Management Decision

# Exploring the heuristics behind the transition to a circular economy in the textile industry

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## Abstract

**Purpose** – The transition to a circular economy (CE) is a known concern in the context of the textile industry, in which business actors attempt to facilitate circular activities such as textile recycling. However, a lack of established business relationships and networks creates uncertainty for textile circulation. In such business environments, managerial decisions regarding CE may depend not only on normative behaviour but also on heuristics that guide their choices. Since business relationships for textile circularity require interactions between business actors, this study explores how managerial heuristics are shaped in the CE transition within the textile industry and their impact on actors' interactions within business relationships and networks.

**Design/methodology/approach** – Empirically, this qualitative study is based on interviews with managers representing companies and organisations engaged in business relationships and networks aimed at a CE transition in the textile industry, as well as on publicly available secondary data.

**Findings** – The findings indicate that managerial decisions promoting circularity can be influenced by, besides normative information assessment, factors predominant in (1) the business and regulatory environment, (2) managers' experience and knowledge obtained during interactions within business networks and (3) the internal strategic approaches of business organisations. This study identifies adaptation, experience, interaction and strategy heuristics that may be utilised by managers in making decisions in the context of uncertainty, such as the industrial transition to a CE.

**Originality/value** – This study expands the knowledge of heuristics applied to managerial decision making in interacting business firms and institutional organisations aiming to facilitate textile recycling and proposes a heuristics toolbox. The study provides an insight into business actors' interactions, as well as various factors inside and outside the organisations shaping the managerial decisions. By doing this, the study adds to the literature, highlighting the importance of contextualisation and the interrelation between the individual and business environment levels in business-to-business management.

**Keywords** Interaction, Business networks, Heuristics, Decision making, Circular economy, Textile industry
**Paper type** Research paper



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## 1. Introduction

In their attempts to approach sustainability, various industries introduce the premises of a circular economy (CE) to their business processes. In accordance with the substantial number of CE definitions (Kirchherr *et al.*, 2023), this study refers to the key principles of CE that include the implementation of closed loop production to preserve and reuse resources, minimise waste and promote sustainability in the environmental and social spheres (Murray *et al.*, 2017). According to the management literature, CE embraces the principles of eliminating negative environmental impacts, reutilising materials in the processing system, using renewable sources of energy, fostering resilience, maximising the value of used resources and cascading biological materials before they are discarded (De Angelis, 2021). Prior literature has adopted the notion of the CE paradigm with major interest (Ahmad *et al.*, 2023; Alcalde-Calonge *et al.*, 2022; De Angelis, 2021) because it challenges management to reconsider its methods of doing business in a fundamental way (Kaipainen and Aarikka-Stenroos, 2022; Kirchherr *et al.*, 2023).

Systemic changes in the adoption of a CE also concern the business networks approach since the changes require a strategic redefinition of industrial production processes, supply chains and the strategic efforts of industrial actors to implement complex technological solutions through interactions. Indeed, the adoption of circularity demands interactions between business actors and the development of interrelated networks (Håkansson and Snehota, 1995; Ford *et al.*, 2017) as a single actor may find it hard to implement complex changes and create economic value on its own (Lahti *et al.*, 2018; Figge *et al.*, 2022). Often, the transition to CE affects all engaged, interconnected actors in the network who need to adapt their interaction patterns accordingly (e.g. Ranta *et al.*, 2020; Mishra *et al.*, 2019). The decision to adopt a CE can be driven, for instance, by a new source of raw materials (Mishra *et al.*, 2019; Perey *et al.*, 2018; Bocconcelli *et al.*, 2018), lower energy consumption targets and decreased carbon dioxide emissions (Kumar *et al.*, 2019; Zhao *et al.*, 2017), strategic business development perspectives (Järvenpää *et al.*, 2021), demand from business-to-consumer (B2C) markets for sustainable solutions (Niinimäki and Hassi, 2011), technological advancement enabling sustainable production (Ranta *et al.*, 2020; Luttenberger, 2020), market opportunities to create value from efficient waste management (Snellinx *et al.*, 2021) or adaptation to regulatory changes (Dziubaniuk *et al.*, 2023). The decision to transition to a CE is thus conditioned upon various contextual factors, both on the organisational and the business network level, as well as the general business environment, where decision makers need to "weigh the gains of exploiting an opportunity against the risk of losing the resources at hand" (Vahlne and Johansson, 2020, p. 8).

Individuals act as agents of organisations, and they are responsible for the strategic decision making in their organisations (La Rocca *et al.*, 2017). Thus, understanding individual actors' decision-making approaches is important, especially regarding their interactions within business relationships as they make the final decisions based on their judgment and personal perspectives on the interactions to achieve strategic goals (Guercini *et al.*, 2015). Managers' cognition may be approached through heuristics in decision making. This embraces the process of shaping decisions that may involve rationality of cognition as well as irrational thinking grounded on individuals' personal values in the context of uncertainty (Guercini *et al.*, 2014; Guercini and Milanesi, 2020; Niittymies, 2020). Thus, the transition to a CE, even though its gained attention is an uncertain activity from a business perspective (Dziubaniuk *et al.*, 2023), may depend both on contextual factors and on managers who act upon these factors in business relationships and networks. This corresponds with the recent call on heuristics in the management literature to consider micro-foundations, "which are the explanatory mechanisms at the individual level, individual actions, and processes, and how they interact with other mechanisms regarding phenomena at a higher level" (Guercini and Milanesi, 2020, p. 10). Research on heuristics in the context of

business relationships and networks requires a greater understanding of why, how and in which situations heuristics are used in managing relational complexity (e.g. Guercini *et al.*, 2014). The business-to-business (B2B) and networks research also lacks insight into how managers use heuristics in specific industry settings (Guercini and Runfola, 2021) where actors make decisions while pursuing a common goal, such as facilitating a textile recycling business process and the efficient circulation of waste, as well as using recycled fibre as a resource. For instance, an actor with a recycling technology may lack partners to support supply and purchasing and may not know which actors need to be involved due to the novelty of this business activity (Dziubaniuk *et al.*, 2023; Keränen *et al.*, 2021; Paras *et al.*, 2018). In this case of uncertainty, decisions may not be grounded in rationality but based on trials of interaction, developing experience and learning embedded in networking and interaction.

Since current research approaching heuristics in B2B interaction is rather limited (Guercini *et al.*, 2015, 2022; Guercini and Runfola, 2021), this study is focussed on business relationships and networks transitioning to CE within the textile industry and factors influencing managerial decision making within the interaction processes. Thus, we aim to answer the following research questions: (1) How do business environment and organisational factors shape managerial heuristics in decision making for the transition to a CE in the textile industry? (2) How do managerial heuristics affect actors' interactions within business networks aiming at a CE transition? Empirically, this study explores the textile industry, which is conventionally listed among the most sustainability-challenging industries (McFall-Johnsen, 2020). CE in the textile industry attracts the attention of researchers and practitioners due to novel technical and business opportunities, mostly related to textile recycling, despite a variety of CE principles aimed at closing the loop of material flow and value creation. The implementation of recycling technologies allows business actors to aim at sustainability in business processes and raw materials recovery (e.g. Dziubaniuk *et al.*, 2023; Keränen *et al.*, 2021; Närvänen *et al.*, 2021). Innovations for textile recycling have already been introduced across the European Union (EU), but the market for recycled fibre and industrial scale recycling is still at a stage of emergence (Koszewska, 2018). Our particular focus is on the textile industry in Finland, which is transitioning to a CE and needs to rely on a variety of business actors embedded in B2B interactions. While Finnish companies are frequently included at the top of various sustainability rankings (see, e.g. Corporate Knights, 2021), the Finnish textile industry still requires development towards sustainability and renewal to "strengthen its global reputation as a leader in CE" by 2035 (Kamppuri *et al.*, 2021, p. 1). Nevertheless, Finland is oriented towards the increased circularity of textile waste, which requires a complex approach to innovation, managerial practices and interactions between various networked actors (Fontell and Heikkilä, 2017; Kamppuri *et al.*, 2021; Rovanto and Finne, 2022). The present qualitative study explores a business network of companies (six Finnish and two foreign) and six Finnish institutional organisations engaged in textile recycling. The empirical data were collected by interviewing the key managers who interact to enable textile circulation processes and, consequently, systemic change.

By referring to the heuristic approach presented in the management and industrial marketing literature (Guercini *et al.*, 2015, 2022; La Rocca *et al.*, 2017), this study makes an interdisciplinary contribution by illustrating those interactions between business network actors, resulting in developed knowledge and experience in the processes of textile circulation, may impact actors' managerial decisions regarding the CE transition. The study expands the knowledge on heuristics for managing interaction in a context of uncertainty (e.g. Guercini and Lechner, 2021; Guercini and Runfola, 2021) by conceptualising an adaptation, experience, interaction and strategy heuristics "toolbox". The study presents empirical evidence on how business relationships may contribute to the transition to a CE

within the textile industry (Franco, 2017; Paras *et al.*, 2018) through the networking of business and institutional organisations in a series of projects and probing. This study explores organisational and external factors influencing the strategic change of companies to circularity (Dziubaniuk *et al.*, 2023; Kaipainen and Aarikka-Stenroos, 2022), among which can be emphasised market demand for sustainable solutions, regulatory changes and business strategies targeting sustainability.

This article continues with a literature review on the heuristic approach and its role in B2B interaction processes and insight into the CE specifics in the textile industry context. In the Methodology section, the methodological approaches to the empirical data collection and analysis are represented. The findings of the empirical study are presented in the Results section followed by the Discussion section reflecting the interplay between literature and empirical evidence and proposing a heuristics toolbox. Finally, the Conclusions section summarises the key findings, contributions and limitations, as well as provides several suggestions for future research.

## 2. Literature review

### *2.1 The heuristic approach to decision making when transitioning to CE*

Above all, transitioning to a CE involves the introduction of new actors and material flows to business networks, as well as high levels of uncertainty (de Lima *et al.*, 2021). Grafström and Aasma (2021) list three uncertainties linked to CE business models. First, both consumers and companies are still uncertain about quality when it comes to, for instance, used car markets and products manufactured from recycled materials. Second, there is uncertainty about supply reliability since recycled materials depend on previous consumption patterns. Finally, because of inelastic supply, price volatility is high for recycled materials, which creates uncertainty about profitability. These uncertainties relate also to resource heterogeneity, which is a foundational concept in the resource interaction literature (Prenkert *et al.*, 2022). Heterogeneity implies "uniqueness of each resource's features", as well as "emergence of a resource's value(s) from combinations with other specific resources", both of which highlight "the emergent and context-dependent nature of resources" (Prenkert *et al.*, 2022, p. 53).

Due to resource heterogeneity, it becomes complicated to accurately foresee the emergence of novel resource combinations such as innovations, knowledge or recovered raw materials as "it is impossible for any human being to have full knowledge of any resource" (Håkansson and Walusewski, 2002, p. 32), leading to the need for frequent interactions and probing, i.e. questioning and requiring additional information (Levine and McCornack, 2001). The features of a specific resource emerge through interactions between actors and are influenced by their perceptions of how it can be used in conjunction with other resources (Abrahamsen and Håkansson, 2015). Interactions between actors represent a dynamic process aiming to develop novel solutions (La Rocca and Snehota, 2014; Ford *et al.*, 2017) for which a single actor may lack resources or knowledge (Figge *et al.*, 2022). Complex solutions may need to involve more than two interrelated actors, which form a network of interactions or relationships that have a strategic meaning for the involved actors in achieving their business goals (Törnroos *et al.*, 2017; Håkansson *et al.*, 2009). However, in the context of networks with high business uncertainty, such as those facilitating textile circulation, managerial decisions often must be made based on incomplete information, resulting in the "bounded" rationality of the decision makers (Niittymies, 2020). Furthermore, since decisions are made by human beings, such processes may also involve irrational thinking or other personal factors. Thus, individuals' decisions and actions are made based on their incomplete knowledge of reality, anticipation of the future outcomes of those actions and personal preferences (Guercini *et al.*, 2014; Guercini and Runfola, 2021). Such an

approach is referred to in the literature as *heuristics*, which implies "a simple procedure that helps find adequate, though often imperfect, answers to difficult questions" (Guercini *et al.*, 2014 citing Kahneman, 2011, p. 98).

Heuristics can be applied on both the individual and organisational levels (Guercini and Runfola, 2021). On an individual level, heuristics enable accurate decision making, whereas organisational or collective heuristics enable coordination and guide organisational processes (Loock and Hinnen, 2015). The literature recognises two approaches to heuristics: the "heuristics and biases" paradigm and the "fast-and-frugal" paradigm (Loock and Hinnen, 2015). While the former highlights the possibility of biases in decision making as a result of applying heuristics and probabilistic thinking (Gigerenzer, 1991), the latter emphasises the positive outcomes of resorting to heuristics in situations of uncertainty, when it is impossible to calculate all the risks (Hafenbrädl *et al.*, 2016). In the case of fast-and-frugal heuristics, the focus is on knowledge regarding which cues to seek in a certain situation, when to stop cue exploration and how to come up with a decision based on the limited cues available (Loock and Hinnen, 2015). Organisational and societal contexts can "influence the use and value of fast-and-frugal heuristics in organizations" (Loock and Hinnen, 2015, p. 2031). Thus, the value of heuristics increases when dealing in highly uncertain contexts like that of international business networks (Guercini and Milanesi, 2020; Guercini and Runfola, 2021) and the transition to CE, in particular. Guercini and Milanesi (2020) outline numerous types of heuristics based on an extensive review of the international business literature. Among them are, for instance, imitative behaviour through observing other companies, past experience, Kahneman and Tversky's (1972) anchoring, representativeness, adjustment and availability heuristics, all of which are related to biases arising from experimental research (for more information on heuristic types, see Guercini and Milanesi, 2020). These heuristic types are united by adaptive behaviour, experiential learning and strategic planning, with more research needed into "individual actions, and processes, and how they interact with other mechanisms regarding phenomena at a higher level" (Guercini and Milanesi, 2020, p. 10). In networks, actors adapt their managerial behaviour and learn the rules of heuristics to tackle risky decision making based on their history of interaction and reciprocal learning from experience, which can be individual as well as collective or organisational (Guercini, 2012; Guercini *et al.*, 2015).

While most of the business research on heuristics is done in the field of organisation and management (see Loock and Hinnen, 2015), business network scholars have highlighted heuristics as a promising field of study when it comes to research on interactions between actors in a business network (Guercini *et al.*, 2014). Thus, Guercini *et al.* (2022) state that individuals possess a "toolbox" of heuristics from which they choose certain cues that would be applicable to a certain interaction episode and would serve as the basis for decision making. "Interaction has a role in nourishing the toolbox as experiencing various interaction contexts and outcomes stimulates development of new heuristics" (Guercini *et al.*, 2022, p. 384). Despite its importance in guiding behaviour in relation to decision making in a business network context (Guercini *et al.*, 2015), heuristics are an untapped topic of research in the B2B marketing literature (Guercini *et al.*, 2014, 2022). Given the growing emphasis on sustainability and CE in the B2B marketing field (e.g. Ranta *et al.*, 2020; Harrison *et al.*, 2023; Sairanen *et al.*, 2024), alongside the inherent uncertainty of such contexts, considering the scope and nature of heuristics used by managers in a business network is of even greater relevance at the present time.

### *2.2 CE in the textile industry*

Due to the scarcity of natural resources and the utilisation of these in a take-make-dispose culture, CE has been promoted as a pathway to sustainable development (Geissdoerfer *et al.*, 2017). Within the last decade, CE has earned an established position as a theoretical field

(Del Vecchio *et al.*, 2021), with two main streams focussing on either manufacturing and environmental engineering or on the business management of CE (Alcalde-Calonge *et al.*, 2022). A consolidated understanding of CE frames it as "a regenerative economic system which necessitates a paradigm shift" (Kirchherr *et al.*, 2023), where the value of materials and products is maintained as long as possible, prioritising reuse, refurbishment and repair over remanufacturing, where options for recycling are favoured and where combustion for energy and landfill use are regarded as a last resort (Korhonen *et al.*, 2018). CE has been eagerly welcomed in industrial companies (Bag *et al.*, 2018; Lieder and Rashid, 2016), not only for promoting environmental sustainability but also for enhancing competitiveness and profitability (De Angelis, 2021). CE is a known theme in B2B research regarding, e.g. customer value propositions (Ranta *et al.*, 2020), new business models (Melander and Arvidsson, 2021), buyer-supplier interactions (Franco, 2017) and, more specifically, in industries such as food manufacturing and retailing (Närvänen *et al.*, 2021) or waste management (Luttenberger, 2020).

As acknowledged by both researchers and policymakers (European Commission, 2020; Franco, 2017), the textile industry, being an essential provider of consumer goods with over 37% share of industrial activity in Europe, is one of the most environmentally burdensome and polluting industries. The industry is characterised by excessive production and throw-away culture (Leal Filho *et al.*, 2019), as well as complex supply chains (Boström and Micheletti, 2016; Franco, 2017). Hence, it has gained traction as a prominent industry for CE applications (Hole and Hole, 2019; Leal Filho *et al.*, 2019). Among the general approaches to textile circulation are processes such as (1) textile recycling that includes collecting, sorting and cutting textile waste into fibre that is reprocessed through mechanical, thermal or chemical methods or a combination of these (Karell and Niinimäki, 2019; Piribauer and Bartl, 2019); (2) the reuse of textiles, aiming at prolonging their life through new applications by selling textile products in second-hand shops or renting textile garments to other users (Fontell and Heikkilä, 2017; Levänen *et al.*, 2021); and (3) the reduction of textile consumption that can be achieved by simply buying less or extending the life of textile products by repairs (Levänen *et al.*, 2021). In the B2B sphere, the circulation of textiles generally consists of collection from companies and recycling to obtain fibre as a resource that can be utilised in manufacturing. However, the amount of recycled textile fibre reached only 8.9% of the volume of textiles produced at the global scale in 2021, while fabrics such as polyester constituted 14.8% and recycled cotton 1% of the global volume (Textile Exchange, 2022). Companies in the textile industry generally represent two different types: companies replacing their linear approaches by adopting a CE and those founded upon sustainability principles (Rovanto and Bask, 2020).

Prior research on CE in the textile industry has reviewed challenges, enablers, drivers, practices and strategies for CE implementation in the textile industry (Abdelmeguid *et al.*, 2022; de Aguiar Hugo *et al.*, 2021; Dissanayake and Weerasinghe, 2022). Among the key barriers to transition are a lack of a strategic vision for circular processes (Franco, 2017; Paras *et al.*, 2018), inefficiency in the regulatory environment that should provide incentives for transition (Fischer and Pascucci, 2017; Perry *et al.*, 2015), limited capabilities of the technologies needed to recycle textile materials of mixed composition (e.g. polyester mixed with cotton) (Aloini *et al.*, 2020; Jia *et al.*, 2020), a lack of a strategic approach to product design that would include recycling specifications (Salmi and Kaipia, 2022) and end-user perceptions of products made of recycled materials as being low quality despite the increased focus on sustainable consumption in consumer markets (Desore and Narula, 2018; Niinimäki and Hassi, 2011; Singh and Giacosa, 2019). Additionally, unclear economic viability, especially in the short term, plays a large role in hindering the circularity of textiles (e.g. Huang *et al.*, 2021; Koszewska, 2018).

The facilitation of textile recycling as an industrial system requires the development of appropriate infrastructure, resources and capabilities supported by policymakers and various business actors (Camilleri, 2020). The challenge of absent supporting business actors targeting CE is especially visible in the textile industry (e.g. Franco, 2017; Reike *et al.*, 2023). A company can install innovative recycling technology, but it may still experience challenges due to the lack of intermediary actors, connections to other cross-sector actors facilitating smooth material and economic flow or failure to understand the strategic importance of circularity processes among partnering actors (Keränen *et al.*, 2021; Paras *et al.*, 2018). Therefore, strategic interaction and consequently the networking of business firms is needed (Gulati *et al.*, 2000; Ritter *et al.*, 2004) to facilitate an uninterrupted supply of resources, knowledge, innovation, etc., as well as the further redistribution of recycled materials (van Fenema and Keers, 2020).

The lack of information and coordination as a result of weak standards and policies hinders CE adoption on a broad scale in the textile industry (Fischer and Pascucci, 2017; Perry *et al.*, 2015; Leal Filho *et al.*, 2019) by creating an institutional barrier (Jia *et al.*, 2020). The institutional context is also influenced by consumers' levels of awareness regarding sustainability issues in the industry (Leal Filho *et al.*, 2019; Saha *et al.*, 2021). Meanwhile, at the company level, CE endeavours are challenged, among other issues, by economic viability and volatility, limited material availability and technological issues concerning the different compositions of materials and management's neglect or unawareness (Leal Filho *et al.*, 2019; Rovanto and Bask, 2020; Saha *et al.*, 2021; Sharma and Foropon, 2019). To overcome such challenges, researchers have encouraged companies to take a more interaction-centred approach, in which increased collaborative efforts and sustainability-oriented knowledge-sharing throughout business networks can promote the adoption of circularity (Saha *et al.*, 2021).

## 3. Methodology

### *3.1 Case country context*

The Finnish textile industry is relatively small compared to the industries of other European countries, but it is characterised by a high level of collaboration and interaction between business actors (Fontell and Heikkilä, 2017; Bauer *et al.*, 2020). This industry engages over 40,000 employees in Finland, of which 33,000 are employed in retail (Textileinfomedia, 2023). Despite a small industrial representation, Finnish companies are aiming to become forerunners in textile recycling technologies (Kamppuri *et al.*, 2021), with several companies focussing on cellulose-based fibre innovations and the commercialisation of recycled textiles and fibres (Pylkkänen, 2022; Gädda, 2021). The transition of the Finnish textile industry to a CE contributes to European Green Deal targets, one of which aims to tackle the environmental impact caused by textile waste (European Green Deal, 2023) and the European Commission strategy to achieve a carbon-neutral, environmentally sustainable, full CE by 2050 (European Parliament, 2023). Despite a favourable business environment and innovations, the circulation of textiles in Finland remains an emerging business field dominated by B2B companies.

### *3.2 Methodological strategy*

To capture the complexity of the studied phenomenon, this study is framed as a case study (Halinen and Törnroos, 2005) exploring directly and indirectly networked companies and organisations aiming at the CE of textiles. To address the research objectives, this study applies qualitative interviewing as the main data collection method (Brinkmann, 2013; Merriam and Tisdell, 2016) and the analysis of secondary data sources for support and data

triangulation. The collection of interview data was conducted between March 2019 and November 2022. The dataset consists of interviews with managers from eight predominantly B2B companies (of which three also serve B2C markets) and six organisations or research institutions that collaborate with businesses to address textile circulation challenges. The selection criteria used for choosing the companies were as follows: (1) existing business relationships between companies and organisations aiming at a textile CE, (2) direct involvement in the textile industry through business activities and (3) access to managers responsible for strategic decision making in the companies.

The interviews lasted approximately 50–70 min each and were digitally recorded with the permission of the interviewees, whose anonymity is preserved. Only one interview was conducted in each organisation, which creates some limitations for this study. However, the interviews were conducted with the main executives responsible for managing CE activities in organisations and small- and medium-sized companies since large companies appoint specific executives to communicate with researchers due to the sensitivity of business information. Tables 1 and 2 summarise the companies and organisations' roles in the network and the interviewees' roles in their companies or institutions. Figure 1 illustrates the network of the companies and organisations. The arrows point to the direction of materials (waste and recycled fibre), knowledge and financial flows between the network actors. Most of the actors are directly involved in business relationships or R&D activities with research

| Company code | Market type | Role in business relationships | Company size | Country | Interviewee's managerial position |
|---|---|---|---|---|---|
| A | B2B | Mechanical textile recycling | Small | Finland | Customer Relationships Management |
| B | B2B | Producer and retailer of textile garments, intermediary services of collecting, sorting and supplying textiles | Small | Finland | Sustainability and Product Management |
| C | B2B | Chemical textile recycling, recycling cellulose-rich materials into textile fabric | Small | Finland | Co-founder |
| D | B2B/ B2C | Manufacturer of products including textile components; supplying textile leftovers of production for recycling | Medium | Finland | Marketing Management |
| E | B2B | Production and retail of textile products, textile renting services; collecting and supplying used textiles for recycling | Large | Finland | Ecosystems Management |
| F | B2C | Supplying textile leftovers of production and used textiles for recycling | Large | Finland | Product and Material Development Management |
| G | B2B | Supplying used textiles for recycling | Small | Norway | Supply Chain Management |
| H | B2B/ B2C | Purchasing recycled fibre for product manufacturing; purchasing sorted used fabric for chemical recycling | Large | Sweden | Sourcing Management |

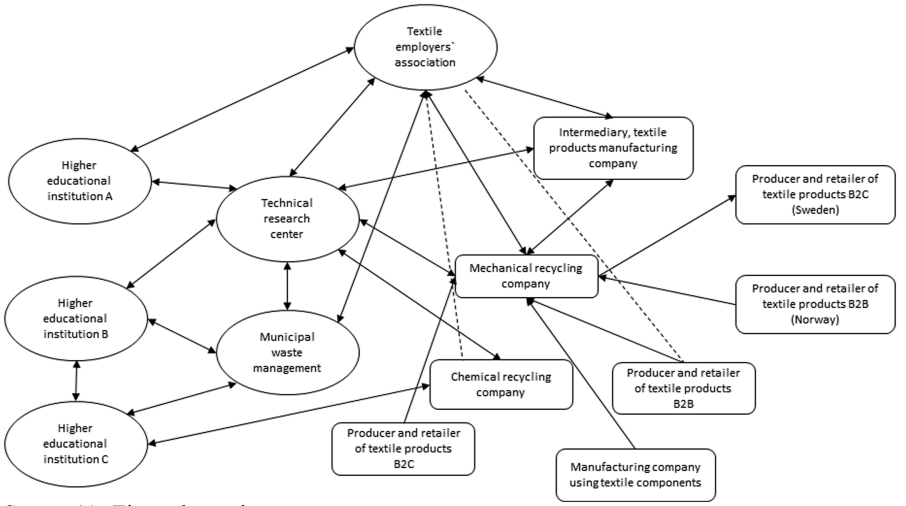
**Table 1.** Empirical data summary – business organisations

**Source(s):** Table by authors

| Organisation | Role in business relationships | Interviewee's position |
|---|---|---|
| Technical research centre, governmental non-profit organisation | Facilitates CE projects between businesses and research institutions | Senior Researcher and Project Manager |
| Municipal waste management organisation | Responsible for waste collection and disposal; collaborates on projects on textile collection and recycling | Circular Economy Specialist |
| Higher educational institution A | Facilitates projects on textile recycling | Recycled Textile Fibre Specialist |
| Higher educational institution B | Facilitates projects on textile recycling | Product Development Specialist |
| Higher educational institution C | Facilitates projects on textile recycling | Development Manager |
| A textile, fashion and apparel industry employers association | Promotes collaboration and business initiatives in the Finnish textile and fashion industry | CE Specialist |

**Source(s):** Table by authors

**Table 2.** Empirical data summary – organisations and institutions




**Source(s):** Figure by authors

**Figure 1.** Network of the case study actors

institutions, whereas a textile industry employers association has an indirect impact on all businesses in the Finnish textile industry.

The main questions in the semi-structured interview guide covered the following topics: (1) managers' motivation to engage in interactions for a transition to a CE; (2) reflection on the interaction episodes between the companies and organisations; (3) the challenges and opportunities of interactions when it comes to the persuasion of other actors to transition to circularity; (4) perceived strategic targets of interactions; and (5) external factors, i.e. societal and organisation-level, influencing decision making regarding engagement in interactions for CE and other factors emerging during the interactions. The interviews were interpreted through content analysis according to the explorative setting of the research (Duriau *et al.*, 2007; Zhang and Wildemuth, 2009). The collected interviews were recorded and transcribed verbatim. First, the texts were read and categorised by textual first-order concepts related to

the research objectives. Second, these concepts were grouped into second-order themes corresponding to the factors influencing heuristics in the three aggregate dimensions of business environment, business relationship and organisational contexts of the interactions, which were the key dimensions of this data analysis. A detailed summary of the data analysis strategy is depicted in Figure 2. The concepts and themes were generated inductively, which corresponds with the interpretative nature of the study (Mayring, 2004). The coding was conducted by the lead author, after which the results were discussed among all the researchers involved in the study, and the final codes and interpretations were agreed upon in the spirit of researcher triangulation.

To support the primary data, secondary data, in the form of publicly available information about the companies and research organisations on their websites and reports and institutional publications that deepen the understanding of the Finnish and EU-level textile industry context, were used for the study. The secondary data are summarised in Table 3.

In the following section, the results are presented according to the aggregate dimensions. The key findings were further extracted from the results, compared and grouped by the specific focus of the decision making. The findings were grouped into categories of adaptation, experience, interaction and strategy heuristics, reflecting how actors explore the business environment for information and innovations to adapt to the changes, engage in experiential interactions and collaboration, learn from personal networking and interactions focused on CE mindset development and set long-term strategic targets and communicate them within the organisation and externally. The findings are summarised in the managerial decision-making heuristics toolbox, which is explained and illustrated in the Discussion section.

## 4. Results

### *4.1 Factors influencing the transition to a CE in the context of uncertainty*

*4.1.1 Business environment factors.* Factors external to an organisation, those originating in society, regulatory changes or changes in the markets force companies to adapt their business accordingly. To approach heuristic thinking, companies constantly search for hints

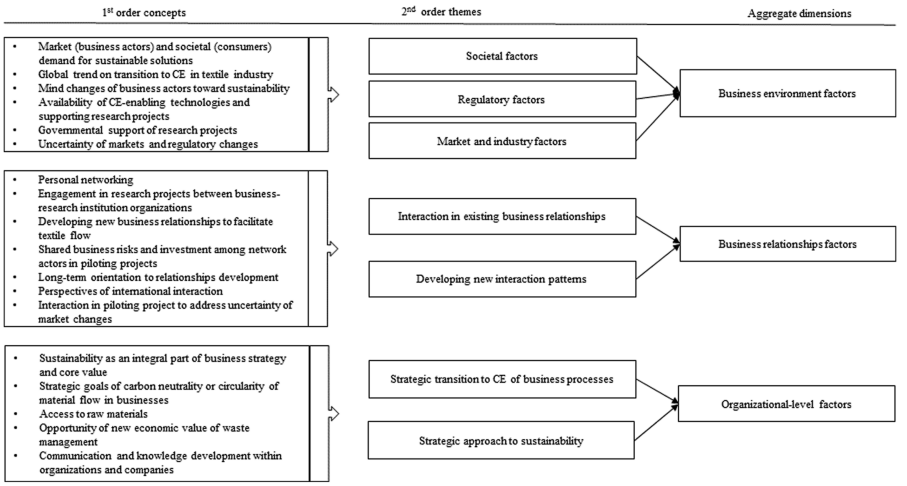



**Figure 2.**
Data analysis strategy: factors influencing heuristics behind the transition to a CE

**Source(s):** Figure by authors

| Type of data | Clarification |
|---|---|
| Companies and organisations' web sites | Publicly available information about the companies and organisations' activities, news and marketing information: $N = 14$ |
| Research reports | Fontell, *P. and* Heikkilä, P. (2017), "*Model of circular business ecosystem for textiles*", VTT Technical Research Centre of Finland, Juvenes Print, Tampere, Finland<br>Kamppuri, T., Kallio, K., Mäkelä, S. M. and Harlin, A. (2021), "*Finland as a forerunner in sustainable and knowledge-based textile industry—Roadmap for 2035",* VTT Technical Research Centre of Finland, Research Report No. VTT-R-00684-21 |
| Briefings, technical reports | Šajn, N. (2019), "*Environmental impact of the textile and clothing industry*", European Parliamentary Research Service. Available at https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2019)633143<br>Donatello, S., Danneck, J., Löw, C., Watson, D., Konstantas, A., Trzepacz, S., Liu, R., Köhler, A. and Faraca, G. (2021), "*Circular economy perspectives in the EU textile sector*", EU Science Hub, Luxembourg: Publications Office of the European Union |

**Source(s):** Table by authors

**Table 3.**
Secondary data

about what is going on in society and industry to identify their future strategies. Among the key external factors influencing their decision making to engage in CE, the interviewees emphasised technological innovation as well as the appearance of new actors. For instance, company A's mechanical recycling operations have attracted attention not only from companies directly engaged in the textile industry but also from companies that partly produce textile waste, such as company D. The motivation to start these operations was grounded in the aim to recycle end-of-life textiles, using it as a resource and to address the environmental impact of textile waste. This business initiative was supported by the technical research centre, which coordinates research projects and aids networking between business partners. This research centre supports the implementation of governmental targets concerning the transition to a CE, which is described in the "Roadmap for 2035" – a report covering strategic directions for the textile industry sustainable development (Kamppuri *et al.*, 2021), along with the aims to implement a systemic transition to increase the circulation of textiles instead of their incineration as waste (Dziubaniuk *et al.*, 2023). The interviewee from this organisation emphasised that research institutions play a significant role, not only in innovation projects but also in facilitating collaboration between business firms. Various collaboration projects also involved municipal players, such as waste management organisations, which shows that systemic changes towards CE need to be implemented starting from the basic infrastructure of waste management. Consequently, this may lead to a redefinition of the value chains of the companies dealing with textiles.

Despite opportunities, the current level of technological innovation also implies limitations that need to be considered in management decisions. For instance, according to company A, only fabric consisting of one type of fibre, such as cotton or polyester, can be processed by mechanical recycling. However, the majority of household or industrial textiles consists of mixed fibres. For this reason, company A networks with business actors dealing with, for instance, workwear, as these actors have full information about the composition of the materials used, as well as how they are used and stored. These business actors can also be responsible for the collection and logistics of their used textile products or outsourcing these activities to an intermediary such as company B. However, many actors who could facilitate the business network of textile circulation are still absent due to the emerging stage of this business. Nevertheless, where some business actors see a problem, others see an opportunity.

For instance, the Swedish company H has been engaged in mechanical recycling with company A to complete its business activities of chemical textile recycling. In this case, company A plays the role of a raw material supplier for company H, which purchases pre-sorted, end-of-life textiles that cannot be mechanically recycled. At the beginning of their interaction, the companies initiated a series of successful pilot projects that allowed them to gain experience. Among the main motives for engaging and investing in such projects, the manager of company H mentioned contextual market factors and uncertainty: "Because things are changing fast and also the uncertainty grows, so we are also trying to be as updated as possible".

All the companies in this study follow the regulatory environment in search of information to overcome uncertainty concerning future changes. Despite there currently not being any direct regulation of the recycling of textile waste, press releases bearing recommendatory characteristics and indicating the strategic orientation of sustainable development at the EU level force companies to prepare for adaptation (Donatello *et al.*, 2021; Šajn, 2019). For instance, the European Green Deal provides directions for how European industries should develop to tackle environmental issues, but it is still unclear how legislation on waste and textile treatment will change within the next ten years. This uncertainty has had an impact on the managerial decisions to engage in piloting projects with other companies or research institutions, as did companies D, E and F. Major regulatory changes are also expected in Sweden and Norway, which makes companies act proactively, adapting their business activities to fit regulations in the near future and searching in neighbouring countries for business partners that are absent in local markets. As a heuristic shortcut in decision making, the managers realise that what is commonly discussed by politicians or in the media may influence the whole industry. Therefore, investment into projects that do not promise immediate economic benefits may still be necessary, not only to keep up with technological advancement but also to develop experience and knowledge. The Finnish company B, which initially invested in recycling company A, was among those who "risked the money for this recycling plant" (company A), despite not being able to estimate the return on investment. Other companies, such as D, F and G, also became engaged in pilot projects, contributing with money and effort without expecting immediate economic returns.

Novel societal and industry trends for sustainable consumption also seem to affect decisions regarding CE transitions. The interviewee from company D emphasised that large brands serving consumer markets in the fashion industry shape a trend for recycling in the B2B sphere as well. This was also supported by a manager from company G and a representative of educational institution C. The company B interviewee confirmed that "there must have been some kind of mindset change [in society]" influenced by media and public awareness, which actuates the transition. The interviewee from company F confirmed that "we see that change in mindset—from linear to circular", whereas the interviewee from company G explained the forthcoming demand for recycled textile on a perceptual level: "That was more like a feeling that this would come because it's inevitable". The latter interviewee mentioned on a more rational level the increased demand from their business customers for sustainable solutions that can be used for their marketing purposes as "they want to tell a story about that they recycle". Thus, managers analyse the societal context, searching for information patterns that may be quite abstract but still help to form judgements to fuel their decisions on the strategic move to CE, which sometimes can be based solely on an individual opinion.

*4.1.2 Business relationships factors.* Regarding business networks, the company B manager noted that the meaning of CE is sometimes about "finding unexpected new partners, or making hubs, and if you will, it is about learning and sharing information". Companies A, B and E have benefited from establishing networks with partners they have met through governmental projects facilitated by the technical research centre and aimed at supporting the development of an industrial recycling network in the country. As pointed out

by the Swedish company H, the actors' interest in interactions for CE is grounded on problem-solving and specific challenges that cannot be solved by a single actor. However, frequently an actor may not be aware of the roots of a problem or business opportunity before starting an interaction and learning from the partners. Interestingly, the companies were found to be more willing to collaborate for a CE than to pursue rivalry.

For the Norwegian company G, engagement in a business relationship with company A was based on personal networking. Managers from both companies participated in an international textile industry event in which the company G manager learned about the opportunities of textile recycling, something that was not considered before. The representatives of the Finnish companies and research institutions also pointed out the importance of personal connections. The Finnish textile industry is relatively small (Fontell and Heikkilä, 2017), and organisational and business actors can easily develop personal links. The interviewee from the textile industry employers association characterised the Finnish business environment as favourable for networking and pointed out that many interactions are based on trust. Personal relations are helpful in making decisions in an environment of limited information and low trust towards innovations since, as pointed by the representative of company G, not many managers are even aware of CE innovations and related business opportunities. Networking may involve emotions and, as most of the interviewees indicated, it needs to be grounded on shared values. The representative from company E explained their approach to the selection of business partners: "It's not any more just the mechanical ranking [of companies], it's also the emotional understanding of do we share the same values? Do we want to operate in a similar manner? How do we really see the future and cooperation together?" The company H manager emphasised that it is important that the companies "share the same view on things".

To understand the value of interactions in an uncertain environment, the most practical method is to engage in piloting projects between companies or research institutions. The projects are important exchange episodes that help to strengthen interactions through adapted communication and the development of technological capabilities and knowledge. Since a value chain of textile circulation is only emerging, its development requires "lots of partnerships to happen" (company A) and "teamwork" (company D). The manager of the Swedish company H stressed that "the market is more mature now than twenty years ago, and people are willing to share knowledge" that helps to make decisions on involvement in CE projects. However, challenges exist that prevent networking. The interviewee from company E answered a question about main barriers to CE in the textile industry: "The biggest obstacle is that everybody looks only from their own very short-term capabilities to make money. Since we all know that this is a systemic change [to CE], we sometimes forget that each must adapt their own business plan and together make the whole value chain a valid business plan". However, being adaptive and participating in the projects without a guarantee of an efficient outcome might seem like an irrational decision based on an idea or vision of the future, which not all companies can afford.

Interactions for CE may also affect others who are indirectly related to business network actors. The interviewee from company D pointed out that their business customers are very keen to purchase environmentally friendly products since "these are marketing and sales assets for them" that increase competitiveness. This was confirmed by companies B and G, which sell products made from recycled textile fibres to their business customers. Company B interacts with large-sized companies and as an intermediary collects their used textile garments for recycling at company A. These companies are using this collaboration as marketing information for conscious consumers.

*4.1.3 Organisational-level factors.* A company's strategy towards sustainability can be listed among the internal factors influencing decisions to adopt CE principles. For instance, the interviewee from company D refers to the organisational context of the company that

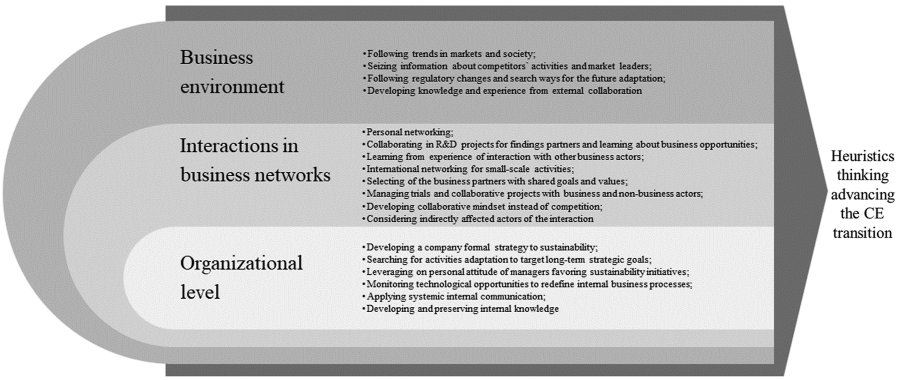
makes them engage in projects with other companies for recycling textile leftovers from production. The company has several eco-labels and "holds environmental standards in a very high regard" (company D), so for them, the transition to circularity is a strategic step, despite a lack of economic value assessments of the projects' results. Additionally, the company constantly monitors market trends, trying to predict opportunities for "going greener". The interviewee from company F confirmed the strategic importance of collaboration with recycling company A since "that supports our long-term goal of developing the value chain in line with circular economy" and "This is our internal sustainability strategy" (company E). The interviewee from the Norwegian company G made this case more personal: "I thought this is the way we are headed because we cannot continue to discard". Individual personal values in relation to sustainability also seem to influence heuristics to engage in CE. The representatives of the research institutions expressed more personal attitudes towards the "green transition", but so did the representatives from companies A, D, E and G.

All the company managers who participated in this study mentioned sustainability as a core value of business conduct. Internal communication is important as employees may understand sustainability differently. The interviewee from company E emphasised, "We have a lot of internal discussion about what is sustainable [in business]", marking an important internal factor in keeping employees aware of the company's strategies and values. As a rational explanation for the decision to transition to circularity, this company's representative referred to textile circulation as being a business model in which they rent out textile products to their business partners, collect them after use and ship end-of-life textiles for recycling. This interviewee asked, "Why would you like to discard something that is still worth money?" (company E), emphasising that used textiles need to be treated as a resource that can allow the closure of the circulation loop and aid the company in accessing raw materials. Technological support for turning textile waste into raw materials is among the primary tasks of the research organisations that participated in this study, while the textile industry employers association provides informational support. The association networks with the companies to help them develop knowledge and experience that can be stored within the business organisations after the research projects or events are completed. The knowledge regards not only technological innovation but also business insights on CE implementation and the management of the materials flow.

## 5. Discussion

The factors influencing decision making regarding the CE transition presented at different levels – business networks, organisations and those originating from interactions in the business networks – are summarised in Figure 3.

The transition to CE in the context of the textile industry is a suitable case for exploring how managerial decisions are shaped by bounded rationality, as well as how heuristics are applied to limited information and knowledge about circulation capabilities, technologies, interactions with business actors and their specifics. Heuristics extend beyond behavioural rules that shape a standard routine of making decisions with judgemental cognition (Guercini *et al.*, 2015), and they may be helpful when managers are faced with relatively few past experiences, a highly uncertain environment and challenges in foreseeing the consequences of their actions (Bingham and Eisenhardt, 2011; Guercini and Runfola, 2021; Niittymies, 2020). Heuristics, in the case of the transition to a CE, are the product of cognition both internal and external to the actor (Gigerenzer, 2007). Managers can implement their individual heuristics that reflect their values, emotions and rationality in reasoning, whereas organisational heuristics are grounded on more normative rules of decision making (Guercini and Runfola, 2021; Loock and Hinnen, 2015). Managers acting on behalf of their



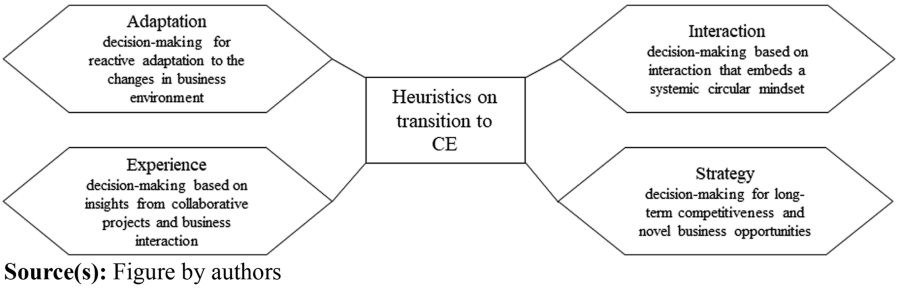

**Source(s):** Figure by authors

**Figure 3.**
Multi-level factors influencing heuristic thinking

organisations often need to implement both heuristics in their decision making, which is also influenced by the external business context of the textile industry besides their own understanding of the situation. The context shaped by the interactions in the B2B networks also influences the heuristics of business actors making strategic decisions (Guercini and Milanesi, 2020; Guercini, 2012; La Rocca *et al.*, 2017). In our case, interactions, both on a personal and an interorganisational level, have a decisive role in heuristics, which in turn affect companies' decisions to transition to CEs. Although network interactions for a CE may not bring immediate economic results (Huang *et al.*, 2021; Koszewska, 2018), they can provide a strategic background for future collaboration, personal networking and innovations.

Drawn upon this empirical study, the heuristics utilised in decision making regarding the transition to CE can be generalised as a managerial "toolbox" (see Figure 4). The categories of the toolbox are concluded based the key factor summary of the different levels represented in the results – business environment, networks and organisational. Thus, the most important factors of each dimension shaping heuristics were selected and summarised into common patterns supporting the actors' decision making to overcome uncertainty. The toolbox categories are presented in detail in the following paragraphs.

Adaptation heuristics reflect managerial decision making for reactive adaptation to changes in the regulative and market environments. Managers should constantly monitor external factors causing changes in the industry and society to understand when and how to adapt to these changes. For instance, following circularity-driven changes in the regulatory environment in the EU and on a local level is important because if a policy has recommendatory characteristics, it may become legislation in the future. If companies do not




**Source(s):** Figure by authors

**Figure 4.**
Decision making heuristics toolbox

begin adapting to tightened legislation prior to its implementation, the whole business may be lost. Following consumer demand for products with sustainable features is important as it may eventually influence industrial actors to change their products or production methods. B2B actors may also demand updates to business processes to address sustainability, as well as to gain business opportunities from the recovered raw materials. Companies should plan how to manage adapting "fast-and-frugal" (Loock and Hinnen, 2015) as they may require the implementation of technological innovations and the redefinition of business processes. The adaptation of business processes may be triggered by competitors and business partners that implement circularity. Therefore, following the situation in the industry and specifically in the established business network may repay itself in rapid decisions on transition.

Experience heuristics reflect managerial decision making based on insights from organisational and collaborative projects and business interactions. Managers can best learn about circular business opportunities from engagement in research and development projects within their organisations and in collaboration with business and non-business actors. A common history of interactions can help companies understand not only how to align or develop new resources out of textile circulation but also how to manage interactions with new actors. Engagement in textile recycling activities may be financially risky. Thus, companies need to conduct a series of exchange episodes to understand the full value of these processes, which might not always be expressed in monetary terms but as improved reputation or positive visibility in business networks. Learning from practical experience helps managers to develop future capabilities to rapidly adapt or re-evaluate their business processes, which is especially vital in the context of uncertainty and acknowledged necessity for the CE transition in the textile industry (Aloini *et al.*, 2020; Jia *et al.*, 2020). Knowledge developed from this experience should be preserved at the organisational level and used in future network interactions.

Interaction heuristics reflect managerial decision making based on interactions that embed a systemic circular mindset. Over-focussing on competition may not be productive in addressing CE in the textile industry context, but a collaborative approach can help to mitigate multiple risks. If the managers are focussed on CE principles and following the call for a systemic mindset needed for achieving a CE (Dziubaniuk *et al.*, 2023; Rovanto and Bask, 2020), they should favour collaboration and knowledge sharing instead of rivalry. Textile recycling technologies are gradually gaining their place in the industrial setting but are still not fully utilised, which makes this business case highly uncertain. Thus, managers need to engage in projects, exchanges episodes and trials supported by governmental and non-profit organisations to explore opportunities, tackle risks and learn from interactions. Personal networking and information sharing between managers can also give some hints regarding the future strategic planning of an industry-specific CE transition (Kaipainen *et al.*, 2023). Managers should make preliminary predictions of how changes in their companies' business activities towards a CE may affect other networked actors, as well as those who are indirectly involved in the network, such as actors across industries or markets.

Strategy heuristics reflect managerial decision making that emphasises the quest for long-term competitiveness and novel business opportunities. Managers should see the bigger picture and pursue long-term goals if they aim at an efficient circular business strategy. Regarding CE in the textile industry, managers can make decisions by following societal trends that may not even directly affect their companies, such as changes in consumer consumption habits or proactive steps taken by global industrial leaders. Systemic internal organisational communication should be organised to keep employees informed regarding the company's strategy and values. Communication with business and institutional actors should also be consistently supported to develop knowledge about innovations and upcoming changes in the industry, market and regulatory environment. Actors should demonstrate their vision, purpose and proactivity regarding CE to the

networked parties. This staying ahead with innovations and searching for opportunities may aid in establishing new partnerships and taking existing interactions to the next level. A business strategy needs to be systematically reviewed to fit a fast-changing business and regulatory environment and to predict upcoming changes in the long term. Figure 4 illustrates a heuristic toolbox for the CE transition with the categories emerging in this study.

According to the results of this research, often the decision to transition to a CE can be explained as an intuition that business activities cannot be continued as before, and the company strategy needs to be redefined. The implementation of textile recycling technologies showcases business opportunities, but these technologies' capabilities are still not fully realised (Aloini *et al.*, 2020; Dziubaniuk *et al.*, 2023; Franco, 2017; Jia *et al.*, 2020). Among the reasons for this are the emerging nature of textile circulation as a business and the limited number of involved business actors (Dziubaniuk *et al.*, 2023; Reike *et al.*, 2023). CE in the textile industry remains an uncertain business activity due to its novelty, unclear economic benefits and frequent lack of strategic vision by companies (Camilleri, 2020; Franco, 2017; Paras *et al.*, 2018; Koszewska, 2018). Thus, companies engaging in CE generally ground their decisions on heuristics and take a leap of faith by engaging in piloting projects and trying new business exchange episodes in which innovation or economic efficiency is hard to estimate. These new interactions help actors with limited knowledge of textile circulation to gain experience. Interactions with other partners also open new horizons for the evolution of the industry. Since the Finnish business environment is favourable for networking (e.g. Fontell and Heikkilä, 2017; Rovanto and Finne, 2022), managers learn about circularity from communicating with other actors and obtain experience from learning by doing and adapting their capabilities (Kaipainen *et al.*, 2023), as also identified in our study.

The findings of this study confirm that business actors in the textile industry need to predict the future in a context of uncertainty in which normative behaviour may not be applied (Gigerenzer, 2007). Generally, uncertainty in the textile industry originates from the regulatory environment targeting goals of sustainable development (European Green Deal, 2023; Kamppuri *et al.*, 2021). EU countries are expected to strengthen waste management regulations to create stimuli for textile recycling instead of incineration (Donatello *et al.*, 2021; Šajn, 2019). Therefore, many companies in the Finnish textile sector have had to take a proactive stance and start exploring opportunities for the transition to a CE, as well as start new businesses based on the principles of CE (Rovanto and Bask, 2020). Current regulations do not incentivise circularity but provide recommendations on how the textile industry should proceed in the future (Fischer and Pascucci, 2017; Kamppuri *et al.*, 2021; Perry *et al.*, 2015).

## 6. Conclusions

This study empirically explores the managerial heuristics behind the decision to transition to CE and the role of contextual factors, as well as business interactions with other actors, in such heuristics. The heuristic approach may be applicable to decision making in the context of uncertainty that is typical to industries transitioning to CEs. This research showcases business environment and organisational factors that can influence managerial heuristics regarding their business organisations' engagement in the CE transition in the textile industry. In this case, managers need to rely on the heuristic shortcuts and judgements presented in the heuristics toolbox (Figure 4), going beyond normative behaviour since they lack expertise in interactions for and management of textile circulation business processes. The key takeaways of this study are that episodes of interaction between business actors, learning from experience and following changes in the business environment are necessary to reflect on in connection to companies' decisions regarding the CE.

### 6.1 Theoretical contributions

This study primarily contributes to the management literature by exploring heuristic approaches to decision-making processes (Guercini *et al.*, 2014; La Rocca *et al.*, 2017). The study extends the knowledge on heuristics in managerial decision making (Loock and Hinnen, 2015; Guercini and Milanesi, 2020) as approached in the context of the emerging business case of textile recycling and, consequently, an uncertain business environment (Franco, 2017; Jia *et al.*, 2020). Particularly, by covering the multi-level factors influencing heuristics in the CE transition (Figure 3), we provide insight on the micro-foundations of heuristics in real-life business settings and capture the mechanisms bringing them into action through the approaches of our toolbox (Guercini and Milanesi, 2020). Considering the industrial setting of this research and the focus on interaction in business networks (Håkansson *et al.*, 2009; Håkansson and Walusewski, 2002), a contribution is also made to the industrial management literature by exploring heuristics regarding interactions in business networks focussing on sustainability (Guercini *et al.*, 2015; Guercini and Lechner, 2021).

The research results also add to the literature by highlighting the importance of contextualisation and the interrelation between the individual and contextual levels in B2B marketing (e.g. Ivanova-Gongne *et al.*, 2022b). In particular, the study shows how various factors at the organisational and business environment levels may shape managerial heuristics that guide the decisions of business actors to adopt CE principles in business processes (Kaipainen and Aarikka-Stenroos, 2022; Kirchherr *et al.*, 2023) and to consider adapting to changes in industrial settings (Ranta *et al.*, 2020; Mishra *et al.*, 2019). By introducing the managerial toolbox of heuristics for the transition to CE, the study considers previous research that highlights the interrelation between heuristics and experiential learning, adaptive behaviour and strategic planning and adds to the literature by providing a more extensive consideration of interactions between individual actions and other mechanisms at a higher, contextual level (Guercini and Milanesi, 2020). This study also contributes to the emerging literature on sustainability in B2B marketing (Harrison *et al.*, 2023) by discussing the CE transition and adaptation within the textile industry (Franco, 2017; Paras *et al.*, 2018; Ranta *et al.*, 2020), which is still lacking systemic changes.

### 6.2 Managerial contributions

The results of this study show that the heuristic approach differs in specific contexts of the CE transition. Choices and judgements for the CE transition can be rooted in a company's history, core values and future perspectives on strategic development. Managers should base their decisions to transition on rational assessments of trends, B2B and B2C market demands and the activities of other companies, including competitors, engaged in the business network. Executives may utilise the heuristics toolbox and refer to heuristics, such as feelings about upcoming changes in, or future expectations about, the development of the industry, by exploring information about changes in the industry, innovations and the regulatory environment from the business and academic publications, as well as by participating in events for industrial executives and research communities. It is specifically important to follow regulatory and political changes as they may provide hints for companies' future long-term strategies and required adaptations. The multi-level factors identified in Figure 3 can guide managers in this.

Developing personal networking and communication with industry actors and the research community can bring many insights and experiences to shape future strategies and adapt them to developments in the textile industry. Relying on heuristics can be especially viable for managers when information is limited, and value chains or markets developed around a business activity such as textile circulation are at an emerging stage. Companies should learn from initiated trial episodes of interaction. This study encourages business actors to engage in research projects related to sustainability and innovations together with institutional actors as,

in this uncertain business, they can share risks, knowledge and even investment. Interactions between business actors are an advantageous way to find solutions to complex issues, such as which technology to adopt, what kind of business partner to look for or what new method of textile processing to implement. The results of this study emphasise that if managers want to develop a reliable business network in which all actors understand the relevant business, environmental and societal goals, they need to be sure that potential business partners share their values in relation to strategy and sustainability.

### *6.3 Suggestions for future research*

This study faces certain limitations and offers several avenues for further research. First, the number of collected interviews is limited due to the emerging state of textile circulation and the limited number of involved actors, especially in a relatively small country such as Finland. Therefore, further research should be attempted by, for instance, conducting a study in the same industry context by engaging a variety of business, institutional and societal actors once the CE transition has emerged further. Second, the study looks at the transition to CE in a specific industry. While the findings may be generalisable, with certain care, to other industries, context is at the core of shaping managerial heuristics (Loock and Hinnen, 2015), and instead of generalisation researchers should "provide rich accounts of specific situations" (Ivanova-Gongne *et al.*, 2022b, p. 162). Therefore, more studies in other industrial contexts and in other, for instance, developing countries would provide further knowledge on the heuristics behind the transition to a CE and the role of contextual factors in it. Third, while the findings of the article predominantly discuss the bounded rationality of decision making, emotions have recently been highlighted as crucial when it comes to managers' decision making in B2B markets, both within organisational buying and beyond (e.g. Kemp *et al.*, 2018; Koporcic *et al.*, 2020). Additional studies could be conducted to explore the emotional side of decision making when it comes to sustainability and to the CE. Despite the potential effect of managers' interpretations and perceptions of sustainability on concrete decisions (Ivanova-Gongne *et al.*, 2022a), research considering the individual level is scarce when it comes to sustainability in B2B markets, and further research is required regarding this issue to complement the multi-level perspective adopted in this study.

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