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Corporate Digital Responsibility in the Retail Industry: Cameo Case Studies of Two German Retailers

*By Peter Jones**

Digital technologies bring a wide range of new opportunities, for both retailers and consumers, but retailers face, and may have to address, several new sets of responsibility issues as they progressively introduce these technologies. These responsibilities are increasingly being captured in the concept of corporate digital responsibility (CDR) but CDR within the retail industry has received little, or no attention, in the academic literature. This paper looks to make a small contribution to addressing that gap in the literature. The paper includes some definitions of CDR, an outline of the concept and scope of CDR, two cameo case studies which provide a simple illustration of some of the ways in which the Rewe Group and the Otto Group, two of Germany's leading retailers, choose to publicly address CDR, and offers some reflections on retailers and CDR. The paper suggests that there are, potential tensions between the retailers' management of the economic and the social dimensions of CDR, and that there are issues about whose best interests are served by CDR and the difficulties involved in making such judgements.

Keywords: *corporate digital responsibility, retailing, digital technologies, case studies, Germany*

Introduction

Digital technologies are reshaping many elements of everyday life and providing a wide range of opportunities throughout the business world. The dynamic, and intertwined, impact of the digital technologies on the both the social and the corporate is clearly epitomised in the world of retailing. The dynamic impact of the digital technologies is clearly illustrated in the retail sector of the economy. In unveiling its digital strategy Carrefour (2022), for example, announced its commitment to transform the company from 'a traditional retailer with e-commerce capabilities into a Digital Retail Company, which places digital and data at the heart of all its operations and its value creation model.' More generally, Hitachi Solutions (2022), suggested that

- 'retailers provide omnichannel shopping and delivery options for customers
- customers can access stores from anywhere in the world in just a matter of moments via a mobile device
- social media has become a primary form of advertisement

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- cutting edge technologies such as AI, augmented reality, and virtual reality have become an active part of the shopping experience', and
- 'retailers use data analytics and machine learning to inform major business decisions.'

At the same time, Renz et al. (2022), writing under the EY banner, reported that retailers' investment on digital technologies is growing as a proportion of their overall information technology spending, and that the current focus in retailing is on 'creating a data-driven organization by prioritizing analytics and artificial intelligence (AI) as well as robotics and automation', and that 'investment is also currently being made in the Internet of Things and edge computing.

However, while the digital technologies bring a wide range of new opportunities, for both retailers and consumers, retailers face, and may have to address, several new sets of responsibility issues as they progressively introduce these technologies. These responsibilities are increasingly being captured in the concept of corporate digital responsibility (CDR), which embraces 'a broad set of responsibilities concerning the application and management of data and digital technologies in organisations' (Allegory 2021). However, while many retailers may well be privately reviewing their approach to CDR, it is surely important that they also keep the public informed about how they are addressing these responsibilities, and yet very few retailers have explicitly publicly addressed, or reported, on their approach to CDR.

At the same time, the issue of CDR within the retail industry has received little, or no, attention in the academic literature, and Mueller (2022) observed 'the emergent research landscape on CDR is mostly conceptual in nature, but a galloping development in practice will afford rich opportunities to explore the issue empirically.' This paper looks to make a small contribution to exploring that empirical gap in the literature. The paper includes an outline of the concept and the scope of CDR, a short literature review, details of the frame of reference and simple method of enquiry, two cameo case studies which provide simple illustrations of some of the ways in which the Rewe Group and the Otto Group, two of Germany's leading retailers, are publicly addressing CDR, some reflections on retailers and CDR, and a conclusion which summarises the paper, identifies some of its limitations, and suggests some opportunities for future research.

The Concept and the Scope of CDR

The idea that companies have responsibilities towards society is not new, and Agudelo et al. (2019) argued that corporate social responsibility (CSR) has a long and varied history, but claimed that 'what is arguably the first unified definition of Corporate Social Responsibility' dated from 1979. More specifically, Agudelo et al. (2019) cited Carroll's (1979) definition that 'the social responsibility of business encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time' (Carroll 1979, p. 500). While work on CDR is still very much in its infancy, there are differing views on where it sits in relation to corporate social responsibility.

For some authors CDR is seen it is seen to be closely related to the wider issue of CSR and it has been described as 'one part of an overall CSR model' (Van der Merwe and Achkar 2022), while Wade (2020) argued that 'CDR is a subset of corporate social responsibility.' Mihale-Wilson et al. (2022) recognised that 'at its core CDR is related to CSR', in that, 'in essence both concepts summarise the obligations that companies have towards society', and that 'both concepts aim at minimizing the adverse effects of practice activities while maximizing the benefits of firms' activities.' However, Mihale-Wilson et al. (2022) argued that because many of the digital technologies 'have various characteristics that reshape value creation and the relationship between companies and society, it is expedient to make separate efforts to identify the new social responsibilities of developing and operating such technologies.' Further, Mihale-Wilson et al (2022) argued 'due to the complexity that technology adds to corporate responsibility and the fact that managing the consequences and the opportunities that technologies can bring about requires a strong technological focus, it seems appropriate to view CDR as distinct from CSR.' However, Van de Merve and Achkar (2022) argued that CDR may be thought of as a separate mechanism that overlaps with CSR in multiple areas, but claimed that there were 'gaps in relying on CSR and CDR' and suggested 'the need for a broader societal and comprehensive approach'.

That said, there is no generally agreed definition of CDR and Herden et al. (2021) suggested 'there are relatively few and widely differing definitions for the term CDR', but a number of definitions can be identified. Lobschat et al. (2021) described CDR as a 'novel concept', and defined it as 'the set of shared values and norms guiding an organization's operations with respect to the creation and operation of digital technology and data.' Herden et al. (2021) defined CDR as 'an extension of a firm's responsibilities which takes into account the ethical opportunities and challenges of digitalization.' For Elliot et al. (2021) 'CDR is a voluntary commitment by organisations fulfilling the corporate rationalisers' role in representing community interests to inform good digital corporate actions and digital sustainability via collaborative guidance on addressing social, economic, and ecological impacts on digital society.'

In the CDR manifesto (Corporate Digital Responsibility 2022), CDR is defined as 'a set of practices and behaviours that help an organisation use data and digital technologies in ways that are perceived as socially, economically, and environmentally responsible.' van de Merwe and Achkar (2022) defined CDR 'as the set practices, policies, and governance structures of corporations as they relate to the digital transformation.' More expansively, Van de Merwe and Achkar (2022) suggested that 'CDR must be centered around accountable digital practices, enforcement mechanisms, sustainable growth and development, and the promotion of trust across the digital ecosystem', and that 'CDR practices must engage how digitalization shapes society and the environment and the impacts that it has on individuals, communities, and states.'

In outlining its scope Elliot et al. (2021) claimed CDR is about promoting economic transparency and social wellbeing and about reducing the impact of technology on the environment, while Mueller (2022) suggested that CDR embraced two domains namely digital ethics and governance. More specifically, large retailers will increasingly look to employ digital technologies across an ever-

widening range of their activities throughout their value chains, but as they do so, they may need to address the responsibilities associated with these technologies. Such responsibilities are wide ranging, though often interlinked, and they embrace people, the economy and the planet. Retailers' responsibilities to people, include their customers, their employees and society at large. Responsibilities to the economy can be seen to include the retailers themselves, their shareholders, their suppliers, and their relationships to intergovernmental initiatives, while responsibilities to the planet embrace a range of environmental issues, notably climate change, natural resource depletion, energy use, and waste management.

Literature Review

To date, CDR has attracted limited attention in the academic literature, but a number of themes, namely, the importance of taking a company-wide approach, the importance of stakeholders and the importance of continuing research into CDR, can be identified within that literature. Lobschat et al. (2021) for example, highlighted how to put CDR compliant behaviour into operation based on an organisational culture perspective. Here Lobschat et al. (2021) argued that 'for a business to be digitally responsible, its managers and employees must align their behaviors with specific norms established by the organization to achieve CDR', and that specific norms 'help ensure the organization's mission and values get translated into actionable guidelines, which are especially important if conflicting interests and needs arise among different stakeholders.' Lobschat et al. (2021) concluded by suggesting that the complex and diverse role that CDR plays within organisatons may require widespread change within an organisation including organisational restructuring, employee training, and management development, the implementation of new data management and communication processes and by emphasisng the urgent need for research into CDR within organisations.

Herden et al. (2021) suggested that CDR offered organisations an opportunity to gain both the trust of their stakeholders, and competitive advantage in the marketplace. More specifically, Herden et al. (2021) uncovered both a need, and an opportunity, for companies to implement a CDR strategy to address the threats, and embrace the opportunities, presented by the digital technologies, but argued that 'as each company has unique goals, business strategies and CDR needs, an individual CDR strategy is essential.' Further, Herden et al. (2021) concluded that the continuing rapid development of the digital technologies, effectively demanded that companies should regularly revisit and update their current organisational structures and CDR policies to ensure optimum levels of digital responsibility. More

Mihale-Wilson (2022) identified a number of research opportunities but identified two pressing research directions, namely 'the conceptualisation and operationalisation of CDR', and an analysis of the 'suitability and effectiveness of different CDR measures' companies could implement. In outlining the specific research avenues for the first of these research directions, Mihale-Wilson et al. (2022) suggested the need to clarify how four sets of norms could promote responsible management and the use of technology and data. Firstly, consumer should have access to essential digital goods and services, secondly consumers

should be informed and educated about the consequences of their digitally enabled consumption decisions, thirdly, that customers should have access to details of how their data is collected and handled, and fourthly consumers should be informed about how their economic interests could be protected and promoted. The principal research questions linked to the second of the research directions identified above, for example, focus on the suitability and effectiveness of various CDR activities for different key stakeholder groups in various types of businesses.

Liyanaarachchi et al. (2020) explored gaps in bank privacy protection practices and argued the case for online banking operators to integrate market-oriented approaches to CDR to help to minimise consumer data vulnerability. The findings of this work suggested that managing the vulnerability of customers' data requires a different strategy than conventional service delivery, and that 'a holistic approach is recommended by integrating corporate digital responsibility as a pivotal element of organisational strategy and by positioning vulnerable customers as critical stakeholders' (Liyanaarachchi et al. 2020). At the same time, the study also concluded that companies must ensure that they limit exposure to data breaches that could damage their brand equity.

Wirtz et al. (2021) looked to provide managers with some insights into where service companies' CDR issues originate, and to signal ways of addressing them. More specifically, Wirtz et al. (2021) suggested the importance of service organisations ensuring that CDR concerns were addressed in their relationships with their business partners, particularly their supply chain and technology partners, as well as any other potential secondary users of their customers' data. Wirtz et al. (2021) also suggested that future research agendas might include which corporate governance procedures were most effective in ensuring CDR compliant practices, and the extent to which customers are interested in being informed about CDR compliant practice, and the role consumer inertial plays in this process.

Jelovac et al. (2021) looked to explore the impact of CDR on building digital trust and responsible corporate governance in high performance computing businesses. The authors concluded that 'the best response to building and maintaining trust is, in our opinion, the building of a new modern business and organizational CDR culture', and that 'although CDR is a voluntary obligation which follows after legal requirements and standards have been fulfilled, it is the very thing that can provide the difference that leads to business sustainability and the realization of competitive advantage' (Jelovac et al. 2021).

Frame of Reference and Method of Enquiry

The majority of large retailers have been addressing, and reporting on, CSR for two decades (e.g. Jones et al. 2005). Although very few retailers have publicly addressed CDR, since 2020 two leading German retailers, namely the Rewe Group and the Otto Group, have posted some details of their approach to CDR on their corporate websites. It is perhaps not surprising that German retailers have taken the retail lead in publicly addressing CDR in that much of the early impetus for CDR has been seen in Germany. The German Ministry of Justice and Consumer Protection launched a CDR initiative in 2019, public awareness for

responsible corporate governance in the digital age has been gaining increasing attention within Germany, and German-based academics (e.g. Lobschat et al. 2021, Herden 2021), and consultancies (e.g. Hanauer 2019) have played a leading early role in publishing work on CDR.

The Rewe Group is Germany's third largest retailer, as measured by turnover, and it has over 4,000 stores and some 363,000 employees. The Rewe Group was originally established in 1927 and trades from a variety of formats including department stores, hypermarkets, supermarkets, convenience stores, home improvement stores and cash and carry outlets, and from a co-operative tourism trade group which embraces a network of independent retailers. The Otto Group is primarily a retail e-commerce company that offers multi-channel retailing, financial services and logistics. The company, which was originally founded as a footwear retailer in Hamburg in 1949, trades under a variety of brands and banners, including About You, Bon Prix, FGH, Frankonia, and Heine, and has a presence in over 30 countries and employ some 50,000 people.

This paper employs a sample case study approach and offers cameo case studies to illustrate some of the ways in which the Rewe Group and the Otto Group are addressing CDR. Rowley (2002) suggested that case studies were a useful tool in exploratory research projects, and the current paper is not the first to employ case studies of business practices to gain a perspective on CDR. In her study of CDR in construction engineering Weber-Lewerenz (2021) chose to employ case studies, because she claimed d that 'the field of research is a marginal area; the topic is still new.' The material for the cameo case studies was obtained from the corporate websites of the two companies, and some of the information on the websites was machine translated from the original German, by Google**.** Throughout the two case studies the author looks to capture the retailers' approach to CDR in their own words, in the belief that such quotations help to convey corporate authenticity. The cameo case studies do not provide a comprehensive picture of the two companies' approach to CDR, but they offer some valuable insights in a field that has received little, or no, public or academic attention to date.

Cameo Case Studies: The Rewe Group and the Otto Group

In addressing its approach to 'Digital Responsibility', the Rewe Group (2021) acknowledged the responsibility it bears 'for its customers, employees and suppliers', claimed it felt 'a responsibility to help shape digitization in a responsible manner', and argued that 'against the background of digital change', it is logical to 'live this responsibility in the digital space.' Further the Rewe Group (2021) claimed to understand CDR as responsibility 'in the sense of the conscientious handling of data', where the 'focus is on ethical data use and data protection', on the 'interaction of the responsible use of different technologies', and that ultimately, for the company 'people are always the focus of digitization.' The Rewe Group (2021) claimed 'as a pioneer in the digital trade in food and all products related to nutrition, kitchen and household, the Rewe Group is aware of its responsibility for customers, employees and suppliers', and 'she is aware that digitization offers great opportunities, but also possible risks must be considered.'

More specifically, the Rewe Group (2021) argued that 'both needs-based offers for customers and the more efficient design of processes represent opportunities for responsible data use', and that 'responsible use of digital products and services can also offer added value in terms of sustainability.' At the same time, the Rewe Group (2021) argued that the digital technologies can also help to increase transparency within supply chains, and illustrated their argument with an example of how QR codes can enable customers to trace some own brand products customers back to their producers. More widely the Rewe Group (2021) claimed that 'by working intensively on digital responsibility', it could 'better counteract the effects of digitization, such as the loss of privacy when using data or possible discrimination by algorithms.'

More specifically, the Rewe Group (2022) acknowledged that 'the possibilities represented by Artificial Intelligence mean that we must assume greater digital responsibility and ensure that Artificial Intelligence is used ethically', and emphasised its belief that 'the development of Artificial Intelligence projects require forward-looking and reliable guidelines.' To that end, the Rewe Group (2020) developed a digital Artificial Intelligence Manifesto, principally designed to help software engineers to develop sustainable and responsible systems, and to help enhance awareness of the potential risks of Artificial Intelligence if improperly developed and used.

This manifesto effectively offers eight elements of guidance on Artificial Intelligence as illustrated below. The first element advises 'You are an individual. The people interacting with your Artificial Intelligence are diverse. Respect them all equally' (Rewe Group 2020) Further, this first element continues 'Your Artificial Intelligence should treat its potential users fairly. Remind yourself that you inherently carry some bias and try to limit potentially adverse effects thereof. Try gathering diverse data that reflect the perspectives of your actual users' (Rewe Group 2020). The fourth element advises 'The users of Artificial Intelligence may not be human. Do not assume them to be' (Rewe Group 2020). More expansively, this element of the manifesto continues 'your artificial intelligence might be confronted with very fast and unexpected input sequences and its output might not undergo human interpretation and judgement. Be especially careful when dealing with personal and sensitive data. If machine-machine interaction is a primary use case, a dedicated communication channel might be preferable' (Rewe Group 2020). The seventh element is focussed on taking responsibility and advises 'As creator of an intelligent system interacting with humans and potentially interfering with their lives, you carry an undeniable responsibility. This responsibility should always guide your thinking and acting' (Rewe Group 2020).

In outlining the Otto Group's Future Values Initiative, Speidel and Janig (2021) suggested that the company had been 'actively addressing the topic of digital corporate responsibility for several years', but that the launch of the 'Future Values Initiative' had seen the creation of a 'platform that aims to promote social discourse on the opportunities and challenges of digitization.' Speidel and Janig (2021) reported that the cornerstone for this initiative was laid in 2020 and that it was underpinned by a focus on a 'new way of externally directed corporate responsibility in digital change, since the initiative is not only aimed at direct and indirect stakeholders but also pursues an overarching social approach,' The underlying aim was to get the various players from the economic, science,

academic, political, media, and civil sectors together to drive forward the digital socio-ecological market economy. By way of a summary of the importance of the Future Values Initiative, Alexander Birken, the Otto Group's Chief Executive Officer, argued 'a company's attitude and value-oriented action towards the environment and society are indispensable. They are increasingly becoming a license to operate' (Otto Group 20212).

CDR is one of seven topic areas within the Otto Group's corporate responsibility strategy. Here, in outlining the 'core priorities' for CDR, the Otto Group (2021) reported 'we want to seize the opportunities of digitisation while shaping the transformation responsibility in line with our German and European values', and 'to this end we develop approaches to solutions for our organization and society.' The Otto Group (2021) emphasised 'it is important for us to work on concrete measures and initiatives in order to meet our claim as a future-oriented organization through successfully implemented transformation and flagship projects.' Further, the Otto Group (2021) reported that 'we have launched a Group-wide initiative, TechUcation, to give our employees an even better understanding of digitisation and to offer learning opportunities', and in addition to questions relating to data and security, 'we are also bringing climate protection and digitisation together, for example, with a project to survey the carbon footprint of IT.'

For the Otto Group issues of sustainability and digitisation are intertwined. Michael Otto, chair of the company's Supervisory Board (Otto Group 2022a) suggested that 'on the one hand, we urgently need to limit global warming, on the other hand we have to master digitisation. It's not easy, but we can do it without losing sight of our values. Because economy and ecology do not have to be mutually exclusive. On the contrary. They must become the new business model. Here we can play a pioneering role in Germany and Europe if we start now.' Looking to the future, the Otto Group (2022b) will look to enhance awareness of CDR by providing 'employees with greater transparency about their own CO_2 footprint, Otto Group IT is set to roll out a self-developed CO_2 footprint app in the first quarter of the year. This way, the Otto Group is seeking to raise its employees' awareness of climate protection and enable them to take informed decisions about emissions reduction – a small but important step towards the Group's goal of climate-neutral business by 2030.'

More generally, the Otto Group is one of five signatories to a CDR Initiative first launched by the German Federal Ministry for Justice and Consumer Protection in 2018. The aims of the initiative are 'to ensure that digital responsibility becomes a normal part of day-to-day business for companies in all sectors', and that 'more companies should be encouraged to go beyond what is required by law and actively shape the process of digitalisation in a people-and value-oriented way' (Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection 2021). One of the central themes of the initiative Is that digitisation should be centred on people, that 'on the one hand, this means focussing on consumers when weighing up opportunities and risks', while 'on the other hand, it means ensuring transparency as a basis for trust', and that 'with this in mind, the CDR Initiative strives to shape digital change in a transparent and responsible way that serves citizens' best interests' (Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and

Consumer Protection 2022). Essentially, the initiative is built around the CDR code which spans five fields of action, namely handling data, training, climate and resource protection, employee involvement, and inclusion.

Reflections

Large retailers have been quick to seize an ever-wider range of opportunities by harnessing digital technologies to transform all areas of their business operations, but the vast majority of them have been much slower to publicly acknowledge, and address, the new set of responsibilities associated with the introduction of these technologies. That said, two linked sets of reflective issues, namely, potential internal inconsistencies within CDR, and wider concerns about whose best interest are served by CDR, merit concluding attention.

Firstly, a number of internal inconsistencies and potential contradictions can be identified within CDR. There are, for example, potential tensions between the management of the economic and the social dimensions of CDR, with the one concerning the retailers' responsible management of the economic impacts of digital technologies, and the other concerning the retailers' relationships to individuals, and more generally to society. Here, retailers are looking to use their customers' data, in a variety of ways, to drive their businesses, and customers, and the public at large, are looking to protect their privacy and their rights, while harnessing the benefits and conveniences many of the digital technologies offer. Whether consumers will ever willingly relinquish the flexible purchasing powers offered by digital technologies, for example, remains very much to be seen, and this in turn further complicates retailers' commitments to CDR. At the same time, employees may be concerned that digital technologies will be employed by their retail employers to reduce, or replace, jobs at store level, in head offices, and in logistics operations.

A further set of tensions can be identified when examining the role of digital technologies in addressing a range of environmental problems. In many ways, the conventional wisdom is that harnessing the digital technologies will be vital in driving the transition to a sustainable future, However, the increasing adoption of digital technologies, might be seen to be the antithesis of sustainable consumption. Not least, in that these technologies increasingly enable consumers to buy a wide range of goods and services instantly, regardless of the consumers' location or the time of day, at the touch of a button or a key. More generally, ICTworks (2020), an online community for international sustainable development professionals, claimed 'the digital technology industry is one of the least sustainable and most environmentally damaging industrial sectors in the modern world', and that 'if digital technologies are indeed to do good, especially with respect to the physical environment that sustains us all, it is time for a dramatic rethink of all aspects of the sector's activities.'

The two cameo case studies reveal that both the Rewe Group and the Otto Group have begun to address CDR, and in the coming years many other large retailers may follow suit. However, it remains to be seen if, and how, such retailers will be able to decide on reconciling what may be competing and contradictory claims under the overall umbrella of CDR. The Otto Group's commitment to

involve representatives from business, science, politics, and civil society, and the emphasis on transparency emphasised by both the Rewe Group and the Otto Group in the outline of their approaches to CDR, may help in looking to reconcile competing claims, but they surely offer no guarantees of effective reconciliation. Further, it also remains to be seen how retailers will communicate the reconciliation of such competing and contradictory pressures to their customers, and more generally to their various stakeholders, and given the complex nature of many of the digital technologies, there must be questions about how well customers will be able to make sense of such communications.

Secondly, there are issues about whose best interests are served by CDR and the difficulties involved in making such judgements. Lobschat et al. (2021) argued that 'the multisided natures of many markets for digital products and services makes the assessment of beneficence for all involved stakeholders complex but specific engagement with CDR offers organizations an opportunity to adopt a clear approach to this challenge and involve relevant parties along their value chain.' On the one hand, many large retailers, and the consultancy companies looking to help them implement new digital development policies and applications, emphasise the individual and corporate benefits of digital technologies. On the other hand, CDR might be seen to be important for large retailers in promoting their business strategies, in effectively giving them licence to operate, and in legitimating their business activities to their various stakeholders, and more widely to society.

In pursuing the argument that large companies might use CDR to pursue their own ends, Van der Merwe and Achkar (2022) raised the concern that CDR will be used for 'whitewashing and regulatory capture', and that a 'cynical interpretation of CDR' is that 'it offers corporations an opportunity to build a cover for unethical behaviours and practices.' More optimistically however, Van der Merwe and Achkar (2022) also argued that CDR offers an opportunity to incorporate strong enforcement and accountability mechanisms, in order to 'ensure responsible development of technology in a realm that is severely underregulated.'

Conclusion

The two case studies of the Rewe Group and the Otto Group provide some insights into the ways both of the retailers have approached publicly addressing CDR. More specifically, the case studies help to illustrate how the two retailers conceptualise CDR and their commitment to it, how it has guided the development and use of some of the digital technologies, and how it fits into the wider social and business context. At the same time, the two case studies do reflect, in part at least, some of the themes identified in this paper's literature review, principally the importance of taking a company-wide approach and the importance of some stakeholders. At the same time the call for additional research on CDR is a common theme in the literature, and the current paper can be seen to begin to fill a gap in the retail literature.

That said, as a commentary of CDR in the retail industry, the paper does have a number of limitations. Not least, in that it is based on cameo case studies of just two large German retailers, and in that the material for these cameo studies is

drawn exclusively from Internet sources. At the same time while the cameo case studies offer illustrations of how the two retailers are currently approaching CDR, they do not provide a comprehensive picture, or a detailed analysis, of the development and workings of the two retailers' current CDR policies. That said, and looking to the future, a number of research opportunities can be identified which will go some way to build the foundations for a more comprehensive review of CDR within the retail industry.

Such research might cover a range of endeavours. Empirical studies, of how a number of large retailers in Europe and the US, drawn from different sectors of the retail economy, are addressing CDR, and more specifically how they are addressing CDR within their supply chains. If, and how, retailers' customers are being included in the CDR process, and if customers trust the retailers' public statements about the security and safety of their financial and personal data, does this enhance their patronage. Are small independent retailers addressing CDR in a different way to the large retail companies, and what role does direct interpersonal communication play in this process? In addition to these empirical research opportunities, it will also be important to develop some theoretical frameworks around CDR.

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