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Sustainable Fashion and Distributed Decision- Making: A QR-Based Participatory Feedback Model for Mid-Size Brands

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DECLARATION OF THE USE OF ARTIFICIAL INTELLIGENCE (AI)

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All information, analyses and content generated or reformulated with the support of artificial intelligence tools were verified, critically assessed and reviewed by the author. The analysis of the questionnaire data and responses was checked by the author against the data collected and the analytical procedures adopted in the research. AI-generated content was also reviewed in relation to the theoretical, methodological and documentary framework of the thesis before being incorporated into the final manuscript.

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that all material generated by artificial intelligence has been carefully verified, reviewed and reworked by the author, who assumes full responsibility for the quality, accuracy and academic integrity of the work.

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Introduction

Research Trajectory: From National Contradictions to a Global Perspective

The research underlying this thesis began with a question already explored in my previous work for my bachelor's research: how can sustainability move from being something that companies talk about to something that people can truly understand, experience, and choose?

My previous research focused on sustainability in Italy, looking at the contradictions between the language of responsibility and the practices of an industry that did not always live up to it. That work provided a clear understanding of the problems, while also suggesting that identifying what was wrong was only the beginning. This thesis therefore starts from a different perspective. Rather than asking only what is failing, it asks what could work. The shift from a national to a global perspective became particularly important during Professor Stefano Micelli's International Advanced Management course. Discussions around globalization, multinational strategies, and the changing structure of international competition provided a broader context in which to reconsider the questions raised by my previous research. Sustainability could no longer be considered only as an issue affecting individual companies or national industries. It is increasingly connected to the way value is created, distributed, communicated, and consumed across borders.

Mid-Size Firms and the Fashion Industry as a Testing Ground

This broader perspective also brought another question into focus: who can actually drive this change? Much of the discussion surrounding sustainability focuses on large corporations, governments, or consumers as separate actors. Yet between these categories lies another type of organization that may deserve greater attention: the mid-size firm. These companies are large enough to have an impact beyond their immediate environment, but often remain close enough to their products, customers, and communities to experiment, adapt, and respond relatively quickly. Their position makes them particularly interesting when considering how sustainability can be translated from a broad global objective into concrete action.

This thesis explores that possibility through the fashion industry. Fashion is a particularly revealing context because clothing sits at the intersection of identity, consumption,

culture, and environmental impact. What people wear is not simply functional: throughout history, clothing has communicated who we are, what we value, and where we belong. If consumption is partly about identity, then sustainability cannot rely only on telling consumers what they should stop doing. It must also make alternative choices understandable, desirable, and meaningful.

The Dialogical Label: Research Questions, Gap, and Thesis Structure

This is where the relationship between companies and consumers becomes central. Sustainability information is increasingly available, yet information alone does not necessarily lead to action. Labels, certifications, websites, and digital tools can provide transparency, but the challenge is to transform information into something that people can easily access, understand, and use when making a choice.

This research therefore investigates whether a simple technological tool, as a QR code integrated into a fashion label, can become a point of contact between the consumer and the information behind a product. The idea is deliberately simple: rather than asking consumers to search for sustainability information, the information should meet them where the decision is being made.

Behind this practical proposition lies a broader theoretical question. How can companies reduce the distance between what they know about their products and what consumers are able and willing to understand? Concepts such as bounded rationality, cognitive ease, transparency, and value co-creation provide a framework for examining this relationship. The experimental study then tests whether making information more accessible and engaging can influence the way consumers perceive and interact with sustainable products.

The argument developed throughout this thesis is not that technology alone can solve the sustainability challenge. Rather, it is that relatively simple innovations can create new forms of interaction between firms and consumers. For mid-size companies in particular, this interaction may represent an opportunity to combine technological experimentation with the authenticity, proximity, and distinctive identity that often characterize their relationship with their markets. This is the origin of the idea I developed alongside all the research about a dialogical label.

Existing research on QR codes in retail has largely examined them as one-way information channels, focusing on adoption barriers, usability, and the informational content consumers extract from a single scan (Paananen et al., 2023; Holkkola et al., 2023,

2025; Corsini et al., 2025). Comparatively little attention has been paid to the *dialogical* function of the label, that is, its capacity to also carry feedback from the consumer back to the firm, and to the question of whether this two-way exchange, rather than mere information provision, is what actually shapes trust, perceived ethicality, and purchase-related attitudes. This thesis addresses that gap by experimentally isolating the dialogical dimension of the label from its purely informational one, testing whether the difference matters for how consumers evaluate a brand.

The remainder of this thesis develops this argument step by step. Chapter 1 situates mid-size fashion firms within the debate between Friedman's "flat world" hypothesis and Ghemawat's empirically grounded concept of semi-globalization, arguing that in a world where distance still matters, mid-size firms occupy a structurally advantageous middle ground: large enough to compete internationally, yet small enough to avoid the rigidity that exposes larger multinationals to being outpaced or absorbed by faster-moving competitors. Chapter 2 turns to QR code technology specifically, tracing its technical origins, examining why it has become so widely adopted in contemporary retail, and reviewing the European regulatory framework governing sustainability labelling, including the Digital Product Passport. Chapter 3 develops the theoretical framework around collective and distributed decision-making, introducing the DART model of value co-creation and the distinction between central and peripheral routes of information processing, and argues that consumers increasingly resist a purely passive role in favour of participation, before formalizing this argument into testable hypotheses. Chapter 4 presents the experimental design and results: some hypotheses were supported by the data, others were not, and both outcomes are discussed with equal attention. Chapter 5 brings the theoretical and empirical findings together into a concrete label design proposal, before addressing the study's limitations and directions for future research.

I. The Role of Mid-Size Fashion Firms in Contemporary World

This first chapter aims to provide the broader context in which the research is situated. The theoretical perspectives discussed in the following pages are essential to understand the choice of focusing on mid-size firms and to explain why their specific scale represents such a distinctive and strategic feature in the global economy.

The analysis begins with an overview of globalization and its main effects on worldwide markets, the distribution of wealth, and production systems. Among the scholars who have most significantly contributed to framing this debate, Thomas Friedman and Pankaj Ghemawat represent two opposing yet complementary perspectives. Their works have become essential reference points for understanding how globalization has been interpreted and contested in both academic and managerial literature. Friedman's optimistic "flat world" hypothesis is presented as a starting point to describe the initial enthusiasm for a fully interconnected world. He dedicated an entire book illustrating globalization as one of the great successes of modern times (*The World Is Flat*, 2005). A process that, through technology and open markets, allows firms and individuals from every country to compete on equal terms regardless of geography. This optimistic vision of a borderless world is then critically revisited through Ghemawat's concept of "semi-globalization", which, supported by data and empirical evidence, challenges the idea of perfect integration and underlines how cultural, administrative, and economic distances continue to matter in shaping international relationships.

The dialogue between these two theories sets the stage for exploring how firms have adapted to a world that is neither entirely global nor entirely local. Within this evolving landscape, mid-size enterprises emerge as hybrid actors capable of balancing opposing forces: market expansion and territorial identity, innovation and tradition, efficiency and authenticity. This dualism plays a crucial role in understanding the position of mid-size fashion firms, whose success often depends on their ability to merge global ambition with local culture.

Mid-size firms are particularly relevant in this context because their scale allows for both agility in international markets and closeness to stakeholders. Unlike large corporations, they can maintain a direct and dialogic relationship with employees, suppliers, and consumers; integrating feedback more effectively into strategic and creative decisions.

This balance between a solid structure and adaptability makes them ideal laboratories for studying how participation and shared intelligence can generate sustainable innovation.

Within this framework, the final sections of this first chapter also anticipate the role of digital technologies, particularly interactive tools such as QR codes and their relevance as practical enablers of collective decision-making. By connecting producers and consumers through real-time feedback loops, these tools translate the theoretical principles of participation into operational mechanisms, fostering transparency, learning, and co-creation across the value chain.

By connecting these perspectives, the chapter establishes the conceptual bridge between the global context of mid-size firms and the participatory model of innovation that will be further developed in the following sections.

1.1 Globalization and Semi-Globalization: historical and economic context since the 2000's.

The phenomenon of globalization is often associated with the fall of the Berlin Wall, a symbolic event that ended the division between East and West (Friedman, 2005). The world, temporarily divided after the Second World War, became once again an entity where people, capital, investments and knowledge could move more freely. Multinationals, already huge economic organizations since the Second Industrial Revolution, expanded at an unprecedented pace. They built and diffused their global value chains: different phases of the product life cycle were distributed worldwide, spreading knowledge spillovers but also the exploitation of natural resources and labour. These spillovers enabled developing countries such as China and India to become richer and more technologically advanced (Milanovic, 2016). By contrast, the middle class in Europe and in the USA, for the first time in recent history, was left behind. This visual evidence highlights the asymmetric nature of globalization: while it lifted millions out of poverty in developing regions, it simultaneously eroded the economic security of Western workers, fuelling perceptions of inequality and neglect.

The sense of exclusion and loss of privilege among Western middle classes became the social and political foundation of the anti-globalization backlash that emerged in the 2010s, paving the way for protectionist narratives and renewed emphasis on national and cultural identity (Milanovic, 2016; Rodrik, 2011).

According to Milanović (2016), this economic stagnation went beyond material loss. It also implied a symbolic erosion of status, as Western workers and employees, once the beneficiaries of post-war prosperity, found themselves excluded from the new geography of global wealth. The perception of being “left behind” was intensified by visible success stories from abroad, as the prosperity of Chinese, Indian and other Asian middle classes contrasted sharply with the insecurity of industrial communities in Europe and North America. Milanović (2020) describes this process as a shift from a world divided by class to a world divided by geography, in which inequality between nations declines but inequality within nations deepens.

This paradox of globalization generated a profound sense of ambivalence: integration brought global prosperity, yet it also produced new divisions and anxieties. In many Western societies, the economic frustration of the middle class translated into political disillusionment and a search for renewed identity. The rise of populist and protectionist movements can thus be read, in Milanović’s terms, as a reaction to the “unequal geography of globalization” where economic gains were perceived as distant and culturally alien. In this sense, localism and the rediscovery of national or regional belonging functioned as psychological and cultural responses to the loss of control brought by global interdependence.

Milanović’s analysis is effectively summarized in what later became known as the “Elephant Curve”(Figure 1): a graphical representation of the uneven distribution of income gains generated by globalization. This figure helps visualize the economic dynamics that underpinned the social reactions described above.

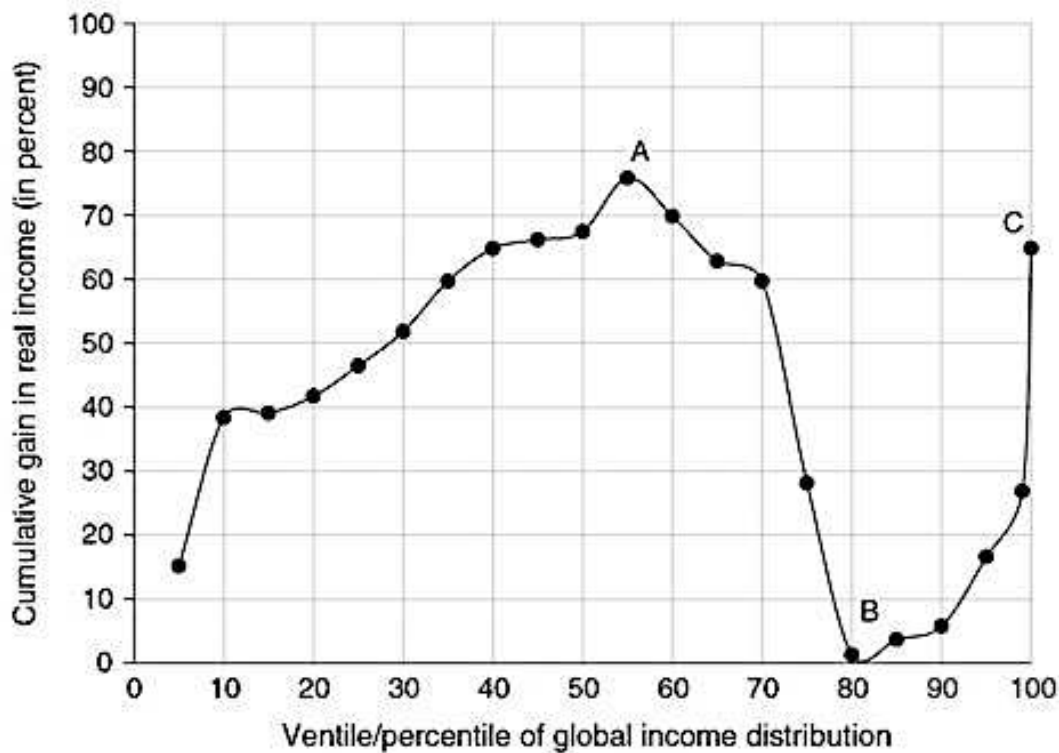


Figure 1. Global income growth between 1988 and 2008 (“Elephant Curve”), adapted from Milanovic (2016), *Global Inequality: A New Approach for the Age of Globalization*, Harvard University Press.

The graph above illustrates the unequal distribution of the benefits of economic growth between 1988 and 2008. The horizontal axis shows the percentiles of the global income distribution, while the vertical axis indicates the cumulative real income gain for each group.

- Initial rise (left side): the sharp increase from the 10th to the 60th percentile reflects the rapid income growth of the emerging middle class, especially in countries such as China, India, and other developing economies that benefited from industrial globalization.
- Deep decline (around the 80th percentile): this section represents the *stagnation or decline* of middle-class incomes in developed countries (mainly in Europe, Japan, and the United States). These workers faced strong competition from globalization and offshoring, losing purchasing power and job stability.
- Final peak (right end): the steep upward curve at the top of the distribution corresponds to the global elite (the richest 1–5%), whose wealth and capital incomes grew exponentially in the same period.

Globalization appeared to be an unstoppable and omnipresent phenomenon until the early 2000s. The world in those years was generally seen as fully globalized, borders were perceived as irrelevant and the contemporary world assumed the physical aspects of the old Pangea: every land was connected with the rest of the planet through flows of capital, goods, and people linking distant economies as never before. This idea was popularized by Friedman (2005) in his book *The World is Flat*, where he argued that digital technologies and global supply chains had ‘levelled the playing field’, making geography and distance almost irrelevant. In his view, individuals and firms can now collaborate and compete in real-time on a truly global stage.

Shortly before the publication of Friedman’s work, in 2001, a decisive turning point occurred with China’s entry into the WTO. For Italy, a country historically recognized for the quality of its goods and the strength of its manufacturing system, this event had deep consequences. The Asian giant’s unprecedented productivity and cost advantages quickly eroded market shares in traditional sectors such as textiles, furniture, and low to mid range machinery, which had long been the backbone of Italian industrial districts. According to World Bank data, between 2001 and 2010, China’s share of global manufacturing exports rose from 5% to more than 15%, marking one of the fastest expansions in modern economic history (World Bank, 2023). Over the same period, Italy’s manufacturing trade balance in traditional “Made in Italy” sectors declined sharply. In the textile and apparel industry alone, Italian exports decreased by around 30% between 2001 and 2008, while Chinese exports in the same segment more than doubled (OECD, 2011).

These data highlight the profound restructuring of global value chains that followed China’s WTO accession. Italian industrial districts, particularly those located in Veneto, Emilia-Romagna, and Tuscany, faced increasing competition from low-cost producers, forcing many firms to relocate production or to reposition themselves in higher-quality and niche markets (Banca d’Italia, 2013).

Many scholars interpreted this as the moment when globalization revealed its asymmetries: while it offered consumers lower prices and new opportunities, it also put entire regions of Europe and the United States under pressure. Some of them started questioning whether such integration could coexist with political and social stability.

In this context, Rodrik’s (2011) famous “trilemma” becomes particularly relevant. He argued that democracy, national sovereignty, and global economic integration are

mutually incompatible. The researcher argued that, at most, a country can achieve two of these objectives simultaneously. In other and more accessible words, the process of economic integration can easily become the trigger for social disintegration, as local communities and workers bear the costs of global adjustment.

This dynamic was clearly visible in the Italian case during the early 2000s. The country's opening to global trade expanded economic integration but at the same time weakened national sovereignty in industrial policy and placed a heavy burden on democratic consensus, as workers and local communities absorbed most of the adjustment costs. His words anticipated what soon became visible in economic debates as well as in political arenas. At a global level, this has also been reflected in Xi Jinping's rise to power in 2012, which marked a shift from a leadership once open to other cultures and leaning toward liberalism, to one increasingly oriented toward protectionism and a nationalist economy.

This political shift was not isolated. The election of Trump followed just a few years later, showing that all the rhetoric about globalization's power in mixing populations was misleading. Economic integration was also leading to social disintegration: people were afraid of losing their jobs, their privileges, and their cultural national roots.

Events such as Covid, the obstruction of the Suez Canal, and the war in Ukraine reinforced this anti-globalization trend (Ghemawat, 2007; DHL, 2024). Media and politics emphasized how fragile borders destabilized everything everywhere, as in a domino effect: once a single piece falls, the entire system is at risk.

The significant backlash followed: political elections highlighted the urgency of reestablishing the power of individual nations. The USA and China were followed by Europe, where in most countries right-wing parties gained consensus by promising to keep things under control and reassert borders to protect citizens.

In contrast to Friedman's optimistic account, Ghemawat offered a fundamentally different perspective, one grounded in empirical data rather than anecdotal observation. The researcher collected data and presented empirical evidence directly challenging Friedman's "flat world" (Ghemawat, 2003, 2007). In fact, a few years later, Ghemawat demonstrated that globalization is far less intense than commonly believed. He found that immigration levels stood at 3% of the total population, cross-border phone calls at 2% over all the global calls, foreign direct investment at around 10%. These figures reveal a phenomenon much more limited than the one often described in public discourses, a

narrative he argued failed to engage rigorously with empirical evidence. (Ghemawat, TEDx Talk *Actually, the world isn't flat*, 2012)

Ghemawat also introduced models to demonstrate that distance still matters and that cultural differences remain highly relevant in shaping international interactions. National borders continue to play a significant role: people are not as free to move across countries as often assumed, and products do not circulate in international markets without friction. One of his most striking examples was Germany, frequently cited as one of the world's leading exporters in the machinery industry. A closer look, however, revealed that the bulk of German exports was directed to geographically proximate and culturally similar countries, particularly within Europe. This insight highlighted that even highly globalized economies tend to rely heavily on nearby markets where cultural and institutional similarities reduce the costs and risks of exchange.

To conceptualize these dynamics, Ghemawat developed the CAGE framework, which stresses four dimensions of distance that must be considered in cross-border negotiations: Cultural, Administrative, Geographical, and Economic (Ghemawat, 2007). This framework illustrates that international strategy cannot ignore the “frictions” that continue to separate national markets, despite growing interconnection.

Recent empirical data confirm this perspective. As of 2023, the depth of global connectedness, the share of international flows in relation to domestic activity, stands at about 25%. This means that approximately 75% of economic activity still takes place within national borders (DHL Global Connectedness Report, 2024; DHL Global Connectedness Tracker, 2025). These findings demonstrate that globalization is a concrete and measurable phenomenon, but they also underline that borders remain crucial.

Recognizing this balance is fundamental for the study of international management and for making informed and realistic strategic decisions in a semi-globalized world.

As Ghemawat (2012) humorously noted during his TEDx Talk *Actually, the world isn't flat*, when he first published data contradicting the “flat world” narrative, Thomas Friedman dismissed his work as “narrow.” This reaction, he recalled, “made me scratch my head, because after carefully reviewing Friedman’s hundreds-page book, I could not find a single graphic, table, chart, reference, or footnote” (minute 08:24). Making

decisions in a conscious and rational way requires data as a foundation; their absence can easily lead to errors, misperceptions, and common cognitive biases.

1.2 Future Organizational Archetypes

In the future, given this fragmented situation previously described, scholars and practitioners suggest that three types of organizations will be particularly central in shaping global competition. This tripartition is not a formalized framework in the literature but rather an interpretative lens, supported by different strands of research:

- **High-tech and digital firms:** global corporations that provide standardized products and services to relatively homogeneous worldwide demand. This view resonates with Levitt's (1983) idea of "global products" and with Friedman's (2005) argument in *The World is Flat*. Examples include Apple, Google, and OpenAI, whose platforms operate uniformly across borders. This typology of firms builds its strategy on aggregation, creating global value chains that extend across continents and exploit economies of scale, where producing more allows firms to reduce costs. Production is often fragmented geographically, assigning each component to the regions where skills are high but labour costs remain low.

A clear example is offered by Apple's iPod, analysed by Linden, Kraemer, and Dedrick (2007), who showed how each part of the device was sourced from a different country: semiconductors from Japan and Korea, microdrives from the United States, displays from Taiwan, and final assembly in China. Despite being labelled as "Made in China", the value captured by Chinese assembly plants represented only a minimal portion of the total retail price. Most of the profit returned to Apple, which maintained control over design, innovation, and brand identity. The Apple case study captures well the logic behind the global value chain where the production is scattered worldwide, while strategic and financial power remains concentrated in a few advanced economies.

- **Multinationals:** large firms that must adapt their strategies and products to different cultural and institutional contexts. This perspective is emphasized by Ghemawat (2007) in *Redefining Global Strategy*, who highlights the persistence of national borders and the risks of the so-called "yo-yo effect"¹ in shifting between global standardization

¹ The "yo-yo effect" refers to the strategic oscillation that multinational firms experience when alternating between global standardization and local adaptation. As Ghemawat (2007) explains, companies often move repeatedly from global integration to local responsiveness without finding a stable equilibrium, leading to inefficiencies and strategic inconsistency.

and local responsiveness. Classic cases include Starbucks or UniCredit, where adaptation to local markets proved unavoidable.

An example of a famous multinational is McDonald's, which has successfully applied a glocal strategy (Robertson, 1995) by adapting its menu and brand communication to local tastes and traditions. From the McVeggie burger in India to the Teriyaki Burger in Japan, McDonald's demonstrates how global brands can retain their identity while respecting cultural differences. This approach reflects the ability to balance global efficiency with local sensitivity, a key factor for sustaining international success.

- **Mid-size champions:** medium-sized firms that combine international ambition with strong local embeddedness. They exploit their size to expand globally without being perceived as a threat, while preserving authenticity and cultural roots. This echoes Simon's (2009) analysis of *Hidden Champions* and Piore and Sabel's (1984) concept of *flexible specialization*.

Mid-size champions represent the core focus of this thesis, as they appear best positioned to navigate the tension between globalization and localization. As Ghemawat (2007) points out in his AAA framework, global competition today requires a combination of Adaptation, Aggregation, and Arbitrage. High-tech firms tend to rely on aggregation and arbitrage strategies, multinationals mainly on adaptation, and mid-size firms will increasingly need to integrate all three to remain competitive. They will have to combine efficiency with flexibility, scale with authenticity, and global vision with respect for local culture. In a semi-globalized context, no single model dominates. Firms must continuously evolve, adapting to the rapid changes of their environment, technologies, and people. Anchoring decisions to reality and data-driven processes becomes a key factor for resilience and long-term success.

1.3 Pochette Firms: Mid-size Champions of Semi-Globalization

The debate on globalization and its recent response has demonstrated that the world is neither fully integrated nor fully fragmented. Instead, it moves within a "semi-globalized" space (Ghemawat, 2007), where borders still matter and national cultures remain highly relevant. This perspective challenges both the optimism of Friedman's "Flat World" theory and the pessimism of those who see globalization as an unstoppable wave of homogenization. The reality, supported by empirical data, is that most economic activity still takes place within national borders, and international flows remain partial and

uneven. As Ghemawat (2007) emphasized through empirical validation, the idea of globalization is often exaggerated and far from the global situation described by Friedman. Despite their differing views, both researchers agree that one element is truly global: knowledge and information. They each describe it as a major opportunity for innovation, as ideas can circulate worldwide and be reinterpreted locally. In creative industries like fashion, where cultural exchange is not peripheral but central, this flow of knowledge becomes a distinctive competitive resource. Diversity, if properly treated, becomes a driving force of evolution and development.

In such a fragmented world, the organizational forms best positioned to thrive are not necessarily the global giants nor the smallest local firms. Instead, mid-size companies emerge as a promising middle ground. They are large enough to look beyond national borders, but still deeply rooted in their local communities. This embeddedness allows them to preserve authenticity and cultural identity, while their size grants the flexibility to adapt abroad.

Robertson's (1995) idea of glocalization captures this balance well: global ambitions succeed only when they are carefully reinterpreted within the fabric of local contexts. For Robertson, globalization should never be understood as a process of pure homogenization; rather, it is always accompanied by processes of localization. What emerges is a constant interplay between the global and the local, where universal flows of knowledge, symbols, and practices are translated and re-signified within specific cultural settings. This dialectic is particularly visible in consumer industries, where products are not only functional but also cultural carriers. Fashion, in this sense, epitomizes glocalization: garments and styles circulate worldwide, but their meaning and acceptance depend on how they resonate with local values, identities, and aesthetic codes. Dolce & Gabbana's 2016 abaya collection for the Middle Eastern market illustrates how global luxury brands adapt their products to local cultural norms while maintaining their core identity.

The opposite trajectory is exemplified by the failure of so-called "cocacolonization." Coca-Cola's attempt to impose a standardized product worldwide, consistent with Levitt's (1983) argument of "global products" may have generated enthusiasm in some markets, but it also provoked resistance. While Dolce & Gabbana's abaya collection demonstrates how global brands can adapt respectfully to local cultural values, Coca-Cola represents what happens when such sensitivity is absent. In Europe, Asia, and the Middle

East, Coca-Cola was seen less as a beverage and more as a cultural symbol of American dominance. Protests and boycotts showed that neglecting cultural embeddedness can turn a brand into a target of rejection rather than admiration (Wagnleitner, 1994; Elteren, 1999).

Mid-size firms, by contrast, rarely trigger this reaction. Their limited scale prevents them from being perceived as hegemonic, while their strong roots make them credible in the eyes of international consumers. Literature has long underlined this potential. Simon's (2009) notion of *Hidden Champions* and Piore and Sabel's (1984) concept of flexible specialization both emphasize how medium-sized enterprises can combine agility, specialization, and community ties to compete globally. Italian industrial districts confirm this intuition: based on cultural heritage and craftsmanship, they represent fertile ground for firms that manage to innovate while staying true to their roots. The term "pochette firms" introduced by Micelli (2011), describes companies that are small enough to remain elegant, refined and discreet. Like a pochette bag, they are capable of carrying the essential elements of global competitiveness: design, identity, and innovation. Italian industrial districts offer perhaps the clearest evidence of this evolution: small or mid-size enterprises rooted in craftsmanship and territorial identity, yet increasingly oriented toward design, technology, and international markets as drivers of growth. This idea captures the essence of a light globalization rooted in culture, which values authenticity and beauty as strategic resources rather than as by-products of production efficiency. In Micelli's view, innovation is meaningful only when it remains connected to people, places, and the culture that generated it, turning local knowledge into a global competitive advantage. This perspective was not entirely new, however. Decades earlier, Piore and Sabel, in *The Second Industrial Divide: Possibilities for Prosperity* (1984), had already highlighted the flexible specialization of small and medium-sized firms within the American and European contexts, describing them as dynamic clusters capable of combining artisanal know-how with industrial organization. Their analysis of the so-called "*Third Italy*" anticipated what later scholars such as Becattini (1990) would formalize as the industrial district model, a system rooted in local culture but open to global exchange. Micelli's interpretation can thus be read as the evolution of this tradition into the twenty-first century: a reflection on how firms can preserve their cultural identity while engaging with the global market.

Fashion offers perhaps the clearest illustration of this dynamic. This sector clearly shows that cultural identity and creative storytelling are inseparable from the product itself. Mid-size fashion houses can draw strength from their heritage, while experimenting with forms of adaptation that resonate abroad.

1.4 Some Precious Case Studies: Technowrapp, Bisazza and Campari

The firms examined in this section illustrate how a distinctive approach to customer engagement can become a relevant source of competitive advantage in international markets. While Bisazza and TechnoWrapp can be more directly associated with the mid-size firm context, Campari represents a larger-scale reference case whose experience is particularly relevant for understanding the role of customer engagement in building and sustaining a strong global brand. What these companies have in common is their ability to actively engage with customers and translate their needs, perceptions, and experiences into meaningful brand insights. Rather than viewing consumers simply as recipients of products or services, they develop a deeper understanding of the relationship between people, products, and brands. In this sense, customer engagement becomes not only a marketing activity, but a way of generating knowledge, strengthening relationships, and creating a distinctive identity in international markets.

The three cases therefore provide complementary perspectives on how firms can leverage customer engagement to compete beyond their domestic markets. Although they differ significantly in size and scale, they demonstrate how listening to customers and transforming their insights into value can support international growth while preserving a distinctive connection with the firm's identity and origins.

Technowrapp represents the idea of active adaptation and has been the main inspiration for this work. It operates in the industrial sector, yet its philosophy can easily be translated to the creative industries. Technowrapp designs complex packaging machinery that literally adapts to the needs of each client, improving through direct feedback and dialogue. The company listens carefully, collects insights, and reshapes its solutions in real-time. In this continuous exchange between producer and user, a metaphor emerges for how the fashion industry could evolve. Just as Technowrapp's machines change shape based on client input, fashion firms could learn to shape their collections according to the knowledge and experience of their customers. This model encourages collaboration rather than mass production: instead of endless trial and error until one trend "hits" fashion could be guided by shared creativity and consumer insight. This philosophy reflects what

contemporary scholars describe as *organizational listening* (Macnamara, 2016), the ability of firms to actively capture, interpret, and respond to customer feedback across all stages of value creation. The result would be a significant reduction in the waste of materials, resources, and time, while at the same time strengthening trust and mutual respect between company and customer.

The message would be simple yet powerful: in a world where everyone strives to have a voice, as the rise of social media clearly demonstrates, this participatory model could genuinely succeed. People are no longer satisfied with passive consumption, they desire to contribute, express themselves and see their ideas reflected in the products they choose. The relationship between firms and consumers moves beyond a simple exchange of goods and becomes an ongoing conversation, a shared process of learning and creation. Every interaction generates information, emotions, and insights that can guide future sustainable innovation. The consumer no longer represents the final step of the production chain but becomes an active component within it, helping to shape the very identity of the brand. This shift redefines the traditional logic of cultural production described by McCracken (1986), who conceptualized the movement of cultural meaning as a one-way transfer from society to goods, and from goods to consumers, through the mediating role of advertising, fashion, and media rituals. In that framework, firms acted as cultural intermediaries, embedding shared values and ideals into products that consumers would then use to construct and communicate their identity. For example, as mentioned in the previous subsection, the limitations of such a unidirectional model were clearly exposed by the phenomenon of “cocacolonization”: when brands attempt to impose an universal message without engaging in dialogue with local meanings, they risk being perceived as culturally overwhelming or even oppressive toward traditional tastes and identities (Wagnleitner, 1994; Elteren, 1999).

Today, however, the flow of meaning is increasingly bidirectional. Digital communication and interactive tools allow consumers to reinterpret, contest, and even co-create these meanings, feeding them back into the production system. Through this dialogic process, the symbolic and functional value of goods emerges not from unilateral imposition but from negotiation and shared understanding.

In this perspective, participation and feedback become mechanisms of cultural reciprocity. They transform the market from a space of message transmission into a space of cultural collaboration, where brands and consumers jointly produce the narratives,

aesthetics, and ethical meanings that define contemporary consumption. This reinterpretation of meaning creation parallels the conceptual evolution in marketing thought, where value itself is increasingly understood as something that emerges through interaction rather than being embedded in production. In this theoretical continuum, the cultural exchange described by McCracken finds an economic counterpart in the Service-Dominant Logic, which reframes value creation as an ongoing, collaborative process between firms and consumers. As Vargo and Lusch (2004) argue, value does not exist in isolation within the product but emerges from the continuous interaction between provider and beneficiary. Value is therefore co-created rather than delivered, born from collaboration, feedback and the experiences that connect both sides. In this sense, the consumer becomes a co-creator of meaning and innovation, transforming the market from a transactional space into a participatory ecosystem.

This idea aligns with Prahalad and Ramaswamy's (2004) notion that the future of competition lies in co-creating unique value with customers. They emphasize that competitive advantage no longer depends solely on economies of scale or technological superiority, but on the firm's ability to build engaging and collaborative relationships with its audience. When people are invited to take part in the creative process, they develop a stronger emotional bond with the brand, feel recognized and respected, and become its most credible ambassadors.

Such an approach also redefines the boundaries of sustainability. If customers are directly involved in shaping the product, production becomes more purposeful and less wasteful. Instead of generating thousands of prototypes or seasonal collections to capture uncertain demand, firms can align production more closely with what people actually desire and need. Co-creation thus represents both a managerial innovation and an ethical evolution: it replaces the anonymous distance of mass consumption with dialogue, awareness, and shared responsibility. This participatory model offers a sustainable and human alternative to the fast-fashion logic, where trends are born from overproduction and disposability.

Campari expresses another essential dimension of contemporary business: the power of experience and shared emotion. The brand does not limit itself to selling a beverage; it builds a world around it. Every advertisement, every architectural detail, every event is designed to immerse people in an atmosphere of beauty and belonging. Campari's connection to Italian culture and art is not superficial, it is the foundation of its identity.

The brand's bars and events are not simply places of consumption, but spaces where people come together, celebrate and create memories.

In recent decades, with the progressive globalization of the value chain, the product itself has progressively lost its centrality. The manufacturing phase of the value chain has been physically and conceptually pushed away, often relocated to regions where production costs can be minimized. On the other side companies have redirected their investments toward the initial and final stages of value creation. At the beginning of the chain, design has become the key source of differentiation; at the end, services and after-sale experiences are emerging as decisive components of perceived value.

This evolution can be represented by the “Smile Curve” (Shih, 1996), which shows how the central phase of production generates the lowest value-added, while the highest margins concentrate at the two ends of the chain: R&D, design, and branding on one side, and services, marketing, and experience on the other (Figure 2).

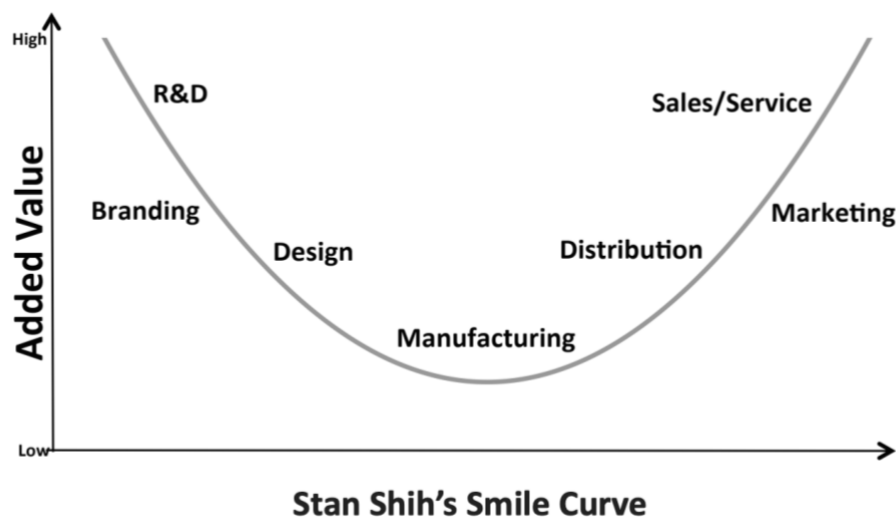


Figure 2. *The Smile Curve: value distribution along the global value chain (adapted from Shih, 1996).*

Consumers today are less attached to the tangible features of goods and more to the memories and emotions those goods evoke (Pine & Gilmore, 1999). As is often remarked in everyday conversations, at the end of the day we tend to remember not the money we saved, but the memories we created. This common sentence encapsulates a fundamental shift in consumer perception: what matters most is no longer the product itself, but the emotions, meanings and memories it generates. The value lies in the story it tells, the sense of belonging it nurtures, and the experience it leaves behind. In this sense, emotional engagement becomes one of the most powerful drivers of customer loyalty.

Building on this transformation, Pine and Gilmore (1999) introduced the concept of the *Experience Economy*, arguing that modern consumers no longer seek products or services but meaningful, memorable experiences. In markets saturated with alternatives, emotional connection becomes the ultimate differentiator. Every point of contact with the brand, from the layout of a store to a moment of digital interaction, contributes to shaping the customer's perception of value.

The implications of this shift are profound: firms are no longer merely producers of goods but curators of experiences. The competitive advantage lies in the ability to design emotions, create symbolic meaning, and establish enduring relationships with consumers. In this framework, the garment ceases to be a simple object of consumption and becomes part of a narrative, a medium through which people express identity, creativity, and connection.

In this perspective, Campari perfectly represents what Schmitt (1999) later defined as experiential branding, a strategy that aims to engage the senses, emotions, and intellect of consumers, turning every interaction into a memorable event. This approach can inspire the fashion industry as well. A store should not be just a place to buy clothes and leave, but a setting where customers feel safe, welcome, and emotionally connected to what they wear. If the shopping experience turns into a moment of engagement and participation, fashion too can become a social experience rather than a transaction.

Bisazza brings yet another perspective that completes this triangle of inspiration. The company is a master at showing how beauty and art can act as universal languages. Its mosaics are rooted in Italian craftsmanship, yet they are understood and appreciated all over the world. Bisazza's success lies in the way it translates local excellence into a form of beauty that feels global without ever being invasive. Beauty, when expressed with intelligence and sensitivity, can travel across borders and cultures without losing its identity. It becomes a gentle discovery, a language that invites rather than imposes. This is precisely what makes Bisazza's international strategy so effective: it is the proof that design and cultural depth can coexist, creating a global dialogue grounded in respect and admiration rather than dominance. Bisazza's success also resonates with the idea of "aesthetic globalization" (Featherstone, 1991), in which cultural symbols and artistic forms circulate across borders, creating a shared visual language that connects people beyond geography. Yet, as Lash and Urry (1994) point out, true cultural capital is built when this exchange remains respectful of its origins. Bisazza embodies precisely this

balance, offering global beauty rooted in local identity.

Taken together, all these examples reveal a coherent pattern rather than isolated success stories. They show that mid-size champions thrive where authenticity, adaptability, and agility meet. These firms embody a different idea of globalization: one that values participation, culture, and shared meaning instead of scale and standardization. They demonstrate that ambition can exist without domination, that local identity can coexist with global presence, and that innovation, when born from listening and empathy, can connect people rather than divide them.

These case studies show that success in a semi-globalized world depends less on scale and more on the ability to listen, adapt, and co-create. The next section explores how these same principles can be translated into the fashion industry through shared decision-making processes, where technology and in particular QR-based feedback systems become the enabler of a new, participatory form of value creation.

1.5 introduction to Distributed Decision-Making and Value Co-Creation

In management and organizational theory, distributed decision-making (DDM) refers to a system in which decision authority and information processing are shared among multiple agents rather than concentrated in a single hierarchical center. According to contemporary definitions, DDM describes “the allocation of decision rights across interdependent actors who collectively process information, negotiate objectives, and learn from feedback to improve organizational outcomes” (Klein et al., 2003; Argote & Greve, 2007). This paradigm has gained growing relevance in recent decades, particularly with the rise of digital technologies that allow real-time data exchange between firms, employees, suppliers, and consumers. While the term itself emerged prominently in the late 1990s and early 2000s, its intellectual roots reach back to the Behavioral Theory of the Firm (Cyert & March, 1963), which first conceptualized organizations as adaptive coalitions rather than perfectly rational entities.

In that seminal work, Cyert and March argued that firms operate under conditions of bounded rationality and uncertainty, where decisions result from negotiation, learning, and compromise among multiple actors. Instead of functioning as fully coherent systems pursuing optimal outcomes, organizations behave as distributed networks of individuals and subgroups, where each one holds partial knowledge, distinct goals, and different time horizons. Decision-making therefore emerges as an iterative process shaped by feedback,

rather than a single rational calculation. The process is not linear: it could start, end, pause, and even return to a previous phase before moving forward again. It is human-made; the presence of chaos and the possibility of failure are essential, tangible components. Sometimes it may even be useful to start from the end.

These new principles provide the conceptual foundation for distributed decision-making as understood today (Argote & Greve, 2007). Building on these insights, this transformative model recognizes that innovation and adaptability increase when knowledge flows horizontally rather than vertically, and when feedback mechanisms connect different nodes of the value chain.

In contemporary markets, especially in creative and fast-moving industries such as fashion, this emerging distributed approach becomes indispensable. Consumer preferences change rapidly, and competitive advantage no longer derives from centralized control but from the ability to learn collectively and act dynamically. Human creativity and technological innovation are crucial parts of the process to adapt the business and fully exploit this new flow of information. Recent technological advancements have made it possible to translate these principles into concrete practice. Fast-fashion groups such as Zara, for instance, have begun introducing QR codes on product tags and display mannequins to enhance consumer interaction and transparency (Scanova, 2022). Yet, the scale and rigidity of such large organizations often make these transitions gradual and limited in scope. Mid-size firms, on the other hand, possess the agility and proximity to customers that allow them to implement similar technologies more swiftly and authentically. Their smaller size facilitates a more direct and human relationship with consumers, enabling faster learning and a deeper integration of feedback into strategic and creative decisions.

Digital tools today make it increasingly possible for firms to collect and process real-time feedback from both internal and external actors, creating a distributed network of decision nodes that extends beyond the organization's boundaries. Interactive platforms and QR-based systems open new possibilities for integrating consumers into this network, turning feedback into an active component of decision-making and value creation. This evolution sets the stage for understanding how digital participation can reshape the logic of innovation in the fashion industry, a theme explored in the following section through the example of QR-based feedback systems.

1.6 Introduction to QR Codes in Fashion Industry

Digital technologies, particularly interactive tools such as QR codes, offer a concrete means of operationalizing this shift, allowing firms to integrate the consumer as an additional decision node in real-time. As Von Hippel (1994) argued, customers often hold “sticky information”: practical insights and unmet needs that remain largely untapped by firms. Leveraging this distributed knowledge can significantly accelerate innovation and product relevance.

Building on the behavioral view of organizations introduced by Cyert and March (1963), decision-making in this context is understood as an adaptive and negotiated process, where learning and feedback play a crucial role in shaping collective choices. In creative industries such as fashion, where uncertainty and change are constant, these dynamics become particularly evident.

In fast-fashion models, uncertainty is addressed through quantity rather than quality of learning. Brands such as Zara or Shein, two of the most famous fast-fashion brands, test consumer reactions by releasing dozens of micro-collections each month. They observe what sells, what does not, and then amplify successful designs (Tokatli, 2008). Although this system appears efficient in the short term, it relies on overproduction as a proxy for understanding demand, resulting in massive waste of materials, energy, and human labour. Joy et al. (2012) describe this as a reactive cycle in which consumer tastes are identified only *ex post*, once products are already on the market, while Fletcher (2010) contrasts this “blind repetition of production until something sells” with more deliberate, learning-oriented approaches.

In a metaphorical sense, these companies operate “in the dark” producing relentlessly until something happens to illuminate the path. Their creative process resembles walking through an unlit room, guided by outdated intuitions and past successes that may no longer hold true. What emerges from this process is not a genuine understanding of consumers’ individual preferences, but rather a distorted reflection of collective, short-lived trends. The products that succeed do so not because they align with people’s authentic tastes or identities, but because they momentarily capture the volatility of social media and mass desire. As a result, fast fashion ends up shaping demand rather than listening to it, feeding a cycle of imitation and disposability where the customer’s true voice is silenced beneath the noise of constant novelty. Each release becomes a blind attempt to capture fleeting attention; when a product finally resonates, it often does so

only for a brief moment before the cycle restarts. This short-term learning loop may yield rapid profits, but it corrodes the deeper relationship between brands, creativity, and consumers.

By contrast, a distributed decision-making model transforms this reactive mechanism into a proactive learning ecosystem. Instead of interpreting consumer behavior only through sales data, firms can integrate real-time qualitative feedback into the design process itself. The use of QR post-purchase engagement enables customers to share insights on fit, material, and aesthetic preferences, turning them into active decision nodes within the value chain. In doing so, innovation becomes cumulative rather than wasteful: each interaction generates data that inform future design choices, reducing the need for endless prototypes and unsold stock. What fast fashion learns by trial and error, sustainable mid-size firms could learn through dialogue and collaboration, replacing overproduction with shared intelligence and adaptive creativity.

This proposed model draws upon established theoretical frameworks that connect learning, sustainability, and collaborative creation. It resonates first with the lean product development philosophy, which prioritizes learning before producing. As Womack and Jones (1996) and Nonaka and Takeuchi (1995) demonstrate, innovation efficiency depends on the firm's ability to integrate external knowledge early in the design process, transforming uncertainty into learning rather than waste. By collecting customer feedback through digital tools such as QR codes, mid-size firms can reduce redundant prototyping and consequently huge quantities of waste material, shorten decision cycles, and design products that respond to real consumer taste before large-scale production occurs. The main idea is to build a proactive learning system capable of standing in stark contrast with the reactive mechanisms of fast-fashion companies, which identify trends only after producing thousands of items and observing sales data.

Moreover, this approach aligns with the principles of the circular economy, which emphasize continuous feedback loops between production and consumption. The Ellen MacArthur Foundation (2017) defines circularity as a system in which resources and information circulate to minimize waste and extend product life cycles. QR-based feedback channels contribute to this logic by transforming the consumer's role from end-user to knowledge provider, closing the loop between design, use, and renewal. In this sense, data becomes not only an economic asset but also an ecological one, preventing

overproduction, reducing waste of resources and time to align innovation with sustainability.

Finally, the framework builds on the paradigm of value co-creation (Prahalad & Ramaswamy, 2004; Saarijärvi et al., 2013). Digital interaction transforms consumers from passive recipients into active partners in the creative process. As Joy et al. (2012) note, the ethical appeal of sustainable and luxury fashion derives from transparency, participation, and authenticity, all values that directly oppose the opacity and disposability of fast fashion. The QR-based participatory model proposed in this thesis combines these theoretical perspectives and it offers to mid-size firms a competitive, data informed, and human-centered alternative to the unsustainable logic of mass production. The Behavioral Theory challenged the idea that decisions follow a single, optimal path. Instead, organizations navigate complexity through routines, incremental learning, and adaptive adjustments based on feedback. Within this logic, success does not derive from perfect foresight but from the ability to listen, interpret, and react to signals emerging from the environment. The whole process is not just about analysing personal feedback and shape the products as customers want to. It is about collecting data, one of the most precious assets in our century, leverage the statistics, dive into specific customers' preferences, understand deeply the local culture, how people can remain authentic to themselves and just then combine this information with global trends, important as well to be recognized by others.

This approach introduced a humanistic and dynamic view of organizations. Firms were no longer perceived as static structures driven solely by profit, but as living systems composed of individuals who think, learn, and make compromises together.

The notion of “bounded rationality”², initially advanced by Herbert Simon (1955), became the cornerstone of this perspective: decision-makers seek workable, context dependent solutions rather than theoretical optima. These behaviors are guided by cognitive limits, emotional factors, and organizational constraints. Yet, these very imperfections can foster creativity and innovation, as firms learn to experiment and adjust their behavior through feedback and experience.

² *Bounded rationality* (Simon, 1957) describes how individuals and organizations make decisions under limited information and cognitive constraints, seeking satisfactory rather than optimal outcomes.

From this perspective, the fashion industry perfectly embodies Cyert and March's behavioral view. Designers, marketers, and managers operate in an environment of high uncertainty, where the success of a collection depends on volatile consumer tastes, cultural trends, and social sentiment. There is no single formula for success; rather, firms learn through cycles of trial, error, and adaptation. The iterative process of testing prototypes, observing customer reactions, and refining products over time reflects what Cyert and March described as "organizational learning." Each decision, whether about design, pricing, or communication, emerges from negotiation between multiple actors, each with different priorities: creativity, profitability, sustainability and reputation.

1.7 Organizations as Coalitions: From Internal Negotiation to External Dialogue

Cyert and March's coalition model of the firm adds another layer of meaning to contemporary debates about participation and distributed decision-making. In their view, an organization is not a monolithic actor but a network of coalitions, where different groups and individuals cooperate and compete simultaneously. Decisions are not imposed from above but emerge from compromise and negotiation among stakeholders. This vision resonates deeply with the current structure of fashion companies where creative directors, production managers, sustainability experts, investors and consumers coexist within a complex ecosystem.

In this environment, organizational effectiveness depends on the firm's capacity to integrate diverse forms of knowledge. The creative director provides intuition and aesthetic vision, the marketing team interprets market signals; suppliers contribute technical expertise, consumers offer feedback and cultural interpretation. Each voice carries partial knowledge, but when combined, they create a richer and more adaptive understanding of reality. This dynamic reflects what modern management theorists such as Pea (1993) and Hutchins (1995) would later call distributed intelligence: a system in which value and innovation emerge from interaction rather than control.

The Behavioral Theory, in this way, laid the foundation for a new model of the firm: one that learns collectively rather than mechanically executes plans. The feedback loops between different actors, internal and external, become the core mechanism of evolution. March (1991) later developed this idea further by distinguishing between exploration, defined as the pursuit of new ideas, and exploitation, described as the refinement of existing knowledge. Successful organizations, he argued, must find a balance between the two. Too much exploration leads to chaos and dispersion, conversely, too much

exploitation causes rigidity and stagnation. The fashion industry, again, provides a perfect example of this balance. Luxury houses must explore new forms, trends, and materials while maintaining continuity with their heritage and identity. Learning from consumers' feedback, whether through direct interactions, digital analytics, or post-purchase surveys, becomes key to navigating this delicate equilibrium.

1.8 Service Dominant Logic and the Co-Creation of Value

The behavioral view of the firm anticipated many of the principles that would later be formalized in the Service-Dominant Logic (Vargo & Lusch, 2004). This framework argues that value is not created by firms alone and then delivered to passive consumers; rather, it emerges through interaction and use. In this logic, products are service platforms, and consumption becomes an act of participation. Customers contribute knowledge, preferences, and interpretations that shape the final value experience.

Applying this logic to fashion, garments are not merely material goods but carriers of meaning, identity, and culture. Their value depends on how individuals perceive, wear, and reinterpret them. A feedback system based on QR codes can make this process explicit, turning each product into a touchpoint for dialogue. When customers scan a QR code to share their opinion on fit, fabric, or design, they are not only providing data but also participating in value creation. Their input informs future collections, influences supply decisions, and even affects the brand's narrative.

This approach transforms the traditional value chain into a value network, where producers and consumers continuously exchange information and meaning. As Normann and Ramirez (1993) first argued, value creation is no longer confined to a linear value chain but emerges within interactive value networks where firms, suppliers, and customers jointly shape outcomes. Later, Allee (2000) expanded this view, emphasizing how intangible exchanges such as knowledge, trust and relationships constitute the real drivers of organizational value. It bridges the behavioral understanding of feedback loops with the service-dominant principle that value is always co-created. Both perspectives challenge the hierarchical model of production and consumption, proposing instead a collaborative, iterative and adaptive system.

From this perspective, the integration of interactive technologies such as QR codes represents a new form of experiential engagement. The store becomes a stage, and the product a medium for storytelling. By enabling customers to interact directly with the

brand, leave feedback or discover the story behind a garment, firms can create immersive experiences that foster loyalty and identification. This logic resonates particularly in the luxury and sustainable fashion sectors, where authenticity and transparency are integral to brand equity.

Moreover, the experiential approach complements the behavioral and service-dominant views by emphasizing the emotional dimension of feedback. Consumers are not abstract data points but individuals whose experiences, preferences, and memories shape their relationship with brands. When feedback systems are designed with empathy and creativity, they strengthen this emotional bond, transforming data collection into dialogue.

1.9 Toward a Customer-Centric Model of Fashion Innovation

Taken together, these theoretical perspectives: the Behavioral Theory, the Distributed Decision-making, the Service-Dominant Logic, and the Experience Economy, form the conceptual foundation of this study. They converge on a common principle: that innovation and value arise from participation, interaction, and learning. In the semi-globalized world described earlier, where complexity and uncertainty prevail, no single perspective or actor can claim total knowledge. The ability to listen, adapt, and integrate multiple forms of intelligence becomes a firm's most powerful competitive advantage.

In fashion, this means rethinking the traditional top-down creative process. For decades, the designer's vision was seen as the ultimate source of innovation, while the consumer's role was confined to acceptance or rejection. Today, this hierarchy is dissolving. Digitalization, sustainability, and cultural diversification are pushing brands toward more inclusive and participatory models. The designer remains central but is no longer isolated, creativity becomes a dialogue between the maison and its audience, guided by data, empathy, and shared values.

This shift is already visible in leading fashion groups. A striking example is the recent strategic repositioning of Kering under CEO Jean-Marc de Meo (2025). His vision redefines the relationship between creativity and consumer insight, stating the need to “put the customer back at the center, so that the company no longer depends exclusively on the creative director's vision”. According to De Meo, the individual vision of designers remains essential “for about 20 percent of the most innovative and iconic products in a

collection,” but “for the remaining 80 percent, small leather goods, footwear, and prêt-à-porter, it will be necessary to instill the common sense that prevails in the consumer-goods sector, that is, a precise understanding of customer expectations.”

This customer-centric vision calls for aesthetic and image choices guided not only by pure creativity and personal intuition, but also by market analysis, sales data, and consumer feedback. As De Meo concludes, fashion must learn to “meet consumers’ taste without sacrificing the identity of the maison.” His statement epitomizes the evolution of the behavioral firm in the digital era: creativity and intuition remain indispensable, but they must now coexist with evidence-based decision-making and participatory innovation.

II. Bridging the Distance: QR Codes and Customer Participation in Fashion Retail

The first chapter discussed why mid-size firms represent one of the most promising models in today's global economy. Their strength lies in their flexibility, their ability to adapt without losing their roots, and their capacity to maintain a human scale in a context where many organizations become increasingly distant from the people they serve. Rather than repeating these arguments, this chapter takes them as a given and shifts the focus from internal adaptability to customer proximity. Its aim is to explore how these firms can connect externally through simple digital tools, such as QR codes, to remain close to their customers in an increasingly mediated world.

Today, brands and consumers live in a paradox: digitalization has made interactions faster and broader than ever, and information is more accessible, yet this abundance does not automatically generate meaningful bonds. Constant connection often coexists with a sense of detachment; identities appear increasingly filtered, shaped by algorithms, and marked by repetition rather than genuine expression. In such environments, consumption risks becoming reactive rather than reflective, responding to what is displayed rather than to what individuals truly desire.

However, focusing exclusively on these negative aspects would be limiting. The same technologies that create distance could also offer new opportunities to rebuild closeness. Digital tools can connect individuals who would otherwise remain strangers, transforming a purchase into an exchange and a product into a point of contact between different human stories and perspectives. In line with Turkle's (2015) perspective, technology should not be interpreted as an inherently alienating force, but as a tool whose effects depend on the ways it is designed and embedded in daily practices. With this mindset, digitalization becomes not a source of alienation but a space in which brands can choose to cultivate empathy, dialogue, and presence.

2.1 Digital Intimacy and the Reconnection of Brand and Customer

In this context, the fashion industry provides a particularly relevant field of analysis. Clothing is one of the most personal products we own: it touches our bodies, expresses who we are, and reflects the values of those who produce it. As Dario Casolini, founder

of the Slow Fiber movement, has repeatedly argued in public discourse, we are dressed 24 hours a day yet know almost nothing about what we wear (Berti, L. 2026). In today's global system, the relationship between maker and wearer has almost disappeared. Consumers often have little knowledge of who produced their garments or how materials travelled before reaching them. The result is a sense of detachment: we wear stories we do not know, with materials that may harm our skin and, later, our environment. This phenomenon exemplifies what scholars have described as the loss of meaning in post-industrial consumption (Baudrillard, 1981; Featherstone, 1991), where products circulate faster than the stories that give them significance. The environmental cost of this disconnection is enormous. The fashion industry is now considered the second largest polluter in the world after the oil sector, responsible for nearly 10% of global carbon emissions and around 20% of global wastewater (Ellen MacArthur Foundation, 2017; BBC, 2022). Every year, millions of tons of unsold or discarded garments end up in landfills or are burned, releasing toxic chemicals and microplastics into the environment. Fast fashion's pursuit of speed and low cost has turned creativity into waste and novelty into pollution, reminding us that the true price of clothing is often paid by the planet itself.

This thesis is guided by a set of research questions that seek to understand how transparency and digital participation can restore proximity between brands and consumers. These questions represent the conceptual foundation of the empirical analysis that follows. Specifically, the experimental study asks whether the distance separating production from consumption can be reduced by transforming the product itself into a medium of dialogue. Can a simple label become a channel through which consumers access the stories, identities, and values behind a garment? Could interactive tools, such as QR codes, allow consumers not only to learn who made their clothes but also to share feedback, preferences, and emotions with the brand? Ultimately, how might this reciprocal flow of information reshape the perceived value of a product and strengthen the sense of connection between people, objects, and organizations?

Being listened to changes how individuals relate to objects and to the companies that create them. As Verhoef, Kannan and Inman (2015) observed, digital touchpoints have expanded the customer journey, yet few companies have truly learned how to listen within it. Listening, in this sense, becomes both a strategic and an ethical competence. This is where the reflection of this chapter begins.

Digital technology, when used with awareness, can function not as a wall but as a bridge. Among the available tools, the QR code represents one of the simplest and most accessible ways to reconnect brands and consumers. A small square printed on a garment label can open an entire conversation: it can tell the story of a product, introduce the people behind it, explain the company's values, and allow customers to share insights directly. Prahalad and Ramaswamy (2004) highlighted that the future of value creation lies in dialogue; companies that listen rather than dictate will build genuine trust. Although their work predates the emergence of digital labels such as QR codes, the underlying principle of dialogue provides a conceptual foundation for interpreting how such tools can support participatory forms of value creation. The QR code embodies this principle by shifting interaction from passive communication to active participation, from one-way messaging to co-creation. It is a low-cost, high-impact tool that enables companies to operationalize proximity, turning visibility into transparency and communication into relationship.

The following pages examine this potential in depth, analysing how QR codes and similar technologies can re-humanize the customer experience in fashion retail and help mid-size firms transform their scale into an advantage: small enough to listen, connected enough to be heard.

2.2 From Label to Identity Card: The QR Code as a Bridge Between Product and Person

2.2.1 Origins and Technical Foundations of the QR Code

The history of the QR code begins in a context far removed from fashion. In 1994, Masahiro Hara and his team at Denso Wave developed it to solve a practical problem in Japanese automotive manufacturing: tracking thousands of components moving rapidly across Toyota's production lines. Traditional barcodes were too limited in both capacity and speed and often required multiple labels for the same item. The solution designed by the team of engineers was a new code; it needed to be compact, information-dense, and readable from any orientation. Hara's intuition was shaped by ordinary observations. He often noted that the contrast of black and white stones on a Go board suggested a way to structure information within a grid. A second inspiration came from the Tokyo skyline during an early train ride: just as tall buildings guide human orientation, the QR code required fixed visual markers. These ideas informed the two core elements of the design: the square matrix and the three alignment modules positioned in its corners.

While Denso Wave's technical documentation outlines the development of the code, recent academic work situates it within a broader technological trajectory. As De Seta (2023) writes, the QR code emerged at the intersection of several trends: advances in optical sensors, the transition from one-dimensional to two-dimensional encoding systems, and the digitalization of East Asian economies in the 1990s and early 2000s. This broader context explains why the QR code quickly evolved beyond its initial industrial purpose. As mobile phones became equipped with cameras, the same matrix designed for manufacturing logistics began to support new digital applications, including rapid information retrieval and mobile-based authentication. In China, these developments accelerated and the QR code became deeply integrated into mobile ecosystems such as WeChat³.

Compared to the traditional one-dimensional barcode, which could encode only a few numeric characters, the QR code's two-dimensional matrix can store several thousand alphanumeric symbols, representing a significant leap in information density and scanning speed (Denso Wave White Paper, 1994).



Figure 3. *illustration of the structural difference between a traditional one-dimensional barcode and a two-dimensional QR code.*

A key element in its technological success is robustness. The grid integrates Reed–Solomon error-correction algorithms that allow the code to remain readable even when partially damaged, scratched, or distorted. This reliability made it suitable for industrial environments where labels were routinely exposed to dust, humidity, and physical abrasion. Denso Wave engineers reportedly tested early prototypes by folding and scratching printed codes to ensure that scanners could still decode them.

³ WeChat is China's leading super-app, integrating messaging, payments, authentication services, and QR-based interactions into a unified platform. Its ecosystem played a central role in normalising QR code usage at scale.

Over time, the format was standardized through ISO/IEC 18004, the international reference that defines the QR code's structure, encoding method, symbol versions, and error-correction protocols. Introduced in 2000 and updated multiple times since, this standard ensures global interoperability: a QR code generated in one country can be decoded anywhere in the world. Without this harmonization, the technology might have remained confined to a single industrial ecosystem; with it, it became universally adoptable (ISO/IEC, 2015; Ryu, Park & Lee, 2021).

This global diffusion coincided with broader shifts in mobile technology. As mobile phones evolved into smartphones equipped with cameras and internet connectivity, the QR code became widely accessible, since decoding required no proprietary infrastructure.

From a technological standpoint, three factors explain its rapid worldwide adoption. The first is accessibility: any smartphone camera can read a QR code, removing entry barriers and democratizing access to digital information. The second is versatility: the code can be printed on paper, textile, metal, or glass, allowing it to function across sectors such as logistics, healthcare, education, and retail. The third is reliability: built-in error correction and standardized encoding guarantee the integrity of the message across media, scale, and conditions. As Ryu et al. (2021) emphasize, these characteristics have made the QR code one of the most resilient and cost-effective information technologies. Unlike alternatives such as NFC or RFID, which require embedded chips or dedicated readers, QR codes rely solely on visual recognition and are therefore inexpensive to implement at scale.

This combination of robustness, standardization, and low-cost universality consolidated the QR code as a global infrastructure for information encoding. Its technical attributes as speed, capacity, durability, and interoperability now underpin new demands for transparency and traceability across industries. These same characteristics form the foundation on which emerging tools such as the Digital Product Passport are being built, enabling products to carry structured, verifiable, and scalable information throughout their lifecycle.

2.2.2 The Environmental Cost of Opacity: Why Traceability Has Become Essential

The urgency of transparency in the fashion sector becomes evident when considering the environmental and social pressures generated by the fast-fashion model. As highlighted by Niinimäki (2020), the industry has long been criticised for neglecting its wider ecological responsibilities, contributing substantially to climate emissions, water

consumption, and pollution. Today, fashion is estimated to account for around 10% of global CO₂ emissions and is among the largest industrial consumers of water worldwide, while also producing a significant share of global wastewater. These impacts are directly tied to an accelerated production system in which the volume of garments placed on the market has more than doubled since the early 2000s. Experts claim that there are now enough clothes already in circulation to dress several of the next generations (Gambi, 2024). Unsurprisingly, this escalation has produced unprecedented amounts of textile waste, over 90 million tonnes each year, with unsold inventory representing a significant portion of this accumulation (Niinimäki, 2020).

A central reason these impacts remain difficult to address lies in the opacity of global supply chains. Fashion production is vertically fragmented: fibres are grown or synthesised in one region, dyed and chemically treated in another, assembled elsewhere, and finally distributed globally. This disintegrated structure makes it extremely difficult for brands to track the true origin of raw materials, understand which chemicals were used during processing, or verify the labour conditions under which garments were produced. The challenge is particularly visible in the use of chemicals: the textile industry relies on more than 15,000 substances, yet information about their application, risks, and residues is often inaccessible or inconsistently communicated across the chain. Furthermore, the uneven geography of production concentrates the environmental and social burden in developing countries, while consumption primarily takes place in wealthier regions (Niinimäki, 2020).

In this complex context, digital traceability systems emerge as essential tools for countering structural opacity. QR codes provide a simple, low-cost, and scalable way to embed verified information directly into each garment. When connected to structured datasets, they can reveal material provenance, resource use (water, energy, emissions), chemical treatments, certifications, and key aspects of a brand's identity and values.

2.2.3 From Static Labels to Dynamic Transparency: The Digital Product Passport and The Eco-Labels

The QR code's evolution from an industrial logistics tool to a customer interface in fashion marks a broader conceptual shift: the garment label is no longer a static technical artefact but a medium for meaning, transparency, and accountability. When enriched with traceability information, the label becomes an extension of the product itself, shaping how consumers evaluate provenance, care, repairability, and end-of-life options. Information

is not simply added; it becomes part of the product's perceived value and moral narrative. This transformation is formalised by the emerging Digital Product Passport (DPP), a regulatory and industry framework that standardises how product data are collected, verified, and shared throughout the garment's lifecycle. Embedded within the European Union's 2024 Ecodesign for Sustainable Products Regulation (ESPR), the DPP defines:

- (i) a core data model (fibre composition, chemicals, CO₂ and water intensity, durability, repairability),
- (ii) governance and verification rules determining who can write or validate each dataset, and
- (iii) access modalities delivered through machine-readable carriers such as QR codes.

The outcome is a dynamic label that travels with the product through use, resale, repair, and recycling. DPPs align with the literature on fashion transparency and credence goods: visibility influences ethical evaluation (Niinimäki, 2020) and enhances perceived authenticity and quality (Cervellon & Wernerfelt, 2012; Henninger et al., 2016). Traceability transforms hidden and complex supply chains into accountable narratives, revealing where and by whom an item was made, under which conditions, and with which environmental and social impacts. The promise of the DPP is not only visibility but verifiability.

However, transparency requires an informational foundation. Eco-labels and sustainability claims are meaningful only when supported by recognised certifications that translate rhetoric into measurable and auditable standards. Within the textile ecosystem, certifications act as the connective tissue between the technical and ethical dimensions of production. GOTS and OCS verify organic fibres; GRS certifies recycled materials; OEKO-TEX® Standard 100, bluesign®, and ZDHC manage chemical safety; SA8000 and the Fair Wear Foundation address labour conditions; RWS and RDS regulate animal-based fibres. These frameworks demonstrate that a "100% cotton" label may reveal composition but obscures cultivation practices, chemical inputs, and social costs. In their absence, consumers navigate a zone of uncertainty in which simplicity and trust replace verifiable responsibility.

The Uniqlo case vividly illustrates this gap. Despite commercial success built on minimalism and perceived quality, the brand has faced criticism for limited supply-chain disclosure (Fraser & van der Ven, 2022). A pair of jeans labelled "100% cotton" and

“Made in China” appears complete yet provides no meaningful insight into real traceability. The label fulfils its legal function but communicates almost nothing about environmental or social practices. This perceived transparency, anchored in aesthetics rather than verified data, exposes the limits of current labelling systems and underscores why the DPP represents a genuine opportunity. By embedding certified, dynamic data into each garment, the passport transforms the label from a static declaration into an interactive and auditable infrastructure of accountability. Whether this infrastructure becomes dialogical depends on how brands design participation and feedback. Unlike closed RFID ecosystems, QR technology maintains low barriers to entry and preserves a human-readable touchpoint directly at the site of use. Beyond compliance, this evolution reshapes brand meaning. In markets where authenticity is a key driver of value, brands are expected to demonstrate sincerity through consistent acts rather than slogans. Although Beverland (2006) examines authenticity in analogue contexts, the underlying principle that sincerity is demonstrated through observable, consistent behaviours extends naturally to digital disclosure practices such as the DPP. Humanised branding reframes disclosure as an intimate gesture: an invitation to see the backstage, meet makers and materials, and witness trade-offs and improvements over time (Napoli et al., 2014). Scanning a QR code becomes a micro-ritual of participation in which consumers not only access information but also co-create value through repair decisions, feedback loops, and circular services connected to the passport. Crucially, the DPP transforms transparency from a one-off communication strategy into infrastructure. Data fields, identifiers, and access rights are standardised; updates can be pushed post-sale; auditors, recyclers, and resale platforms can read or write to the same canonical record. For mid-size firms, this offers a competitive advantage: they benefit from closer supplier relationships, more agile governance, and the capacity to integrate feedback quickly into design and production. In this sense, the passport becomes not only a compliance mechanism but a capability for proximity, an institutionalised form of dialogue that reconnects brands and consumers in meaningful, ethical, and measurable ways.

2.3 The Dialogical Function of the QR Code: Communication, Feedback and Waste Reduction

The fast-fashion system is sustained not only by accelerated production cycles but also by chronic overproduction, and the environmental cost of unsold inventory is particularly severe. The most damaging aspect of deadstock is not disposal itself but the wasted

energy, water, fibres, chemicals, and labour embedded in garments that never enter use. Reducing this inefficiency requires a shift from reactive production to more informed and anticipatory planning. Yet this transition is frequently hindered by communication gaps within firms: design teams often lack visibility into manufacturing constraints, while production facilities receive incomplete signals about expected demand. The result is fabric waste, misaligned product volumes, and inaccurate forecasting (Niinimäki, 2020). It is precisely within this informational asymmetry that the dialogical function of the QR code becomes strategically significant. By enabling direct customer feedback on colours, fits, sizes, materials, and product characteristics, QR-enabled systems generate real-time demand signals that conventional forecasting tools struggle to capture. These feedback loops echo the principles of distributed decision-making, in which innovation emerges from continuous interaction between users and producers rather than from top-down planning alone (Prahalad & Ramaswamy, 2004). The co-creation logic they propose offers a useful lens for understanding how QR-enabled interactions can support more distributed and responsive forms of decision-making within fashion firms.

Importantly, the technical and financial investment required to deploy such a system is modest, yet the potential impact on production accuracy is substantial: aggregated feedback helps firms refine design choices, adjust volumes more precisely, and may reduce the likelihood of unsold stock. Mid-sized firms benefit most from these mechanisms, as their leaner governance structures and closer supplier relationships allow them to act on these signals with greater agility. Their flexibility given by their medium scale becomes a strategic asset, allow them to innovate continuously and, at the same time, navigate huge international markets.

Integrating feedback with traceability also reinforces two central pillars of circularity: narrowing resource flows by improving material efficiency and slowing resource cycles by extending product lifetimes (Niinimäki, 2020). While slow fashion calls for reduced turnover speed, QR-enabled systems accelerate the internal learning processes that make this shift operationally feasible. They help firms identify recurring product issues more quickly, realign production with actual demand, and stabilise planning cycles, an evolution that resonates with emerging regulatory frameworks such as Extended Producer Responsibility, which reward firms that minimise waste from the outset. A feedback-enabled QR system also reshapes the relationship between key actors. Consumers gain the sense that their preferences matter because their input directly informs future designs,

while producers receive clearer, more reliable signals and can respond with greater confidence. This mutual visibility re-establishes a connection that has weakened as the industry globalised, reuniting those who create garments and those who wear them within the same conversation.

Fashion has always served as a medium for expressing identity and intention; what changes today is the capacity of firms to listen and adapt accordingly. The QR code facilitates this shift because it is simple to implement, low-cost, and easily updated over time. Rather than functioning as a static add-on, it becomes an evolving infrastructure that strengthens customer loyalty, supports a more sustainable brand identity, and reduces inefficiencies in design and production.

Ultimately, the dialogical QR code moves transparency beyond a declarative gesture and turns it into a functional system of coordination and responsibility. By revealing impacts that are usually hidden and by enabling two-way communication, it allows mid-sized firms to navigate the informational gaps created by fast-fashion dynamics and dispersed supply chains. In doing so, it embeds accountability into the lifecycle of each garment and supports the broader transition from a linear take–make–dispose model toward a more circular and sustainable fashion ecosystem.

2.4 Humanized Branding and the Meaning Function of the QR Code: Opportunities and Frictions

This evolution also reshapes the symbolic role of the label itself. Research in branding shows that authenticity is not a fixed attribute but something that brands must enact through consistent, transparent and ethically grounded behaviours (Beverland, 2006). Authenticity emerges when companies demonstrate coherence between what they claim and what they do, and when consumers can “see” the organization behind the product. Similarly, Napoli et al. (2014) argue that humanized branding relies on relational signals, openness, clarity, accountability, that allow consumers to perceive a brand as sincere and trustworthy. In this sense, the QR code does more than provide data: it gives the product a discernible voice. By revealing its material journey, environmental footprint, and the decisions behind its construction, the garment becomes more than an item of consumption. It becomes a narrated object, one that carries identity, intention and value in a way that aligns with contemporary expectations of transparency and responsibility. Seen through this lens, the label is no longer a static repository of technical information.

It becomes a genuine identity card for the product: a small, accessible interface where materials, processes, people and values converge. It gives the wearer the ability to “meet” the object they are buying, while giving the producer a way to articulate their commitments in a concrete, verifiable form. By transforming the label into a space of dialogue and disclosure, the QR code elevates the relationship between brand and consumer from transactional to participatory, reinforcing both authenticity and trust. This shift sets the stage for the next section, where the focus turns to how such tools can support deeper forms of customer participation and distributed decision-making within the fashion ecosystem.

Recent research on in-store QR implementations shows that these tools are increasingly acting as bridges between physical retail and digital information, supporting decision-making within fashion environments. Yet their effects are not uniformly positive. Drawing on Holkkola et al. (2023; 2025), based on qualitative field studies conducted inside a Finnish fashion store, QR codes are shown to influence customer experience on both cognitive and emotional levels. Their introduction can enrich the visit, but may also generate frictions depending on how customers interpret and interact with the digital layer. Early qualitative evidence provided by Holkkola et al. (2023) highlights several potential benefits. QR touchpoints tend to increase curiosity, clarify specific pieces of information, simplify access to product details, and add a visually engaging digital element to the store. Participants described the interaction as stimulating when the experience felt smooth and purposeful, helping to explain why many brands have experimented with lightweight QR-based enhancements within their omnichannel strategies.

However, the later study by Holkkola et al. (2025) presents a more complex picture. When tested in real retail settings, QR codes were also found to generate cognitive and emotional tensions. Participants reported hesitation, privacy concerns, and a perceived pressure to interact, as well as moments in which the digital layer disrupted their focus. In some cases, scanning was experienced as uncomfortable in public settings, while others perceived QR visuals as distracting when compared to the tactile exploration of garments. These findings suggest that digital layers may, at times, compete with rather than complement the core purpose of the in-store experience.

Industry practices reflect similar tensions. For instance, Nike By You integrates QR-enabled touchpoints to unlock customization options within physical retail spaces. While

such experiences can be energising and engaging, they may also overwhelm customers who do not expect to make multiple micro-decisions during the shopping journey. By contrast, Patagonia primarily deploys QR codes to communicate traceability and product provenance, where digital information functions as reassurance rather than stimulation (Patagonia, 2022). Several mid-sized and luxury brands similarly adopt selective QR implementations, limiting their use to specific garments or campaigns in order to preserve the sensorial atmosphere of the store.

Consumer willingness to engage with sustainability information through QR codes is consistent with broader behavioural findings. Vecchio and Annunziata (2015) show that consumers are more receptive to sustainability labels when information is perceived as accessible and trustworthy. In this sense, QR codes can extend informational depth without overcrowding the physical label, enabling brands to disclose environmental and ethical attributes in a more flexible way. At the same time, as emphasised by Holkkola et al. (2025), a fine balance must be maintained between providing meaningful information and generating cognitive overload, reinforcing the need for careful design.

Overall, the literature suggests that QR codes are neither inherently beneficial nor inherently problematic. Their impact depends on design choices, consumer expectations, and situational constraints within the retail environment. Well-calibrated implementations minimise friction, clarify the value of the information provided, and integrate naturally into the shopping experience. Poorly designed solutions, by contrast, risk distracting customers, increasing perceived pressure to interact, and undermining the authenticity of the physical space. For this reason, QR codes should be treated not as simple digital add-ons but as behaviourally sensitive touchpoints whose effectiveness depends on subtle calibrations of usability, transparency, and cognitive load. While in-store implementations reveal both the potential and the limitations of QR-based systems, their actual impact on consumer behaviour depends on deeper cognitive and attitudinal mechanisms. Turkle (2015) defines this dynamic as an empathy gap: a widening distance between communication and emotional presence that emerges when mediated interactions replace, rather than support, embodied engagement. Digital tools make it easier to speak, apologize, or explain oneself, yet they also reduce exposure to silence, discomfort, and emotional risk. As a result, expressions of vulnerability are often displaced into safer, mediated channels, while face-to-face encounters become more guarded and less emotionally demanding.

Applied to the context of QR-enabled communication, this perspective highlights a critical risk. If digital touchpoints are used merely to transmit messages, claims, or symbolic gestures, they may reproduce the same empathy gap identified by Turkle: interaction without presence, disclosure without accountability, dialogue without reciprocity. In such cases, the QR code becomes a technological substitute for engagement rather than a facilitator of it. At the same time, Turkle's analysis does not reject mediation itself. The problem lies not in the existence of technological interfaces, but in their capacity to displace rather than support meaningful relational exchange. This distinction is crucial for understanding how QR codes can be designed to avoid superficial interaction and instead foster more authentic forms of engagement.

The following and final theoretical chapter builds on this insight by introducing the DART framework as a conceptual foundation for mitigating the empathy gap in digitally mediated contexts. By emphasizing dialogue, access, risk-sharing, and transparency, the framework offers a structured lens through which QR-based systems can be understood not as replacements for human interaction, but as tools that reopen spaces of meaning, accountability, and mutual recognition between brands and consumers.

III. Consumer Decision-Making and Distributed Participation in Digital Fashion Ecosystems

3.1 Introduction: Decision-Making and Co-Creation

The previous chapters have outlined the economic and technological context in which this research is embedded. The first one framed the contemporary global landscape through the tension between global integration (Friedman) and semi-globalization (Ghemawat), highlighting why mid-size firms in the fashion industry are structurally well positioned to experiment with new relational models in a complex global market. Their organizational agility, limited production scale and proximity to end consumers allow them to respond more rapidly to shifts in values, expectations and identity-driven consumption patterns.

Building on this perspective, Chapter 2 introduced the QR code not as a purely technical feature or additional gadget to the product, but as a connective interface capable of reducing distance between firms and consumers. A way to connect directly the demand and the supply. In increasingly mediated markets, such tools can transform the product label from a static object into a point of interaction, valuable resource for the firm and interesting novelty for the clients.

However, as behavioral research suggests (Simon, 1955; Cyert & March, 1963), technology alone does not generate value unless it aligns with how individuals actually process information and make decisions in real purchasing contexts. Fashion consumption typically occurs under conditions of time pressure, sensory stimulation and limited attention. In these environments, consumers do not evaluate information exhaustively, even when they express strong ethical or sustainability-related intentions. For this reason, the effectiveness of QR-enabled labels depends less on the quantity of information provided and more on how that information is perceived, interpreted and integrated into decision-making processes. This chapter addresses this behavioral dimension. It examines how consumers respond to interactive labels by combining insights from decision-making psychology with managerial theories of co-creation. Rather than treating consumers as passive recipients of sustainability information, the chapter adopts a perspective in which individuals actively interpret signals, rely on contextual cues and contribute, sometimes implicitly, to the value creation process. In this sense, decision-making is not purely individual but increasingly distributed. Consumers draw on shared norms, social expectations and interactive touchpoints to form judgments

about brands and products. The framework proposed by Prahalad and Ramaswamy (2004) is particularly relevant in this regard, as it conceptualises value creation as a dialogical process structured around access, transparency, risk evaluation and ongoing interaction.

At the same time, recent studies on QR code adoption (e.g., Paananen et al., 2023; Corsini et al., 2025) show that perceived usefulness and ease of use are important preconditions for engagement. While these contributions explain why consumers may choose to interact with digital labels, they leave open a broader question: what happens after interaction occurs?

The aim of this chapter is therefore twofold. First, it clarifies the psychological mechanisms through which QR-enabled labels influence perception and evaluation. Second, it develops a conceptual link between these mechanisms and outcomes that are central to this study, such as trust, perceived ethicality, empowerment and willingness to pay. These relationships form the basis for the hypotheses presented at the end of the chapter and empirically tested in the following section.

3.2 The Transparency Paradox and the Limits of Consumer Cognition

The increasing demand for sustainability in fashion has led many firms to expand the amount of information provided to consumers. Labels, websites and product descriptions now routinely include environmental indicators, supply-chain disclosures and technical specifications. Yet a persistent paradox remains: more information does not necessarily lead to better choices. In many cases, it produces confusion, disengagement or scepticism. Understanding this “transparency paradox” requires examining the cognitive mechanisms that shape how consumers process information in complex retail environments.

Herbert Simon’s theory of bounded rationality (1955) provides a foundational explanation for this paradox. Individuals operate under limited cognitive resources: time, attention and working memory are all constrained, particularly in environments such as fashion stores that are saturated with visual stimuli, sensory cues and social pressures. As a result, consumers rely on quick, intuitive judgments rather than deliberate analysis. When the informational load exceeds their processing capacity, they experience overload, leading to avoidance or superficial decision strategies. Transparency, when delivered in excessive or unstructured forms, can therefore undermine exactly the clarity it aims to provide. This dynamic contributes to a well-documented phenomenon in sustainability research: the attitude–behavior gap. Consumers often express strong pro-environmental

attitudes, yet these attitudes do not consistently translate into sustainable purchasing behaviours. The gap emerges in part because, despite good intentions, the practical effort required to interpret complex sustainability claims remains too high; the decision-making context itself becomes a barrier. In this regard, the function of the QR code is not to increase informational density but to reduce cognitive effort. Its effectiveness can be understood through Kahneman's notion of "cognitive ease" (2011): information that is simple, intuitively structured and effortless to access is processed more fluently and is therefore perceived as more credible and trustworthy. When labels become too dense or overly technical, they trigger the opposite condition, called the cognitive strain which discourages analytical processing and leads individuals to rely on avoidance or superficial heuristics.

A well-designed QR label counters this dynamic by allowing consumers to decide how deeply they wish to engage with product information. Instead of forcing a single, uniform disclosure format, it offers a layered structure that supports both rapid, intuitive judgments (System 1) and more deliberate, reflective analysis (System 2). In this sense, knowing these theories, the QR code must consequentially function as a cognitive facilitator: it should lower the effort required to interpret sustainability information and it should reduce the friction that typically contributes to the transparency paradox. When interpreted through this lens, transparency is effective not because it increases the quantity of information available, but because it accommodates human cognitive limits and supports fluency in decision-making. The QR code becomes meaningful when it enables this fluency, when it transforms opaque information into something immediately navigable, lowering uncertainty and reinforcing trust. This perspective sets the stage for the next section, which examines how consumers psychologically interpret and respond to labels through both intuitive and analytical pathways.

3.3 Psychology of the Label: Theories of Individual Decision-Making

Understanding how consumers respond to sustainability labels requires examining the psychological mechanisms that guide evaluation in fast-paced retail environments. Fashion purchases are typically made under conditions of sensory stimulation, time pressure and fragmented attention. In such contexts, individuals rarely engage in extensive analytical processing; instead, they rely on intuitive judgments, rapid impressions and selective attention. These dynamics are key to explaining why QR-enabled labels can shape perceptions and intentions even when the consumer chooses not

to scan them.

This section introduces two complementary theoretical frameworks that clarify how QR labels exert influence: the Elaboration Likelihood Model (ELM) and Signaling Theory.

3.3.1 The Elaboration Likelihood Model: Central and Peripheral Routes

The Elaboration Likelihood Model, developed by Petty and Cacioppo (1986), proposes that persuasion operates through two distinct pathways depending on the individual's *motivation* and *ability* to process information.

- Motivation refers to the personal relevance of the message (e.g., a genuine interest in purchasing responsibly made garments).
- Ability refers to the cognitive resources available to process the message, including time, attention and mental capacity.

In physical fashion stores, these two conditions often diverge. A consumer may be highly motivated to make ethical choices yet lack the ability to analyse complex information due to constraints such as crowding, noise, social presence or limited time. When ability is low, the decision-making process shifts away from deep elaboration.

Based on this dynamic, the ELM distinguishes two routes: the central route, activated under high motivation and high cognitive ability, and the peripheral route, activated when ability is constrained regardless of motivation.

1) Central Route (High Motivation + High Ability)

This pathway is activated when consumers have both interest and cognitive capacity. They actively scan the QR code, examine the traceability data and incorporate sustainability cues into a deliberate evaluation of the product. In this case, the QR label functions as a structured informational tool that reduces uncertainty and supports reflective judgment. Importantly, this process is not necessarily confined to the in-store environment. One distinctive feature of QR-enabled labels is that they allow consumers to postpone the act of elaboration. The code can be scanned at a later moment, for instance at home, in a calm and familiar setting that is more conducive to analytical processing. Outside the time pressure and sensory overload of the retail space, individuals are more likely to engage System 2 processing, exploring brand narratives, sustainability practices, and traceability information in greater depth. In this extended context, the dialogical dimension of the QR code also becomes salient. Consumers may use the label not only to

acquire information, but to reflect on their experience, formulate feedback, or engage with the brand in a more intentional and thoughtful manner. The central route is therefore enabled not only by individual motivation, but also by the temporal and spatial flexibility that QR-based interaction provides.

2) Peripheral Route (Constrained Ability)

The peripheral route, by contrast, is illustrated vividly by the contrast between a luxury boutique and a fast-fashion store such as Primark: in the former, calm, low-stimulus environments support deliberate reasoning; in the latter, sensory overload leaves consumers barely registering the colour of a garment, let alone a QR code.

This distinction between deep and heuristic processing could be observed directly in the design of retail environments. Decision-making is shaped by a combination of external and internal factors, making the atmosphere of the store: lighting, sound, scent, spatial layout and employee behaviour, all crucial elements to understand how consumers process information. Research on retail atmospherics demonstrates that environmental elements significantly affect consumers' cognitive capacity during shopping. Luxury boutiques intentionally minimise sensory interference: soft lighting, controlled soundscapes, clean sightlines and spacious layouts create an environment that facilitates reflective, central-route processing. These conditions support deliberate evaluation of product cues and increase the likelihood that consumers will attend to additional layers of information, such as traceability or sustainability indicators. It is worth noting that route activation depends not only on store atmosphere or design but on a wide range of interacting factors as: individual background, prior brand familiarity, mood, and purchase motivation among them making route classification probabilistic rather than deterministic. It is however very interesting analyzing how the perception, attention and behaviour could change around specific factors decided by the retail sector of the brand. About this theme the Figure 4 reports the framework that can be interpreted within the broader Stimulus–Organism–Response paradigm, where store atmospherics act as stimuli, consumers' cognitive and emotional states represent the organism, and behavioural outcomes constitute the response (Turley & Milliman, 2000).

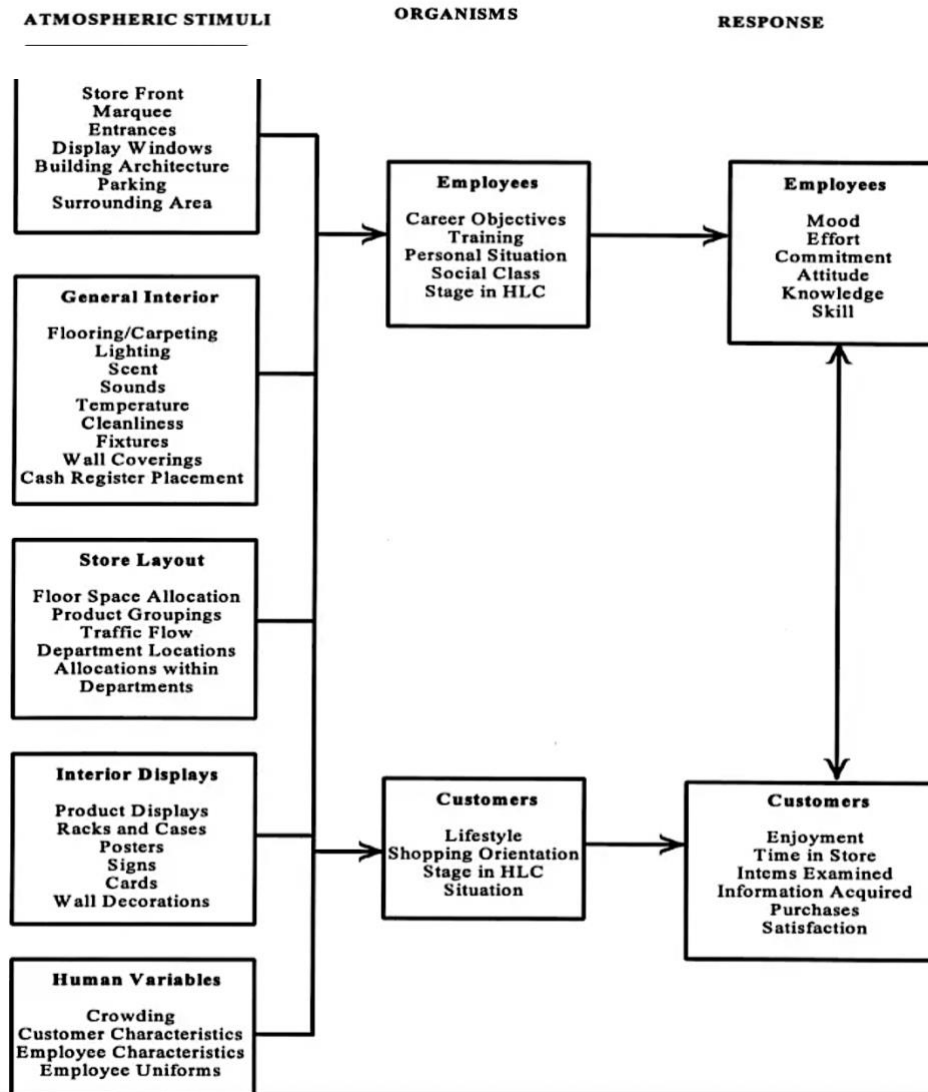


Figure 4. Retail atmospheric variables and their influence on customer cognition and behaviour. Source: adapted from Turley & Milliman (2000)

Fast-fashion environments present the opposite configuration compared to this study: dense displays, loud music, strong scents and heavy visual clutter elevate cognitive load and reduce the ability to process complex messages. Under these conditions, consumers rely predominantly on peripheral cues such as price, colour or promotional signage; the

QR code functions mainly as a heuristic symbol rather than an invitation to deeper engagement. Customers are biologically pushed by the environment to compulsive shopping, the brain captures just the big detail: the price is low, the affair is optimal.

This contrast demonstrates how store atmospherics shape the route through which sustainability information is processed and reinforces the relevance of the ELM for understanding how QR-enabled labels function across different retail ecosystems.

3.3.2 Signaling Theory: The Label as a Credible and Costly Signal

As yet anticipated in the previous chapter, usually there is a huge gap in the information asymmetry in the fashion sector: firms possess detailed knowledge about materials provenance and production practices, while consumers are unable to verify these attributes through direct inspection. This imbalance creates fertile ground for greenwashing⁴, as sustainability claims can be made at low cost and with limited accountability. To understand how this asymmetry can be credibly reduced and to enhance the perception of trust in the customers, this study draws on Signaling Theory, originally developed by Spence (1973). In its original formulation, the Theory explains how agents possessing private information can credibly convey unobservable qualities to less informed parties. The central insight of the theory is that not all signals are equally informative: only those that are sufficiently costly are effective in separating truthful actors from opportunistic ones. When a signal is expensive to imitate, dishonest actors are less likely to adopt it, thereby increasing its credibility. Although Spence developed this framework in the context of labour market, the logic of costly signaling has since been widely applied to markets characterised by information asymmetry, including product quality, corporate behaviour and sustainability communication.

In the fashion sector, conventional sustainability labels or static hangtags containing vague claims (e.g., “eco-friendly” or “responsible”) constitute cheap signals: they can be reproduced effortlessly and without exposing the firm to meaningful risk. Spence detected that products need to be labelled by some specific and tailored information capable to ensure to the clients the affidability. Due to this logic, a dialogical QR-enabled label can be interpreted as a costly signal. Linking a physical garment to verifiable digital traceability requires organizational investment, including the collection and maintenance

⁴ The term Greenwashing refers to the practice of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service.” European Commission (2020), Study on consumers’ perceptions of green claims.

of product-level data, the integration of third-party certifications, and continuous exposure to public scrutiny. Importantly, the reputational and legal risks associated with providing false or misleading information within such a transparent system significantly increase the cost of deception.

As a result, consumers are likely to interpret the “cost of openness” carried on by the brand as an implicit guarantee of sincerity and accountability. In this new perspective, the value of a QR-enabled label does not necessarily depend on active scanning. Its mere presence may reduce consumers’ perceived information asymmetry by signalling a credible commitment to transparency and openness, thereby counteracting scepticism and reducing the perceived distance between consumers and the brand. In this sense, the QR code could function not only as an information-access mechanism, but also as a relational signal of the firm’s willingness to disclose, be scrutinised, and engage with consumers.

3.4 Distributed Decision-Making and Co-Creation: The DART Framework Revisited

The previous sections have analysed how individual consumers process sustainability information under cognitive constraints, highlighting the role of QR-enabled labels as behavioral facilitators and credible signals. Yet these mechanisms do not operate in isolation. Consumer decision-making in contemporary markets increasingly unfolds within distributed systems, where value is not produced solely by firms and then consumed by individuals, but emerges through continuous interaction, feedback, and mutual adjustment. Within such systems, consumers are increasingly accustomed to publicly commenting, sharing, and evaluating products through images, short videos, reviews, and other forms of digital expression, particularly via social media platforms. These practices, now embedded in everyday consumption, normalise feedback and peer-to-peer evaluation as integral components of the purchasing process rather than as post-purchase add-ons. As a result, individual judgements are continuously shaped within an ecosystem of visible reactions and shared assessments, reinforcing the distributed nature of value formation. It is within this broader perspective that the contribution of Prahalad and Ramaswamy becomes central to the present analysis.

While Chapter 1 introduced co-creation as a strategic shift away from purely firm-centric models, the focus here moves from strategy to decision architecture. Traditional business models are typically built on a logic of value extraction, in which firms define offerings, control information flows, and treat consumers primarily as endpoints of the value chain.

Products are developed internally, competition is intense, and efficiency is often pursued through cost minimisation in raw materials and labour. In highly competitive and cost-driven environments, this approach frequently results in standardisation, opacity, and a gradual erosion of trust. This dynamic can be described as the “McDonaldization of Society” described by Ritzer G. (1993). Such models struggle to accommodate ethical complexity and consumer heterogeneity, particularly in sectors like fashion, where symbolic value, identity, and moral evaluation play a central role. This raises a critical question: can value emerge elsewhere in the system, beyond the boundaries of the traditional value chain? More specifically, can part of the value creation process be embedded in consumers themselves, through their knowledge, feedback, and evaluative capacity?

Prahalad and Ramaswamy’s framework reframes this relationship by conceptualising markets as interactive systems rather than linear pipelines. Value creation is no longer confined within organizational boundaries but is distributed across multiple actors, including consumers, who contribute knowledge, preferences, and evaluative judgements. In this sense, consumers function as decision nodes within a broader learning system, influencing not only demand outcomes but also organizational sense-making and strategic adaptation. The DART model, articulated by Prahalad and Ramaswamy (2004), provides a concrete structure for understanding how such distributed decision-making can be operationalised. Rather than describing abstract participation, **DART** specifies the conditions under which co-creation becomes feasible and meaningful.

- **Dialogue** refers to continuous, two-way interaction between firms and consumers. Importantly, this is not limited to communication or messaging but involves reciprocal listening and responsiveness. In the context of QR-enabled labels, dialogue materialises when consumers are invited to explore, question and provide feedback on product-level information, transforming the label from a static disclosure tool into an interactive interface.
- **Access** concerns the availability of information and resources that allow consumers to engage meaningfully in evaluation. Access does not imply information overload, but rather the ability to reach relevant data when needed. QR-based systems are particularly well suited to this function, as they decouple physical constraints from informational depth, enabling layered disclosure without crowding the material label.

- **Risk** assessment shifts part of the evaluative responsibility from the firm to the consumer. Instead of relying on opaque claims or reputational cues alone, consumers are given the opportunity to assess ethical, environmental and quality-related risks autonomously. This redistribution of evaluative power is crucial in markets characterised by credibility deficits and greenwashing concerns, as it aligns trust with verification rather than persuasion.
- **Transparency** underpins all other dimensions. It refers not only to openness of information, but to the willingness of firms to expose processes, trade-offs and uncertainties to external scrutiny. Within a distributed decision-making framework, transparency functions as the enabling condition that allows dialogue, access and risk assessment to operate credibly.

Seen through this lens, the DART model does not merely describe co-creation as a relational ideal, but as a decision infrastructure in which cognitive effort, informational asymmetries and trust are collectively managed. QR-enabled labels become the micro-level artefacts through which this infrastructure is activated, translating abstract principles into concrete consumer interactions. This perspective marks a shift from asking whether consumers adopt a technology to understanding how their participation feeds back into organizational learning and value formation. The consumer is no longer a passive recipient of sustainability narratives, nor a fully informed rational actor, but a bounded decision-maker embedded in a distributed system of signals, feedback and shared responsibility. This reconceptualisation provides the theoretical bridge between individual-level behavioral mechanisms and the collective dynamics of value co-creation, setting the stage for the empirical model and hypotheses developed in the following sections.

3.5 Beyond Technology Adoption: Bridging the Gap in Recent Literature

Recent academic research on QR codes and digital labels in fashion has primarily focused on the conditions under which consumers decide to engage with these technologies. In particular, studies by Paananen et al. (2023) and Corsini et al. (2025) have contributed significantly to understanding the behavioral drivers that shape the intention to scan. Drawing on established technology adoption frameworks, these works highlight the central role of perceived usefulness, ease of use, social influence, and attitudes toward sustainability in determining whether consumers activate QR-based information. This

stream of literature provides valuable insights into the entry point of interaction. It clarifies why some consumers are willing to engage with digital labels while others ignore them, and it identifies important design and contextual factors that facilitate adoption. However, by concentrating primarily on the decision to scan, these contributions implicitly treat QR interaction as an end in itself rather than as the beginning of a broader value-creation process.

The present study builds on this foundation but deliberately shifts the analytical focus. Rather than asking only whether consumers will scan a QR code, it aims to investigate what happens after this interaction, both cognitively and relationally. Specifically, it examines how dialogical labels influence brand-related outcomes such as trust, perceived ethicality, empowerment, relational closeness and willingness to pay. This shift reflects a move from a technology-centric perspective to a value-centric one, where digital tools are evaluated based on their capacity to generate meaningful economic and symbolic outcomes.

From this perspective, QR codes are not merely adoption-dependent technologies but decision-enabling infrastructures. Their relevance lies not only in usability or novelty, but in how they redistribute informational control and evaluative power between firms and consumers. This reconceptualisation aligns with the distributed decision-making logic discussed in the previous section: consumers become active nodes in a feedback-driven system, contributing preferences, assessments and experiential data that can inform organizational learning and strategic adjustment.

By integrating insights from technology adoption research with theories of co-creation and distributed decision-making, this thesis addresses a gap in the existing literature. While prior studies explain *why* consumers scan, they offer limited insight into *how* such interactions translate into value creation for both firms and consumers. The present work responds to this limitation by explicitly linking QR-enabled transparency to brand equity formation and economic outcomes, thereby extending the scope of QR research beyond adoption toward participatory value generation.

This positioning not only complements recent empirical findings on QR code adoption (Paananen et al., 2023; Corsini et al., 2025) but also provides the conceptual foundation for the operational model and hypotheses developed in the following sections.

3.5 The Proposed Model: A Human-Centric Supply Chain

Building on the psychological and managerial foundations discussed in the previous sections, this study proposes a Human-Centric Supply Chain model that translates principles of transparency, co-creation and distributed decision-making into an operational process.

The model does not conceptualise the QR code as a technological innovation, but as an enabling interface that activates a continuous interaction between firm and consumer. Value creation emerges not from data availability alone, but from the way information, feedback and trust circulate across the supply chain.

In contrast to firm-centric models, where decision-making authority is concentrated within the organization, the proposed framework adopts a distributed logic. Consumers are not treated as passive recipients of sustainability claims, but as informed participants whose evaluations, preferences and reactions contribute to organizational learning. This perspective is consistent with the co-creation paradigm introduced by Prahalad and Ramaswamy (2004) and with Service-Dominant Logic, which conceives value as jointly created through interaction rather than embedded in products (Vargo & Lusch, 2004).

The model unfolds as a virtuous cycle composed of seven interconnected stages:

1. Market Sensing

Firms collect early signals from consumers, markets and communities to identify emerging expectations regarding sustainability, ethics and transparency. This phase reflects an outward-oriented learning process rather than a purely internal forecasting exercise.

2. Beta Testing

Products, labels or informational architectures are introduced in a provisional form, allowing firms to observe reactions before full-scale deployment. This step reduces uncertainty and aligns production decisions with actual consumer responses.

3. Low-Friction Purchase (“Purchase with Cognitive Ease”)

Consumers encounter a product that does not impose excessive cognitive effort at the point of sale. The QR-enabled label functions as a reassurance mechanism, supporting intuitive confidence while preserving the option for deeper engagement.

4. Digital Feedback via QR Interaction

After purchase, consumers are given the opportunity to access information, express

evaluations and provide feedback through the QR interface. At this stage, dialogue becomes explicit and participation is formalized.

5. AI-Supported Analysis

Feedback and interaction data are aggregated and analyzed using digital tools. Rather than replacing human judgment, this step enhances the firm's capacity to interpret dispersed signals and identify recurrent patterns.

6. Real-Time Alignment

Insights derived from consumer input inform adjustments in sourcing, communication, design or production decisions. Decision-making becomes iterative and adaptive, rather than linear and *ex ante*.

7. Identity Reinforcement

Consumers perceive coherence between their values and the brand's actions. This reinforces trust, strengthens relational bonds and increases the likelihood of continued engagement and loyalty.

Importantly, this cycle operationalizes the DART framework. Dialogue is activated through feedback mechanisms; Access is ensured through layered information structures; Risk is reduced by enabling independent consumer evaluation; and Transparency is enacted through verifiable and ongoing disclosure. Rather than remaining an abstract managerial principle, DART becomes a logic process embedded in the supply chain.

By integrating consumer participation into decision-making loops, the model aligns operational efficiency (through reduced misalignment and overproduction) with relational and symbolic value creation, offering a pathway through which sustainability and profitability reinforce one another.

3.6 Development of Experimental Hypotheses

The theoretical framework developed in this chapter provides the basis for the empirical investigation presented in Chapter 4. Drawing on the psychological mechanisms of information processing, the logic of costly signaling and the principles of co-creation, six hypotheses are formulated to test how QR-enabled dialogical labels influence consumer perceptions and behavioral intentions. To empirically test these mechanisms, an experimental design is required, as observational data would not allow isolation of the causal effect of label architecture on consumer perceptions.

H1 – Trust

QR-enabled dialogical labels positively influence consumer trust in the brand.

This hypothesis is grounded in Signaling Theory: the perceived cost and verifiability of transparent disclosure increase credibility and reduce skepticism.

H2 – Perceived Ethicality

The presence of a QR-enabled label increases perceived ethicality of the brand, even when consumers do not actively scan the code.

This effect is consistent with the peripheral route of the Elaboration Likelihood Model, where visible cues operate as heuristic signals.

H3 – Consumer Empowerment

QR-enabled labels enhance consumers' perceived empowerment by providing access to information and opportunities for interaction.

This hypothesis reflects the Dialogue and Access dimensions of the DART framework.

H4 – Perceived Risk Reduction

QR-enabled transparency reduces perceived ethical and informational risk associated with the product.

This mechanism corresponds to the Risk assessment dimension of DART and to bounded rationality considerations discussed earlier.

H5 – Willingness to Pay

Trust, perceived ethicality and empowerment are positively associated with consumers' willingness to pay for the product. QR-enabled labels are hypothesized to increase willingness to pay indirectly, through their effect on these constructs.

Here, willingness to pay is interpreted as the economic expression of value co-created through transparency and participation.

H6 – Mediation Effects

The relationship between QR-enabled labels and willingness to pay is mediated by trust, perceived ethicality and perceived empowerment.

This hypothesis reflects the distributed nature of decision-making, where behavioral outcomes emerge through interconnected psychological mechanisms rather than direct causal paths.

Together, these hypotheses translate the conceptual model into testable relationships, enabling an empirical assessment of whether dialogical transparency can generate both

behavioral and economic value. The following chapter presents the research design, data collection and analysis used to evaluate these propositions.

3.6 Managerial and Sustainability Implications of a Dialogical QR-Based System

Building on the theoretical frameworks discussed above, the implementation of a dialogical QR-based system has implications that extend beyond mere technological adoption. When properly integrated into organizational processes, such a system can generate value along multiple dimensions, connecting consumer participation with operational efficiency, supply chain innovation, and brand-related outcomes. Importantly, these benefits should not be interpreted as automatic consequences of transparency, but as conditional outcomes that emerge when feedback is effectively incorporated into decision-making routines.

First, the introduction of QR-enabled feedback mechanisms can contribute to waste reduction and operational efficiency. By allowing consumers to express evaluations regarding fit, materials, design choices, or perceived quality, firms gain access to early signals that can inform product development before inefficiencies crystallize at scale. Rather than relying exclusively on ex post sales data or unsold inventory as indicators of misalignment, brands can adjust models, volumes, and design features at earlier stages. In this sense, feedback operates as a form of distributed market sensing, accelerating organizational learning and reducing the likelihood of overproduction. This mechanism is particularly relevant for mid-size fashion firms, whose limited margins make them more vulnerable to forecasting errors but whose organizational agility allows faster corrective action.

Second, the adoption of a dialogical QR system can foster continuous innovation within the supply chain. Increased transparency does not merely reveal existing practices; it raises the standards that firms must meet to remain credible. As product-level information becomes more visible and traceable, companies face stronger incentives to improve sourcing decisions, material quality, and supplier selection. This process may initially increase costs, as greater transparency often requires more rigorous auditing, higher-quality inputs, and tighter coordination across the value chain. However, these investments contribute to the construction of a more resilient and coherent supply chain, shifting value creation from short-term cost minimization toward long-term sustainability and consistency. In this perspective, transparency reallocates effort from reputational repair to upstream design and sourcing choices.

Third, and most directly connected to consumer behavior, QR-enabled dialogue can generate relational value and strengthen brand equity. By reducing information asymmetry and signaling openness, interactive labels can increase trust and perceived ethicality, mitigating skepticism associated with generic sustainability claims. At the same time, the narrative dimension enabled by QR codes supports storytelling and identity formation, allowing products to communicate not only technical attributes but also values, intentions, and commitments. Moreover, when consumers are offered the possibility to provide feedback and perceive that their input may influence future decisions, the relationship shifts from transactional to participatory. The brand is no longer experienced as a distant producer, but as a responsive actor willing to listen. This perceived empowerment contributes to brand humanization and can translate into stronger emotional attachment and, potentially, a higher willingness to pay.

Taken together, these mechanisms illustrate how a dialogical QR-based system can align operational efficiency, supply chain innovation, and relational outcomes within a single framework. Rather than treating sustainability, transparency, and profitability as competing objectives, the model conceptualized in this chapter suggests that value can emerge precisely from their interaction. These insights provide the conceptual foundation for the empirical analysis that follows. The next section formalizes these relationships into testable hypotheses, examining whether the perceived effects of QR-enabled dialogue on trust, ethical evaluation, empowerment, risk perception, and willingness to pay are supported by consumer data.

IV. Research Design and Questionnaire Structure

4.1 Questionnaire Structure and Presentation of the Three Scenarios

The questionnaire, completed by more than 200 responses, was designed as a scenario-based experiment. Each respondent was exposed to a single product label associated with a pair of jeans and was asked to evaluate it before answering a set of questions. To ensure experimental control, the study followed a between-subjects design. Three distinct scenarios (Figure 5, Figure 6, Figure 7) were developed, each corresponding to a different type of label, and distributed through separate questionnaires. Random assignment to scenarios was implemented through an external link randomization tool embedded in the survey platform, which ensured that each participant was directed to a single condition with approximately equal probability. This approach was chosen to prevent learning and comparison effects: if participants were shown all three labels sequentially, their evaluations of later scenarios would inevitably be influenced by their earlier exposure, compromising the independence of the conditions. More specifically, the between-subjects design was intended to mitigate several well-documented cognitive biases that threaten internal validity in experimental survey research. Sequential exposure to multiple stimuli creates conditions for anchoring bias, whereby the first label seen would serve as a reference point distorting the evaluation of subsequent ones (Tversky & Kahneman, 1974). Repeated exposure to similar stimuli may also induce demand characteristics, leading respondents to infer the study's hypotheses and adjust their answers accordingly (Orne, 1962). By ensuring that each participant evaluated only one label, the design preserved the integrity of individual responses and allowed observed differences across conditions to be attributed to the nature of the label itself, rather than to order, comparison, or expectation effects.



Figure 5 *Scenario 1: Standard Label (DENIMTEX, Article 123456,): conventional garment label containing the core information required or conventionally expected on a garment label, including fibre composition (the only element mandated under EU Regulation 1007/2011), country of origin, size, and care instructions. Label design by the author; image generated with the assistance of Claude (Anthropic), based on an original photograph taken by the author.*



Figure 6. *Scenario 2: Extended Technical Label (DENIMTEX, Article 123456): garment label presenting the same mandatory information as Scenario 1, supplemented by an extended section of additional care warnings. Designed to replicate the verbose, disclaimer-heavy labelling style commonly adopted by fast fashion brands. Presented in a static format with no interactive element. Label design by the author; image generated with the assistance of Claude (Anthropic), based on an original photograph taken by the author.*



Figure 7. *Scenario 3: Dialogical QR-Enabled Label (DENIMTEX, Article 123456): garment label combining standard care information with a QR code inviting consumers to access full traceability data, environmental certifications, brand values, and a feedback channel. Represents the experimental condition central to this thesis. Label design by the author; image generated with the assistance of Claude (Anthropic), based on an original photograph taken by the author.*

The structure of the questionnaire was kept identical across all the scenarios, with the only variation being the label presented. This design allows observed differences in responses to be attributed to the characteristics of the label rather than to differences in question wording or order.

The questionnaire consisted of four main sections. The first section provided a brief introduction explaining the purpose of the study, the voluntary and anonymous nature of participation, and the approximate completion time. It has been crucial here to avoid any reference about sustainability, technology, or QR codes in order to minimize priming effects. The only information released was that the study was about labelling in the fashion industry.

The second section presented the experimental scenario. Respondents were shown the image of the pre announced product label and were instructed to observe it carefully before answering the questions. To approximate a realistic purchase context and reduce artificial memory constraints, respondents were explicitly informed that they could return to the label image at any time while completing the first part of the questionnaire. This choice was made to enhance ecological validity, as consumers typically consult labels multiple times during real purchasing situations. Access to the label image was however restricted during the attention and manipulation check section, which followed the core measurement items, in order to ensure that responses reflected genuine recall rather than re-reading of the stimulus.

The third section contained the core measurement items: fifteen statements measured on seven-point Likert scales (1 = "Totally disagree", 7 = "Totally agree"). The items were designed to capture several key constructs relevant to consumer decision-making, including perceived transparency, information sufficiency, perceived risk reduction, decision confidence, brand trust, perceived corporate responsibility, attention to information, intention to consult additional information, future adoption intention, willingness to provide feedback, perceived consumer empowerment, relational closeness, hedonic evaluation, and perceived innovativeness. In addition, one item measured individual environmental orientation and was treated as a control variable.

All measurement items were adapted from established scales in the literature. In particular, technology acceptance and behavioral intention items draw on Venkatesh et al. (2003); perceived risk and decision uncertainty are based on Featherman and Pavlou (2003); brand trust is adapted from Chaudhuri and Holbrook (2001); ethical and responsibility perceptions are grounded in Brunk (2012); co-creation and consumer participation items are derived from Füller (2006); intrinsic motivation and enjoyment are informed by Thompson et al. (1991); and environmental orientation is based on Kaiser et al. (1999). Items were conceptually adapted rather than directly translated, in order to fit the context of apparel labelling while preserving the original meaning of the underlying constructs. The study does not aim to validate these scales but to operate well-established theoretical concepts within a novel experimental setting.

The fourth and final section included attention and manipulation checks, followed by socio-demographic questions. The manipulation checks were used to verify whether respondents correctly perceived key elements of the label they were exposed to, while the

attention check served to identify inattentive responses. Socio-demographic variables were collected at the end of the questionnaire to avoid influencing responses to the experimental stimuli.

Overall, the questionnaire was designed to balance experimental control with realism, minimizing cognitive burden while capturing a broad range of perceptual, behavioral and relational outcomes relevant to distributed decision-making and value co-creation in contemporary fashion markets.

4.2 The Measurement Items and central Sources in Building the Questionnaire

Table 1 Measurement Items

Scale: Likert 1–7 (1 = Totally disagree, 7 = Totally agree)

Code	Construct	Item	Source
TR1	Perceived Transparency	The information presented seems transparent and does not appear to conceal anything.	Venkatesh et al. (2003), adapted
IS1	Information Sufficiency	The information present is sufficient to understand the characteristics and origin of the product.	Venkatesh et al. (2003), adapted
RR1	Perceived Risk Reduction	This label reduces the perceived risk of making a wrong purchase.	Stone & Grønhaug (1993), adapted
DC1	Decision Confidence	I would feel confident using this information to decide whether to proceed with the purchase.	Venkatesh et al. (2003), adapted
BT1	Brand Trust	This type of label increases my trust in the brand.	Chaudhuri & Holbrook (2001), adapted
ET1	Perceived Ethicality	I get the impression that the company genuinely cares about its environmental and social impact.	Brunk & de Boer (2020), adapted

Code	Construct	Item	Source
AT1	Attentional Engagement	I would read the information on this label carefully.	Venkatesh et al. (2003), adapted
AI1	Intention to Consult Additional Information	If additional information about the product were available directly from the label, I would consult it.	Venkatesh et al. (2003), adapted
FU1	Future Adoption Intention	I would like to use a similar label in future purchases from this brand.	Venkatesh et al. (2003), adapted
FB1	Feedback Willingness	I would be willing to leave feedback about the product through the label.	Füller (2006), adapted
EM1	Perceived Empowerment	This label makes me feel that my perspective could be useful to the brand.	Füller (2006), adapted
CL1	Relational Closeness	This label makes me feel closer to the brand.	Füller (2006), adapted
HE1	Hedonic Evaluation	Interacting with this type of label would be a pleasant experience.	Thompson et al. (1991), adapted
IN1	Perceived Innovativeness	I would consider it a modern and interesting way to learn about the product.	Thompson et al. (1991), adapted
EO1	Environmental Orientation (control)	I consider environmental consequences when choosing to buy a product.	Kaiser et al. (1999), adapted

To capture broader relational dimensions, individual items reflecting conceptually related aspects were aggregated into composite scores.

Specifically:

- Trust Composite was computed by averaging TR1 (Perceived Transparency), DC1 (Decision Confidence), and BT1 (Brand Trust), as these items jointly reflect the perception of relational trust toward the brand.

- Empowerment Composite was calculated by averaging EM1 (Perceived Empowerment), FB1 (Feedback Willingness), and CL1 (Relational Closeness), representing the perceived degree of consumer agency and participatory influence.
- Ethicality Composite was calculated by averaging ET1 (Perceived Ethicality) and CL1 (Relational Closeness), jointly reflecting the extent to which the label conveys a sense of genuine corporate care and relational sincerity.

It should be noted that CL1 (Relational Closeness) was included in both the Empowerment and Ethicality composites, given its conceptual relevance to both constructs; this overlap may inflate the correlation between the two composites and is acknowledged as a limitation of the measurement design. All composite scores were calculated as the mean of their respective items. Internal consistency was assessed using Cronbach's alpha (α) to verify that items grouped within each composite reliably measured the same underlying construct.

4.3 Manipulation Check

Prior to the main measurement scales, participants were asked two verification questions designed to confirm that they had observed and processed the label as intended. The first check asked whether a QR code was visible on the label shown; the second asked at what temperature the garment should be washed according to the label.

The results confirm that the manipulation was successful. In Scenario 1 (standard label, no QR code), 96.2% of respondents correctly identified the absence of a QR code. In Scenario 3 (dialogical QR-enabled label), 96.9% correctly identified its presence. These figures indicate that the experimental stimuli were perceived as intended across conditions, and that the QR code constituted a clearly distinguishable element of the label design.

Attention to label content was also well demonstrated by the wash temperature check: the majority of respondents in all three scenarios correctly recalled the care instruction visible on the label, confirming adequate engagement with the stimulus material.

4.4 Willingness to Pay (WTP)

Willingness to Pay was measured using an incremental format: respondents were asked how much more than the base price of €50 they would be willing to pay for a pair of jeans

with the label they had just seen. Responses could range from €0 (no premium) upwards, with participants entering a free numeric value. This format allows parametric analysis through ANOVA and regression models and provides a behavioural economic indicator of the perceived value generated by each label type.

4.5 Control Variables

The following variables were collected as controls to account for potential confounds in the analysis:

- Environmental orientation (2-item adapted scale, Likert 1–7): measures individual sensitivity to environmental consequences of consumption choices
- QR code familiarity (single item, Likert 1–7): measures prior experience and comfort with QR code usage
- Purchase frequency: categorical variable measuring how often respondents buy fashion items
- Age, gender, educational level, and employment status: standard sociodemographic controls
- Political orientation (self-placement scale 1–7, left–right): included as a neutral attitudinal control, not as a substantive variable of interest

4.6 Sample Description

A total of 217 valid responses were collected across the three experimental conditions. The sample was distributed as follows: 79 respondents assigned to Scenario 1 (standard label), 74 to Scenario 2 (extended technical label), and 64 to Scenario 3 (dialogical QR-enabled label). The slightly unequal distribution across conditions is consistent with random assignment and does not compromise the validity of between-group comparisons. The overall sample had a mean age of 38.4 years (median = 32, range: 13–76), reflecting a broad age distribution across different consumer generations. The age breakdown by group was as follows: 5 respondents 18 and under (2.3%), 87 aged 18–25 (40.1%), 25 aged 26–35 (11.5%), 35 aged 36–50 (16.1%), and 65 over 50 (30.0%). The predominance of the 18–25 cohort is consistent with the convenience sampling approach adopted and with the digital-native profile of individuals likely to encounter QR-based labels in retail settings. Three respondents (1.4%) reported being under 18; given the anonymous, non-sensitive nature of the survey and the absence of any collection of identifying information,

this was not considered to pose ethical concerns, though it is noted as a sample characteristic.

In terms of gender, 143 respondents identified as female (65.9%), 72 as male (33.2%), and 2 preferred not to respond (0.9%). Employment status was distributed as follows: 120 employed (55.3%), 75 students (34.6%), and 22 unemployed (10.1%). The sample thus includes a substantial proportion of economically active respondents, enhancing the ecological validity of the willingness to pay measure.

Familiarity with QR codes was notably high, with a mean score of 5.57 out of 7, indicating that the majority of participants were already comfortable with QR technology prior to the experiment. This reduces the likelihood that observed differences across conditions reflect novelty effects or technology anxiety rather than genuine attitudinal differences toward label content.

With respect to purchase frequency, the largest group reported buying fashion items less than once every three months (85 respondents, 39.2%), followed by every 2–3 months (68, 31.3%), approximately once a month (40, 18.4%), 2–3 times a month (18, 8.3%), and more than three times a month (6, 2.8%). This distribution suggests a predominantly considered, non-impulsive purchasing profile within the sample.

4.7 Analysis of Results

4.7.1 Reliability of Composite Scales

Before testing the hypotheses, the internal consistency of the composite scales was assessed using Cronbach's alpha. The reliability coefficients indicate acceptable to good internal consistency across all multi-item constructs: the Trust composite (brand trust, perceived transparency, decision confidence) yielded $\alpha = 0.756$; the Empowerment composite (empowerment, feedback willingness, relational closeness) yielded $\alpha = 0.795$; and the Ethicality composite (perceived environmental care, relational closeness) yielded $\alpha = 0.779$. All values exceed the conventional threshold of 0.70, supporting the use of composite scores in subsequent analyses.

4.7.2 Hypothesis Testing

H1: Trust *QR-enabled dialogical labels positively influence consumer trust in the brand.*

The Trust composite showed mean scores of 5.16 (SD = 1.17) for Scenario 1, 4.99 (SD = 1.30) for Scenario 2, and 5.15 (SD = 1.29) for Scenario 3. A one-way ANOVA revealed no statistically significant difference across conditions ($F(2, 214) = 0.45, p = .636$). H1 is not supported. Trust levels were consistently high across all three label types, suggesting that within this sample, even minimal label information activates a baseline level of brand credibility. This finding is discussed further in Section 4.8.

H2: Perceived Ethicality *The presence of a QR-enabled label increases perceived ethicality of the brand, even when consumers do not actively scan the code.*

The perceived ethicality item ("I get the impression that the company genuinely cares about its environmental and social impact") showed a clear pattern of differentiation: mean scores were 3.22 (SD = 1.65) for Scenario 1, 3.08 (SD = 1.69) for Scenario 2, and 4.16 (SD = 1.77) for Scenario 3. The one-way ANOVA was highly significant ($F(2, 214) = 8.06, p < .001$). Post-hoc independent samples t-tests confirmed that Scenario 3 differed significantly from both Scenario 1 ($t = -3.29, p = .001$) and Scenario 2 ($t = -3.65, p < .001$). H2 is supported. The dialogical QR label produced a significantly stronger perception of ethical brand commitment compared to both static alternatives, consistent with the Elaboration Likelihood Model's peripheral route: the visible presence of a QR code functions as a credibility cue even for respondents who do not actively engage with the content.

H3: Consumer Empowerment *QR-enabled labels enhance consumers' perceived empowerment by providing access to information and opportunities for interaction.*

The empowerment item ("I feel I could influence the brand's future decisions") showed mean scores of 3.03 (SD = 1.87) for Scenario 1, 3.04 (SD = 1.64) for Scenario 2, and 4.22 (SD = 1.95) for Scenario 3. The ANOVA was highly significant ($F(2, 214) = 9.60, p < .001$), and post-hoc tests confirmed that Scenario 3 differed significantly from both Scenario 1 ($t = -3.73, p < .001$) and Scenario 2 ($t = -3.86, p < .001$). The empowerment composite score followed a similar pattern ($S1 = 3.28, S2 = 3.27, S3 = 4.00; F = 5.06, p = 0.007$). H3 is supported. The dialogical label produced a substantially stronger sense of consumer agency and participatory capacity, directly consistent with the Dialogue and Access dimensions of the DART framework.

The relational closeness item ("This label makes me feel closer to the company") showed a parallel and supportive pattern: means of 2.92, 2.76, and 3.91 for Scenarios 1, 2, and 3 respectively ($F(2,214) = 8.59, p < 0.001$), further corroborating that QR-enabled interaction generates a qualitatively different relational experience between consumer and brand.

H4: Perceived Risk Reduction *QR-enabled transparency reduces perceived ethical and informational risk associated with the product.*

The risk reduction composite (risk reduction item and decision confidence) showed means of 5.02 (S1), 4.90 (S2), and 5.08 (S3), with no significant ANOVA effect ($F(2, 214) = 0.29, p = .748$). H4 is not supported. Risk reduction scores were uniformly high across conditions, suggesting that within this sample, the baseline level of label information, even in its most minimal form, was perceived as sufficient to reduce purchase uncertainty. This may reflect a ceiling effect in the perceived risk measure or the specific product type chosen (jeans, a product that could be perceived as familiar and a low-stakes purchase).

H5: Willingness to Pay *Greater trust, perceived ethicality and empowerment generated by QR-enabled labels increase consumers' willingness to pay for the product.*

The WTP analysis revealed mean premium offers of €7.37 (SD = 17.98) for Scenario 1, €6.24 (SD = 13.43) for Scenario 2, and €10.84 (SD = 22.63) for Scenario 3. The direction of the effect is consistent with the hypothesis in fact the Scenario 3 produced the highest mean WTP. Despite of this the ANOVA did not reach statistical significance ($F(2, 214) = 1.17, p = 0.312$), and post-hoc comparisons between conditions were non-significant. Due to these results the H5 is not supported at conventional significance levels. The high standard deviations and the large proportion of respondents indicating zero additional WTP (54 in S1, 50 in S2, 34 in S3) contribute to the low statistical power. Notably, the reduction in zero-WTP responses in Scenario 3 (68.4% in S1 versus 54% in S3) suggests a directional tendency that may achieve significance in larger or more targeted samples.

H6: Mediation Effects *The relationship between QR-enabled labels and willingness to pay is mediated by trust, perceived ethicality and perceived empowerment.*

Given the sample size constraints and the absence of a significant total effect of label type on WTP (H5), a formal mediation analysis using bootstrapped indirect effects (e.g., Hayes' PROCESS macro) was not prioritised in this exploratory study. It is worth noting that such indirect effects can in principle exist even without a significant total effect (Hayes, 2013), and testing them formally represents a natural direction for future research with larger samples.

4.7.3 Summary of Hypothesis Testing

Table 2. Key Results of Hypothesis Testing

Hypothesis	Construct	Key Result	Supported?
H1	Brand Trust	F = 0.45, p = .636 no significant difference	X Not supported
H2	Perceived Ethicality	F = 8.06, p < .001 S3 significantly higher	✓ Supported
H3	Consumer Empowerment	F = 9.60, p < .001 S3 significantly higher	✓ Supported
H4	Perceived Risk Reduction	F = 0.29, p = .748 no significant difference	X Not supported
H5	Willingness to Pay	F = 1.17, p = .312 directional but n.s.	X Not supported
H6	Mediation	Not formally tested, lack of base assumptions	Not

4.8 Discussion of Findings

Summarizing the key findings of the questionnaire, it has been discovered:

- No increase in baseline trust.
- Significant increase in perceived ethicality.
- Strong increase in perceived empowerment and relational closeness.
- Directional (but not statistically significant) increase in WTP.

The results present a richer and more nuanced picture than a simple confirmation or rejection of the hypotheses would suggest. Two hypotheses received robust empirical support (H2 and H3), while three did not reach conventional significance thresholds (H1, H4, H5). Rather than treating the latter as failures, this section argues that the unexpected findings are among the most theoretically significant outcomes of the study and that taken together, all five sets of results converge on a coherent and practically meaningful interpretation. The findings suggest that dialogical QR-enabled label does not operate primarily by increasing perceived transparency or reducing risk. Instead, it has been showed how it could be a powerful tool in changing the relational dynamic between consumer and brand. The data indicate that dialogical transparency functions relationally rather than informationally. The QR-enabled label does not simply provide more information; it symbolically communicates accountability, openness, and willingness to engage.

The findings support the central thesis argument: transparency is not a feature added to a product, but a relationship built with a consumer. In this sense the experiment shows the QR-code is not offering a supplementary service, adding information for the customer is not the main goal. Deepen the relationship with the client become the focus.

4.8.1 The Transparency Paradox: A Turning Point

Perhaps the most striking and counter-intuitive finding of the entire study concerns perceived transparency. Scenario 1: the standard, minimal label. It received the highest transparency scores of the three conditions: 35% of respondents assigned the maximum score of 7, compared to only 16% in Scenario 3, the dialogical QR label. This result directly contradicts the intuitive assumption that more information equals more perceived transparency.

The explanation, however, is theoretically coherent. Cognitive ease theory (Kahneman, 2011) suggests that information which is processed fluently is judged as more truthful and trustworthy. People perceive easy understanding information as more reliable. A minimal label reporting brand name, composition, origin, and washing instructions can be read and evaluated in seconds. Nothing is hidden because nothing is promised beyond what is immediately visible. The QR code, by contrast, signals that there is more to know, and that accessing it requires an additional action. For a consumer who does not scan the code, this creates an implicit asymmetry: the brand knows something the consumer does not, and the consumer must actively decide whether to pursue it. Paradoxically, the invitation to know more can be experienced as a reminder of how much one does not yet know.

This finding aligns with Holkkola et al.'s (2025) observation that QR codes can generate hesitation and cognitive friction rather than immediate reassurance. It also resonates with signalling theory: a signal is only effective if the receiver is equipped to interpret it. When consumers are not yet accustomed to dialogical labels as a format, the QR code may read less as an act of openness and more as an additional layer of complexity. The implication for practitioners is significant: the introduction of interactive labels requires not only technical deployment but also consumer education about what the tool means and what it offers.

The same dynamic applies to perceived information sufficiency, where Scenario 1 again outperformed Scenario 3 in terms of maximum scores (25% vs 14% voting 7). Consumers who encounter a familiar, compact format feel they have received what they need. Those who encounter a format that promises more may feel that the visible information is, by definition, incomplete.

4.8.2 When More Information Looks Like Greenwashing

Scenario 2: the extended technical label modelled on fast fashion industry practice, produced the lowest perceived ethicality of the three conditions (mean 3.08, versus 4.16 for Scenario 3). This is a finding of considerable practical relevance. The label contained substantially more text than Scenario 1, including a section titled "Additional Warnings" with detailed care instructions. Yet this abundance of information did not translate into greater trust or ethical credibility. If anything, it undermined them.

The mechanism at work here is consistent with the peripheral route of the Elaboration Likelihood Model (Petty & Cacioppo, 1986): when consumers do not engage deeply with

label content, they rely on surface cues to form judgements. A long, dense label may activate a heuristic associated with corporate self-protection. Brands that fill labels with disclaimers and technical details may be perceived as managing liability rather than communicating sincerity. The phrase "minor colour variations are a natural characteristic of denim" reads less as useful information and more as pre-emptive excuse. In this sense, Scenario 2 inadvertently replicates the aesthetic of greenwashing: the appearance of thoroughness without the substance of accountability.

This finding supports a core claim of this thesis: transparency appears not as a function for information volume but an instrument to build informational intentionality. A brand that offers less but means, it has been perceived as more honest than one that offers more but obscures it within noise.

4.8.3 Empowerment Without Participation: A Productive Tension

The strongest and most consistent result of the study is the empowerment effect of the dialogical QR label. In Scenario 3, 53% of respondents scored empowerment at 5 or above, compared to 20% in Scenario 1 and 16% in Scenario 2. Relational closeness followed the same pattern (44% in S3 versus 18% and 14% in S1 and S2 respectively). These are the largest effect sizes observed in the entire study and they are statistically robust. However, an important tension emerges when this empowerment result is read alongside the feedback willingness data. Despite feeling significantly more empowered and closer to the brand when exposed to the dialogical label, respondents in Scenario 3 were not meaningfully more willing to actually leave feedback (42% ≥ 5) than those in Scenario 2 (46% ≥ 5). The willingness to participate did not follow from the feeling of empowerment.

This gap between perceived empowerment and behavioural intention to act is itself a theoretically rich finding. It suggests that the primary value of a dialogical interface may be symbolic and relational rather than transactional: consumers want to know they could participate, even if they choose not to. The mere availability of a feedback channel, visibly promised on the label, changes how people relate to the brand, independently of whether they intend to use it. This is consistent with autonomy-based accounts of consumer motivation (Deci & Ryan, 2000): the sense of having a choice is valuable in itself, regardless of whether the choice is exercised. This finding has a clear and tangible implication. A QR-enabled feedback system does not need to generate high response rates

to justify its implementation. Its relational value accrues to all consumers who see the label, not only to the minority who engage with it.

Interestingly, feedback willingness was highest in Scenario 2: the overloaded fast fashion label. One possible interpretation is that respondents who encountered a label full of marginal, self-serving information felt a greater desire to respond, not out of engagement but out of frustration. If confirmed in future research, this would suggest that poorly designed labels may actually stimulate critical participation rather than passive acceptance.

4.8.4 Trust, Risk, and the Ceiling Effect

The non-significant results for brand trust (H1) and perceived risk reduction (H4) share a common explanation: baseline scores were already high across all three conditions, leaving little room for the experimental manipulation to produce measurable differentiation. Brand trust scores ranged from 4.50 to 4.86 across scenarios on a 7-point scale, with 54–58% of respondents scoring at or above 5 regardless of label type. This suggests that within this sample, encountering any branded product label activates a baseline disposition of trust toward commercial communication. The label format shapes the quality and character of that trust, as evidenced by the ethicality and empowerment differences, but not its baseline level.

A similar argument applies to risk reduction. The product used in the study (a pair of jeans priced at €50 from a fictional brand) is a low-involvement, familiar purchase category. The perceived risk of buying jeans is inherently modest, which may have dampened sensitivity to label-based risk reduction signals. It is plausible that the same experimental design applied to a higher-involvement category. For example organic food, pharmaceutical products, luxury goods, or items with explicit sustainability claims could produce significant risk reduction effects aligned with H4.

4.8.5 Willingness to Pay: Rational Behavior, Limited Context

The WTP result requires careful and honest interpretation. The mean premium in Scenario 3 (€10.84) was notably higher than in Scenario 1 (€7.37) and Scenario 2 (€6.24), and the proportion of respondents willing to pay any premium at all was substantially higher in Scenario 3 (46%) than in the other two conditions (both 32%). Yet the ANOVA did not reach statistical significance, largely because of high within-group variance driven by a bimodal distribution: many respondents indicated zero premium, while a smaller group

indicated large premiums. Rather than concluding that the QR label does not affect WTP, a more accurate interpretation would be to read it as a possible affection of WTP for a specific subset of consumers, who are already predisposed to engage with sustainability and product information, while leaving the majority unmoved. This pattern is consistent with market segmentation logic: the dialogical label does not universally convert indifferent consumers into premium payers, but it does meaningfully shift the behavior of a pre-existing segment of engaged consumers.

It is also important to acknowledge the contextual limitations of the WTP measure. Participants were evaluating a fictional brand (Denimtex) on the basis of a static image of a label, with no prior relationship with the brand and no real financial commitment involved. Real purchasing decisions involve accumulated brand exposure, social context, tactile product evaluation, and genuine financial stakes. All of which amplify the weight consumers assign to ethical signals. The directional WTP result observed here may therefore underestimate the actual premium effect that a well-implemented dialogical label would generate in a live retail context.

4.8.6 What the Data Tell Us

Taken together, these findings suggest a coherent and practically meaningful story. The dialogical QR-label does not work by making consumers feel that they have received more information or that the brand is more trustworthy in an immediate sense. It works by changing the nature of the relationship between consumer and brand: it creates a sense of being seen, of having a voice, and of engaging with a brand that is willing to be accountable. These are relational effects, not informational ones, and they operate independently of whether the consumer actually scans the code.

The most commercially significant implication is that the primary barrier to QR label adoption is not consumer resistance but consumer unfamiliarity. The transparency paradox observed in this study, where a simpler label was perceived as more transparent than a richer one, reflects the current state of consumer expectations. It does not represent a permanent feature of human psychology. As dialogical labels become more common, and as consumers learn that a QR code on a garment is an invitation rather than an obstacle, the perceptual dynamics observed here are likely to shift. This evolution may be accelerated by the EU Ecodesign for Sustainable Products Regulation (ESPR), which entered into force in July 2024 and is expected to normalise digital traceability requirements for the textile sector around 2027, creating the infrastructural conditions

under which formats like the dialogical label could become widespread. Whether brands use that channel merely for compliance or as a genuine relational touchpoint remains an open strategic question. The brands that invest in this infrastructure now are not only preparing for future regulation. They are creating the conditions under which consumers may gradually develop the familiarity and trust that this study shows the dialogical label has the potential, but not yet the established power, to generate.

4.9 Supplementary Exploratory Analysis: An Ordinal Logistic Regression Approach

4.9.1 Rationale and Model Specification

Following a discussion with the supervisor, an additional exploratory analysis was conducted to complement the hypothesis-testing framework presented above. While the ANOVA-based tests reported in Section 4.8 examine each construct independently across the three experimental conditions, they cannot reveal how constructs relate to one another once other variables are held constant. To address this, two ordinal logistic regression models were estimated, using treatment condition together with the remaining measured constructs and demographic variables as simultaneous predictors of two key outcomes: perceived trust and perceived transparency. Both outcomes are measured on 7-point Likert scales, for which an ordinal logit model is more appropriate than ordinary least squares regression, as it respects the ordered but non-interval nature of the response categories without assuming equal distances between scale points. Three respondents were excluded from both models: one who entered a non-numeric response ("O" instead of "0") to the willingness-to-pay question, and two who selected "prefer not to say" for gender, which could not be coded within the binary gender variable used as a control. The final analytic sample comprised $N = 214$.

4.9.2 Model 1: Predictors of Perceived Trust

Model 1 used the Trust composite (rounded to the nearest integer) as the dependent variable, with treatment condition, Ethicality, Empowerment, perceived risk reduction, hedonic evaluation, innovativeness, environmental orientation, willingness to pay, age, QR code familiarity and gender as predictors ($N = 214$). Full results are reported in the Table 3 reported:

Table 3. Trust Composite as Dependent Variable

Predictor	β	p
Treatment: Extended (vs Standard)	-.19	.555
Treatment: Dialogical QR (vs Standard)	-.76	.026
Ethicality	1.16	<.001
Empowerment	-.46	.013
Risk Reduction (RR1)	.92	<.001
Hedonic Evaluation (HE1)	.12	.303
Innovativeness (IN1)	-.08	.458
Environmental Orientation (EO1)	.09	.261
Willingness to Pay	-.001	.873
Age	-.01	.323
QR Code Familiarity	.10	.308
Gender (male = 1)	.17	.549

Table 3. Ordinal Logistic Regression - Model 1: Predictors of Perceived Trust ($N = 214$).
 Dependent variable: Trust composite (mean of TR1, DC1, BT1; rounded to nearest integer, 7-point ordinal scale). Independent variables: treatment condition (reference category: Standard label, Scenario 1), Ethicality composite, Empowerment composite, Risk Reduction (RR1), Hedonic Evaluation (HE1), Innovativeness (IN1), Environmental

Orientation (EO1), Willingness to Pay, Age, QR Code Familiarity, and Gender (male = 1). Estimated via ordinal logistic regression.

The Dialogical QR condition showed a significant negative direct association with trust relative to the standard label ($\beta = -0.76$, $p = .026$), once Ethicality, Empowerment, and the other constructs were held constant. Ethicality ($\beta = 1.16$, $p < .001$) and perceived risk reduction ($\beta = 0.92$, $p < .001$) were both strong positive predictors of trust, as conceptually expected. More notably, perceived empowerment showed a significant negative association with trust ($\beta = -0.46$, $p = .013$) once the other constructs were held constant. This relationship is not detectable in the univariate hypothesis tests, since it only emerges when empowerment's shared variance with ethicality and other constructs is accounted for. A plausible interpretation is a suppression effect: consumers who feel actively called upon to participate and judge the brand may simultaneously become more critical of it, while consumers who trust passively do not feel the same need for active engagement. No other predictor reached significance.

This apparent discrepancy with the non-significant test of H1 in Section 4.8 is expected rather than contradictory. Ethicality and Empowerment are themselves hypothesised outcomes of the treatment (H2 and H3), so controlling for them in Model 1 shifts the question from the treatment's total effect on trust, tested by the ANOVA in Section 4.8, to its direct effect net of these mediating pathways. These two quantities can legitimately differ in sign and significance, a non-significant total effect alongside a significant direct effect once mediators are held constant. It is consistent with a dynamic suppression rather than an inconsistency between analyses.

4.9.3 Model 2: Predictors of Perceived Transparency

Model 2 used perceived transparency (the single item underlying the transparency paradox discussed in Section 4.8.1) as the dependent variable, with the same treatment and construct predictors, plus the Trust composite and information sufficiency ($N = 214$). Full results are reported in the following Table 4.

Table 4. Transparency as Dependent Variable

Predictor	β	p
Treatment: Extended (vs Standard)	-.36	.285
Treatment: Dialogical QR (vs Standard)	-.48	.186

Predictor	β	p
Trust	2.37	<.001
Ethicality	-.25	.205
Empowerment	.01	.973
Information Sufficiency (IS1)	.39	<.001
Risk Reduction (RR1)	-.63	<.001
Hedonic Evaluation (HE1)	-.01	.954
Innovativeness (IN1)	-.15	.177
Environmental Orientation (EO1)	.09	.323
Willingness to Pay	.0004	.963
Age	.02	.070
QR Code Familiarity	.22	.032
Gender (male = 1)	-.04	.897

Table 4: Ordinal Logistic Regression - Model 2: Predictors of Perceived Transparency ($N = 214$). Dependent variable: Perceived Transparency (TR1, single item, 7-point ordinal scale). Independent variables: treatment condition (reference category: Standard label, Scenario 1), Trust composite, Ethicality composite, Empowerment composite, Information Sufficiency (IS1), Risk Reduction (RR1), Hedonic Evaluation (HE1), Innovativeness (IN1), Environmental Orientation (EO1), Willingness to Pay, Age, QR Code Familiarity, and Gender (male = 1). Estimated via ordinal logistic regression.

Once trust and information sufficiency were included, the direct effect of treatment condition on transparency was no longer statistically significant (Dialogical QR: $\beta = -0.48$, $p = .186$; Extended: $\beta = -0.36$, $p = .285$), suggesting that the paradox observed in the raw group comparison is not a direct consequence of label type, but is instead channeled through its effect on trust and perceived risk. Trust itself was, not surprisingly, the strongest predictor of transparency ($\beta = 2.37$, $p < .001$). Perceived risk reduction showed a significant negative association with transparency ($\beta = -0.63$, $p < .001$), a counter-intuitive result that may reflect an attentional rather than an evaluative

mechanism: consumers who already feel secure in their purchase decision may engage less critically with the label's content and therefore rate it as less transparent simply because they examined it less closely. Finally, QR code familiarity emerged as a significant positive predictor of transparency ($\beta = 0.22$, $p = .032$), independent of the label shown. This finding lends empirical support to the signaling-theory interpretation proposed in Section 4.8.1: a dialogical label is more likely to be read as an act of openness, rather than as a source of cognitive friction, among consumers who are already comfortable with the QR-code format, and suggests that the paradox could attenuate as such labels become more familiar to consumers.

4.9.4 Interpretive Caveats

These supplementary models should be interpreted with appropriate caution: with several overlapping composite constructs and a sample of 214, some multicollinearity is expected (variance inflation factors remained below 5 for all predictors, indicating no severe distortion), and the models are exploratory rather than confirmatory. They are not intended to replace the hypothesis-testing framework of Section 4.8, but to surface relationships among constructs, such as the suppression effect of empowerment on trust, that a univariate, group-comparison approach cannot detect.

Final Conclusions

Theoretical Synthesis: Transparency as a Relational, Not Informational, Function

The findings support the central thesis argument: transparency is not a feature added to a product, but a relationship built with a consumer. This resonates with a broader organizational shift, described by De Smet et al. (2023), away from hierarchical, control-oriented structures toward networked models in which leadership becomes a relational capacity oriented toward accountability and stakeholder engagement rather than information asymmetry. The experimental results can be read as a micro-level expression of this macro-level transition: the dialogical QR-enabled label did not significantly increase trust or reduce perceived risk, as a purely informational intervention might be expected to, but it did significantly elevate perceived ethicality, empowerment, and relational closeness. This suggests the label functioned not as a data-delivery mechanism but as a relational signal, a tangible sign of the brand's willingness to open itself to scrutiny and dialogue. If organizations are indeed moving toward stakeholder-centered models, consumer-facing touchpoints such as labelling are not peripheral design choices but strategic communications of organizational identity, and consumers, as this study shows, are sensitive to them.

From Theory to Practice: A Dialogical Label Design

This research invites a broader reconceptualization of the consumer's role. Traditionally viewed as the end point of a value chain designed and produced elsewhere, the consumer is increasingly a potential contributor to the firm's own learning process, holding distributed knowledge about usage, unmet needs, and emerging preferences that too often remain disconnected from organizational decision-making. The feedback mechanism proposed in this study is one attempt to close that gap, transforming individual consumption experiences into organizational learning rather than relying solely on sales data or post-hoc market reactions. Sustainability, from this perspective, is not only a matter of materials and certifications, but of participation: the contribution of this research is not that QR codes increase purchase intentions directly, but that digital interfaces of this kind can help redefine the relationship between firms and consumers an innovation that is no more perceived as technological but strongly organizational.

As a final synthesis, this thesis suggests a concrete label design as the practical translation of its theoretical framework and empirical findings (**Figures 8–10**).



Figure 8. *Front of the Ideal Label (Prototype, Article 123456): garment label displaying only textile composition and country of origin. Label design by the author; image generated with the assistance of Claude (Anthropic), based on an original photograph taken by the author.*

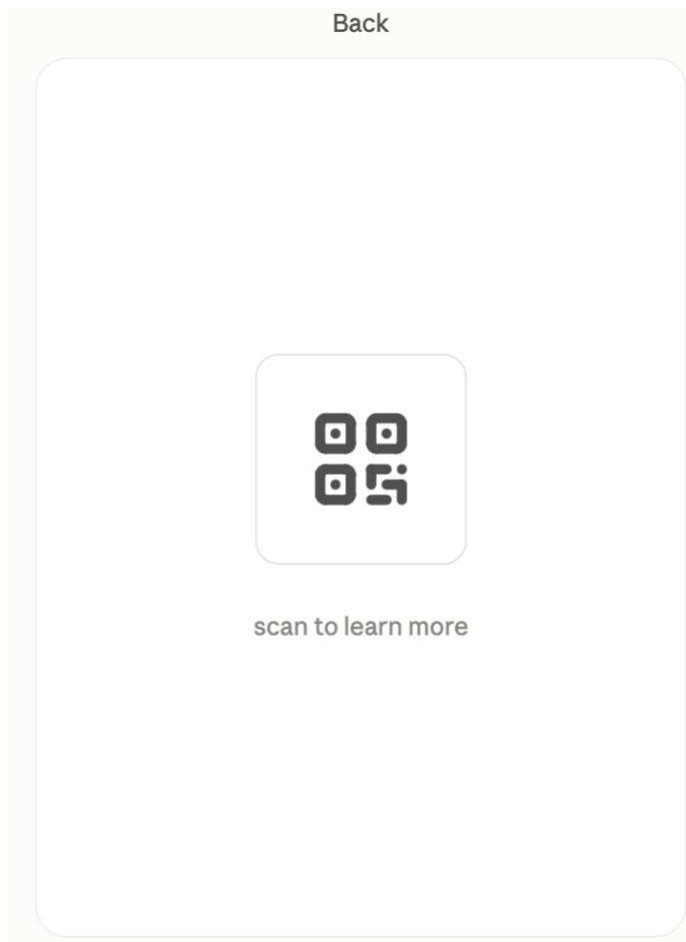


Figure 9. *Back of the Ideal Label (Prototype, Article 123456): QR code only, no printed text. Label design by the author; image generated with the assistance of Claude (Anthropic), based on an original photograph taken by the author.*

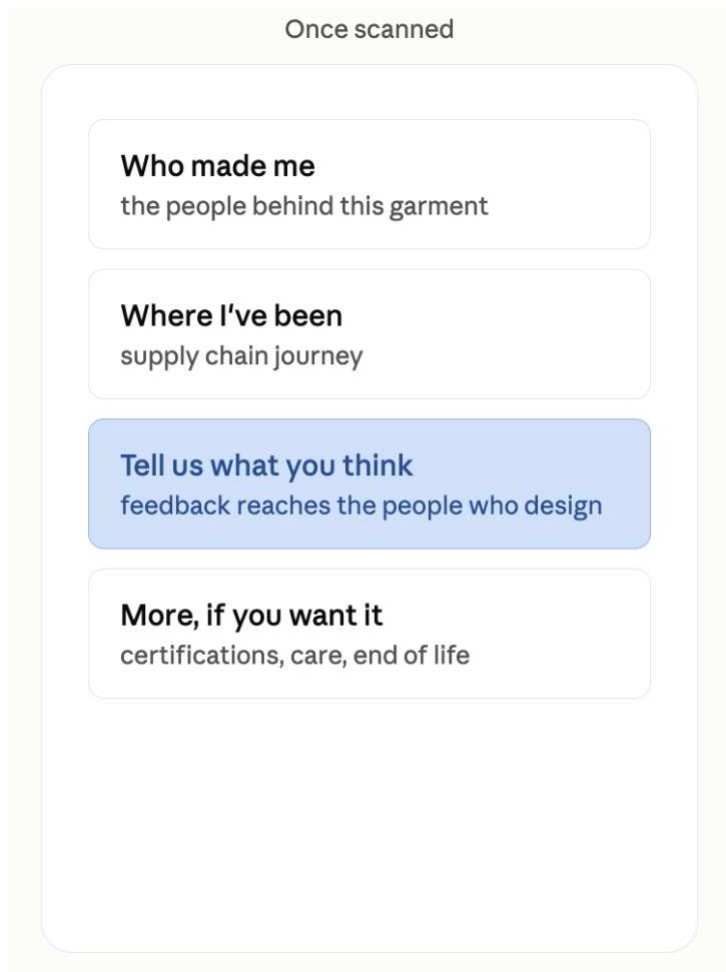


Figure 10. *Once scanned: the digital interface unlocking supply-chain traceability, brand values, and a consumer feedback channel. Together, Figures 8–10 represent the practical translation of the theoretical framework and experimental findings developed throughout this thesis. Label design by the author; image generated with the assistance of Claude (Anthropic), based on an original photograph taken by the author.*

The front (Figure 8) carries only the two elements relevant to this study: textile composition, the sole element legally required under Regulation (EU) No 1007/2011, and country of origin, retained here as a voluntary transparency signal rather than a legal obligation. The back (Figure 9) carries nothing but a QR code: no section, no preview, no additional text is printed on the garment itself. Only once the consumer chooses to scan does the interface (Figure 10) unlock who made the garment, its supply chain journey, a channel to leave feedback, and further certifications. This asymmetry between what is printed and what is accessible is not a stylistic choice; it is the direct application of bounded rationality and cognitive ease argued throughout this thesis, and it translates the experimental finding that ethicality and empowerment, not the sheer volume of

information disclosed, are what a label's design must ultimately serve. For mid-size fashion firms in particular, this model turns transparency into infrastructure rather than decoration: because their supply chains are narrower and more traceable, the content behind the QR code can be genuinely accurate rather than aspirational, and the feedback channel it enables can be read and acted upon at a scale that large retailers, drowning in volume, structurally cannot match.

Limitations and Directions for Future Research

This research has clear limits, several of which concern the questionnaire and sample. The experiment relies on a single fictitious brand and a single product category, which restricts the generalizability of the findings to other garments, price points, and market positionings. The sample, recruited through convenience methods, skews toward younger and more digitally native respondents, who may be more comfortable with QR-based interaction than the broader population of fashion consumers the model ultimately targets. The willingness-to-pay hypothesis was not supported, and the supplementary exploratory analysis, while revealing a suppression effect between empowerment and trust that a univariate approach could not detect, was not accompanied by a formal mediation model capable of establishing the mechanism behind it. Finally, the single-exposure design of the experiment cannot capture how these effects might strengthen, fade, or reverse with repeated use of the label over time.

These limits are not closing remarks; they are an agenda. Future research should test this model beyond a single controlled experiment: through formal mediation modelling, through field studies in real retail environments capturing repeated exposure, and through replication across product categories, price points, and firm sizes. A particularly promising direction concerns the dialogical dimension of the label itself: this study measured willingness to leave feedback, but not what happens once that feedback is actually sent. Whether brands respond, how consumers perceive being heard, and whether a sustained two-way exchange, rather than a single feedback prompt, is what ultimately transforms a transactional relationship into a participatory one. Testing the label not as a static artefact but as the opening move in an ongoing conversation between brand and consumer would extend this thesis's contribution from designing dialogue to observing it in practice. Beyond this, there is a broader question this thesis can only gesture toward, not answer. The DART framework and the emerging European regulatory architecture around the Digital Product Passport are, in a sense, the cradle in which dialogical labelling

is being built: the theoretical grammar and the legal infrastructure both already point toward a future in which consumers are expected, not merely invited, to engage with what they wear. Whether that future actually arrives, however, may depend less on regulation than on necessity. As the climate crisis intensifies and the material consequences of production become harder to externalize or ignore, the question this thesis leaves open is whether that pressure will be sufficient to overcome the intellectual laziness that today keeps a QR code unscanned: whether we will finally choose to understand and actively chose, and not merely wear, what sits against our skin in every instant of our lives.

Bibliography

Achabou, M. A., & Dekhili, S. (2022). Eco-labels as credibility cues: A review of consumer response and managerial implications. *Journal of Business Research*, 145, 414–426. <https://doi.org/10.1016/j.jbusres.2022.03.012>

Allee, V. (2000). Reconfiguring the value network. *Journal of Business Strategy*, 21(4), 36–39. <https://doi.org/10.1108/eb040103>

Argote, L., & Greve, H. R. (2007). A behavioral theory of the firm. 40 years and counting. *Organization Science*, 18(3), 337–349. <https://doi.org/10.1287/orsc.1070.0280>

Bagnasco, A. (1977). *Tre Italie: La problematica territoriale dello sviluppo italiano*. Il Mulino.

Banca d'Italia. (2013). *Le imprese manifatturiere italiane nel contesto internazionale*. Banca d'Italia.

Baudrillard, J. (1981). *Simulacres et simulation*. Éditions Galilée.

BBC. (2022, July 14). How the fashion industry is a major climate change contributor. *BBC Future Planet*. <https://www.bbc.com/future/article/20220714-how-the-fashion-industry-is-a-major-climate-change-contributor>

Becattini, G. (1990). The Marshallian industrial district as a socio-economic notion. In F. Pyke, G. Becattini, & W. Sengenberger (Eds.), *Industrial districts and inter-firm co-operation in Italy* (pp. 37–51). International Institute for Labour Studies.

Berti, L. (2026, June 4). Intervista a Dario Casalini e 10 consigli di Slow Fiber. *Fattidistile.it*. <https://fattidistile.it/intervista-dario-casalini-10-consigli-slow-fiber/>

Bertola, P., & Teunissen, J. (2018). Fashion and the systemic conditions of innovation. *The Design Journal*, 21(5), 655–675. <https://doi.org/10.1080/14606925.2018.1493778>

Beverland, M. B. (2006). The 'real thing': Branding authenticity in the luxury wine trade. *Journal of Business Research*, 59(2), 251–258. <https://doi.org/10.1016/j.jbusres.2005.04.007>

Brunk, K. H. (2012). Un/ethical company and brand perceptions: Conceptualising and operationalising consumer meanings. *Journal of Business Ethics*, 111(4), 551–565. <https://doi.org/10.1007/s10551-012-1339-x>

Brunk, K. H., & de Boer, C. (2020). How do consumers reconcile positive and negative CSR-related information to form an ethical brand perception? A mixed method inquiry. *Journal of Business Ethics*, 161(2), 443–458. <https://doi.org/10.1007/s10551-018-3973-4>

Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty. *Journal of Marketing*, 65(2), 81–93. <https://doi.org/10.1509/jmkg.65.2.81.18255>

Chesbrough, H. W. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business School Press.

Corsini, F., Gusmerotti, N. M., Testa, F., & Frey, M. (2025). Exploring the drivers of the intention to scan QR codes for environmentally related information when purchasing clothes. *Journal of Global Fashion Marketing*, 16(1), 18–31. <https://doi.org/10.1080/20932685.2024.2389973>

Cyert, R. M., & March, J. G. (1963). *A behavioral theory of the firm*. Prentice Hall.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01

De Meo, L. (2025, October 9). Kering verso il rilancio: nella ricetta di De Meo tempi dimezzati e direttori creativi ridimensionati. *Pambianco News*. <https://www.pambianconews.com/2025/10/09/kering-verso-il-rilancio-nella-ricetta-de-meo-tempi-dimezzati-e-direttori-creativi-ridimensionati-460015/>

De Seta, G. (2023). QR code: The global making of an infrastructural gateway. *Global Media and China*, 8(3), 362–380. <https://doi.org/10.1177/20594364231183618>

De Smet, A., Gast, A., Lavoie, J., & Lurie, M. (2023). New leadership for a new era of thriving organizations. *McKinsey Quarterly*. <https://www.mckinsey.com/our-insights/new-leadership-for-a-new-era-of-thriving-organizations>

Denso Wave Inc. (1994). *QR Code Essentials White Paper*. <https://www.qrcode.com/en/>

DHL. (2024). *DHL Global Connectedness Report 2024: Key highlights*. DHL & NYU Stern. <https://www.dhl.com/content/dam/dhl/global/delivered/documents/pdf/dhl-global-connectedness-report-2024-key-highlights.pdf>

DHL. (2025). *DHL Global Connectedness Tracker (March 2025)*. DHL & NYU Stern. <https://www.dhl.com/content/dam/dhl/global/microsites/dhl-nyu/pdf/dhl-global-connectedness-tracker-mar-2025.pdf>

Ellen MacArthur Foundation. (2017). *A new textiles economy: Redesigning fashion's future*. <https://ellenmacarthurfoundation.org/a-new-textiles-economy>

Elteren, M. van. (1999). Cultural policy and globalization. *Journal of Communication Inquiry*, 23(2), 117–136. <https://doi.org/10.1177/019685999902300203>

European Parliament and Council of the European Union. (2011). Regulation (EU) No 1007/2011 on textile fibre names and related labelling and marking of the fibre composition of textile products. *Official Journal of the European Union*, L 272, 1–64. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011R1007>

European Parliament and Council of the European Union. (2024). Regulation (EU) 2024/1781 establishing a framework for the setting of ecodesign requirements for sustainable products (Ecodesign for Sustainable Products Regulation). *Official Journal of the European Union*. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32024R1781>

Featherman, M. S., & Pavlou, P. A. (2003). Predicting e-services adoption: A perceived risk facets perspective. *International Journal of Human-Computer Studies*, 59(4), 451–474. [https://doi.org/10.1016/S1071-5819\(03\)00111-3](https://doi.org/10.1016/S1071-5819(03)00111-3)

- Featherstone, M. (1991). *Consumer culture and postmodernism*. Sage.
- Fletcher, K. (2010). Slow Fashion: An Invitation for Systems Change. *Fashion Practice*, 2(2), 259–265. <https://doi.org/10.2752/175693810X12774625387594>
- Fraser, N., & van der Ven, H. (2022). Increasing transparency in global supply chains: The case of the fast fashion industry. *Sustainability*, 14(18), 11520. <https://doi.org/10.3390/su141811520>
- Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century*. Farrar, Straus and Giroux.
- Fujimoto, T. (2014). Evolutionary dynamics of product architecture: The Japanese experience. *Journal of Evolutionary Economics*, 24(2), 273–294. <https://doi.org/10.1007/s00191-013-0323-4>
- Füller, J. (2006). Why consumers engage in virtual new product developments initiated by producers. *Advances in Consumer Research*, 33, 639–646.
- Gambi, C. (2024). Abiti invenduti: dove finiscono? *Domani*. <https://www.editorialedomani.it>
- Ghemawat, P. (2003). Semiglobalization and international business strategy. *Journal of International Business Studies*, 34(2), 138–152. <https://doi.org/10.1057/palgrave.jibs.8400013>
- Ghemawat, P. (2007). *Redefining global strategy: Crossing borders in a world where differences still matter*. Harvard Business School Press.
- Ghemawat, P. (2012). *World 3.0: Global prosperity and how to achieve it*. Harvard Business Review Press.
- Ghemawat, P. (2012, October 22). *Actually, the world isn't flat* [Video]. TEDx Talk. <https://www.youtube.com/watch?v=KPNn880KWfU>
- Ghemawat, P. (2017). *The laws of globalization and business applications*. Cambridge University Press. <https://doi.org/10.1017/9781316717122>

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.

Henninger, C. E., Alevizou, P. J., & Oates, C. J. (2016). What is sustainable fashion? *Journal of Fashion Marketing and Management: An International Journal*, 20(4), 400–416. <https://doi.org/10.1108/JFMM-07-2015-0052>

Holkkola, M., Paananen, T., Frank, L., Kemppainen, T., & Makkonen, M. (2023). How do QR codes enhance customer experience? Omnichannel customer experiences in a brick-and-mortar fashion store. In A. Pucihar, M. Kljajić Borštnar, R. Bons, G. Ongena, M. Heikkilä, & D. Vidmar (Eds.), *36th Bled eConference: Digital economy and society: The balancing act for digital innovation in times of instability* (pp. 319–334). University of Maribor. <https://doi.org/10.18690/um.fov.4.2023.20>

Holkkola, M., Kemppainen, T., Paananen, T., Makkonen, M., & Frank, L. (2025). Seven ways how in-store QR codes negatively contribute to customer experience: A study of fashion store customers. In *Proceedings of the 58th Hawaii International Conference on System Sciences* (pp. 1316–1325). University of Hawai'i at Mānoa. <https://doi.org/10.24251/HICSS.2025.158>

Hutchins, E. (1995). *Cognition in the wild*. MIT Press.

ISO/IEC. (2015). *ISO/IEC 18004:2015 Information technology - Automatic identification and data capture techniques - QR Code bar code symbology specification*. International Organization for Standardization.

Joy, A., Sherry, J. F., Venkatesh, A., Wang, J., & Chan, R. (2012). Fast fashion, sustainability, and the ethical appeal of luxury brands. *Fashion Theory*, 16(3), 273–295. <https://doi.org/10.2752/175174112X13340749707123>

Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.

Kaiser, F. G., Wölfling, S., & Fuhrer, U. (1999). Environmental attitude and ecological behaviour. *Journal of Environmental Psychology*, 19(1), 1–19. <https://doi.org/10.1006/jevp.1998.0107>

- Klein, G., Feltovich, P. J., Bradshaw, J. M., & Woods, D. D. (2003). Common ground and coordination in joint activity. In W. Bainbridge & R. Reynolds (Eds.), *Organizational simulation* (pp. 139–184). Wiley.
- Lash, S., & Urry, J. (1994). *Economies of signs and space*. Sage.
- Levitt, T. (1983). The globalization of markets. *Harvard Business Review*, 61(3), 92–102.
- Linden, G., Kraemer, K. L., & Dedrick, J. (2007). Who captures value in a global innovation network? The case of Apple's iPod. *Communications of the ACM*, 52(3), 140–144. <https://doi.org/10.1145/1467247.1467280>
- Macnamara, J. (2016). *Organizational listening: The missing essential in public communication*. Peter Lang.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71–87. <https://doi.org/10.1287/orsc.2.1.71>
- McCracken, G. (1986). Culture and consumption: A theoretical account of the structure and movement of the cultural meaning of consumer goods. *Journal of Consumer Research*, 13(1), 71–84. <https://doi.org/10.1086/209048>
- Micelli, S. (2011). *Futuro artigiano: L'innovazione nelle mani degli italiani*. Marsilio Editori.
- Milanovic, B. (2016). *Global inequality: A new approach for the age of globalization*. Harvard University Press.
- Milanovic, B. (2020). *Capitalism, alone: The future of the system that rules the world*. Harvard University Press.
- Napoli, J., Dickinson, S. J., Beverland, M. B., & Farrelly, F. (2014). Measuring consumer-based brand authenticity. *Journal of Business Research*, 67(6), 1090–1098. <https://doi.org/10.1016/j.jbusres.2013.06.001>
- Niinimäki, K. (2020). *Sustainable fashion in a circular economy*. Aalto ARTS Books.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford University Press.

Normann, R., & Ramirez, R. (1993). From value chain to value constellation: Designing interactive strategy. *Harvard Business Review*, 71(4), 65–77.

OECD. (2011). *Trade and competitiveness after China's WTO accession*. OECD Publishing. <https://doi.org/10.1787/9789264099281-en>

Ordoro Blog. (2025, September 24). Lessons from Zara for ecommerce fashion retailers. <https://blog.ordoro.com/2025/09/24/lessons-from-zara-ecommerce-fashion/>

Orne, M. T. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, 17(11), 776–783. <https://doi.org/10.1037/h0043424>

Paananen, T., Holkkola, M., Makkonen, M., Frank, L., & Kemppainen, T. (2023). Customers' QR code usage barriers in a brick-and-mortar store: A qualitative study. In A. Pucihar, M. Kljajić Borštnar, R. Bons, G. Ongena, M. Heikkilä, & D. Vidmar (Eds.), *36th Bled eConference: Digital economy and society: The balancing act for digital innovation in times of instability* (pp. 171–188). University of Maribor. <https://doi.org/10.18690/um.fov.4.2023.11>

Patagonia. (2022). *Our footprint*. Patagonia. <https://www.patagonia.com/our-footprint/>

Pea, R. D. (1993). Practices of distributed intelligence and designs for education. In G. Salomon (Ed.), *Distributed cognitions* (pp. 47–87). Cambridge University Press.

Pencarelli, T., Conti, E., & Micozzi, A. (2020). Digital technologies, sustainability and marketing: A research agenda for the fashion industry. *International Journal of Management Cases*, 22(3), 208–222.

Petty, R. E., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. Springer.

Pine, B. J., & Gilmore, J. H. (1999). *The experience economy: Work is theatre and every business a stage*. Harvard Business School Press.

Piore, M. J., & Sabel, C. F. (1984). *The second industrial divide: Possibilities for prosperity*. Basic Books.

Prahalad, C. K., & Ramaswamy, V. (2004a). *The future of competition: Co-creating unique value with customers*. Harvard Business School Press.

Prahalad, C. K., & Ramaswamy, V. (2004b). Co-creation experiences: The next practice in value creation. *Journal of Interactive Marketing*, 18(3), 5–14.

Ritzer, G. (1993). *The McDonaldization of society*. Pine Forge Press.

Robertson, R. (1995). Glocalization: Time–space and homogeneity–heterogeneity. In M. Featherstone, S. Lash, & R. Robertson (Eds.), *Global modernities* (pp. 25–44). Sage.

Rodrik, D. (2011). *The globalization paradox: Democracy and the future of the world economy*. W. W. Norton & Company.

Scanova. (2022, July 14). *QR code for apparel: A tech-savvy revolution in the fashion industry*.

Schmitt, B. H. (1999). *Experiential marketing: How to get customers to sense, feel, think, act and relate to your company and brands*. Free Press.

Shih, S. (1996). *Me-too is not my style: Challenge difficulties, break through bottlenecks, create values*. Acer Press.

Simon, H. A. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics*, 69(1), 99–118. <https://doi.org/10.2307/1884852>

Simon, H. (2009). *Hidden champions of the twenty-first century: The success strategies of unknown world market leaders*. Springer.

Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87(3), 355–374.

Stone, R. N., & Grønhaug, K. (1993). Perceived risk: Further considerations for the marketing discipline. *European Journal of Marketing*, 27(3), 39–50. <https://doi.org/10.1108/03090569310026637>

Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly*, 15(1), 125–143. <https://doi.org/10.2307/249443>

Tokatli, N. (2008). Global sourcing: Insights from the global clothing industry - the case of Zara, a fast fashion retailer. *Journal of Economic Geography*, 8(1), 21–38. <https://doi.org/10.1093/jeg/lbm035>

Turkle, S. (2015). *Reclaiming conversation: The power of talk in a digital age*. Penguin Press.

Turley, L. W., & Milliman, R. E. (2000). Atmospheric effects on shopping behavior: A review of the experimental evidence. *Journal of Business Research*, 49(2), 193–211.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124–1131. <https://doi.org/10.1126/science.185.4157.1124>

Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68(1), 1–17. <https://doi.org/10.1509/jmkg.68.1.1.24036>

Vecchio, R., & Annunziata, A. (2015). Willingness-to-pay for sustainability labels: A review. *Trends in Food Science & Technology*, 41(2), 118–129.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>

Verhoef, P. C., Kannan, P. K., & Inman, J. J. (2015). From multi-channel retailing to omni-channel retailing: Introduction to the special issue on multi-channel retailing. *Journal of Retailing*, 91(2), 174–181. <https://doi.org/10.1016/j.jretai.2015.02.005>

Von Hippel, E. (1994). "Sticky information" and the locus of problem solving: Implications for innovation. *Management Science*, 40(4), 429–439.

Wagnleitner, R. (1994). *Coca-colonization and the Cold War*. University of North Carolina Press.

Womack, J. P., & Jones, D. T. (1996). *Lean thinking: Banish waste and create wealth in your corporation*. Simon & Schuster.

World Bank. (2023). *World development indicators database*.
<https://databank.worldbank.org/source/world-development-indicators>