Lisbon School of Economics & Management
Universidade de Lisboa

MASTER

MASTER'S IN MANAGEMENT

MASTER´S FINAL WORK

DISSERTATION

UNLOCKING INNOVATION: DRIVERS AND BARRIERS TO BLOCKCHAIN ADOPTION IN A SUSTAINABILITY-DRIVEN ECONOMY

FEDERICO GHESSA

JUNE - 2025

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Table of Contents

List of Figures

List of Tables

Preface

This thesis marks the conclusion of my academic journey in the Master in Management Double Degree program.

It represents the culmination of months of reflection, research, and writing, during which I have engaged critically with the organizational dynamics surrounding blockchain technology. The work focuses on how perceptions, motivations, and resistance shape the implementation of innovation in sustainability-driven contexts.

Beyond its academic purpose, this thesis reflects the intellectual path I have followed during my studies, shaped by curiosity, doubt, long hours, and meaningful conversations. It is the result of continuous improvement and of a personal challenge I chose to confront with discipline and determination.

I am deeply grateful to all those who have supported me along the way. Their presence is acknowledged in the next section.

Acknowledgments

I would like to express my deepest gratitude to my supervisor, Prof. Joanna Krywalski Santiago, for her invaluable guidance, encouragement, and critical feedback throughout the development of this thesis, and on my double degree journey overall. Her expertise and insightful suggestions have been fundamental in shaping the direction and quality of this work.

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Thank you for shaping this journey with your ideas, questions and beautiful presence.

Every conversation, every piece of advice, no matter how brief, helped me develop a more complete, open, and critical vision of the world.

Finally, I would like to express my heartfelt appreciation to my family and my friends from *trap* for their unwavering support, patience, and encouragement.

Your love and belief in me have been a constant source of strength and motivation.

Thank you.

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Abstract

This thesis investigates the organisational adoption of blockchain technology within sustainability-oriented contexts. The main objective is to explore how decision-makers perceive blockchain in relation to environmental, social, and governance (ESG) goals, and to identify the drivers and barriers influencing its implementation. The research adopts a qualitative design, using semi-structured interviews with senior professionals from five organisations across diverse sectors. Drawing on the Technology Acceptance Model and Innovation Resistance Theory, the study analyses how perceived usefulness, ease of integration, and sustainability alignment shape adoption decisions, while also uncovering forms of passive organisational resistance.

The findings reveal that blockchain adoption is more likely in organisations with a strong ESG orientation, where it is seen as a tool for transparency, traceability, and accountability. Key enablers include strategic fit and external support, while major barriers include technical complexity, cultural misalignment, and lack of internal advocacy. The study concludes that blockchain is not adopted based solely on technical merit, but through an interpretive process shaped by organisational values, narratives, and strategic readiness.

The results offer practical insights for managers evaluating blockchain in sustainability initiatives, and contribute to academic understanding of how emerging technologies are framed, accepted, or resisted within contemporary organisations.

Keywords: blockchain adoption, sustainability, Technology Acceptance Model (TAM), innovation resistance, ESG, transparency, strategic alignment

Resumo

Esta dissertação analisa a adoção da tecnologia blockchain em organizações orientadas para a sustentabilidade. O objetivo principal é explorar como os decisores percebem a blockchain no contexto de metas ambientais, sociais e de governança (ESG), identificando os fatores que facilitam ou dificultam sua implementação. A investigação adota uma abordagem qualitativa, baseada em entrevistas semiestruturadas com gestores de cinco organizações de setores diversos, analisadas à luz do Modelo de Aceitação de Tecnologia (TAM) e da Teoria da Resistência à Inovação.

Os resultados revelam que a utilidade percebida, a facilidade de integração e o alinhamento com os objetivos de sustentabilidade são fatores-chave para a adoção. Em contrapartida, barreiras técnicas, culturais e organizacionais (como complexidade, desalinhamento estratégico e ausência de apoio interno) geram formas de resistência passiva. A pesquisa conclui que a adoção da blockchain depende de como a tecnologia é percebida e enquadrada estrategicamente, e não apenas de sua funcionalidade técnica. As conclusões oferecem implicações práticas para organizações interessadas em inovação sustentável e contribuições teóricas para o entendimento das dinâmicas de aceitação e resistência tecnológica.

Palavras-chave: adoção de blockchain, sustentabilidade, modelo de aceitação de tecnologia (TAM), resistência à inovação, ESG, transparência, alinhamento estratégico

List of Abbreviations

Below is the full list of abbreviations that appear in the thesis, presented in alphabetical order with their expanded forms at an example mention.

Abbreviation	Full meaning	Occurrence (example line)
CO_2	Carbon Dioxide (chemical symbol for the greenhouse-gas)	"…Traceability, **CO_2** impact tracking"
ESG	Environmental, Social & Governance	"…our **ESG** reporting is robust."
MAXQDA	MAXQDA qualitative-data-analysis software	"The coding scheme used in **MAXQDA**…"
RQ	Research Question	"**RQ1**, RQ2, RQ3 …"
SDG	Sustainable Development Goals (UN)	"**SDG** evidences from study…"
TAM	Technology Acceptance Model	"The **TAM** … explains why users choose to adopt…"

This list is exhaustive; universally understood terms (e.g., IT) are not included, as they are considered common-sense vocabulary.

1. Introduction

In an era of environmental degradation, growing social pressure, and regulatory change, sustainability has become a central concern for both public and private sector organizations. Governments are introducing stricter rules, consumers are demanding greater transparency, and investors increasingly consider environmental and social metrics in their decisions. Within this context, technology is often presented as a key enabler of sustainable innovation. Blockchain has emerged as one of the technologies associated with this shift. Originally designed for cryptocurrencies, it has since been applied in areas such as supply chain traceability, emissions reporting, and data integrity. It is often described as a system that enables decentralized, tamper-proof, and transparent recording of information across networks (Chen, 2023). This has led to interest from companies seeking more reliable and auditable systems to support their environmental and social commitments.

Despite this potential, adoption remains uneven. While some organizations explore blockchain as a strategic asset, others view it as technically complex, costly, or poorly aligned with their operations. The gap between blockchain's theoretical benefits and its actual implementation raises important questions about perception, relevance, and resistance. This thesis investigates how organizations perceive blockchain in relation to sustainability, and how they decide whether to adopt it or not. The study focuses on both the drivers that encourage adoption and the factors that create hesitation. It draws on two theoretical frameworks: the Technology Acceptance Model (Davis, 1989), which focuses on perceived usefulness and ease of use, and Innovation Resistance Theory (Ram & Sheth, 1989), which highlights the role of habits, risk aversion, and cultural barriers.

Rather than treating adoption as a purely technical decision, the research takes a broader view. It considers blockchain as a social and strategic artefact whose implementation depends on organizational values, priorities, and internal dynamics. This approach is especially relevant when adoption is connected to sustainability goals, where perception and context play a critical role. Although interest in blockchain adoption has grown across various fields, much of the existing research remains either technical or conceptual. Empirical studies that explore how organizations actually perceive and approach the technology are still limited, especially outside the financial sector. Studies tend to focus on benefits or implementation strategies, often without considering the reasons why adoption does not happen, or why certain innovations are met with hesitation or inertia.

In particular, the combination of adoption and resistance perspectives is rarely addressed in a single analytical model. The Technology Acceptance Model and Innovation Resistance Theory are usually applied separately, despite offering complementary insights. There is also limited discussion of how sustainability objectives influence the perception of blockchain as either an enabler or a risk. This thesis addresses these gaps by examining how organisations interpret blockchain in the context of sustainability, using an integrated framework that combines both adoption drivers and resistance factors.

The research is guided by the following Research Questions (RQ):

1. RQ1: In what ways do organisational actors perceive the role of blockchain technology within the broader context of sustainability-oriented innovation, and how do these perceptions reflect strategic, operational, or symbolic interpretations?

2. RQ2: What are the primary technical, organisational, and psychological enablers and barriers that influence the consideration, evaluation, or rejection of blockchain within firms operating in different sectors?
3. RQ3: Under which organisational conditions and contextual configurations does blockchain cease to be interpreted as a purely technological artefact and become framed as a strategic enabler of transparency, accountability, or ESG transformation?

The next chapter reviews the academic literature on blockchain, sustainability, and technology adoption, providing the theoretical basis for the analytical framework used in this study.

Structure of the Thesis

The remainder of this thesis is structured across six chapters, each designed to progressively develop the study's theoretical framework, empirical insights, and practical implications:

- **Chapter 2** reviews the academic literature relevant to the research topic, with a focus on technology adoption models, barriers to innovation, and the emerging role of blockchain in promoting sustainable business practices. Special attention is given to the Technology Acceptance Model (TAM) and Innovation Resistance Theory as foundational lenses.

- **Chapter 3** presents the Conceptual Framework, integrating the theoretical constructs into a comprehensive model that illustrates the interplay between

perceived usefulness, resistance factors, and sustainability trends in shaping blockchain adoption decisions.

- **Chapter 4** outlines the research methodology, detailing the philosophical stance, abductive research approach, sampling strategy, and interview procedures. It also addresses the analytical methods used, particularly thematic analysis, and discusses the measures taken to ensure the trustworthiness and ethical integrity of the study.
- **Chapter 5** presents the findings derived from the interviews with five professionals across different industries. The chapter offers a thematic interpretation of the data, linking empirical evidence to the conceptual model and identifying cross-case insights.
- **Chapter 6** concludes the thesis by summarizing the main findings, highlighting the study's theoretical and managerial contributions, discussing its limitations, and offering directions for future research.

Together, these chapters aim to provide a comprehensive and empirically grounded understanding of the conditions under which blockchain technologies are perceived, evaluated, and potentially adopted within contemporary organizations.

2. Literature Review

2.1 Blockchain Technology

Blockchain is commonly defined as a decentralized and distributed digital ledger that records transactions across a network in a secure, transparent, and immutable manner (Chen, 2023; Leng et al., 2020). It eliminates the need for centralized intermediaries by relying on consensus mechanisms that validate and record data in blocks, each cryptographically linked to the previous one. While early definitions focused on blockchain's technical architecture (e.g., Nakamoto, 2008), more recent academic literature has shifted towards its organisational implications. For instance, Srhir et al. (2024) describe blockchain as a socio-technical infrastructure that enables new forms of governance and accountability, particularly in contexts requiring trust and traceability. This broader interpretation is more relevant for this thesis, as it aligns with the focus on blockchain as an enabler of innovation in sustainability-driven organizations.

Key characteristics attributed to blockchain include decentralization, immutability, transparency, and enhanced security through cryptographic validation (Sahebi et al., 2020). These features make it especially attractive for sectors such as supply chain, energy, and ESG reporting, where data integrity and auditability are essential. However, the technology also presents notable limitations. Scalability issues, interoperability between systems, unclear legal frameworks, and energy-intensive consensus models such as proof-of-work have been identified as major obstacles to adoption (Leng et al., 2020; Chen, 2023). In particular, blockchain's environmental impact raises concerns in sustainability-oriented settings, posing a paradox between technological potential and ecological responsibility.

For the purpose of this study, blockchain is not treated merely as a technical solution, but as a strategic artefact whose adoption depends on organisational perceptions, contextual fit, and alignment with broader innovation and sustainability goals.

2.2 Blockchain and Sustainability Trends

Sustainability has become a strategic concern for organizations across sectors, under pressure from regulation, public opinion, and environmental urgency. In response, many firms have begun to explore how digital technologies might help align their operations with environmental and social goals. Among these technologies, blockchain has drawn attention for its ability to record and verify data in ways that improve traceability and transparency (Srhir et al., 2024). In supply chains, blockchain can document the movement of goods, certificates, and materials across every step. This reduces fraud, supports ethical sourcing, and helps companies prove compliance with environmental standards (Leng et al., 2020). These applications are especially relevant in industries where origin and accountability matter, such as food, energy, and fashion. Blockchain is also used in circular economy projects. It allows tracking of products and materials through reuse, recycling, and disposal phases. Some organizations apply it to carbon credit systems and emissions reporting, where trust in the data is critical.

There are open questions, though. Systems that rely on proof-of-work consume large amounts of energy, raising concerns about whether the environmental costs outweigh the benefits (Chen, 2023). Other models, like proof-of-stake, are more efficient, but adoption is uneven and context-dependent. In this thesis, blockchain is not treated as a neutral tool. Its potential depends on how organisations see it, what they prioritise, and

whether it fits their structure and resources. That perspective is key when adoption is linked to sustainability agendas.

2.3 Technology Acceptance and Innovation Resistance

Adopting a new technology depends on how people inside an organisation see it: what value they attach to it, how hard they think it is to use, and whether they trust it. The Technology Acceptance Model (TAM) is one of the most used frameworks to explain this. It focuses on two main ideas: perceived usefulness and perceived ease of use (Davis, 1989). If people think a tool helps them work better and doesn't require too much effort, they're more likely to adopt it. Over time, researchers have added other elements to TAM to deal with more complex technologies like blockchain. These include trust, risk, compatibility with existing systems, and cost (Venkatesh & Davis, 2000; Chen, 2023; Sahebi et al., 2020). Trust matters because blockchain removes central authorities. Compatibility matters because blockchain often doesn't fit neatly into what a company already has. Cost and security concerns also play a role (Srhir et al., 2024; Pilkington, 2016).

On the other side of the adoption question, Innovation Resistance Theory looks at why organisations say no to new technologies. Ram and Sheth (1989) describe two types of barriers. Functional ones include complexity, unclear value, or potential risk. Psychological ones are tied to habits, culture, or negative associations with the innovation itself. In the case of blockchain, resistance can show up as hesitation, avoidance, or outright rejection. It's not always active. Sometimes it's just that the organisation doesn't see the point, or doesn't have the time or energy to explore it. That's what Van Tonder (2017) calls passive resistance. Fear of disruption, confusion about regulation, or links to cryptocurrency markets can all make companies hesitate (Sahebi et al., 2020).

TAM and resistance theory explain opposite sides of the same decision: why someone might say yes or no. Looking at both helps understand the full picture of how blockchain is approached in real organisations. That is why both are used together in this thesis.

3. Conceptual Framework

This chapter presents the conceptual framework used to guide the analysis. It draws together the key elements discussed in the literature review and organises them into a structure that supports the interpretation of the empirical data. The framework is built around three core components: the Technology Acceptance Model (TAM) (Davis, 1989), Innovation Resistance Theory (Ram & Sheth, 1989), and organisational sustainability orientation (Srhir et al., 2024; Leng et al., 2020). These are used to explore how decision-makers perceive blockchain, what factors influence their evaluation of its relevance, and under which conditions adoption becomes more or less likely.

Rather than isolating drivers and barriers, the model treats them as coexisting influences that shape organisational perception. This allows for a more realistic understanding of how blockchain is assessed in practice. The framework also includes sustainability as a contextual factor that can affect how adoption decisions are framed and justified.

Figure 1 shows the conceptual model developed for this research, based on the integration of key components from technology acceptance theory, resistance to innovation, and sustainability alignment.

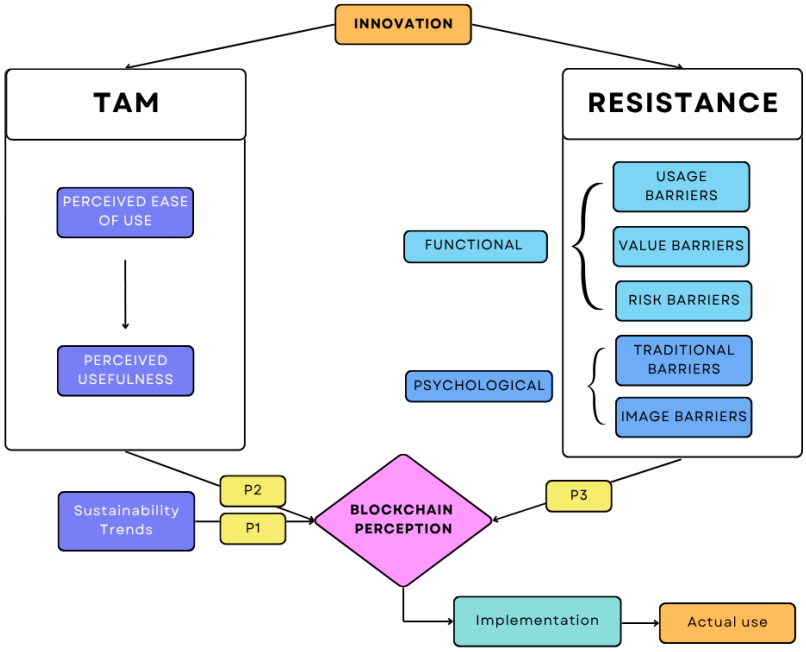

Figure 1. Conceptual framework for blockchain adoption

Source: own elaboration based on Davis (1989), Ram & Sheth (1989) and Srhir (2024)

Table I. Frame of reference

Dimension	Definition	Reference
Perceived Ease of Use	The extent to which a technology is considered simple and accessible	Davis (1989)
Perceived Usefulness	The extent to which a technology is expected to enhance performance	Davis (1989)
Usage Barriers	Challenges related to complexity and learning effort	Ram & Sheth (1989)
Value Barriers	When expected benefits are unclear or insufficient	Ram & Sheth (1989)
Risk Barriers	Concerns about uncertainty or negative outcomes	Ram & Sheth (1989)
Tradition Barriers	Attachment to established routines and systems	Ram & Sheth (1989)

Image Barriers	Negative perceptions of the technology or its associations	Ram & Sheth (1989); Van Tonder (2017)
Blockchain Perception	The internal perception of blockchain's usefulness, feasibility, and strategic alignment within an organisation.	Venkatesh & Davis (2000); Pilkington (2016)
Sustainability Trends	The influence of ESG awareness and sustainability orientation on how blockchain is evaluated.	Srhir et al. (2024); Leng et al. (2020)
Implementation	The actual deployment or integration of blockchain into business operations.	Pilkington (2016)
Actual Use	The real-world usage and continuous application of a new technology after implementation.	Rogers (2003); Davis (1989)
Functional Barriers	Barriers related to functional and operational aspects such as usability, compatibility, and system fit.	Ram & Sheth (1989)
Psychological Barriers	Barriers shaped by internal beliefs, perceptions, attitudes, and psychological distance from the innovation.	Ram & Sheth (1989); Van Tonder (2017)

***Source**: own elaboration based on framework*

3.1 Technology Acceptance Model (TAM) Components

The Technology Acceptance Model (TAM), developed by Davis and Bagozzi (1989), explains why users choose to adopt or reject a new technology. It is based on two main components: perceived usefulness and perceived ease of use. Perceived usefulness refers to the belief that using the technology will improve performance. Perceived ease of use reflects how simple the technology is perceived to be in terms of effort and learning curve (Davis, 1989).

In organisational settings, both factors contribute to shaping initial attitudes and intentions toward adoption. A technology that is seen as useful but difficult to use may still face resistance. Conversely, an easy-to-use tool may be ignored if it is not perceived as offering real value. In the case of blockchain, the original TAM structure does not fully

capture the concerns organisations raise when evaluating adoption. Several studies have proposed adding elements such as trust, perceived risk, compatibility, and implementation cost to account for these gaps (Venkatesh & Davis, 2000; Chen, 2023; Sahebi et al., 2020). Trust plays a key role because blockchain removes central control and relies on distributed validation. Compatibility is also critical, especially when firms must consider how blockchain fits into existing IT systems and processes. Cost and security concerns shape the decision as well, particularly in industries with tight margins or strong data protection requirements (Pilkington, 2016).

These extensions do not replace the original TAM structure, but expand its application to technologies like blockchain, where adoption is influenced by a mix of technical, strategic, and organisational concerns.

3.2 Innovation Resistance

While the Technology Acceptance Model focuses on why organizations adopt new technologies, Innovation Resistance Theory explains why they hesitate or reject them. According to Ram and Sheth (1989), resistance is not necessarily irrational. It often reflects valid concerns related to the impact of innovation on established routines, costs, and organisational stability. The theory identifies two broad types of barriers. Functional barriers refer to practical issues such as complexity, low perceived value, or uncertainty about outcomes. Psychological barriers are linked to habits, culture, and negative associations with the innovation itself (Ram & Sheth, 1989).

In the case of blockchain, these barriers are highly relevant. Functional resistance may come from a lack of technical expertise, high implementation costs, or difficulty

integrating blockchain with legacy systems. Psychological resistance may arise from doubts about decentralization, discomfort with transparency, or concerns related to the technology's association with cryptocurrency markets (Sahebi et al., 2020; Van Tonder, 2017). Resistance does not always take the form of active opposition. In many cases, it is passive. Organizations do not reject blockchain explicitly, but simply do not engage with it. This can be due to a lack of perceived relevance, strategic misalignment, or limited time and resources (Van Tonder, 2017).

Innovation Resistance Theory complements TAM by addressing the hidden or unspoken factors that limit adoption. Looking at both perspectives allows for a more complete understanding of how blockchain is received inside organizations.

3.3 Blockchain Perception

Perception plays a central role in how organizations evaluate emerging technologies. It shapes whether a technology is seen as relevant, feasible, aligned with strategic goals, or simply not worth the effort. In this study, blockchain perception is treated as the outcome of several overlapping influences: perceived usefulness, ease of use, risk, resistance, and sustainability priorities. The Technology Acceptance Model highlights how usefulness and ease of use shape intention (Davis, 1989). Innovation Resistance Theory adds that even when a technology is perceived as valuable, cultural and psychological barriers can prevent adoption (Ram & Sheth, 1989). Both models help explain why the same technology might be welcomed in one organisation and ignored in another.

Sustainability adds an important layer. Some organisations associate blockchain with positive outcomes such as transparency, traceability, and improved ESG reporting

(Leng et al., 2020; Srhir et al., 2024). Others view it as unnecessary or even environmentally problematic, especially in systems that rely on energy-intensive consensus mechanisms (Chapman & Zhang, 2023). Sector, size, and digital maturity also shape perception. Smaller firms or those without dedicated innovation teams may not see blockchain as achievable or relevant. Perception is not static. It evolves with internal dialogue, industry narratives, and external events, including regulation or competitor moves. In some cases, perception improves through pilot testing or exposure to use cases. In others, it remains neutral or negative due to a lack of visible benefits or ongoing doubts. Organisational history, leadership vision, and external pressures all contribute to how blockchain is framed internally. This thesis takes perception as the key turning point between theoretical awareness and actual decision-making. It is not only a question of technical fit, but of strategic meaning and organisational readiness to act.

3.4 From Perception to Implementation and Actual Use

Perception is not the final stage in the adoption process. It influences what comes next: whether an organisation decides to invest time, money, and effort into actual implementation. Even when blockchain is seen as promising, adoption depends on factors such as available resources, internal alignment, and market pressures.

Implementation involves setting up pilot projects, integrating blockchain into existing systems, and navigating organisational or regulatory constraints. Studies show that early experimentation often plays a key role in shifting perceptions into action, but this requires commitment and technical capacity (Hanelt et al., 2021). Without buy-in from leadership or support from IT and operations teams, promising technologies may stall before reaching operational use. Actual use refers to the stable incorporation of blockchain

into daily processes. This is not just about deployment. It includes user acceptance, process integration, and the generation of measurable outcomes. Organisations often move from pilot to full-scale use only if early results align with strategic goals or regulatory demands (Treiblmaier, 2018).

This transition is shaped by what Teece (2007) calls dynamic capabilities: the ability of an organisation to sense opportunities, seize them, and reconfigure resources to support change. In the case of blockchain, this might involve hiring external partners, building internal skills, or redesigning workflows.

In short, adoption is a multi-stage process. Perception opens the door, but implementation and sustained use require infrastructure, people, and strategic clarity. These stages are not always linear, and many organisations operate in a space between interest and action.

3.5 Study Propositions

Based on the conceptual framework developed in the previous sections, this study advances a set of theoretical propositions. These propositions are interpretive statements that articulate how specific organisational factors may shape the adoption or rejection of blockchain technologies in sustainability-driven contexts. They are grounded in the integration of three theoretical perspectives: the Technology Acceptance Model, Innovation Resistance Theory, and organisational sustainability orientation. While not designed as hypotheses for statistical testing, these propositions provide a foundation for the qualitative analysis and structure the interpretation of the empirical findings.

Theme 1: Sustainability as a Driver of Blockchain Adoption

When sustainability is embedded in an organisation's strategy, blockchain tends to be perceived as useful for enhancing transparency and ESG performance. Organisations that treat ESG not as compliance but as identity are more likely to view blockchain as a strategic enabler, particularly for reporting and verification tasks.

Proposition 1: Organisations with a strong sustainability orientation are more likely to perceive blockchain as a valuable tool for transparency and ESG compliance.

Theme 2: Ease of Use and Integration Feasibility

Perceived ease of use is not assessed in isolation, but in relation to existing systems, internal capacity, and the availability of external support. When blockchain is seen as too complex or poorly aligned with technical infrastructure, adoption is unlikely to progress beyond the exploratory phase.

Proposition 2: Perceived ease of use and integration feasibility shape whether blockchain initiatives are prioritised or dismissed at early stages.

Theme 3: Organisational Resistance and Strategic Hesitation

Even when blockchain is perceived as useful, adoption may be blocked by passive forms of organisational resistance. These include strategic hesitation, lack of ownership, and cultural misalignment. Without internal champions or alignment with dominant priorities, blockchain initiatives often stall.

Proposition 3: Passive forms of organisational resistance, including strategic hesitation and lack of internal advocacy, reduce the likelihood of blockchain adoption, regardless of perceived usefulness.

4. Methodology

This chapter outlines the methodological approach used to address the research questions introduced earlier. It explains the philosophical stance, research design, data collection strategy, and the criteria used to select participants. The aim is to ensure transparency in how the study was conducted and to clarify how the chosen methods align with the theoretical and empirical goals of the thesis.

4.1 Research Design

This research adopts a qualitative design, grounded in an interpretivist paradigm and an abductive reasoning process. The objective is to explore how organizations perceive blockchain technology and how these perceptions influence its adoption in sustainability-oriented contexts. Because the research focuses on interpretations, meanings, and context-specific understanding, an interpretivist stance is appropriate. Interpretivism assumes that reality is socially constructed, and that knowledge is generated through interaction and interpretation (Saunders et al., 2019).

The study follows an abductive approach, which enables movement between theoretical concepts and empirical insights. Rather than testing a fixed model or building theory from scratch, abduction allows for the refinement of existing frameworks based on the observations made during data collection. This method is particularly suitable when the researcher seeks to explore under-researched phenomena using concepts that are already present in the literature but not yet integrated (Dubois and Gadde, 2002). In this case, the Technology Acceptance Model and Innovation Resistance Theory are revisited through the lens of real organisational narratives.

The research strategy is qualitative and relies on semi-structured interviews as the main source of data. This method allows participants to elaborate on their views while the interviewer ensures that key themes are addressed across all cases. Semi-structured interviews are particularly effective when investigating complex technologies and context-dependent decisions (Creswell, 2014; Hanelt et al., 2021). Alternative methods such as surveys or structured questionnaires were excluded because they would not have allowed the necessary depth or flexibility.

4.2 Sampling Unit

The target population for this study includes professionals involved in decision-making related to technology, innovation, and sustainability. These individuals typically occupy strategic or managerial roles and have visibility over how new technologies are assessed and evaluated within the organization. Given the research focus, the population is defined not by industry or company size, but by the relevance of the participant's role to the themes of blockchain perception and adoption.

To access this population, a purposive sampling strategy was used. This method allows for the deliberate selection of participants based on their ability to provide relevant and insightful data, rather than on statistical representation (Saunders et al., 2019). The sampling aimed to capture variation across industries and blockchain maturity levels, including organisations that had adopted the technology, explored it, or deliberately chosen not to pursue it. The final sample consists of five organisations operating in distinct sectors, each represented by a senior decision-maker. These include roles such as Chief Executive Officer, Chief Technology Officer, Innovation Manager, and Administrative Manager. All

participants were in a position to speak about their organisation's approach to innovation, digital transformation, and sustainability objectives.

The organisations are summarised as follows:

Table II. Overview of Study Participants

Company	Sector	Participant Role	Relevance to the Study
Company A	Software Solutions	Innovation Manager – Interviewee 1	Leads R&D activities and oversees emerging technology integration
Company B	Fast-Moving Consumer Goods	CEO (Southern Europe) – Interviewee 2	Responsible for strategic innovation decisions and operational transformation
Company C	Healthcare Services	Administrative Manager – Interviewee 3	Oversees operations in a conservative, service-driven context
Company D	Logistics and Supply Chain	Chief Operations Officer – Interviewee 4	Focused on traceability, system integration, and logistics efficiency
Company E	Sustainability Tech Startup	Chief Technology Officer – Interviewee 5	Drives blockchain implementation in ESG reporting and sustainability tools

Source: own elaboration based on interviews

This composition provides analytical depth rather than statistical generalisation. The sample allows for the exploration of diverse perspectives and organisational logics in relation to blockchain adoption and resistance.

4.3 Interview Procedure

Data collection was conducted through semi-structured interviews, which offered a balance between thematic consistency and conversational flexibility. This method was selected to allow participants to elaborate on their experiences and reasoning, while ensuring that all core themes related to the research framework were addressed across cases (Creswell, 2014).

Interviews were conducted remotely using Microsoft Teams and lasted between thirty and sixty minutes. All participants provided prior consent to the use of audio recording. Each conversation was guided by an interview protocol structured around the main themes identified in the literature review, including perceived usefulness, ease of use, resistance factors, and the role of sustainability in technology evaluation. The interviews followed an exploratory logic. Questions were open-ended and designed to encourage participants to reflect on their organisation's approach to innovation and their perception of blockchain technology. Follow-up prompts were used where necessary to clarify or deepen responses, especially when discussing internal decision-making processes or barriers to adoption.

To ensure thematic coverage and comparability, the same set of guiding questions was used in all interviews. However, the order and depth of each topic varied based on the participant's role, sector, and familiarity with blockchain. This flexible structure helped adapt the conversation to each organisational context while still producing data aligned with the theoretical model. All interviews were transcribed in full and anonymised. Transcriptions served as the basis for the analytical phase, which was conducted using qualitative coding procedures described in the next section.

4.4 Procedure Data Analysis

The data collected through interviews were analysed using thematic analysis, supported by the qualitative software MAXQDA. The process followed eight interrelated phases that guided the progression from raw transcripts to structured insights. All interviews were audio recorded with informed consent from the participants. Each recording was transcribed *verbatim* and anonymised to protect confidentiality. The transcripts were

reviewed and cleaned to ensure consistency in language and clarity of meaning. Once finalised, the documents were imported into MAXQDA for coding and analysis.

Before coding began, the researcher engaged in a period of familiarisation with the data. Each transcript was read several times to develop an initial understanding of its content. Memos were created within MAXQDA to capture preliminary reflections, recurring phrases, and initial analytical intuitions. This immersion phase was essential for identifying potential themes aligned with the conceptual framework, particularly regarding perceptions of technology, forms of resistance, and the role of sustainability.

A hybrid coding strategy was adopted. An initial set of deductive codes was derived from the conceptual model, which combined the Technology Acceptance Model, Innovation Resistance Theory, and constructs from the sustainability literature. As coding progressed, inductive codes were introduced to capture patterns that emerged directly from the data. The final code system included categories such as perceived usefulness, ease of use, trust, integration complexity, strategic hesitation, cultural resistance, and sustainability motivation. Each transcript was coded line by line in MAXQDA. In total, 95 segments were coded across the five interviews. The coding process was iterative, with ongoing memo-writing supporting the refinement of definitions and the consistent application of codes. For example, “perceived usefulness” was treated as distinct from “strategic fit” to separate functional evaluations from organisational alignment. Illustrative examples of coded segments are presented in Table III.

Following the coding phase, themes were developed by grouping codes into broader conceptual categories. This stage aimed to understand how blockchain was framed

within each organisation, which factors enabled or hindered adoption, and how sustainability considerations influenced those decisions. Tools such as the Code Relations Browser in MAXQDA were used to examine overlaps and associations between codes, helping to surface patterns in the data. Cross-case analysis was conducted using the Code Matrix Browser, which facilitated the comparison of thematic frequency and distribution across the five organisations. For instance, Interviewee 1, which demonstrated a strong sustainability orientation, exhibited a high concentration of codes related to transparency, ESG commitment, and perceived strategic value. In contrast, Interviewee 2 and 3 displayed a larger number of segments coded as passive resistance or cultural misalignment.

Throughout the process, analytical memos were used to track evolving interpretations and support conceptual clarity. MAXQDA's memo system allowed the researcher to document critical decisions and reflections, contributing to the overall transparency and coherence of the analysis. Several strategies were adopted to enhance the rigour and trustworthiness of the study. Theoretical triangulation was applied by interpreting the data through multiple frameworks. Ongoing feedback from the thesis supervisor informed the analytical process, particularly the organisation of themes. *Verbatim quotations* are included in Chapter 5 to strengthen transparency and support the reader's ability to evaluate the link between findings and raw data.

This structured yet interpretive approach to analysis enabled the identification of core perceptions, tensions, and framing logics that shape how organisations approach blockchain technology in sustainability-driven contexts.

Table III. Frequency of Key Codes in Interview Data

Code	Number of Segments	Example Keywords Quoted
Perceived Usefulness	19	"Efficiency", "Visibility", "Process improvement"
Ease of Use / Integration	14	"Too complex", "Not compatible", "Hard to use"
Trust and Security	16	"Reliable", "Tamper-proof", "Secure"
Cost and Investment Barriers	13	"Too expensive", "Not worth the risk"
Organisational Inertia	10	"Not a priority", "No one is pushing it"
Sustainability Motivation	15	"Transparency", "Carbon tracking", "ESG alignment"
Passive Resistance	8	"We never looked into it", "No real need"

Source: own coding via MAXQDA

By the conclusion of the fifth interview, thematic recurrence rendered additional conversations substantively redundant, indicating that theoretical saturation had been reached; in accordance with the threshold criteria advanced by Guest et al. (2006), data collection was discontinued and the analysis phase presented on the following page was initiated.

4.5 Interview Guidelines

To operationalise the theoretical framework into the interview phase, a semi-structured guideline was developed to ensure thematic consistency across all cases. The design of the guideline was informed by the three core conceptual lenses of the study: the Technology Acceptance Model (Davis, 1989), Innovation Resistance Theory (Ram and Sheth, 1989), and the organisational sustainability orientation perspective (Srhir et al., 2024; Leng et al., 2020). These constructs were translated into open-ended thematic blocks to allow participants to elaborate freely while still addressing the dimensions under investigation.

The guideline consisted of four main thematic areas. The first focused on perceived usefulness, with questions exploring whether blockchain was considered relevant, valuable, or strategically aligned with the organisation's core mission. The second covered ease of use and integration feasibility, investigating technical complexity, compatibility with existing systems, and internal capacity. The third area focused on resistance, both functional and psychological, including strategic hesitation, cultural misalignment, and the presence or absence of internal sponsorship. The final area addressed sustainability orientation, with questions on whether blockchain had been considered or deployed in support of ESG reporting, carbon tracking, or other sustainability-driven goals.

Each interview began with contextual questions regarding the participant's role, organisational background, and exposure to innovation-related decisions. Follow-up prompts were used when necessary to clarify points or deepen reflection, particularly when participants referred to internal processes, narrative framing, or leadership dynamics. Although the same structure was used across all interviews, the ordering and phrasing of the questions were adapted flexibly to reflect the seniority, sector, and familiarity of each respondent.

The full interview protocol is included in Appendix 5. This structured yet flexible design ensured comparability across cases while allowing for the emergence of organisation-specific logics, perceptions, and framings that would not have surfaced through a rigid or standardised questionnaire approach.

5. Analysis and Discussion of Results

This chapter presents the main findings from the interviews conducted with professionals across five organisations. The goal is to explore how blockchain is perceived, what factors influence adoption or resistance, and how these elements vary depending on organisational context. The results are organised according to the theoretical framework developed in Chapter 3. Themes are grouped under categories derived from the Technology Acceptance Model, Innovation Resistance Theory, and sustainability-related considerations. Each theme is supported by selected quotes from the interviews and is interpreted in light of the concepts introduced in the literature review.

The chapter does not aim to generalise, but to illustrate how different organisational settings influence the way blockchain is understood and evaluated. Patterns across cases are highlighted where relevant, and differences are discussed where they help explain the logic of adoption or non-adoption.

5.1 Sample Characterisation

This section presents an overview of the study participants and organisational profiles. The table below summarises the sector, role, interview format, and the assessed level of exposure to blockchain, along with a short description of each case. This characterisation supports the interpretation of results in the sections that follow.

Table IV. Sample Characterisation

Interviewee	Company	Sector	Participant Role	Interview Duration	Mode	Level of Exposure	Summary Description
1	A	Software Solutions	Innovation Manager	45 min	Online (Teams)	Medium	Tested blockchain for internal payments, later discontinued due to complexity
2	B	FMCG	CEO (Southern Europe)	35 min	Online (Teams)	Low	No formal evaluation; blockchain not prioritised
3	C	Healthcare Services	Administrative Manager	40 min	Online (Teams)	Low	No engagement; considered irrelevant due to sector logic and priorities
4	D	Logistics and Supply Chain	Chief Operations Officer	50 min	Online (Teams)	Medium	Interest in traceability and ESG, but no implementation due to integration issues
5	E	Sustainability Tech Startup	Chief Technology Officer	55 min	Online (Teams)	High	Adopted blockchain for ESG reporting; integrated via external provider

Source: own elaboration based on interviews

5.2 Perceived Usefulness and Strategic Fit

Perceived usefulness emerged as one of the most frequently cited themes in the interviews. Participants evaluated blockchain technology in terms of its capacity to improve existing processes, provide operational transparency, or create strategic value. This reflects the central role of perceived usefulness in the Technology Acceptance Model (Davis, 1989), which links adoption intention to the belief that a technology enhances performance.

Interviewee 5 viewed blockchain as directly aligned with the organisation's core mission. The participant stated that *"transparency is part of how we deliver value to clients, so blockchain was a natural extension"* (Verbatim Interviewee 5). In describing the implementation of the technology for ESG tracking, the interviewee added*, "it is not about hype, it is about accountability"* (Verbatim Interviewee 5). These comments suggest that blockchain was not only perceived as useful, but as strategically coherent with the organisation's environmental and reporting goals, echoing earlier research on the role of technology in sustainability-driven environments (Srhir et al., 2024). Interviewee 4 highlighted the potential of blockchain to improve traceability in global logistics chains. Although the technology had not yet been implemented, it was described as *"interesting for supplier verification and material sourcing"* (Verbatim Interviewee 4). The interviewee further noted*, "the promise is there, but the integration effort holds us back"* (Verbatim Interviewee 4), indicating a tempered perception of usefulness, contingent on feasibility and cost-benefit alignment (Pilkington, 2016).

In contrast, Interviewee 3 expressed no perceived usefulness. The participant explained, *"we work with people, not with systems"* (Verbatim Interviewee 3), suggesting that blockchain did not relate to the service model. When asked about potential future use, the response was equally dismissive*: "blockchain has never come up in any internal discussion; it just feels far from what we do"* (Verbatim Interviewee 3). This reflects the importance of contextual relevance in shaping technology perception (Venkatesh & Davis, 2000). Interviewee 2 also showed low strategic interest. Despite the organisation's openness to digital transformation in production and logistics, blockchain was described as *"something that never came up in a relevant way"* (Verbatim Interviewee 2). These views

illustrate how technologies are often evaluated not in abstract, but through operational priorities and cost-driven decision-making (Teece, 2007).

Interviewee 1 represented an intermediate case. The organisation had tested blockchain for payments and logistics tracking, but later discontinued the initiative. The participant noted that *"the complexity made us question whether the benefits justified the investment"* (Verbatim Interviewee 1). Reflecting on the experience, the interviewee commented, *"we saw the potential, but it never fully clicked internally"* (Verbatim Interviewee 1), showing how initial perceptions can shift when strategic alignment is not sustained.

Across the sample, perceived usefulness was closely tied to strategic fit. Where blockchain was seen as supporting core business functions or sustainability objectives, it was framed as a potentially valuable innovation. Where no such alignment was identified, the technology remained peripheral. These findings reinforce the idea that usefulness is not assessed in isolation, but is shaped by organisational logic, readiness, and long-term positioning (Chen, 2023).

5.3 Ease of Use and Integration Barriers

Perceived ease of use was another recurring factor in how participants assessed blockchain technology. In the Technology Acceptance Model, ease of use refers to the degree to which a technology is perceived as simple to implement and operate (Davis, 1989). Across the interviews, ease of use was not evaluated in isolation, but in connection to existing infrastructure, technical capacity, and perceived organisational burden.

Most participants identified significant challenges in implementation. Interviewee 1, who had participated in a blockchain pilot, explained, *"the technical setup was much more demanding than expected"* (Verbatim Interviewee 1). The participant added, *"even our internal IT teams struggled to make it work alongside our older systems"* (Verbatim Interviewee 1). These remarks reflect the friction generated when new technologies must be integrated into legacy environments, a challenge also identified in the literature on digital infrastructure and system readiness. Interviewee 4 offered a similar view. The participant noted, *"nothing is plug-and-play with blockchain,"* referring to the difficulty of connecting multiple platforms across the supply chain (Verbatim Interviewee 4). They further stated, *"every partner has a different standard, and blockchain needs consistency we do not have"* (Verbatim Interviewee 4). These reflections point to structural integration barriers that go beyond internal readiness and extend into network-level complexity (Pilkington, 2016).

In contrast, Interviewee 5 described a more positive experience. The organisation had adopted a blockchain-as-a-service platform that simplified deployment. As the participant explained, *"we used a ready-made solution, so we did not need to develop anything from scratch"* (Verbatim Interviewee 5). They elaborated, *"our team focused on using the tool, not building it"* (Verbatim Interviewee 5). This supports findings that ease of use is not merely technical, but also shaped by outsourcing decisions and vendor support (Chen, 2023). Interviewees 2 and 3 did not report direct experience with blockchain, but their perceptions revealed passive resistance based on anticipated difficulty. Interviewee 2 remarked, *"I would not even know who should lead a project like that internally"* (Verbatim Interviewee 2), while Interviewee 3 stated, *"it sounds complex, and no one has*

ever suggested we try it" (Verbatim Interviewee 3). These perceptions suggest that ease of use is not just about system interface, but also about leadership confidence and internal ownership.

Overall, ease of use was closely tied to broader questions of organisational capacity, system compatibility, and resource availability. Where blockchain was framed as overly complex or incompatible, it was quickly deprioritised. Where adoption was facilitated by external support or internal expertise, perceived ease of use increased. These findings reinforce the notion that ease of use is shaped as much by organisational structure as by the technology itself (Venkatesh & Davis, 2000).

5.4 Organisational Resistance and Strategic Hesitation

Beyond technical concerns, participants described various forms of organisational resistance that were more strategic or cultural in nature. These responses align with the psychological and structural barriers described in Innovation Resistance Theory, particularly when innovations disrupt established practices or are perceived as peripheral to the organisation's strategic logic (Ram & Sheth, 1989; Van Tonder, 2017).

In many cases, resistance was not expressed as rejection but as inaction. Interviewee 2 stated, *"it never came up in any discussion that mattered*" (Verbatim Interviewee 2), reflecting the absence of blockchain from strategic conversations. The participant further explained, *"we focus on automation and output, and blockchain does not speak that language"* (Verbatim Interviewee 2). This form of passive resistance illustrates what Van Tonder (2017) describes as strategic disengagement, where innovations are excluded not through objection but through irrelevance. Interviewee 3

expressed a similar stance. *"We never looked into it seriously,*" the participant admitted (Verbatim Interviewee 3), adding that *"we are a people-first organisation, not one that pushes systems or technology"* (Verbatim Interviewee 3). The response indicates a value-based misalignment, in which blockchain is perceived as incompatible with the organisation's identity and culture. This reflects Maxwell, Speed and Pschetz (2017), who argue that blockchain itself becomes a narrative technology in which image and identity guide adoption stories. For Interviewee 1, resistance emerged after initial experimentation. *"We saw the potential, but it became hard to justify internally"* (Verbatim Interviewee 1). The participant noted that after a failed pilot, they had other things to prioritise. This case highlights strategic hesitation following unmet expectations, suggesting that even early adopters may retreat if internal support erodes. Interviewee 4 described a more cautious stance. While not opposed to blockchain, the participant noted, *"no one inside is really pushing it"* (Verbatim Interviewee 4), and that *"without ownership, it is hard to build momentum"* (Verbatim Interviewee 4). These observations point to the absence of internal sponsorship, which often results in organisational stalling (Teece, 2007).

In contrast, Interviewee 5 reported minimal resistance. *"We knew from the start that this needed executive buy-in, and we had that"* (Verbatim Interviewee 5). The participant explained that the technology was introduced as part of a strategic initiative, which helped position blockchain as coherent with the company's identity and goals.

Across these accounts, resistance was not necessarily emotional or ideological. Instead, it often manifested as quiet deprioritisation, lack of advocacy, or strategic silence. Innovation Resistance Theory helps explain how such passive forms of resistance are embedded in organisational culture, internal politics, and leadership priorities. These

findings suggest that adoption is not blocked solely by cost or complexity, but also by how well an innovation is internally narrated, framed, and owned.

5.5 Sustainability Orientation and Blockchain Perception

Sustainability orientation emerged as a key factor shaping how organisations perceived blockchain technology. Where environmental and ESG commitments were central to the organisational mission, blockchain was more often framed as a relevant and valuable tool. Conversely, in cases where sustainability was peripheral, blockchain remained disconnected from strategic priorities. These findings resonate with prior studies on technology-sustainability alignment in organisational settings (Srhir et al., 2024; Leng et al., 2020).

Interviewee 5 provided the clearest example of this alignment. *"We adopted it specifically to strengthen our carbon reporting,"* the participant explained (Verbatim Interviewee 5). Blockchain was seen not as a novelty, but as a component of a broader digital strategy for sustainable accountability. The participant elaborated*, "we do not talk about blockchain in isolation, it is part of how we deliver on our ESG promise"* (Verbatim Interviewee 5). This positioning supports Pilkington's (2016) argument that blockchain's relevance depends heavily on the context in which it is deployed. Interviewee 4 also recognised the potential link. Although blockchain had not been implemented, the participant noted, *"we see potential in using it to verify supplier practices and material sourcing"* (Verbatim Interviewee 4). Sustainability acted as a motivational anchor, though not yet a driver for adoption. The participant added, *"we are not there yet operationally, but ESG reporting is growing in importance"* (Verbatim Interviewee 4), highlighting a latent interest shaped by sectoral trends and external expectations.

In contrast, Interviewees 2 and 3 did not associate blockchain with sustainability in any concrete way. Interviewee 3 stated, *"we are conscious of sustainability, but we do not use technology for that"* (Verbatim Interviewee 3), while Interviewee 2 commented, *"ESG is more a group-level concern, it does not affect our operations directly"* (Verbatim Interviewee 2). These remarks point to a limited integration of sustainability into operational logic, and consequently, a weaker framing of blockchain as relevant. Interviewee 1 presented an intermediate case. The participant acknowledged internal conversations around transparency and accountability but noted that *"blockchain was mentioned only briefly in our ESG meetings, and never as a real option"* (Verbatim Interviewee 1). This reflects a tentative link between sustainability discourse and technological exploration, but not enough to drive engagement.

Taken together, these findings suggest that sustainability orientation acts as a filter through which technologies are assessed. Where ESG is embedded in the organisation's structure and strategy, blockchain is more likely to be perceived as useful. Where sustainability is disconnected from operational concerns, blockchain remains outside the field of relevance. This supports the argument that technology adoption is socially constructed and contingent on internal narrative coherence (Leng et al., 2020).

5.6 Discussion of Results

This section evaluates the three theoretical propositions developed in the conceptual framework, comparing them with the empirical findings across the five case studies. It also critically relates these results to the existing academic literature, highlighting both convergences and divergences.

Proposition 1, which suggests that organisations with a strong sustainability orientation are more likely to perceive blockchain as valuable for ESG and transparency purposes, is fully confirmed in Case E and partially supported in Cases A and D. This finding aligns with Srhir et al. (2024), who argue that sustainability-driven firms tend to adopt digital technologies that enable traceability and verifiability. Similarly, Leng et al. (2020) emphasize blockchain's role in reinforcing ESG strategies across supply chains. Case E reflects these insights, showing how blockchain can serve as a strategic enabler in a company where ESG is not only present but integrated into the organisational identity. However, unlike Leng et al. (2020), who primarily refer to large corporations with structured ESG frameworks, this study finds that smaller firms (like Company E) may also succeed in adoption when strategic alignment is strong. This supports what was found by Srhir et al. (2024), and extends their model by showing that even early-stage or mid-sized firms can adopt blockchain if sustainability is central to their mission.

Proposition 2 states that perceived ease of use and integration feasibility significantly influence the prioritisation of blockchain initiatives. This is supported in Cases A, D, and E, and aligns with Davis' Technology Acceptance Model (1989), which highlights ease of use as a determinant of adoption. In line with Venkatesh and Davis (2000), the study confirms that ease of integration is as important as perceived usefulness. Case E demonstrates that the involvement of external partners (via blockchain-as-a-service) significantly lowers perceived barriers, confirming findings by Chen (2023), who argued that vendor support plays a vital role in mitigating complexity. This supports what was found by Davis (1989) and Chen (2023), and extends the TAM

framework by emphasizing that ease of use is not only system-dependent but also shaped by ecosystem support and outsourcing strategies.

Proposition 3 concerns the role of passive organisational resistance, including strategic hesitation and lack of internal advocacy, in reducing the likelihood of blockchain adoption, even when perceived usefulness is high. This proposition is confirmed in four out of five cases (A, B, C, and D). These results are in line with Ram and Sheth (1989), who identify psychological and functional barriers as central to innovation resistance. Van Tonder (2017) further describes passive resistance as silence, inertia, or avoidance rather than explicit rejection. The study supports this framework, showing how blockchain initiatives stall in the absence of clear ownership or internal champions. This supports what was found by Ram and Sheth (1989), and reinforces Van Tonder's (2017) concept of passive resistance by demonstrating that such resistance can exist even when technical value is acknowledged but not acted upon.

In summary, the empirical evidence largely validates the proposed conceptual framework and is consistent with prior literature. The study confirms that perception, internal narrative coherence, and strategic alignment are key determinants of adoption. Moreover, it contributes to the literature by showing that adoption is not only a matter of functionality or performance, but of institutional readiness, value congruence, and leadership sponsorship.

The following table synthesizes the comparison between theoretical expectations from the literature and the observed findings of this study:

Table V. Summary of Findings by Case

Theme / Proposition	Literature Finding	This Study's Result	Relation
P1 – Sustainability orientation and adoption	Firms with strong ESG orientation are more open to blockchain (Srhir et al., 2024; Leng et al., 2020)	Confirmed in Case E; partially in A and D	**Supports and extends** (applies also to smaller ESG-led firms)
P2 – Perceived ease of use and integration	Perceived ease of use determines adoption (Davis, 1989; Chen, 2023)	Confirmed in A, D, E; external support increases adoption feasibility	**Supports and extends** (vendor role emphasized)
P3 – Passive resistance and hesitation	Psychological and strategic resistance limits adoption (Ram & Sheth, 1989; Van Tonder, 2017)	Strongly confirmed in A, B, C, D	**Supports and reinforces** (resistance blocks adoption despite awareness)

Company	Usefulness	Ease of Use	Resistance	Sustainability Link	Proposition
A	Moderate (tested)	Low (complex integration)	Strategic hesitation	Indirect	P2, P3 confirmed; P1 partially
B	Low	Not assessed	Passive resistance	None	P3 confirmed; P1,P2 not confirmed
C	None	Not assessed	Cultural misalignment	None	P3 confirmed; P1,P2 not confirmed
D	Potential (acknowledged)	Low (supply chain issues)	Lack of internal drive	Moderate	P2, P3 confirmed; P1 partially
E	High (adopted)	Moderate (external support)	Minimal	Strong and central	P1, P2 confirmed

Source: own elaboration based on propositions

6. Conclusions

This chapter brings together the main insights from the research and reflects on their broader meaning. It summarizes the findings, outlines the theoretical and practical contributions of the study, and acknowledges its limitations. The chapter concludes with suggestions for future research, based on the gaps and observations that emerged during the analysis.

6.1 Key Findings

This chapter synthesises the empirical insights derived from the five case studies, reflecting on how blockchain technology is interpreted, accepted, or rejected in organisations operating with varying levels of sustainability orientation. The findings are structured around three interpretive axes, corresponding to the conceptual themes developed in the literature review and framework chapters.

First, the results illuminate how organisational actors make sense of blockchain in relation to sustainability-driven innovation. Across cases, blockchain was not evaluated in isolation, but through the lens of existing organisational objectives and innovation logics. This reflects prior findings by Srhir et al. (2024), who argue that the perception of blockchain is influenced by the alignment between ESG goals and strategic vision. In firms where environmental and ESG commitments were strategically embedded, blockchain was interpreted as a tool to enhance transparency, automate accountability, and signal alignment with sustainability goals (Leng et al., 2020). In other cases, where innovation was guided primarily by operational efficiency or compliance, blockchain remained a distant concept, often framed as peripheral or overly complex. These patterns confirm what

Pilkington (2016) identified as a mismatch between technological potential and strategic readiness, particularly in low-maturity digital environments.

Second, the study identified a combination of technical, organisational, and psychological factors that influence blockchain consideration. Technical feasibility, particularly ease of integration and system compatibility, was a recurring enabler or constraint. These findings are aligned with the Technology Acceptance Model (Davis, 1989), which emphasises perceived ease of use as a determinant of adoption. Organisationally, the presence of leadership support and internal champions significantly affected the level of engagement, confirming what Venkatesh and Davis (2000) and Hanelt et al. (2021) describe as key drivers of technology adoption within firms. In their absence, initiatives remained dormant. Psychological barriers, such as perceived irrelevance, risk aversion, or image concerns, further contributed to resistance. These aspects are well captured by Innovation Resistance Theory (Ram & Sheth, 1989), which identifies both functional and psychological barriers to innovation. Notably, such resistance was rarely vocal or ideological; instead, it emerged passively through inaction, hesitation, or the quiet deferral of innovation, echoing Van Tonder's (2017) concept of passive resistance.

Third, the conditions under which blockchain shifted from being viewed as a purely technical artefact to a strategic enabler became particularly clear. This transition was most evident in cases where sustainability priorities were not only declared, but embedded into operational practices, and where external pressures from stakeholders or regulatory bodies reinforced the demand for transparency and accountability. In such contexts, blockchain was directly associated with outcomes such as traceability, auditability, and ESG reporting, giving it concrete organisational relevance. Rather than being implemented in isolation, the

technology was introduced as part of broader digital transformation efforts aligned with sustainability ambitions. This finding echoes Pilkington (2016), who underlines the importance of contextual fit in shaping the perceived value of blockchain. It also reflects the notion of dynamic capabilities developed by Teece (2007), where organisations with the ability to reconfigure resources in response to external signals are more likely to adopt and integrate emerging technologies. When these enabling conditions were missing, blockchain remained marginal, treated as an interesting concept, but not prioritised or actioned. This reinforces the idea that adoption is not merely a question of technological potential, but of strategic timing, institutional coherence, and perceived organisational purpose, as highlighted in the works of Hanelt et al. (2021) and Maxwell et al. (2017).

Importantly, the study reveals that blockchain adoption can support implementation of the United Nations Sustainable Development Goals (SDGs), particularly Goals 9 (Industry, Innovation and Infrastructure), 12 (Responsible Consumption and Production), and 13 (Climate Action). In cases where ESG was prioritised, blockchain was used to improve the traceability of environmental data, enhance reporting transparency, and facilitate accountability across supply chains. These contributions show that blockchain, when strategically aligned, can act not only as a technological innovation but as an enabler of responsible business practices in support of broader sustainability agendas.

In summary, these findings demonstrate that blockchain adoption is not determined solely by technical functionality, but by how it is interpreted, positioned, and legitimised within the organisation. Its uptake depends on the interplay between perception, capability, and institutional commitment to sustainability, offering new insights into how innovation is framed and enacted in contemporary organisational contexts.

6.2 Academic Implications

This research offers a meaningful contribution to the academic discourse on technological innovation by integrating two foundational yet traditionally separate theoretical frameworks: the Technology Acceptance Model (Davis 1989) and Innovation Resistance Theory (Ram and Sheth 1989). Their combined application allows for a more nuanced interpretation of how organisations both evaluate and avoid emerging technologies, especially within sustainability-oriented environments.

The study extends the Technology Acceptance Model by demonstrating that perceived usefulness and ease of use are insufficient explanatory variables unless considered in relation to internal alignment, cultural fit, and strategic coherence. These findings reinforce the importance of organisational framing and interpretive perception in shaping adoption decisions, as theorised by Venkatesh and Davis (2000). The notion of technology as a neutral enabler is challenged. Instead, blockchain is treated as a socially constructed artefact whose perceived relevance is contingent upon how it is narrated within the organisation's identity and priorities. This research also contributes to the growing academic interest in symbolic interpretations of digital innovation. The study supports recent perspectives suggesting that technological adoption is often conditioned by how innovations align with institutional narratives and legitimacy claims, rather than by technical merit alone (Maxwell et al. 2017). The interpretive model developed here reveals how resistance to innovation can arise not from explicit objection, but from latent forms of cultural and strategic dissonance.

Methodologically, the thesis adopts an abductive, interpretivist approach that bridges empirical insight and theoretical refinement. Drawing on qualitative interviews and thematic coding, the study provides an operational framework for researchers exploring context-dependent perceptions of technology. This responds to calls by Dubois and Gadde (2002) for case research strategies that enable theory development through dynamic iteration between data and literature.

Taken together, these contributions enhance existing models of technological adoption by foregrounding the role of perception, strategic symbolism, and organisational meaning-making in shaping whether and how a technology like blockchain is accepted within real-world business contexts.

6.3 Managerial Implications

The findings of this study offer concrete implications for managers, innovation leaders, and technology providers seeking to evaluate or implement blockchain within sustainability-driven organisations. The empirical evidence clearly shows that blockchain initiatives are unlikely to succeed when positioned purely as technical upgrades. Instead, their success depends on alignment with internal values, ESG priorities, and the overarching strategic narrative of the organisation.

In organisations where sustainability is embedded into strategic identity, blockchain is more readily perceived as a valuable tool for reinforcing traceability, transparency, and credibility. In such settings, it becomes part of a broader transformation agenda rather than a stand-alone innovation project. Managers should therefore avoid

introducing blockchain in isolation and instead frame it within existing sustainability commitments to increase organisational relevance and engagement.

Leadership sponsorship emerges as a critical enabler. Across multiple cases, initiatives lacking executive support or internal ownership were deprioritised despite recognised potential. In contrast, the only case where blockchain was successfully implemented featured early and sustained executive buy-in, reinforcing the importance of senior-level commitment in overcoming organisational inertia and resource constraints. These dynamics mirror the role of dynamic capabilities in enabling change, as described by Teece (2007). The study also highlights the importance of technical feasibility. When blockchain adoption is supported by external vendors through turnkey or modular platforms, as observed in the high-adoption case, the perceived burden of integration is significantly reduced. In contexts where internal IT capacity is limited, outsourcing implementation and selecting interoperable solutions may prove essential. These findings align with recent work by Chen (2023) on vendor-supported blockchain adoption models.

Equally relevant is the insight that organisational resistance is often passive rather than vocal. Blockchain may be excluded from strategic discussions not because it is dismissed, but because it fails to enter the conversation at all. Managers should treat this silence as a signal that the innovation lacks perceived legitimacy or strategic fit. Conducting early-stage assessments focused on alignment with organisational identity, operational logic, and ESG narratives can help identify and mitigate latent resistance.

In conclusion, managers aiming to introduce blockchain should shift the emphasis from technology-centric arguments to narrative alignment, cross-functional mobilisation, and contextual timing. When these dimensions are considered collectively, blockchain can function as a lever for ESG performance and institutional innovation. When neglected, even promising technologies are likely to remain unrealised or marginalised.

6.4 Study Limitations and Suggestions for Future Research

As with all qualitative research, this study presents several limitations that should be acknowledged when interpreting its findings. The sample included five organisations, each represented by a single senior decision-maker. While this design allowed for depth and nuance in the analysis, it also limits the scope for broader generalisation. Guest et al. (2006) suggest that thematic saturation can be reached with relatively few interviews, but future studies could benefit from expanding the sample size or applying mixed methods approaches to strengthen external validity.

Another limitation lies in the level and type of respondents. The perspectives collected were largely strategic, based on individuals with managerial or executive responsibilities. While valuable, this view may underrepresent operational or technical dynamics, especially those encountered during the actual implementation of blockchain systems. Including voices from IT teams, compliance units, or sustainability coordinators could enrich future investigations and offer a more complete organisational picture (Creswell, 2014).

Time is also a factor to consider. The data reflects a specific point in time within an evolving technological and regulatory context. Blockchain adoption is closely tied to institutional change, technological maturity, and shifting stakeholder expectations. A longitudinal design could offer insight into how perceptions and adoption strategies evolve over time, particularly in response to external developments such as ESG regulations or industry standards (Hanelt et al., 2021).

Finally, the focus of this research was deliberately limited to organisations with an explicit orientation toward sustainability. While this lens was central to the research questions, it also narrows the range of findings. Future research could explore blockchain adoption in other strategic contexts, such as risk management, data governance, or financial innovation. Comparative studies across sectors or countries may also help clarify how cultural and institutional environments shape both resistance and receptivity (Teece, 2007; Sahebi et al., 2020).

Addressing these limitations would offer valuable opportunities to build on the insights developed here and deepen our understanding of how organisations engage with blockchain technologies across a broader range of contexts.

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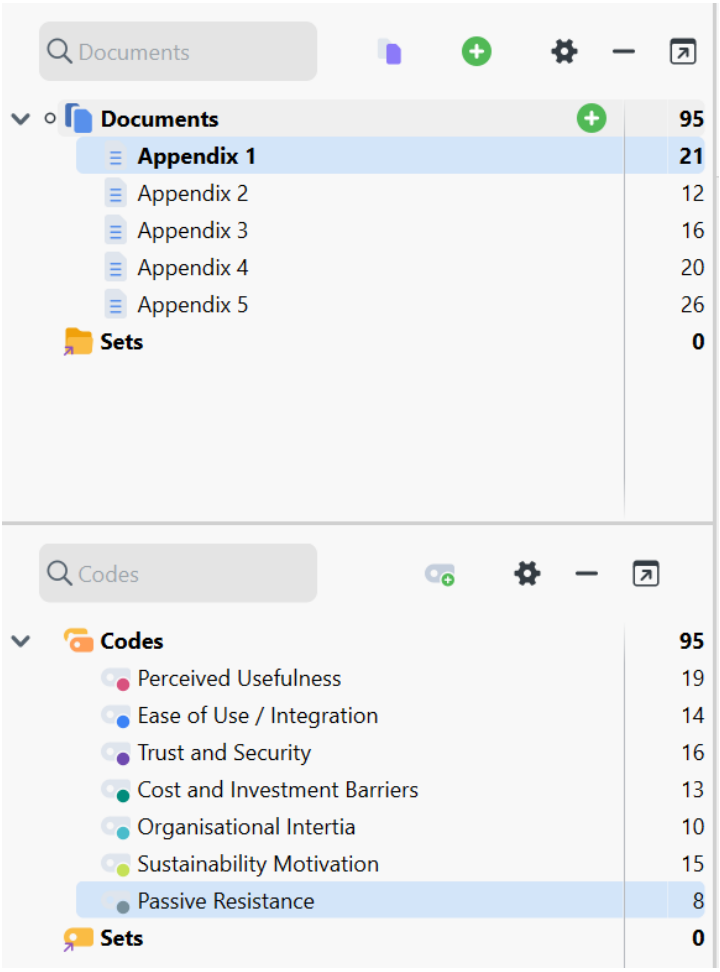
Appendix

Appendix 1: MAXQDA

The following section includes selected drafts of the coding scheme used in MAXQDA to filter the interview texts and identify the most frequently recurring words and themes. These codes are not exhaustive, as the thesis also incorporates an integrated component of own elaboration.



Code Matrix Browser

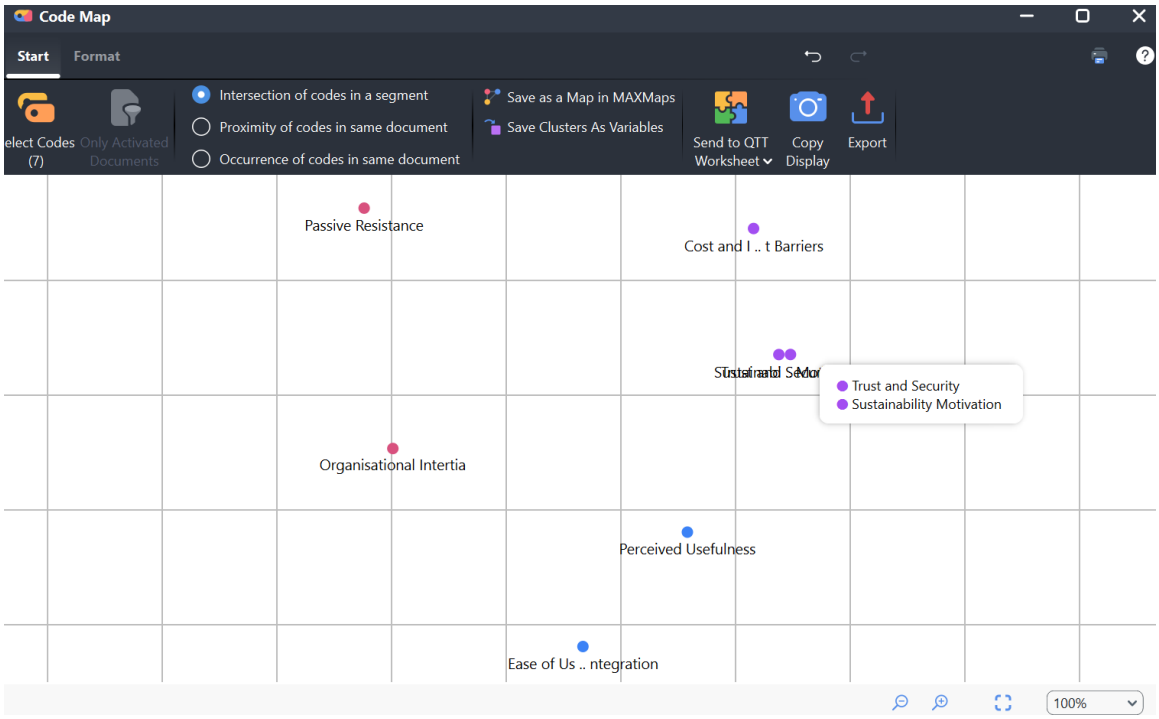
Code System	Appendix 1	Appendix 2	Appendix 3	Appendix 4	Appendix 5
Perceived Usefulness	2	1	1	8	7
Ease of Use / Integration	5	1	2	4	2
Trust and Security	4	3	2	2	5
Cost and Investment Barriers	5		3		5
Organisational Intertia		3	4	3	
Sustainability Motivation	4	2	1	1	7
Passive Resistance	1	2	3	2	

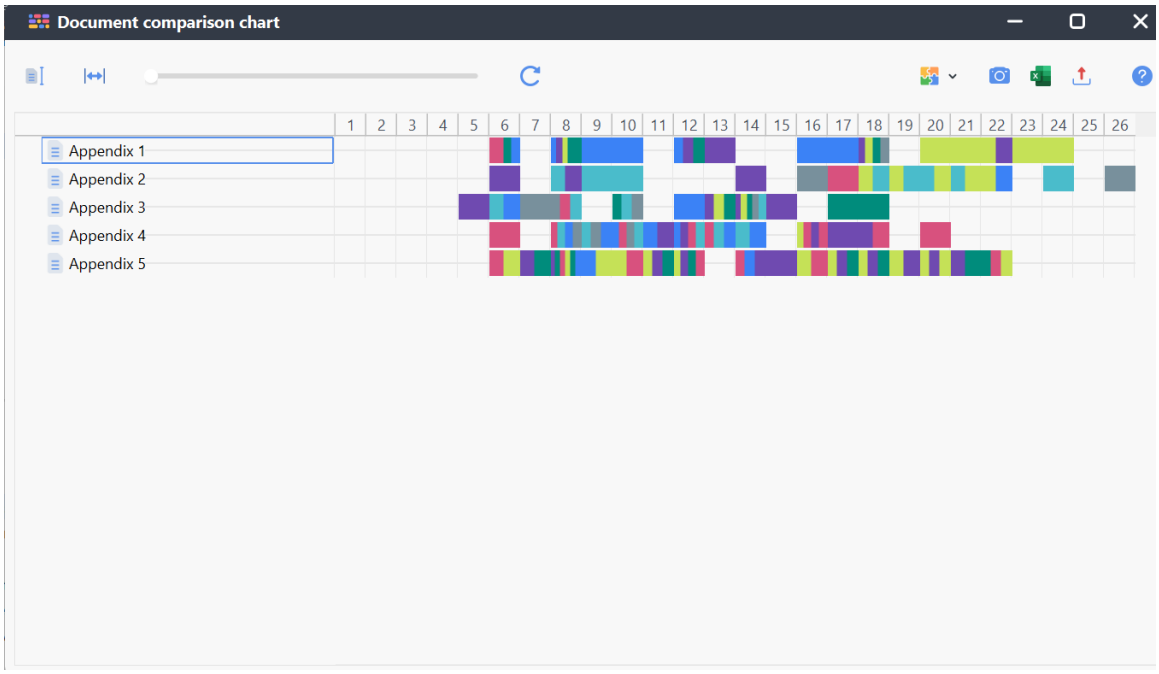
Code Matrix Browser

Code System	Appendix 1	Appendix 2	Appendix 3	Appendix 4	Appendix 5
Perceived Usefulness	2.1%	1.1%	1.1%	8.4%	7.4%
Ease of Use / Integration	5.3%	1.1%	2.1%	4.2%	2.1%
Trust and Security	4.2%	3.2%	2.1%	2.1%	5.3%
Cost and Investment Barriers	5.3%		3.2%		5.3%
Organisational Intertia		3.2%	4.2%	3.2%	
Sustainability Motivation	4.2%	2.1%	1.1%	1.1%	7.4%
Passive Resistance	1.1%	2.1%	3.2%	2.1%	

Code Relations Browser

Code System	Perceived Usefulness	Ease of Use / Integration	Trust and Security	Cost and Investment Barriers	Organisational Intertia	Sustainability Motivation	Passive Resistance	SUM
Perceived Usefulness		2	2	2	2	2	2	12
Ease of Use / Integration	2		3	2	1	3	1	12
Trust and Security	2	3		3	3	4	2	17
Cost and Investment Barriers	2	2	3		1	3	2	13
Organisational Intertia	2	1	3	1		2	2	11
Sustainability Motivation	2	3	4	3	2		2	16
Passive Resistance	2	1	2	2	2	2		11
SUM	12	12	17	13	11	16	11	92


Code Map
Start
Format
Intersection of codes in a segment
Proximity of codes in same document
Occurrence of codes in same document
Save as a Map in MAXMaps
Save Clusters As Variables
Send to QTT Worksheet
Copy Display
Export
Passive Resistance
Cost and I .. t Barriers
Trust and Security
Sustainability Motivation
Organisational Intertia
Perceived Usefulness
Ease of Us .. ntegration
100%


Document comparison chart
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Appendix 1
Appendix 2
Appendix 3
Appendix 4
Appendix 5

Appendix 2: SDG evidences from study with thematic link

SDG	Evidence from Study	Thematic Link
9 – Industry & Innovation	Adoption by Company E	Usefulness + Tech Fit
12 – Consumption & Production	Transparency in ESG reporting	Blockchain Perception
13 – Climate Action	Traceability, CO_2 impact tracking	Sustainability Alignment

Appendix 3: thematic findings from research questions linked to propositions

Research Question	Thematic Findings	Propositions
RQ1	Blockchain framed as symbolic vs. strategic	P1
RQ2	Resistance typologies, silence, deferral	P3
RQ3	ESG alignment, external push, narrative	P2

Appendix 4: key findings answering the research questions

Research Question	Key Findings
RQ1: In what ways do organisational actors perceive the role of blockchain technology within the broader context of sustainability-oriented innovation, and how do these perceptions reflect strategic, operational, or symbolic interpretations?	Perceptions vary by organisational context. In ESG-oriented firms, blockchain is framed as a strategic tool for transparency. In others, it is seen as irrelevant or too abstract. Interpretation depends on internal narratives and innovation framing.
RQ2: What are the primary technical, organisational, and psychological enablers and barriers that influence the consideration, evaluation, or rejection of blockchain within firms operating in different sectors?	Technical challenges (e.g., integration), lack of leadership sponsorship, and passive psychological resistance (e.g., hesitation, image concerns) are key barriers. Enablers include external support and alignment with strategic priorities.

RQ3: Under which organisational conditions and contextual configurations does blockchain cease to be interpreted as a purely technological artefact and become framed as a strategic enabler of transparency, accountability, or ESG transformation?	Blockchain is reframed as strategic when ESG goals are embedded, external pressures exist, and internal champions align blockchain with concrete business outcomes. Without these, adoption stalls.

Appendix 5 – Interview Protocol

The following semi-structured interview protocol was designed to operationalise the conceptual framework of the study. It draws on the core dimensions of the Technology Acceptance Model (Davis, 1989), Innovation Resistance Theory (Ram and Sheth, 1989), and sustainability-related constructs (Srhir et al., 2024; Leng et al., 2020). The questions were used as a flexible guide, allowing for thematic consistency across cases while enabling respondents to elaborate based on their role, organisational context, and familiarity with blockchain technology.

Introductory Questions (Contextualisation)

- Can you briefly describe your role and responsibilities within your organisation?
- How is your organisation currently approaching innovation and digital transformation?
- Has your organisation previously evaluated or adopted emerging technologies such as blockchain?

Section 1: Perceived Usefulness and Strategic Fit

- In your view, does blockchain offer any benefits or strategic value for your organisation?
- Have there been discussions about how blockchain could improve transparency, traceability, or operational efficiency?
- If blockchain has been explored, what motivated that interest?

Section 2: Ease of Use and Integration

- How would you describe the perceived complexity or simplicity of blockchain from a technical or operational standpoint?

- Were there concerns around integration with legacy systems or compatibility with internal workflows?
- Has the organisation engaged with any external vendors or consultants to assess blockchain feasibility?

Section 3: Innovation Resistance and Organisational Barriers

- Have there been any forms of hesitation or resistance to blockchain-related initiatives?
- Do you think that resistance (if any) is driven by technical concerns, cultural factors, or strategic uncertainty?
- Is there any internal ownership or sponsorship of blockchain innovation?

Section 4: Sustainability Orientation and ESG Framing

- Does your organisation have explicit ESG or sustainability goals that might align with blockchain applications?
- Have you considered blockchain as a tool for ESG reporting, carbon tracking, or ethical sourcing?
- Do you see blockchain as compatible with your sustainability strategy or organisational values?

Closing Questions

- What would need to change internally or externally for blockchain adoption to become a priority?
- Are there other technologies your organisation is prioritising over blockchain? Why?
- Do you foresee any future scenarios where blockchain could play a meaningful role?

Each interview was concluded with an open invitation for the participant to elaborate on any relevant topics not covered during the main questions.

This appendix has offered complementary documentation to support the methodological transparency and analytical depth of the study. It has presented interview protocols, coding structures, thematic mappings, and synthesis tables that collectively illustrate the research process behind the findings.