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Analyzing the influence of the sustainability shift in European building codes on the alignment of identity, practice, and knowledge in commercial real estate firms

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Abstract

Sustainability has become a key concern across multiple sectors, including commercial real estate. Due to environmental challenges, numerous new European building regulations emphasize sustainability, pushing businesses to adapt. This research examines the effect of these sustainability-driven changes in European building codes on commercial real estate companies by utilizing the identity-practice-knowledge framework. Existing studies highlight external pressures and catalysts for change, while insights from seven interviews with industry experts reveal internal challenges, such as the need for additional expertise, and opportunities, such as enhancing sustainable practices. This paper explores how the shift in European building regulations impacts the alignment of identity, practice, and knowledge within commercial real estate firms and identifies the priorities these companies must address. The findings aim to assist these firms in preparing for the sustainability transition and in designing effective change processes for a seamless transformation.

Keywords: Sustainability shift; Commercial real estate; Identity-practice-knowledge model; European building regulations

1. Introduction

With recent changes to European sustainability codes and regulations, companies are being compelled to adapt. These codes aim to achieve carbon neutrality by 2050 (United Nations, n.d.), significantly impacting the commercial real estate sector (Why the Built Environment – Architecture 2030, n.d.). The reduction of CO₂ emissions within the sector can be divided into three key areas: energy consumption, building materials, and transparent reporting. Each of these areas applies differently to new construction versus existing structures. Figure 1 illustrates the distribution of asset classes (Statista, 2024b) and the overall market size (Statista, 2024) of the European commercial real estate industry. Commercial real estate, despite its vast scope, accounts for 40% of global CO₂ emissions (World Green Building Council, 2021). The shift toward sustainability in this industry depends on these European building codes and regulations, serving as a standard across the mentioned themes. This transformation forces many companies to adopt more sustainable practices. Organizational change is defined as a shift from one state to another (Barnett & Carroll, 1995).

Despite the recognized importance of sustainability, research indicates that only a small number of executives have implemented sustainability strategies within their organizations (Kiron et al., 2017). These strategies are often shaped by institutional pressures (Scott, 2007) and driven by economic incentives, influenced by competitive factors (Nyoni et al., 2023). Tagod et al. (2021) demonstrate how coercive pressures affect organizational structure and risk management. Sroufe (2017) explores how and why organizations incorporate sustainability into their strategies, systems, and operations.

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Figure 1 European commercial real estate per asset class

A considerable amount of research has focused on organizational change and its management. Vanegas and Pearce (2000) proposed that modifications to codes and regulations are significant catalysts for organizational change. They further expanded on this by offering a model that outlines why organizations should integrate sustainability into their operations, providing a general framework for this shift (Vanegas & Pearce, 2000). Additional studies on organizational change from an institutional perspective reveal that radical transformations in response to broader industry changes are not uniformly adopted across all organizations within the same field (Greenwood et al., 2008). Such profound changes often lead to misalignments in a company's identity, practices, and knowledge (Kump, 2018). Graetz and Smith (2010) emphasize the competing yet complementary forces organizations must balance during periods of change, such as profitability versus sustainability, which is particularly relevant in this context.

The commercial real estate industry is known for its conservative nature and has historically experienced limited radical change (Utko, n.d.). Its capital-intensive structure results in slow adaptation. However, the current transition towards sustainability represents a significant shift, affecting the alignment of identity, practices, and knowledge within companies. In this case, the driving factor for change is the shift in European building codes and regulations, which prioritize sustainability.

It is understood that commercial real estate companies face discrepancies between their identity, practices, and knowledge (Kump, 2018). However, what remains unclear is how these misalignments affect companies within the commercial real estate sector and how they should manage the forced transition towards sustainability, particularly in relation to their identity, practices, and knowledge, as outlined by Kump's (2018) model.

This uncertainty points to a gap in the existing research on sustainability and organizational change in the commercial real estate industry. To address this, the focus of this study is to examine how the shift towards sustainability in European building codes and regulations influences the alignment of identity, practice, and knowledge within commercial real estate firms. The study will explore the relationships between these factors, considering the differences between new constructions and existing buildings, and focusing on three main themes: energy usage, building materials, and transparent reporting.

As a result of this research gap, the central question guiding this study is: How does the sustainability transition in European building codes and regulations affect the alignment of identity, practice, and knowledge in commercial real estate companies? To answer this, interviews with seven industry experts will be conducted. This research adopts both inductive and deductive approaches, utilizing qualitative methods.

This research contributes to the understanding of sustainability and European sustainability codes and regulations. It sheds light on the dynamics of organizational change and the alignment of identity, practice, and knowledge in commercial real estate companies as they undergo the sustainability transition mandated by European codes. This study can serve as a foundation for further exploration of related topics.

From a practical standpoint, the paper offers valuable insights for commercial real estate firms by detailing the effects of the sustainability transition on their identity, practices, and knowledge, as well as how these elements align. These insights can help companies better prepare for the changes and develop an effective process to ensure a smoother transition towards sustainability.

2. Theoretical Background

This paper draws on multiple research studies and articles covering key topics such as sustainability in commercial real estate, European sustainability building codes and regulations, organizational change, and the alignment of identity, practice, and knowledge within organizations. Through this review, the research gap is identified.

2.1. Sustainability in Commercial Real Estate

Sustainability has become a critical issue, particularly in commercial real estate, due to its significant contribution to global carbon (CO₂) emissions. The World Green Building Council estimates that the sector is responsible for nearly 40% of energy-related CO₂ emissions globally (World Green Building Council, 2021).

Kiron et al. report that while 90% of multinational executives recognize the importance of sustainability, only 60% have implemented a strategy for it within their organizations (Kiron et al., 2017). Sustainability efforts are often shaped by institutional pressures, which define the organizational context (Scott, 2007). Research by Nyoni et al. (2023) indicates that increasing institutional pressures, largely driven by government policies and stakeholder demands, push real estate owners toward sustainable practices. Although these efforts are mainly driven by economic factors such as rising energy and resource costs, there is also considerable external pressure from both governments and stakeholders. Furthermore, competitive pressures encourage organizations to adopt practices from successful firms to stay competitive in the market (Nyoni et al., 2023).

Tagod et al. (2021) found that energy efficiency and renewable energy initiatives are key priorities in the real estate sector's sustainability efforts, a finding supported by earlier studies such as Bandejas et al. (2020). The focus on energy efficiency is largely motivated by the economic benefits, as it reduces operating costs and increases profitability. This emphasis is also reinforced by the coercive pressure from tenants, who increasingly demand sustainability in their rented spaces (Nyoni et al., 2023).

2.2. European Sustainability Building Codes and Regulations

The foundation of the sustainability transition in European building codes and regulations lies in the reporting standards, with the Corporate Sustainability Reporting Directive (CSRD) at its core. The CSRD mandates large and/or publicly listed companies to disclose the social and environmental impacts of their operations, detailing their effects on the environment and local communities (Corporate Sustainability Reporting, n.d.). The EU Taxonomy Regulation fills gaps in previous European sustainability guidelines by providing a system that ranks environmentally friendly economic activities, aiming to make private financial investments more sustainable (Baumüller & Grbenic, 2021). Another key regulation is the Carbon Border Adjustment Mechanism (CBAM), which targets the reduction of CO₂ emissions produced outside the EU by imported goods, a phenomenon known as carbon leakage (Zhong & Pei, 2023). CBAM is a part of the European Green Deal, which sets policy initiatives to make Europe the first carbon-neutral continent by 2050. One of its main objectives is to establish a circular economy to both reduce emissions and drive economic growth (Fetting & ESDN Office, 2020).

These regulations aim to raise awareness among organizations about resource usage and their environmental impact. Most sustainability regulations focus on new developments; however, the Energy Performance of Buildings Directive (EPBD) specifically targets the renovation of existing buildings. This directive seeks to improve the energy efficiency of older buildings by providing guidelines on how to enhance their performance (Energy Performance of Buildings Directive, n.d.).

Baumüller and Grbenic (2021) argue that a large portion of the CSRD's reporting requirements is overly burdensome and impractical due to the administrative demands placed on companies, which go beyond the EU's initial intention of making sustainability reporting more comprehensive, reliable, and comparable. They highlight concerns about the time pressure and uncertainty surrounding the regulation's content. Conversely, Koch et al. (2023) suggest that the EU Taxonomy's current efforts may be insufficient to meet the EU's sustainability goals, potentially leading to the risk of organizations engaging in EU-endorsed greenwashing. Nonetheless, these new building codes and regulations signal significant organizational changes for companies within the commercial real estate sector.

2.3. Organizational Change

Vanegas and Pearce (2000) propose that changes in codes and regulations act as a catalyst for organizational transformation. As a result, organizational change is unavoidable when European building codes shift towards sustainability, given the new challenges organizations are required to address (Vanegas & Pearce, 2000).

Sroufe (2017) explores how and why companies integrate sustainability into their corporate strategies, systems, and operations. The key findings reveal that successful integration involves aligning performance metrics across various business units. Sroufe suggests that the combination of integration and change management is crucial for the success of strategic sustainability initiatives in companies (Sroufe, 2017).

Vanegas and Pearce also offer a model tailored to the architectural, engineering, and construction (A/E/C) industries that emphasizes organizational change to enhance sustainability. This model outlines the reasons why decision-makers should adopt sustainability practices and identifies key strategic actions to guide the transition. It serves as a framework for all stakeholders involved in the change process, using current practices as a foundation for moving towards sustainability, though it remains focused on general principles (Vanegas & Pearce, 2000).

Research by Greenwood et al. (2008) provides an institutional perspective on organizational change, highlighting several critical aspects. For such change to be effective, it must involve both reflexivity and theorization at both the organizational and field levels. Additionally, radical organizational change in response to shifts within an industry does not occur uniformly across all organizations within that sector (Greenwood et al., 2008). Tagod et al. (2021) explain how coercive pressures influence organizational structures and impact a company's risk management strategies.

Graetz and Smith (2010) argue that change and continuity in organizations are both competing and complementary forces. Their research explores different approaches to change and identifies the conflicting and harmonizing elements that organizations must navigate during periods of change, such as the degree of uncertainty, the pace of change, and the factors that drive it (Graetz & Smith, 2010).

2.4. Identity-Practice-Knowledge

Organizational change inherently brings internal tensions and misalignments. The identity-practice-knowledge (IPK) model developed by Kump (2018) is well-suited for studying these dynamics. This model illustrates the balance between a company's identity, practices, and knowledge at both the organizational and individual levels. Radical changes, such as the shift towards sustainability in European building codes, can disrupt this balance. The multilevel approach of the IPK model helps identify and anticipate issues caused by these significant changes.

A key argument in this framework is that imbalances between identity, practice, and knowledge, which must be resolved by employees, often result in challenges during radical organizational transformations. These incongruences can arise regardless of the starting point of the change. Since identity, practice, and knowledge are interconnected, any radical organizational change will lead to shifts in practices. This change in practice often creates a mismatch between the existing knowledge and the new knowledge required to implement these changes effectively. Additionally, altering organizational practices necessitates changes in the individual practices of employees, which can create a gap between individual practices and their personal identities. The overall identity of an organization is shaped by the collective identities of its employees, just as organizational knowledge is a product of the individual knowledge held by its workforce (Kump, 2018).

2.5. Research Gap

The significant transformation currently taking place in the commercial real estate industry is affecting the alignment of organizational identity, practice, and knowledge. This shift is driven by the transition of European building codes towards sustainability. What makes this change particularly noteworthy is that the commercial real estate sector has historically undergone minimal radical transformation due to its conservative nature, which has led to slow and minimal adaptation (Utko, n.d.). Vanegas and Pearce (2000) have contributed to this area of research by explaining that shifts in sustainability strategies within organizations, including those in commercial real estate, require thoughtful reflection and adjustment to manage these new strategies effectively.

However, there remains a gap in understanding how the commercial real estate industry, which lacks extensive experience with change processes, particularly those focused on sustainability, deals with this transition. Specifically, it is unclear how companies in this sector handle the misalignments between their identity, practices, and knowledge brought about by sustainability demands. This research gap encompasses how these three elements influence each other and the overall alignment within organizations.

3. Methodology

This study is designed to explore the effects of the sustainability transition in European building codes and regulations on commercial real estate companies by employing a qualitative research approach. Qualitative research aims to

understand why people behave in certain ways by analyzing non-numerical data (Hecker & Kalpokas, 2024). In this research, data was collected through seven interviews with industry professionals, which were subsequently analyzed using the software Alas.ti.

3.1. Sample Group

Seven interviews were conducted with various European commercial real estate companies, each differing in size, geographical location, and focus on either new or existing buildings. The interviewees represented employees from different departments within these companies, including legal, sustainability, development, and asset management. These individuals were selected for their knowledge of European building codes and their understanding of the sustainability transition. To protect the identities of the participants, pseudonyms were assigned in the format of 'IP' followed by a number from 1 to 7, with identifying details such as company and employee names removed.

Table 1 Interviewee characteristics

Pseudonym	Job title	Company type
IP1	Project manager	Advisor
IP2	Head sustainability	Developer investor
IP3	Sustainable business development	Developer construction
IP4	CEO	Developer investor
IP5	Head sustainability	Developer investor
IP6	Real estate director	Investor
IP7	Head ESG and sustainability	Developer investor

3.2. Data Collection

The interviews focused on understanding what the companies already knew compared to what they had yet to learn, how this would impact their current and future business operations, and whether it would lead to any changes within the company. An interview guide was employed to ensure consistency across the interviews and maintain comparability of the data collected. The guide included questions about the interviewees' backgrounds and daily roles, the organization's sustainable practices and its shift toward sustainability, activities affecting the company's identity, practices, and knowledge, the primary challenges encountered by the interviewees, and any advice they had for other organizations undergoing similar transitions.

3.3. Data Analysis

The analysis involved both inductive and deductive methods, applied through interviews and literature, respectively. A deductive approach, grounded in pre-existing data or theories, was used to test the research hypothesis (Armat et al., 2018). Deductive codes were created before the analysis, focusing on key themes such as organizational change, identity, practice, knowledge, and European sustainability building codes and regulations. These codes provided a broad foundation for insights into the central topics of the research.

In contrast, the inductive approach was used to establish clear connections between raw data, such as interviews, and the research objectives (Thomas, 2006). During this phase, inductive codes emerged, addressing themes like issues/challenges, greenwashing, and advice. These codes were identified after common topics were discovered in the interviews, such as discrepancies between what companies claim to do and their actual practices (greenwashing), or shared challenges like adapting to new reporting standards.

Both deductive and inductive codes were used to support the analysis and facilitate answering the research question.

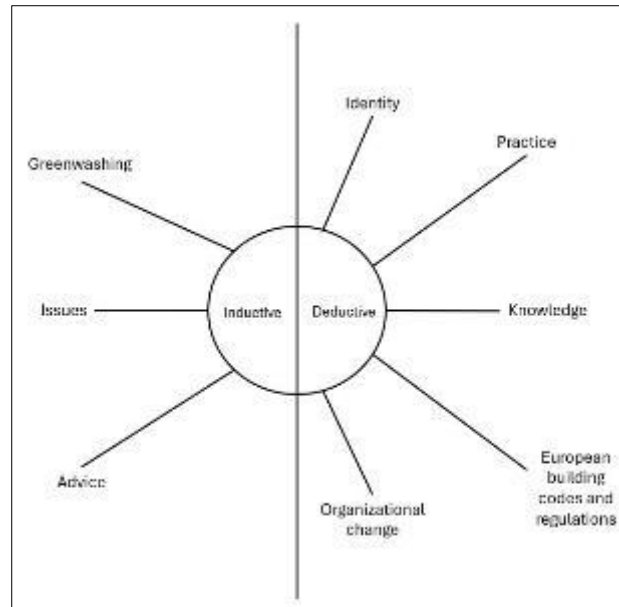


Figure 1 Data Analysis

4. Results

This section presents the findings from the interviews conducted with professionals in the commercial real estate sector. The purpose of these interviews was to gain a deeper understanding of key elements, including the alignment of identity, practice, and knowledge, organizational change, and the influence of European sustainability building codes and regulations. All insights provided in this chapter are based directly on the input from the seven interview participants.

4.1. Organizational Change and Sustainability

When asked about what prompted the shift toward sustainability, most interviewees cited various national building codes and the Corporate Sustainability Reporting Directive (CSRD) standards. These national codes often vary between countries in terms of content and implementation timelines. As IP1 explained, “the biggest challenge is that while some countries are already working to implement the new regulations, others are still in the process. This causes frustration, especially for clients with properties across multiple European countries, where they may modernize buildings in one country but are delayed in another, making it difficult to maintain consistent standards across different locations.”

The CSRD is compulsory for companies of a certain size and requires significant time and expertise to complete. Organizations must report on their energy usage and how various resources impact this, which can be challenging to obtain, particularly with tenants in the buildings. As IP4 shared, “suddenly we have to deal with this, meaning we now need to gather a variety of data within our organization that we’ve never examined before, and often can’t obtain from tenants.” These regulations apply to both new and older buildings, compelling companies to bring older structures up to modern sustainability standards while simultaneously developing new ones.

Sustainability requirements often result in financial benefits for tenants rather than the real estate companies themselves, a situation referred to as a “split incentive.” IP2 noted, “The tenants reap the rewards of reduced energy costs from sustainable buildings, even though we are the ones making the investments.”

Additionally, compliance with regulations such as the CSRD helps prevent greenwashing by ensuring companies provide tangible proof of their sustainable actions. As IP2 put it, “The mandatory reporting requires companies to clearly demonstrate what they are actually doing.”

European and national building codes and regulations related to sustainability in the commercial real estate sector are designed to raise awareness about companies' practices and the impact of their buildings, in addition to being mandatory. As IP4 remarked, “An EU parliament member mentioned in an interview that we shouldn’t take the CSRD too seriously, suggesting it’s about awareness. But that’s completely absurd because it’s strict legislation, and failure to comply carries serious legal consequences.”

These regulations have created some uncertainty among companies about the correct course of action. There are numerous frameworks, such as the CRREM pathway, the Building Research Establishment Environmental Assessment Method (BREEAM), Paris Proof, and others, all working towards sustainable practices but with different methodologies.

Several interviewees emphasized the immense time pressure that companies face during this sustainability transition. If businesses wait until compliance becomes mandatory to start adapting their practices or improving their knowledge, they risk being left behind.

The primary challenge commercial real estate companies face during the sustainability transition lies in balancing sustainable practices with profitability. These sustainable practices are governed by the codes and regulations but also depend on the knowledge companies have or must acquire to adjust their operations. Additionally, the shift requires a transformation in their identity towards sustainability.

4.2. Identity, Practice, Knowledge

4.2.1. Identity

The transition toward sustainability in European building codes and regulations presents challenges that create misalignments between a company's identity, practices, and knowledge. Addressing the alignment of these three aspects is central to this research. As IP4 noted, "When it comes to identity, practice, and knowledge, you need to choose one to focus on during the change process. I believe the one you should avoid starting with is identity, even though many companies often do."

There was no agreement among interviewees regarding the effect of sustainable practices on a company's image or identity, despite all firms in the industry having to comply with the same building codes and regulations.

When discussing the influence of these regulations on a company's identity, the most significant impact came from the "above-and-beyond" measures that some organizations adopt to exceed sustainability requirements, which helps differentiate them from others that stick to the minimum standards.

Additionally, it was highlighted that claiming a sustainable identity is one thing, but proving it is another. As IP2 explained, "We're not just stating that we are sustainable; we can demonstrate it through certifications." One method for doing this, according to IP2, is by obtaining green building certifications to clearly show the public how environmentally friendly and sustainable the building truly is.

Demonstrating that an organization's practices are genuinely sustainable is crucial to avoid the risk of greenwashing, which involves presenting a misleading image of sustainability. As IP2 explained, "Having proper evidence prevents the organization from engaging in greenwashing. Claiming to be sustainable is one thing, but actually embedding sustainability into operations is another."

From an identity perspective, the most significant point raised was the shift in mindset required by both companies and their employees during this sustainability transition. As IP6 noted, "It's not the same as it used to be. This demands a shift in mindset." This shift is viewed both as a challenge and an opportunity. A strong belief in the organization's mission is essential to keep everyone engaged and motivated during the transition.

4.2.2. Practice

The primary sustainable practices that the interviewed organizations began to adopt in response to the sustainability transition in European building codes and regulations focused on enhancing employee knowledge through initiatives such as workshops. While acquiring new knowledge is crucial, applying it in practice is even more important. As IP4 stated, "Gaining this knowledge significantly impacts our practices because you can begin to implement everything you've learned. Once you start applying it, you can then focus on achieving efficiency."

The regulations provide guidance for specific practices, but tools such as the Carbon Risk Real Estate Monitor (CRREM) pathway, which tracks the carbon footprint of buildings, and energy labels, which indicate energy efficiency, have been essential for implementing these changes. As IP4 pointed out, "Without these tools, we wouldn't be able to accomplish this at all."

Interviewees also emphasized the need to strike a balance between maintaining profitability and pursuing sustainability. According to IP2, "If you try to move too quickly, it will require more effort and time than you can recover."

You have to find a balance where you can continue running the business while becoming more sustainable. Trying to implement everything at once would be financially unsustainable.”

To achieve this balance, companies are now shifting their focus to celebrating small victories and exploring opportunities in every development or investment to not only cut costs but also reduce resource usage. As IP3 noted, "In the past, we didn't need to focus on small wins or opportunities because we were making enough money. But times have changed, and the market is now so competitive and challenging that we must focus on reducing costs and, more importantly, resources." One approach suggested was to closely examine the circular economy of resources in developments and investments. IP3 added, "If we can combine circularity with bio-based materials, that would be the biggest win for me." Circularity refers to the reuse of resources either at a later stage or in other developments.

A company's identity is also shaped by its internal practices. When considering a sustainable identity, this includes actions like reducing paper usage or increasing energy efficiency in the office.

Looking ahead, many interviewees emphasized the importance of increased collaboration with other companies in the market. Businesses need to move away from viewing one another purely as competitors and start sharing knowledge and ideas, according to IP3.

4.2.3. Knowledge

According to the interviewees, acquiring new knowledge is essential to comply with evolving building codes and regulations. While some companies choose to hire new employees who already possess the required skills and knowledge, others prefer to retrain their current staff. These companies provide training and workshops to enhance their employees' understanding of sustainable practices and the new regulations. Although they recognize the importance of this, it adds a significant burden to their regular duties. As IP2 pointed out, "It takes a lot of time to give everyone this additional knowledge and training. It's something that needs to be done on top of the usual daily tasks."

Knowledge requirements also vary between countries, making the process more complex for companies operating internationally, according to IP1. The most challenging aspect is understanding how the new reporting standards work and the specific information they require. As IP7 explained, "You have to adjust to the language used in the reporting framework."

On the other hand, some companies don't find this transition as difficult. IP6 remarked, "It's also a bit of common sense."

Determining the right course of action can be challenging, especially without the appropriate knowledge. IP4 emphasized that companies with the right expertise can position themselves as market leaders, making it crucial to maintain clear internal communication. This ensures that everyone is up to date and motivated.

Beyond internal efforts, collaboration with other companies in the same industry can be beneficial. IP3 suggested that sharing knowledge and supporting each other within the value chain can accelerate the sustainable transformation of the industry, as working together can help find solutions more quickly.

5. Discussion

5.1. Interpretation of Results

This chapter provides an interpretation of the findings from the interviews, integrating them with the previously discussed research. These interpretations will form the basis for the conclusions presented in the next chapter. Additionally, this section offers recommendations for future research, outlines the theoretical and practical implications of the study, and addresses its limitations.

5.1.1. Organizational Change and Sustainability

The shift toward sustainability in European building codes and regulations represents a radical change (Vanegas & Pearce, 2000), which necessitates organizational transformation (Kump, 2018). Such a significant shift impacts the alignment of a company's identity, practice, and knowledge, forcing them to decide which areas to prioritize during this transition. Companies may focus on adjusting practices or enhancing knowledge, but not identity, as identity should evolve as a result of changes in the other areas to avoid the risk of greenwashing, according to this study's findings.

Both the CSRD and the EPBD emphasize energy consumption (with the CSRD also covering topics like social responsibility and supply chain management), while the CBAM concentrates on reducing carbon emissions. The EU Taxonomy provides guidelines on both carbon reduction and energy consumption, which can create confusion for organizations about what to prioritize. Although these regulations aim to raise awareness, as noted by Zhong and Pei (2023), interviewees mentioned that policymakers sometimes fail to set clear priorities, leading some to believe the regulations shouldn't be taken too seriously.

The CSRD, the primary regulation discussed in this study, places companies under time pressure and creates uncertainty as they try to adapt. Companies that fail to start adapting promptly may find their ability to survive at risk due to the rapid pace of required organizational change.

One key finding from this research is that the process of investing and developing in the commercial real estate sector must be rethought due to the sustainability transition. This requires not only a shift in mindset but also additional knowledge. Some organizations choose to re-train their current staff, while others prefer to hire new employees who already possess the necessary expertise. A change in mindset is crucial to striking a balance between modernizing existing buildings and developing new ones, as both must comply with the new codes and regulations, while also balancing profitability and sustainability.

Organizational change involves both competing and complementary forces (Graetz & Smith, 2010). Profitability versus sustainability is a competing factor, but employee engagement and the necessity for change are complementary elements.

Greenwood et al. (2008) emphasize that successful organizational change requires both reflexivity and theorization. This means that employees need to be actively involved in the implementation of new sustainable practices, and there must be a strong level of trust in the organization's leadership and sustainability managers. In the context of commercial real estate, engaging employees in the transition process increases their support and involvement. Employee participation not only keeps them motivated and informed about new developments but also gives them a sense of impact. This is especially critical since the move toward sustainability is an ongoing, costly process that requires proactive efforts from companies navigating this transition.

5.1.2. Identity, Practice, Knowledge

Misalignments between an organization's identity, practices, and knowledge can occur regardless of where the radical change originates (Kump, 2018), as seen in the sustainability transition driven by European building codes and regulations. In the case of commercial real estate companies, this research found two primary pathways for shifting toward sustainability. The first approach involves adjusting practices by setting new internal standards for both existing and new buildings, implementing these standards through a trial-and-error or learning-by-doing process.

The second approach focuses on increasing knowledge. Organizations can expand their knowledge base before implementing new standards by hiring external advisors, offering specialized training, or enrolling employees in relevant courses. They can also hire new employees with the necessary expertise. However, starting with a change in identity without first building knowledge or gaining experience is not recommended, as it could lead to greenwashing. Identity transformation should be the outcome of changes in practices and/or knowledge.

Organizational knowledge is shaped by the collective knowledge of individual employees (Kump, 2018). This study found that one of the most challenging aspects is understanding how new reporting standards function and what information needs to be included. Companies have two options for acquiring this knowledge: either hire new employees or train existing staff. Re-training employees through workshops or other methods is a time-intensive process that adds to the already significant time pressures created by the new sustainability codes and regulations, a concern highlighted by Baumüller and Grbenic (2021).

This research reveals that the knowledge required to comply with new codes and regulations varies across countries, adding complexity for companies operating internationally. As a result, some organizations choose to hire new employees who already possess the necessary skills and expertise to manage these new responsibilities.

Vanegas and Pearce (2000) identify changes in codes and regulations as catalysts for organizational transformation. According to Kump (2018), radical organizational change always leads to adjustments in practices because change must be implemented to be effective. This study found that the shift in practices involves a change in mindset and focus for organizations. This shift is driven by the need to modernize older buildings, which was not previously a concern, while

also ensuring that new buildings meet the latest sustainability standards. At the same time, companies must remain profitable. To achieve this, it is crucial for them to examine their buildings closely, identifying opportunities to reduce costs and reuse resources, thus promoting a circular economy. Tools such as the CRREM pathway, which monitors a building's carbon impact, can help in making this transition by increasing transparency.

Although practices are primarily shaped by building codes and regulations, the extra steps companies take to further enhance the sustainability of their buildings differentiate them from competitors and strongly influence their identity. Establishing a sustainable identity requires proof, which can be achieved through green building certifications. These certifications demonstrate how environmentally friendly and sustainable a building or organization is, helping to prevent greenwashing or any doubts about the organization's claims.

A sustainable identity extends beyond the buildings that an organization develops or manages. It also encompasses the sustainability of internal practices, such as reducing paper usage and improving office energy efficiency. This aligns with Kump's (2018) assertion that, like practice and knowledge, an organization's identity is shaped by the individual identities of its employees.

What was previously unknown is how this sustainability transition impacts commercial real estate companies and how they address the misalignments between their identity, practice, and knowledge. These three elements are interconnected. By increasing knowledge, companies can adjust their practices to comply with new codes and regulations, or they can refine their practices to improve knowledge, ultimately influencing their organizational identity. Such organizational changes result from individual adjustments made by employees (Gioia et al., 2013). Moreover, it is crucial for companies within the industry to communicate and collaborate to tackle the common challenges they face. Sharing knowledge and ideas will help identify solutions that benefit everyone.

5.2. Theoretical Implications

This paper contributes to the theoretical understanding of the sustainability transition in European building codes and regulations. It expands existing research by examining how this transition affects the alignment of identity, practice, and knowledge within organizations, specifically in the commercial real estate sector. The theory of congruence between identity, practice, and knowledge, initially developed by Kump (2018), is further refined in this paper by offering specific starting point options for commercial real estate companies moving toward sustainability. Additionally, this paper provides a practical example of how the model can be applied in future research, particularly in specific asset classes.

More broadly, this study serves as a foundation for further research on this topic within the commercial real estate industry and beyond, including other areas such as private real estate or specific regulatory frameworks.

5.3. Practical Implications

In addition to its theoretical contributions, this paper offers practical insights for commercial real estate companies by identifying the challenges they may face and how some interviewed companies have successfully navigated these challenges. The findings provide valuable guidance on how to comply with new building codes and regulations, align an organization's identity, practices, and knowledge, and manage radical organizational change. Furthermore, adhering to these codes and regulations can give organizations a competitive edge.

The interviews revealed that there is some confusion about the best approach to take in response to European building codes and regulations. This paper offers a clearer understanding of the changes that companies in the commercial real estate industry can expect, how some have responded to these changes, and how they influence the alignment of identity, practice, and knowledge. By utilizing these insights, companies can gain a fresh perspective on risk management related to the sustainability transition, turning potential risks into opportunities. When applied effectively, the findings of this research can help organizations achieve a competitive advantage within the industry.

5.4. Limitations and Further Research

While this paper offers valuable insights, there are several limitations that may affect the research outcomes. First, the sample size for the interviews is a potential limitation. Although the minimum requirement of seven industry experts was met, this sample may not fully represent the entire commercial real estate industry due to its size. However, the seven interviewees were intentionally selected to reflect a broad range of perspectives within the industry.

The interviews, which form a core element of the paper, are based on the opinions of these experts. Although these are informed opinions, they may not capture the viewpoints of all individuals working in the commercial real estate sector. Another limitation is that the industry is discussed as a single market sector, despite the diversity of stakeholders involved, such as investors, advisors, and developers. This generalization may influence the research outcomes, as the study does not focus on a specific segment of the commercial real estate industry.

Finally, the paper focuses on European sustainability building codes and regulations, which may differ from national codes and legislation in individual European countries. While this was acknowledged by the interviewees, it was not a primary focus of the paper, which could impact the results.

Two suggestions for future research arise from this study. First, future research could explore the differences between European and national sustainability building codes and regulations and how these variations affect companies operating in multiple European countries. Second, further research could focus on specific asset classes within the commercial real estate industry, such as office, residential, or retail development

6. Conclusion

The shift towards sustainability in European building codes and regulations has a profound effect on commercial real estate companies, compelling them to adapt to a new reality with an increased focus on sustainability. To adjust effectively, these companies must enhance both their knowledge and experience. However, organizations cannot address all three elements of the identity-practice-knowledge (IPK) model simultaneously, so they must prioritize one or two aspects, given the extensive demands of the new regulations. To prevent greenwashing, changes in a company's identity should stem from alterations in practices or knowledge, ensuring that their identity is built on concrete actions.

Organizations can either start by focusing on knowledge—by retraining existing employees or hiring new talent with the appropriate skills—or by modifying their practices through a learning-by-doing approach. The ideal starting point also depends on the type of real estate company. For example, advisors should focus on acquiring the necessary knowledge to guide others, developers should prioritize changing practices by adopting new materials, and investors could choose either path. The most crucial advice for commercial real estate companies is to begin adjusting to the sustainability transition in European building codes and regulations as soon as possible, regardless of whether they start by changing their knowledge or practices.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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