rigorous qualitative research methodology to empirically investigate how interior design firms adopt, interpret, and operationalise management principles to achieve sustainability goals. The contributions are threefold: an integrative theoretical model connecting management principles to tangible sustainable practices in interior projects; a methodological roadmap (qualitative) for studying managerial enactment in situ; and practitioner-oriented recommendations for embedding sustainability in design management systems.

## 2. Literature review

This literature review covers three intertwined domains: sustainability in design and interiors, principles of management and design management, and existing scholarship linking management to sustainability in built-environment practices.

### 2.1 Sustainability in interior design

Sustainability in the built environment is commonly framed by the triple bottom line—environmental, social, and economic (Elkington, 1997)—and by life-cycle thinking that considers impacts across sourcing, production, use, and disposal (Kibert, 2016). For interiors, sustainability concerns include material embodied energy, indoor environmental quality (IEQ), occupant health and well-being, energy use for lighting and HVAC, adaptability and

flexibility of space, and end-of-life disposal or reuse (Papanek, 1971; Cole & Kernan, 1996; Vale & Vale, 2010). Research has documented strategies such as specification of low-VOC finishes, sourcing reclaimed materials, employing modular systems to enhance adaptability, and designing for disassembly to reduce waste (Lawson, 2005; Shen, 2014). Recent scholarship also emphasises occupant-centred sustainability—biophilic design, thermal comfort, and inclusive design—which links social sustainability to design choices (Kellert, 2012).

However, the translation of sustainability principles into project-level practice is uneven. Barriers include cost perceptions, client priorities, procurement limitations, lack of supplier transparency, and limited life-cycle data for interior products (Häkkinen & Belloni, 2011). Studies have recommended integrative processes (early engagement, cross-disciplinary teams) and tools (life-cycle assessment, building information modelling adapted for interiors) to overcome barriers (Ding, 2008; Yudelson, 2010).

## 2.2 Principles of management and design management

Classic management theory provides a set of functions—planning, organising, leading (or directing), and controlling—that govern organisational action (Fayol, 1949/2007). Taylor’s scientific management foregrounds process optimisation and standardisation (Taylor, 1911), while contemporary theorists emphasise strategic alignment, stakeholder management, and dynamic capabilities

(Porter, 1985; Teece, Pisano, & Shuen, 1997). Design management as a hybrid field situates design processes within managerial contexts, addressing issues such as project governance, procurement, client relations, and integration with technical disciplines (Borja de Mozota, 2003; Best, 2011). Effective design management bridges creative autonomy and managerial requirements, balancing innovation with resource constraints (Brown, 2009).

Key management concepts relevant for sustainable design include: strategic planning (setting sustainability as a strategic objective), operations management (processes that determine resource flows), procurement and supply chain management (ensuring sustainable sourcing), human resource management and leadership (fostering sustainability culture), stakeholder engagement (aligning clients, contractors, suppliers), and performance measurement (KPIs, life-cycle metrics) (Porter & Kramer, 2011; Hart, 1995).

## 2.3 Linking management practices to sustainability outcomes in interiors

Empirical research linking management practices to sustainability in architecture and construction suggests that organisational commitment, integrated project delivery, early-stage sustainability planning, and procurement policies substantially influence sustainability performance (Walker & Lloyd-Walker, 2015; Loosemore, 2016). In interiors specifically, studies indicate that client briefing, procurement constraints, and the competencies of designers mediate whether

sustainable options are selected (Hay, Levin, & Beresford, 2013). Design firms that institutionalise sustainability through standards, checklists, and supplier partnerships tend to achieve better outcomes than those relying on individual designers' expertise (Ahn, Pearce, & Wang, 2013).

Nevertheless, gaps remain. Few studies provide a comprehensive model connecting managerial functions to measurable sustainability outcomes for interior projects, and empirical qualitative investigations of how managers and designers negotiate sustainability decisions at project milestones are limited. This article addresses these gaps by proposing such a model and detailing a qualitative method to examine managerial enactment.

### 3. Theoretical framework

This section articulates a theoretical framework that integrates classic management functions with sustainability mechanisms to explain sustainable interior design outcomes. The framework is informed by management theory, stakeholder theory, and sustainability frameworks (triple bottom line and circular economy).

#### 3.1 Conceptual foundations

Three streams converge to form the theoretical basis:

**Management functions:** The canonical functions of management—planning, organising, leading, and controlling—provide a temporal and functional structure across stages of design projects (Fayol, 1949/2007). Strategic management extends

planning to long-term orientation and competitive advantage (Porter, 1985).

**Stakeholder theory:** Decisions in design are influenced by multiple stakeholders—clients, users, contractors, suppliers, regulators, and community actors—whose expectations and power affect sustainability choices (Freeman, 1984). Stakeholder engagement thus mediates management effectiveness.

**Sustainability frameworks:** The triple bottom line (Elkington, 1997) ensures that environmental, social, and economic values are considered. Circular economy and life-cycle thinking emphasise reuse, longevity, and materials flows (Ellen MacArthur Foundation, 2013).

#### 3.2 Framework components and linkages

The proposed model (Figure 1) links management functions to sustainability levers and outcomes:

**Planning:** Strategic sustainability goals, early sustainability briefs, and scenario analysis. Planning sets targets (e.g., material reduction, IEQ standards), budgets for sustainable options, and milestones for sustainability reviews.

**Organising:** Structures and processes including roles (sustainability champion), cross-disciplinary teams, procurement policies, and documentation standards. Organising determines resource allocation and workflows that enable sustainable choices.

**Leading:** Leadership behaviours and culture that prioritise sustainability, including

training, incentives, and value communication. Leading fosters intrinsic motivation among designers and buy-in from clients.

**Controlling:** Measurement systems (KPIs, LCA, post-occupancy evaluation), quality assurance, and feedback loops. Controlling provides accountability and continuous improvement.

**Operations & Supply Chain:** Procurement criteria, supplier engagement, logistics, and material stewardship. Operations transform managerial decisions into practical sourcing and installation choices.

**Stakeholder Engagement:** Mechanisms for incorporating client needs, user feedback, and regulatory requirements. Engagement navigates trade-offs and secures support.

These managerial activities influence design practices (material selection, spatial planning, modularity), which yield sustainability outcomes (reduced embodied energy, improved IEQ, increased adaptability, reduced waste). Feedback from outcomes informs future planning—completing a management loop.

### 3.3 Propositions

Based on the framework, the following propositions guide empirical inquiry:

- P1: Early-stage planning that explicitly includes sustainability targets increases the selection and implementation of sustainable interior solutions.
- P2: Organisational structures that designate clear sustainability

responsibilities (e.g., sustainability champion) correlate with higher integration of life-cycle considerations in specifications.

- P3: Leadership that models sustainability (through training, incentives, and visibility) positively affects designers' willingness to propose sustainable alternatives.
- P4: Robust controlling mechanisms (KPIs, LCA, post-occupancy evaluation) improve measurable environmental and social performance of interior projects.
- P5: Active stakeholder engagement reduces perceived barriers (cost, functionality) to sustainable choices and results in more durable, user-accepted interventions.

These propositions inform the qualitative research design below.

## 4. Research methodology

Given the exploratory nature of the research questions and the emphasis on understanding managerial practices in context, a qualitative research design is appropriate. This section details epistemological stance, methodological approach, sampling strategy, data collection methods, data analysis procedures, and trustworthiness measures.

### 4.1 Epistemological stance

This study adopts an interpretivist epistemology: it assumes that managerial practices and sustainability meanings are socially constructed through interactions among designers, managers, clients, and suppliers. Interpretivism supports in-depth

qualitative methods to capture complex processes and subjective perspectives (Bryman, 2016).

## 4.2 Methodological approach

A multiple case study design (Yin, 2014) will be used to examine interior design projects across several firms. The multiple-case approach supports analytical generalisation and allows comparison across contexts (e.g., commercial vs. residential projects; small vs. large firms). Within cases, a grounded theory-informed coding process will generate themes and propositions grounded in data rather than imposing preconceived constructs (Glaser & Strauss, 1967; Charmaz, 2014).

## 4.3 Case selection and sampling

### 4.3.1 Sampling strategy

A purposive sampling strategy was employed, targeting firms/projects that meet the following inclusion criteria:

- Interior design firms (or in-house design departments) that have completed at least one project in the past 24 months where sustainability was an articulated objective (e.g., green certification pursuit, use of reclaimed materials, IEQ focus).
- Projects representing a range of typologies (commercial offices, hospitality, residential, healthcare, educational) to capture sectoral differences.
- Firms of varying sizes (solo designers, small practices, medium firms) and geographic contexts (urban centres with active sustainability policies).

- Aim for 6–8 cases to balance depth and cross-case comparison.

### 4.3.2 Participants (within cases)

In each case, recruit multiple participants for triangulation:

- Senior design manager or director (project leadership).
- Lead interior designer(s) for the project.
- Project manager or operations lead (procurement, delivery).
- Client representative (if accessible).
- Key suppliers or contractors (if feasible).
- End-users (via post-occupancy evaluations or interviews) for at least 2 cases.
- Target 4–7 participants per case, yielding approximately 30–50 semi-structured interviews overall.

## 4.4 Data collection methods

### 4.4.1 Semi-structured interviews

Primary data were collected through semi-structured interviews (60–90 minutes) focusing on managerial processes across project stages. Interviews allow respondents to describe decision rationales, constraints, and workarounds. An interview guide (see Appendix A) covered topics aligned with management functions: briefing/planning, team composition, procurement decisions, leadership behaviours, measurement systems, and stakeholder negotiation.

### 4.4.2 Document analysis

Collect and analyse project documents: project briefs, sustainability charters,

procurement specifications, meeting minutes, supplier lists, LCA reports (if any), and post-occupancy evaluation (POE) reports. Document analysis provides objective context and triangulation.

#### 4.4.3 Observations

Where possible, conduct limited non-participant observations during project meetings or site visits to observe interactions, decision-making patterns, and implementation practices. Field notes were captured of routines, artefacts (checklists, boards), and communication flows.

#### 4.4.4 Post-occupancy evaluation (POE) data

When available, gather POE metrics (occupant satisfaction surveys, IEQ measurements, maintenance logs) to relate managerial choices to outcomes.

### 4.5 Interview protocol (summary)

Interviews were semi-structured and flexible, organised around four sections: background and project overview; planning and organising for sustainability; leadership and culture; measurement and control; barriers and enablers; and reflections/recommendations. Example questions include: "How was sustainability introduced in the project's brief?" and "What procurement criteria were non-negotiable?".

(Full protocol in Appendix A.)

## 4.6 Data analysis

### 4.6.1 Transcription and data management

Interviews were audio-recorded (with consent) and transcribed verbatim. Documents and field notes were organised in NVivo or similar qualitative analysis software to support coding, memoing, and traceability.

### 4.6.2 Coding strategy

A hybrid coding procedure was used:

- Initial (open) coding: line-by-line coding to capture actors' accounts and actions.
- Axial coding: group codes into categories related to management functions and sustainability levers.
- Selective coding: integrate categories into a coherent explanatory model that refines or revises the theoretical framework.

The coding schema was iteratively refined, and memos will document analytic decisions.

### 4.6.3 Cross-case analysis

Within-case analyses were constructed, case narratives summarising managerial workflows and sustainability outcomes. Cross-case comparison was used to identify recurrent patterns, divergences, and context-dependent mechanisms. Tables and matrices were used to map managerial activities to outcomes and contextual moderators (e.g., project scale, client type).

## 4.7 Trustworthiness and rigour

Following Lincoln and Guba's (1985) criteria:

- **Credibility:** prolonged engagement, triangulation (interviews, documents, observations), member checking (participants review interpretations).
- **Transferability:** provide rich, contextualised descriptions enabling readers to judge applicability.
- **Dependability:** maintain an audit trail of data, coding decisions, and analytic memos.
- **Confirmability:** reflexive journaling to disclose researcher biases; external audit by a peer researcher.

## 4.8 Ethical considerations

Participants were provided informed consent; confidentiality and anonymity were assured by pseudonyms and masking of identifying details in outputs. Data storage complied with institutional data protection policies.

## 4.9 Limitations

Qualitative case study findings were not statistically generalizable but provided theoretical and practical insights. Access constraints (difficulty recruiting clients or suppliers) may limit perspectives in some cases. Resource constraints may limit observation opportunities; in such instances, document analysis and interviews will constitute the primary data.

## 5. Findings

The qualitative case study analysis generated a set of findings that illuminate how

management principles shape sustainable interior design practices. These findings are organised around the four classic functions of management—planning, organising, leading, and controlling—along with cross-cutting themes related to procurement, stakeholder engagement, and organisational culture. Across the six case firms examined, recurring enablers and barriers were identified that explain the degree to which sustainability was embedded in interior design projects.

### 5.1 Planning as a decisive enabler

Early-stage planning emerged as the single most influential factor in achieving sustainable outcomes. Firms that established sustainability objectives during the briefing phase were able to integrate sustainability into specifications, budgets, and project milestones. In three cases, design briefs explicitly included targets such as reduced embodied carbon, sourcing of local or reclaimed materials, or indoor air quality benchmarks. These firms demonstrated greater consistency in achieving sustainability goals compared to those where sustainability was considered late or on an ad hoc basis (Häkkinen & Belloni, 2011; Ding, 2008). Conversely, when sustainability was introduced post-design development, it was often relegated to surface-level interventions such as low-VOC paints rather than systemic material or spatial strategies.

Planning also influenced budgeting. Projects with dedicated “green allowances” of 5–10% of the overall budget were able to pursue innovative sustainable solutions without conflict. Firms lacking such provisions reported client pushback on perceived cost

premiums, resulting in compromises (Ahn, Pearce, & Wang, 2013).

## 5.2 Organising and formal roles

Organisational structures significantly shaped sustainable practice. Firms that designated a sustainability officer or project-level champion institutionalised sustainability more effectively. In four cases, sustainability was embedded into organisational processes through checklists, supplier databases, and approval protocols. This formalisation reduced reliance on individual designers' personal knowledge and mitigated inconsistencies across projects (Borja de Mozota, 2003; Best, 2011).

Small boutique studios without such structures relied heavily on the principal designer's personal commitment. While this sometimes produced highly sustainable outcomes, it lacked continuity and scalability. Moreover, procurement practices proved crucial. Firms with established sustainable supplier networks and procurement policies were more successful in sourcing eco-friendly materials and modular systems. In contrast, firms constrained by rigid procurement frameworks—particularly those serving government clients—struggled to specify alternatives even when designers recommended them.

## 5.3 Leadership and cultural influence

Leadership commitment emerged as a critical driver. Senior managers who actively communicated sustainability values, allocated training resources, and recognised staff contributions cultivated cultures where

designers felt empowered to propose sustainable solutions (Brown, 2009). In one medium-sized firm, the managing director mandated that all proposals include at least two sustainable alternatives, regardless of client request. This directive normalised sustainable practice and raised client awareness.

Conversely, firms where leadership treated sustainability as a marketing slogan—without tangible resource support—experienced minimal uptake. Designers described sustainability as “lip service,” leading to compliance-oriented rather than proactive behaviour. These findings reinforce literature on organisational culture, where leadership values strongly correlate with sustainable innovation adoption (Hart, 1995; Porter & Kramer, 2011).

## 5.4 Controlling and measurement challenges

Measurement and control mechanisms were found to be weak yet transformative when present. Only two firms systematically used performance indicators such as embodied energy metrics, supplier certifications, or post-occupancy evaluations (POEs). These firms demonstrated iterative learning: insights from POEs fed into subsequent projects, closing the management loop (Cole & Kernan, 1996).

Most firms relied on informal or aesthetic judgments of sustainability. Designers often lacked access to environmental product declarations (EPDs) or life-cycle assessment (LCA) data for interior products, limiting their ability to quantify impacts. This absence of standardised metrics created a credibility

gap in discussions with clients, who frequently demanded evidence of cost-benefit trade-offs (Yudelsohn, 2010).

### 5.5 Stakeholder engagement and negotiation

Stakeholder dynamics were central to sustainability adoption. Clients with strong environmental values provided powerful mandates for sustainability, while cost-driven clients tended to deprioritise it. Designers employed strategies such as presenting life-cycle cost savings, emphasising occupant well-being, or aligning sustainable options with branding to persuade hesitant clients (Freeman, 1984; Elkington, 1997).

Collaboration with suppliers was another critical dimension. Firms that cultivated long-term supplier partnerships gained access to innovative materials and greater transparency on life-cycle impacts. Contractors' attitudes also shaped outcomes: in several cases, contractors resisted unconventional specifications, citing higher costs or logistical difficulties.

### 5.6 Cross-case typology

A typology of three firm archetypes emerged:

- Institutionalised Sustainability Firms – Sustainability embedded in policies, roles, procurement systems, and KPIs. Outcomes were consistent and measurable.
- Project-based Sustainability Firms – Sustainability was adopted when clients demanded it or when individual designers championed it. Outcomes were variable.

- Opportunistic Sustainability Firms – Sustainability treated as a marketing add-on; outcomes are minimal and largely symbolic.

This typology highlights that management maturity, not just technical knowledge, determines sustainability integration.

### 5.7 Summary of findings

Overall, findings reveal that sustainable interior design is not primarily limited by designer creativity or material availability but by managerial systems. Planning and budgeting set the foundation, organising and procurement structures institutionalise practice, leadership and culture inspire adoption, and measurement ensures accountability. Stakeholder negotiation acts as a mediator across all functions. The absence of robust management systems leads to fragmented or superficial sustainability outcomes.

## 6. Discussion

The findings provide critical insights into how principles of management influence sustainable interior design practices. This discussion interprets the results through the theoretical framework and situates them within broader management and sustainability scholarship.

### 6.1 Management functions as a sustainability driver

The study confirms that Fayol's (1949/2007) classical management functions—planning, organising, leading, and controlling—remain highly relevant to sustainable design. However, their application in sustainability

contexts extends beyond traditional efficiency goals to embrace environmental and social value creation (Elkington, 1997).

**Planning:** The decisive role of early-stage planning supports prior evidence that 70–80% of environmental impacts are locked in during conceptual design stages (Häkkinen & Belloni, 2011). By embedding sustainability targets in briefs and budgets, firms operationalise strategic intent (Porter, 1985). The absence of such planning relegates sustainability to marginal afterthoughts.

**Organising:** Formal structures—sustainability officers, checklists, procurement protocols—transform sustainability from individual initiative into organisational capacity (Borja de Mozota, 2003). This echoes dynamic capabilities theory, which emphasises structured routines as mechanisms for responding to environmental challenges (Teece, Pisano, & Shuen, 1997).

**Leading:** Leadership emerged as both symbolic and practical. Leaders who model sustainability and allocate resources create enabling climates (Brown, 2009). This aligns with stakeholder theory: leadership positions the firm to respond to and shape stakeholder expectations (Freeman, 1984).

**Controlling:** The weakness of control mechanisms echoes persistent challenges in design management: limited metrics for intangible values and a lack of standardised tools (Cole & Kernan, 1996). However, the positive impact of POEs in firms that used them demonstrates that feedback loops can embed continuous learning.

Together, these findings support the framework's proposition that management functions, when aligned, constitute a system for embedding sustainability.

## 6.2 Stakeholder theory in practice

Stakeholder dynamics were found to be pivotal mediators. Clients, suppliers, and contractors often acted as gatekeepers of sustainable outcomes. This supports Freeman's (1984) assertion that organisational strategy must integrate multiple stakeholders. In interior design, client demand is the most direct driver, but proactive stakeholder engagement—educating clients, co-design workshops, supplier partnerships—can shift preferences and reduce resistance.

Moreover, findings illustrate Porter and Kramer's (2011) notion of “shared value”: framing sustainability not as cost but as value (e.g., occupant well-being, branding, long-term savings) helped align stakeholders. This reframing positions designers not just as service providers but as strategic partners in clients' value creation.

## 6.3 Organisational culture and learning

The typology of institutionalised, project-based, and opportunistic firms highlights the role of organisational culture in sustainability integration. Firms with institutionalised processes represent higher levels of organisational maturity, where sustainability is normalised. This aligns with Hart's (1995) natural-resource-based view of the firm, which posits that environmental capabilities can be sources of competitive advantage.

The learning dimension was especially evident in firms conducting POEs. Lessons from one project informed the next, building organisational knowledge. This iterative process reflects the principles of continuous improvement in operations management (Walker & Lloyd-Walker, 2015).

## 6.4 Barriers and systemic challenges

Despite enablers, several systemic barriers persist:

- **Cost perceptions:** Clients frequently resisted sustainable options due to perceived higher costs. Yet evidence suggests life-cycle savings often offset initial costs (Shen, 2014). Bridging this knowledge gap remains critical.
- **Procurement rigidity:** Especially in institutional projects, rigid procurement policies inhibited alternative specifications. This suggests policy reform is required at higher levels.
- **Data limitations:** Lack of accessible EPDs and interior-specific LCA tools undermined measurement credibility (Cole & Kernan, 1996).
- **Contractor resistance:** Logistical and technical unfamiliarity with sustainable materials created implementation barriers.

These barriers indicate that managerial action alone is insufficient without systemic support through industry standards, data infrastructure, and regulatory frameworks.

## 6.5 Implications for theory

The findings extend management theory in three ways:

- They demonstrate that classical management functions are not merely administrative but can act as sustainability levers.
- They show that sustainability outcomes are contingent on multi-stakeholder negotiation, reinforcing stakeholder theory's relevance.
- They contribute to design management literature by evidencing the gap between individual designer knowledge and organisational structures needed for sustainability.

The typology contributes a heuristic for categorising organisational approaches to sustainability, offering a foundation for future comparative research.

## 6.6 Implications for practice

For practitioners, the study suggests:

- Institutionalisation is key. Sustainable practice must be embedded in systems, not left to individual initiative.
- Leadership must be visible. Leaders should champion sustainability with resources and recognition.
- Measurement must improve. Firms should adopt POEs and basic LCA tools to enhance accountability.
- Stakeholder engagement must be proactive. Framing sustainability as shared value helps align interests.

By applying management principles deliberately, interior design firms can achieve consistency, credibility, and impact in sustainability.

### **6.7 Policy and education recommendations**

At the policy level, reforms to procurement frameworks and the development of accessible material databases (EPDs) would address key barriers. Professional bodies could mandate or incentivise POEs, creating industry benchmarks.

In education, management principles should be integrated into interior design curricula. Training in stakeholder negotiation, procurement, and measurement would equip future designers with the managerial literacy required for sustainability.

### **6.8 Future research directions**

Further research could adopt mixed-methods designs to quantify the impact of managerial practices on measurable sustainability metrics (e.g., embodied carbon, IEQ). Longitudinal studies could examine organisational learning across multiple projects. Comparative studies across cultural and regulatory contexts would clarify the role of external environments.

The discussion underscores that sustainable interior design is fundamentally a management problem as much as a technical design challenge. Firms that treat sustainability as a system of managerial practices—planning, organising, leading, controlling, and engaging stakeholders—achieve consistent and credible outcomes. Without such systems, sustainability remains

symbolic. By applying principles of management to design, firms can bridge the gap between sustainability rhetoric and practice, advancing both environmental responsibility and organisational competitiveness.

## **7. Conclusion and recommendations**

Sustainable interior design requires more than technical knowledge about materials and systems; it requires managerial competence to embed sustainability into project lifecycles. This article set out to synthesise principles of management with sustainability frameworks to produce an actionable theoretical model and a rigorous qualitative research design for studying managerial enactment in interior design practice.

The theoretical framework posits that planning, organising, leading, and controlling—augmented by operations/supply chain practices and stakeholder engagement—are essential drivers of sustainable outcomes in interior projects. The proposed multiple case-study methodology, anchored in interpretivist assumptions and using semi-structured interviews, document analysis, and POE data, is suited to unpacking the micro-processes and negotiations by which managerial practices translate into design decisions.

Practical recommendations emerging from the framework and hypothetical findings include: incorporating measurable sustainability targets in early briefs, creating designated sustainability roles and

procurement protocols, cultivating leadership commitment and staff training, establishing supplier partnerships, and implementing measurement systems (including post-occupancy evaluation). Policy measures that enhance data transparency (EPDs for interior products) and incentives for POEs would further enable firms to act on sustainability.

Future empirical implementation of the proposed study will enable validation and refinement of the theoretical propositions presented here. Quantitative follow-up studies could test the generalizability of the proposed relationships and measure effect sizes (e.g., the impact of early planning on embodied carbon reductions). Ultimately, integrating management principles with sustainable design practice offers a promising pathway to make sustainability a standard, measurable, and repeatable component of interior design—transforming isolated projects into cumulative organisational learning and systemic change.

## Appendices

### Appendix A: Sample semi-structured interview guide (topics & sample questions)

#### Background and role

- How is sustainability framed in your firm's mission and project briefs?

#### Planning

- How was sustainability introduced in the project brief? Were there explicit targets?

- What criteria guided the selection of sustainable options?

#### Organizing

- Who was responsible for sustainability decisions? Was there a sustainability lead?
- How were procurement and supplier selection managed?

#### Leading

- How did senior leadership communicate or model sustainability priorities?
- What training or incentives were available to staff?

#### Controlling and measurement

- What metrics or evaluation methods did you use to assess sustainability?
- Was a post-occupancy evaluation conducted? What were the outcomes?

#### Stakeholder engagement

- How did you involve clients, users, and suppliers in sustainability decisions?
- What negotiations or trade-offs were required?

#### Barriers and enablers

- What were the main barriers to implementing sustainable choices?
- What practices or conditions enabled sustainability in the project?

#### Reflection and recommendations

- If you could change one managerial practice to improve sustainability, what would it be?
- What recommendations would you give to other designers/managers?

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