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Competencies for Corporate Digital Responsibility

A Literature and Practice Perspective

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Editors: Gert Bruche | Christoph Dörrenbächer | Marianne Egger de Campo | Claudia Lemke

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Biographic Note

Sabrina Breivogel ist Senior Projektmanagerin im Bereich Digitalisierung/Digital Transformation bei der Deutschen Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH und hat sich auf die Schnittstelle von Wirtschaft und Technologie spezialisiert. Während ihres Bachelor of Arts in International Business an der Dualen Hochschule Baden-Württemberg Mannheim verbrachte sie ein Semester an der University of Tennessee in Knoxville. Anschließend setzte sie ihren akademische Weg fort und erlangte einen Master of Science in Business Management mit Auszeichnung von der Hochschule für Wirtschaft und Recht Berlin/ Berlin Professional School mit dem Schwerpunkt Digital Business Management. In ihrer Abschlussarbeit forschte sie zu den notwendigen individuellen Kompetenzen für die digitale Transformation von Unternehmen auf Basis des Konzepts „Corporate Digital Responsibility“ (CDR). Ihre berufliche Laufbahn zeichnet sich durch ihr ausgeprägtes Verständnis für internationale Geschäftspraktiken und ihre Leidenschaft für nachhaltige digitale Innovation aus.

Sabrina Breivogel is a senior project manager in the field of digitalization/digital transformation at the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and specializes in the interface between business and technology. While pursuing her Bachelor of Arts in International Business at the Baden-Württemberg Cooperative State University Mannheim, she spent a semester at the University of Tennessee in Knoxville. Subsequently, she advanced her academic journey, earning a Master of Science in Business Management with distinction from the Berlin School of Economics and Law/Berlin Professional School, with a specialization in Digital Business Management. In her master's thesis, she investigated the required individual competencies for corporate digital transformation based on the concept of Corporate Digital Responsibility” (CDR). Her professional career is characterized by a strong understanding of international business practices and a dedication to sustainable digital innovation.

Executive Summary

As digital transformation continues to gain momentum, a new subject area for companies is emerging, namely Corporate Digital Responsibility (CDR). In this context, this working paper aims to answer the following research question: „Which individual competencies support effective CDR implementation?“ Both a theoretical and an empirical analysis are conducted to derive a comprehensive set of individual competencies necessary for successful CDR management. After a systematic literature review, a subsequent qualitative content analysis based on semi-structured interviews is performed to gain exploratory insights and to specify the theoretical findings. An overall set of 23 CDR-related competencies is identified across four domains (cognitive, functional, social, and meta). In particular, „understanding internal and external stakeholder needs“ and the ability to „employ adaptability“ play a crucial role. These results are contextualized and discussed in light of the current academic debate on competencies for implementing CDR.

To the author’s knowledge, the paper constitutes one of the first attempts to provide empirical evidence on individual competencies for CDR implementation. In this way, the working paper contributes to the theoretical research. In addition, practitioners may use the derived competency framework as input for recruitment, professional development, or advancement of CDR in their companies. However, the generalizability of the findings is limited as the interviewed experts are located in Germany and thus might represent a geographically and culturally similar background. A future avenue of research could be to examine the importance of each of the identified competencies through an in-depth assessment in the form of a quantitative follow-up study.

Zusammenfassung

Mit der voranschreitenden digitalen Transformation entsteht für Unternehmen ein neues Themenfeld: Corporate Digital Responsibility (CDR). Dieses Arbeitspapier fokussiert sich darauf, die folgende Forschungsfrage zu beantworten: "Welche individuellen Kompetenzen unterstützen die effektive Umsetzung von CDR?" Es erfolgt eine Untersuchung, bestehend aus einer theoretischen und empirischen Analyse, um ein umfassendes Spektrum individueller Kompetenzen zu identifizieren, die für ein erfolgreiches CDR-Management notwendig sind. Im Anschluss an eine systematische Literaturrecherche wird eine qualitative Inhaltsanalyse auf Grundlage von semi-strukturierten Interviews durchgeführt. Dies dient dazu, explorative Erkenntnisse zu generieren und die theoretischen Ergebnisse weiter zu präzisieren. Insgesamt werden 23 CDR-bezogene Kompetenzen in vier Bereichen (kognitiv, funktional, sozial und meta) ermittelt. Insbesondere das "Verstehen interner und externer Stakeholder-Bedürfnisse" sowie die individuelle "Anpassungsfähigkeit" von Mitarbeitern und Mitarbeiterinnen spielen eine entscheidende Rolle. Diese Ergebnisse werden im Lichte der aktuellen akademischen Debatte über Kompetenzen zur Umsetzung von CDR kontextualisiert und diskutiert.

Nach Kenntnis der Autorin, stellt die Studie einen der ersten Versuche dar, empirische Belege für die individuellen Kompetenzen bei der Umsetzung von CDR zu liefern. Auf diese Weise trägt die Arbeit zur theoretischen Forschung bei. Darüber hinaus bietet der abgeleitete Kompetenzrahmen einen möglichen praktischen Input für die Rekrutierung, berufliche Entwicklung oder Förderung von CDR in ihren Unternehmen nutzen. Die Verallgemeinerbarkeit der Ergebnisse ist jedoch begrenzt, da die befragten Experten und Expertinnen in Deutschland ansässig sind und somit möglicherweise einen geografisch und kulturell ähnlichen Hintergrund aufweisen. Ein zukünftiger Forschungsansatz könnte darin bestehen, die Bedeutung jeder der identifizierten Kompetenzen durch eine eingehende Bewertung in Form einer quantitativen Folgestudie zu untersuchen.

Contents

1. Corporate Responsibility in times of Digital Transformation

"Technology is a useful servant but a dangerous master."

Christian L. Lange, Winner of The Nobel Peace Prize in 1921

More than a century later, the world is undergoing radical change with regard to digital transformation and corresponding concerns about the latest technological developments are rising in society and organizations (cf. Narayan et al., 2023). In this context, various prominent cases of misuse of modern technologies have occurred in recent years, demonstrating the potential risk of advanced digital transformation. The Artificial Intelligence (AI), Algorithmic, and Automation Incidents and Controversies (AIAAIC) database has observed a significant rise in such occurrences, with the number increasing by a factor of 26 since 2012 (cf. Maslej et al., 2023).

Although digitalization boosts efficiency, e.g., by saving costs, improving product or service quality, or transforming process management (cf. Bednarova and Serpeninova, 2023), above mentioned technology related instances and risks are becoming increasingly important for the successful management of organizations (cf. Mueller, 2022). This contributed to the emergence of the concept of Corporate Digital Responsibility (CDR), stressing the importance for organizations to identify and mitigate ethical concerns related to digital technologies as well as engaging in a heightened discourse on safeguards regarding corporate digital transformation (cf. Mueller, 2022). Consequently, system designers and organizations must acknowledge the potential unanticipated uses and adverse consequences of their technologies on stakeholders and society, despite limited guidance from existing research on ethical dilemmas in the digital realm (cf. Lobschat et al, 2021). Hence, the concept of CDR addresses a wide range of issues including privacy (cf. Lobschat et al., 2021), data security (cf. Herden et al., 2021), sustainability (cf. Mihale-Wilson et al., 2022), and ethical use of technology (cf. Mueller, 2022). Although these topics have the potential to intersect with the concept of *Corporate Social Responsibility* (CSR) (cf. Trittin-Ulbrich and Böckel, 2022), they might require separate consideration due to their distinctively transformative nature (cf. Lautermann and Frick, 2023).

Since the discourse surrounding CDR remains strongly driven by practice, many proposed measures lack the necessary specificity to be effectively implemented (cf. Mihale-Wilson, 2022). According to recent study findings, 80% of digital experts rate CDR as a (very) important factor for future business success (cf. Deloitte, 2022) and 43% of businesses are deficient in the essential skills required for implementing a strong CDR culture (cf. Figure 1). To the best of current knowledge there are no respective academic studies, examining the critical personal competencies of corporate actors for successfully performing CDR-related activities. Therefore, this paper aims to answer the following research question: "Which individual competencies support effective CDR implementation?"

By addressing this problem statement, a specific set of individual competencies for successful CDR management can be developed. These results are of both practical and academic relevance. On the one hand, companies will be enabled to select and train their employees in a way that supports the establishment of a strong CDR culture. This is particularly important as organizations and their workforce, such as system developers, have an obligation to ensure responsible use of digital solutions and prevention of technology misuse (cf. Lobschat et al., 2021). The necessity of intensifying and expanding CDR research is based both on the speed

of technological development (cf. Bednarova and Serpeninova, 2023) and on the increasing need for interdisciplinary integration of digital topics (cf. Paltiel et al., 2022).

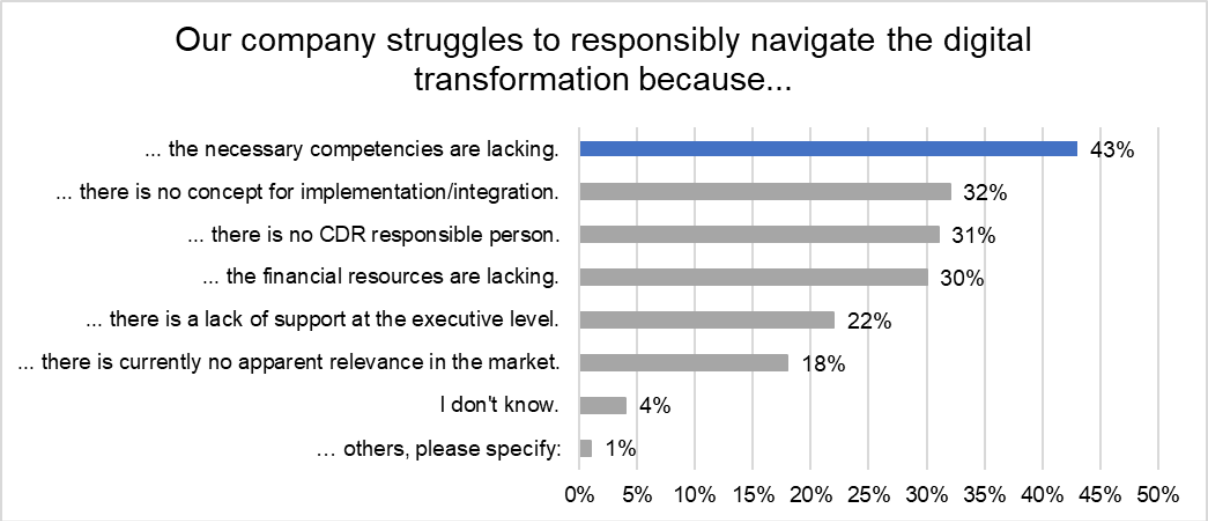

Figure 1: Challenges for Implementing Corporate Digital Responsibility (Source: own depiction based on Deloitte, 2022)

Furthermore, comparing CDR-related competencies with insights from the Corporate Social Responsibility (CSR) domain, can add to the differentiation between both areas of interest. First, this may support a holistic implementation of sustainability management and corporate responsibility in organizations. Second, it could promote academic discourse on terminological and conceptual differentiation of both topics. Overall, CDR-related research entails social and economic significance (cf. Mihale-Wilson et al., 2022) and might provide orientation in dealing with ethical dilemmas in the field of corporate digitalization.

2. Terminological Framework

2.1 Corporate Digital Responsibility

CDR strives to address digital responsibilities in a comprehensive manner, considering their interconnectedness and moving beyond an isolated understanding of challenges such as data privacy and access (cf. Carl et al., 2023). Highlighting that this topic is gaining in relevance, an extensive literature review by Bednarova and Serpeninova (2023) shows, that more than 90% of CDR-related literature has been published in the last two years, indicating a strong momentum for the CDR in academia. However, since the understanding of this concept is still significantly shaped by industry professionals, the provided set of definitions includes both scholarly and practitioner-based interpretations (cf. Table 1).

A comparison of these definitions shows that CDR is basically characterized by four elements (cf. Bednarova and Serpeninova, 2023):

- a compliance-oriented dimension focusing on legal requirements,
- voluntary reporting on ethical issues with regard to the increasing digitalization,
- the expansion of corporate responsibility to include aspects of digital transformation,
- as well as the impact of technology on people and society.

Table 1: Overview of Definitions on Corporate Digital Responsibility (Source: own depiction based on Lobschat et al., 2021; Wirtz et al., 2023; Herden et al., 2021; Joynson, 2018, Hera Group, 2022; BMUV, 2023)

Definition	Author
"Based on the broad idea of business ethics, we define CDR as the set of values and specific norms that govern an organization's judgments and choices in matters that relate specifically to digital issues."	Lobschat et al., 2021
"We define CDR in the context of service as the principles underpinning a service firm's ethical, fair, and protective use of data and technology when engaging with customers within their digital service ecosystem."	Wirtz et al., 2023
"Corporate Digital Responsibility is an extension of a firm's responsibilities which takes into account the ethical opportunities and challenges of digitalization."	Herden et al., 2021
"CDR is about recognizing that the organizations driving forward the advancement of technology, and those that leverage technology to engage and provide services to the citizen, have a responsibility to do so in a manner that is fundamentally leading us toward a positive future."	Joynson, 2018
"Corporate digital responsibility refers to a set of practices and behaviours [sic] that help an organization use digital data and technologies in an ethical and responsible manner in the social, environmental, economic and technological dimensions."	Hera Group, 2022
"Corporate Digital Responsibility (CDR) is the organisational [sic] policy of assuming responsibility in the age of digital transformation. It is a decisive factor in shaping the process of digitalisation [sic] for the common good and ensuring it serves the best interests of citizens."	BMUV, 2023

Drawing on this understanding, the conceptual model of CDR on which this research is based describes influencing factors, impacts, and the framework for CDR-culture (cf. Figure 2).

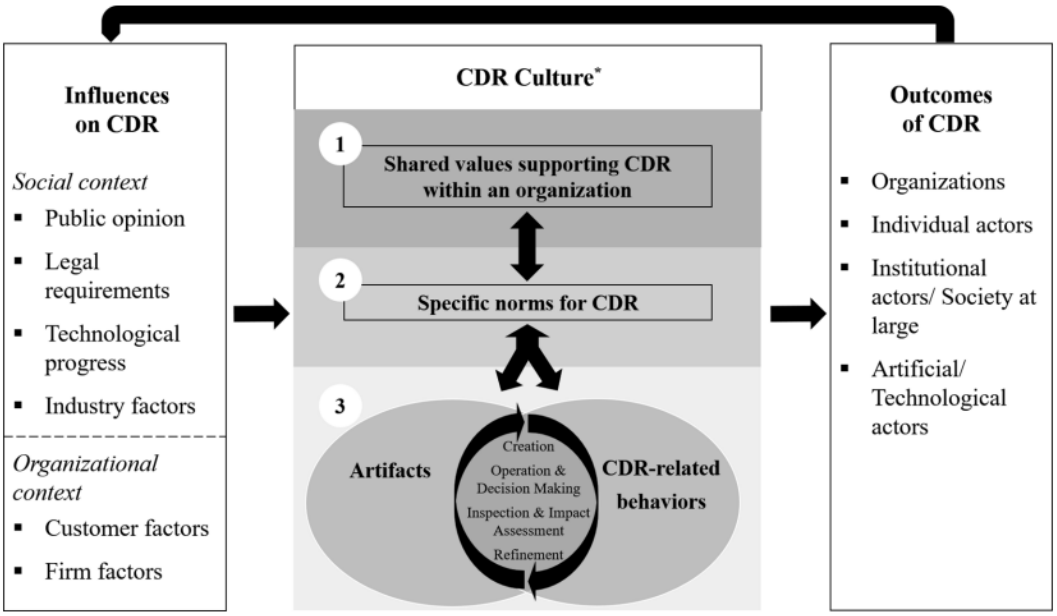

Figure 1: Conceptual Model of Corporate Digital Responsibility (Source: Lobschat et al., 2021)

Lobschat et al. (2021) define three layers of an organization's CDR culture ranging from a low level (Level 1) to a high level of concreteness (Level 3). In this context, “shared values supporting CDR within an organization, specific norms for CDR, and CDR-related artifacts” (Lobschat et al., 2021) represent key components of CDR culture and can be applied across sectors. However, external and company-specific influencing factors are taken into account, indicating that the domain is subject to contextual influences. The conceptual model illustrates the impact of a company's CDR culture on various stakeholder groups. In order to actively shape CDR culture, individual employees must reach CDR-related decisions and therefore exemplify a primary group of stakeholders (cf. Lobschat et al., 2021).

However, managers may prioritize other activities that offer more immediate benefits or align more closely with their performance metrics, leading to reduced enthusiasm for engaging in CDR initiatives (cf. Wirtz et al., 2023). Therefore, legislative frameworks are especially important when CDR-related costs exceed the corresponding benefits.

To date, efforts to regulate CDR-related areas are still in a preliminary stage. The General Data Protection Regulation (GDPR) establishes clear standards for the protection of personal data, imposing obligations on companies to comply with data privacy regulations (cf. European Union, 2016). Compliance with GDPR serves as a legal framework and a baseline requirement for incorporating CDR practices, ensuring the safeguarding of individuals' privacy rights, and contributing to responsible digital utilization, thereby enhancing trust among customers, partners, and society as a whole (cf. Lobschat et al., 2021). Stimulating the discussion on regulatory affairs, the European Commission has proposed a new law, the Artificial Intelligence (AI) Act, presenting approaches to take advantage of AI-related opportunities based on comprehensive risk assessment and discusses CDR disclosure requirements (cf. European Union, 2023; Bednarova and Serpeninova, 2023).

Overall, this paper examines the requisite characteristics of individual corporate actors for implementing digital responsibility and for establishing a respective culture in organizations, hereafter referred to as CDR managers or professionals.[1] Based on a distinct legislative

[1] Since there are no established functions in the CDR context yet, the choice of terminology is based, among others, on a recently introduced new training designation of the German Chamber of Industry and Commerce (cf. DIHK, 2023). Nevertheless, it should be noted that both CDR manager and CDR

framework and geographically specific understanding of the concept, the study concentrates on the German CDR context.

2.2 Individual Competencies

In academia, there is no uniform understanding of the concept of competency (cf. Draganidis and Mentzas, 2006; Vazirani, 2010). Therefore, this study seeks to develop an understanding based on a range of definitions. In addition, an applicable competency model is introduced in this section, which is subsequently examined and discussed in relation to existing limitations.

First introduced by McClelland, competency represents a "symbol for an alternative approach to traditional intelligence testing" (McClelland, 1973). The understanding of competency has evolved, now distinguishing between two frameworks a) the Human Resource Management (HRM) perspective focusing on personal performance-related characteristics, and b) the strategic view of the concept, addressing the organizational combination of integrating capacities and assets (cf. Cardy and Selvarajan, 2006). For the purpose of analyzing individual actors in the context of CDR, this theoretical framework only focuses on the first of the two dimensions.

Draganidis and Mentzas define competency as “a combination of tacit and explicit knowledge, behavior and skills, that gives someone the potential for effectiveness in task performance” (Draganidis and Mentzas, 2006). Extending the understanding to include personal motivation, Boyatzis states that the “behaviors are alternate manifestations of the intent, as appropriate in various situations or times” (Boyatzis, 2018). In this regard, distinction emerges between competency, as a concept that bears behavioral relevance, and competence, which adopts a purely function-oriented approach (cf. Le Deist and Winterton, 2005). In this paper, an extensive understanding is employed. This encompasses the "comprehensive approach to competence" (Osagie et al., 2014), which adopts a broader perspective by considering competence as an integrated performance-oriented capacity, focused on achieving specific goals. This approach is consistent with the prevailing German understanding of competency, which integrates knowledge, skills, and behavior (cf. Le Deist and Winterton, 2005). Aligning the conceptual understanding with the cultural context of the empirical study reduces imprecision in the research design (cf. Rodriguez et al, 2022).

Building on this approach, Le Deist and Winterton (2005) have developed a typology that distinguishes different domains and thus creates an overview of possible types of competencies being relevant in various application scenarios (cf. Figure 3):

- First, cognitive competence refers to an individual's understanding and knowledge in an area, representing a conceptual domain.
- Second, functional competencies comprise the know-how that a person should be able to demonstrate in a specific job-related context.
- Third, social competencies include of a person's individual behaviors and attitudes that contribute to the effective performance of an activity.
- In distinction to the three above mentioned components of the framework, meta competence it concerned with facilitating the acquisition of other competencies and therefore can be considered as an overarching domain. Within a system of interconnected fields of competency, meta competence acts as the central element

professional are not exclusive terms and competencies can be assigned to different roles in an organization.

providing the foundation for effective integration and cross-application of skills, knowledge, and behaviors.

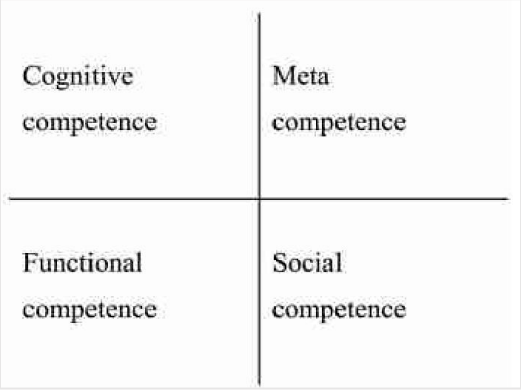

Figure 2: Classification of Competency within a Holistic Framework (Source: Le Deist and Winterton, 2005)

Competencies are a decisive aspect for executing corporate strategies as they can lead to the generation of a competitive advantage (Chen and Chang, 2010). Since they can be developed throughout a lifetime, it is important for companies to identify relevant competency areas and train employees accordingly (cf. Boyatzis, 2008).

2.3 Associated Fields of Research

CDR is connected to other streams of literature, including the field of digital ethics, referring to "the attempt to guide human conduct in the design and use of digital technology in general" (Hanna and Kazim, 2021). As digital ethics exceeds the mere consideration of moral issues arising from specific technology, such as AI ethics, it focusses on broader questions regarding the complexity of digital transformation (cf. Floridi, 2019; Mueller, 2022). Hence, the primary objective of digital ethics is to adopt a comprehensive perspective in addressing ethical challenges arising across various domains of digitalization, e.g., algorithms, data security, privacy, transparency, and autonomous systems from a cohesive ethical perspective (cf. Floridi, 2019). In particular, Mueller (2022) considers a content-focused perspective of digital ethics as a central element within the realm of CDR.

CDR has a close relationship to the concept of CSR which integrates "economic, legal, ethical and discretionary categories of business performance" (Carroll, 1979). Although a comprehensive review of the CSR literature is beyond the scope of this paper it seems to be evident that the CSR debate serves as a fundamental framework for understanding CDR (cf. Herden et al., 2021).[2]

In general, there is an ongoing academic debate whether CSR adequately covers the responsibilities of businesses in the digital economy (cf. Trittin-Ulbrich and Böckel, 2022). Some scholars argue for a conceptual differentiation due to distinct characteristics of digital technologies, including the transformative nature of technological developments, and the dynamic and unpredictable ethical challenges arising from technology use (cf. Mihale-Wilson et al., 2022). In contrast, other researchers claim that CDR might only be perceived as part of CSR, since both concepts prioritize a company's sustainable orientation as a central objective (cf. Khattak and Yousaf, 2022). A third perspective considers CDR a 'derivative' of general corporate responsibility and therefore incorporates elements of CSR but additionally covers

[2] Please refer to Velte, 2022 for an in-depth analysis of the CSR domain.

separate digital topics, reflecting the impact of digitalization on sustainability (cf. Lautermann and Frick, 2023).

Taking into account the outlined discussion on different domains of corporate responsibility, this paper is based on the understanding that the unique challenges posed by the digitalized world justify an expanded conceptualization of corporate responsibility. This leads to the distinct consideration of both conceptualizations (cf. Carl et al., 2023).

3. Methodology

3.1 Research Approach

The research design employs an exploratory approach to investigate the field of CDR-related individual competencies. Considering the limited theoretical knowledge in this field, the study aims to provide qualitative practical insights, contributing to the existing body of scientific knowledge by presenting a comprehensive reflection of the experiences and opinions of a strategically defined sample (cf. Verschuren and Doorewaard, 2010).

To answer the research question, interviews with CDR experts are conducted as a primary data collection method. This research instrument emphasizes the personal perspectives of the respondents, thus allowing for the identification of trends and patterns (cf. Döringer, 2021). Prior to this qualitative exploration, a SLR is carried out as a preparatory step for achieving the research objective. The outcome of this process serves as the basis for the empirical analysis and ensures that the findings of this paper are related to the current state of the research (cf. Bogner et al., 2010).

The described methodological design is aligned with the structure of the CSR-related study "Individual Competencies for Corporate Social Responsibility: A Literature and Practice Perspective" (Osagie et al., 2014). On the one hand, this ensures the application of a validated research approach and, on the other hand, it offers the possibility to compare the results between both related domains CDR and CSR in terms of relevant competencies. By combining the findings of the literature review with the qualitative data gathered through expert interviews, this research design aims to develop a comprehensive understanding of CDR-related competencies. Each methodological component is defined and explained in the following sections.

3.2 Methodology for Theoretical Exploration

The first step of this study constitutes a SLR, which is „a process that allowed to collect relevant evidence on the given topic that fits the pre-specified eligibility criteria“ (Mengist et al., 2020). This method facilitates “identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners“ (Okoli and Schabram, 2010). For the purpose of providing a theoretical foundation to the empirical analysis (cf. Okoli and Schabram, 2010), the exploration adopts a cumulative approach, which is used for mapping the current state of knowledge to recognize recurring patterns and formulate comprehensive conclusions (cf. Templier and Paré, 2015).

The following databases are used to conduct the SLR of this working paper: Business Source Ultimate (EBSCO), Directory of Open Access Journals, and SpringerLink.[3] All databases provide broad access to qualitative and peer-reviewed literature (cf. EBSCO, 2023; DOAJ, 2023; Springer Nature, 2023). The search process was performed from July 1, 2023, to July 2, 2023, involving a structured article selection procedure.

[3] Access is based on the authorizations of the *Berlin School of Economics and Law* and may be restricted accordingly.

Therefore, several initial inclusion and exclusion criteria were defined and used to select the literature for consideration. One main parameter involves the incorporation of academic qualitative and quantitative articles published between 2010 and 2023. This timeframe was considered appropriate due to the fragmented evidence of relevant articles prior to 2010 (cf. section 2.1). Throughout the process, the study contemplates peer-reviewed conceptual and empirical articles in both English and German, with exclusions made for duplicate entries and literature in foreign languages. In addition, the relevance of the content to the research question must be evident.[4] Accordingly, subject-specific search strings are utilized across all databases: (corporate digital responsibility) AND (competenc*) OR (capabilit*) OR (skill), (competenc*) AND (digital ethics) OR (digital responsibility) OR (technology governance), (competenc*) OR (capabilit*) AND (digital age) AND (CSR implementation). Additional selection criteria arose during the review process, which are defined based on specific items retrieved from the databases. The final principles for inclusion and exclusion in the SLR are therefore outlined in section 4.1.

As the use of standard quality assessment tools is not required when conducting a cumulative literature review (cf. Templier and Paré, 2015), the quality of articles used is indirectly ensured in this paper by taking into account the Journal Rank of Scimago (SJR). SJR is based on the H-index[5] and the citation frequency of a journal (cf. Guerrero-Botea and Moya-Anegón, 2012). Only academic articles from journals belonging to the first quartile (Q1), i.e., the 25% of journals with the highest reputation, should be considered.[6]

The final sample was analyzed on the basis of the competencies mentioned according to the framework of Le Deist and Winterton (2005) from chapter 2. Findings were evaluated according to journal's subject areas in order to identify possible influences of the research field on the competency framework. This leads to a comprehensive set of competencies as a foundation for further empirical analysis.

3.3 Methodology for Empirical Exploration

Following the SLR, an empirical study is performed to answer the research question and gain insights into CDR-related competencies from the perspective of experts in this field by using the software MAXQDA. This chapter explains the methodological procedure with regard to the choice of instrument, the sample selection, the data collection as well as the analytical approach.

Interviews, questionnaires as well as observations belong to the qualitative research methods and are frequently used within social sciences (cf. Hannabuss, 1996). Semi-structured interviews particularly facilitate the creation of individual interview situations and a high degree of information density, therefore "disclosing important and often hidden facets of human and organizational behavior" (cf. Qu and Dumay, 2011). They allow for additional guiding questions, thus creating maximum conversational value (cf. Ruslin et al., 2022). In this context, expert interviews are used to create an initial orientation in a field that has not yet been researched extensively and to generate corresponding hypotheses by drawing on the personal experiences of the participants (cf. Bogner et al, 2010). Therefore, by applying semi-structured

[4] Given the early stage of CDR-related research and the limited extent of scientific inquiry, the research scope incorporates the domains of corporate social responsibility in the digital age and digital responsibility. Additionally, alternative sustainability approaches pertaining to digitalization are part of the examination.
[5] The H-index measures both a journal's scholarly output and influence (cf. Scimago, 2023).
[6] There has been a deviation from the predefined procedure regarding the consideration of the SJR, as one article with Q2 ranking is included in the final set of items. For further details please refer to section 4.1.

expert interviews this study does not focus on the testing of pre-defined hypotheses, but on the open-ended generation of information to answer the research question (cf. Gudkova, 2018).

All interviews were conducted following an interview guide which guarantees a comparable research approach (cf. Hannabus, 1996) while ensuring that all relevant topics are addressed in the different interview situations (cf. Hohl, 2000). Based on the research design of a related CSR study by Osagie et al. (2014) the interview guide is developed.[7] Depending on the specific circumstances, the type of question was adapted to the course of the conversation (cf. Ruslin et al., 2022).

Experts are defined as people possessing “technical, process and interpretative knowledge“ (Bogner et al, 2010) concerning a specific subject area. These individuals are responsible for the implementation, design, or control of specific activities or provide information on relevant decision-making processes (cf. Meuser and Nagel, 1991). For the purpose of the study, professionals with CDR expertise were selected as interview partners, either as company representatives belonging to the target group of the research themselves or as external consultants providing a complementary perspective (cf. Bogner et al., 2010). A diversity of backgrounds offers the advantage of producing a variety of insights into a topic (cf. Rowley, 2012).

The sample size was determined a priori. A total of seven interviews are conducted, providing an evidence-based sample size to ensure a sufficient saturation in the context of time-limited research (cf. Guest et al., 2006; Hennink and Kaiser, 2022). This is possible because even individual cases can contribute significant information to answering any research question (cf. Boddy, 2016). The selected interviewees represent various companies and industries, including pharmaceuticals, insurance, and consulting services. The participants include three males and four females located in Germany. Since the sample is rather small and in order to ensure the anonymity of all experts, no further information on the individuals or companies is provided.

All interviews were conducted online and recorded via video call through Microsoft Teams, as this approach offers an adequate substitute for face-to-face interviews (cf. Deakin and Wakefield, 2013). Subsequently, all interviews were transcribed. The transcription follows the principles of Dresing and Pehl (2018), which are accepted by Kuckartz and Rädiker (2022) for a qualitative content analysis.

Following the approach of a qualitative content analysis according to Kuckartz and Rädiker (2022), the previously collected data is assessed in a structured manner in chapter 5 (cf. Figure 4). Both the implementation and the documentation are based on the quality criteria of qualitative research, focusing on internal validity (cf. Kuckartz and Rädiker, 2022). The analysis relies on the assumption that a targeted data analysis is possible by coding texts, as it allows the amount of information to be filtered and classified (cf. Helfferich, 2011). To enable a theory-based analysis, the main codes are deductively derived from the underlying literature (cf. chapter 2; chapter 4) and subcodes are inductively developed based on the transcripts after data collection is complete (cf. Kuckartz and Rädiker, 2022). The chosen takes into account the support of the analysis by Qualitative Data Analysis (QDA) software by design (cf. Kuckartz and Rädiker 2022), which facilitates a method-compliant execution.

[7] The interview guide referred to in this context was provided by the researchers in Dutch and was subsequently translated by the author.

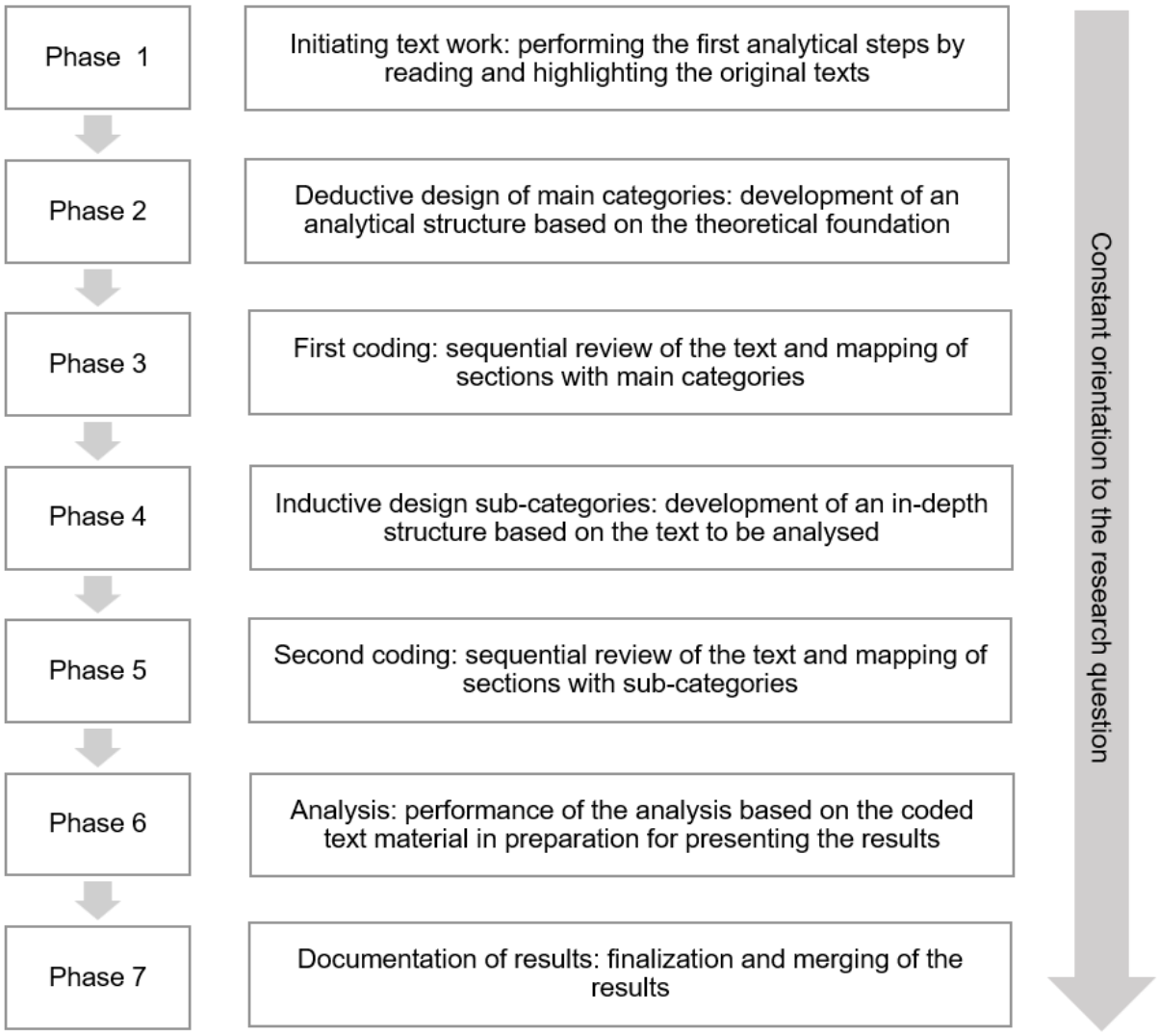

Figure 3: Procedure of Qualitative Content Analysis (Source: own depiction based on Kuckartz and Rädiker, 2022)

4. Theoretical Exploration: Literature Review

4.1 Procedure and Study's Basic Characteristics

Between July 1, 2023, and July 2, 2023, all predefined databases were scanned by means of different predefined search strings (cf. section 3.2). In general, a full-text search was carried out in line with the exploratory search strategy defined in the methodology of this paper. For each database, different numbers of articles were identified, with Business Source Ultimate (EBSCO) having 32 entries, Directory of Open Access Journals containing 18 entries, and SpringerLink resulting in a total of 35 entries.

The entire selection process is aligned with the research question through the diverse selection of search terms and the subject-related expansion of predefined parameters. Removing articles depends on the following parameters:

- Relevance to CDR: some articles address broader subjects, such as digital responsibility in society, policy making, or digital ethics in general;

- Specific focus: certain papers have a specific emphasis on individual actors in the context of CDR, e.g., board directors, or system engineers;
- Relation to research question: several items do not contribute to gaining knowledge related to the research question, as they refer to other aspects of CDR.

Examples of irrelevant articles excluded after a second round of evaluation include Lee (2020) as the study explores organizational capabilities instead of individual competencies, or Napoli et al. (2023) due to concentrating on board directors rather than CDR managers.

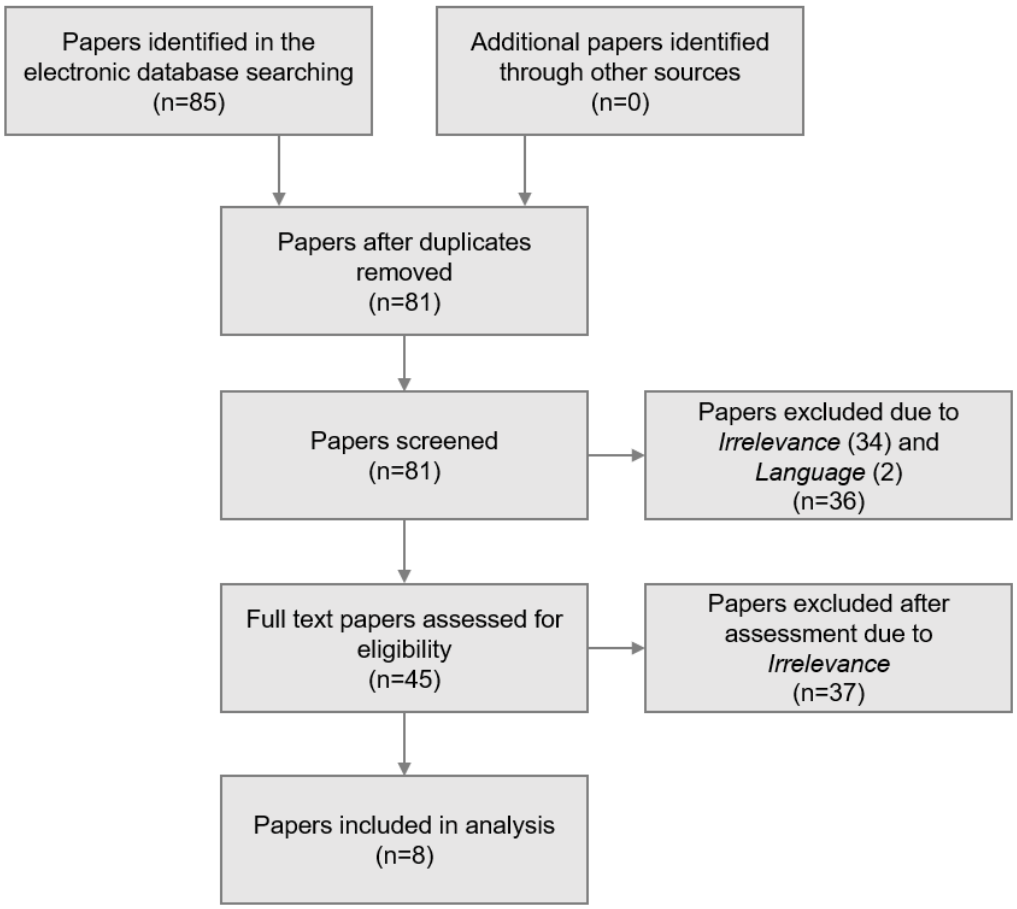

Figure 4: Documentation of Systematic Literature Review Process (Source: own depiction)

All eight journal articles, included in the SLR have been published between 2021 and 2023. Because of its considerable relevance, one article was included in the final data set that did not meet the predefined requirement of belonging to the first quartile of the SJR rating (cf. chapter 3). This deviation from protocol is accepted since it appears to be valuable in answering the research question, yet may limit the quality of the underlying data.

4.2 Results of Systematic Literature Review

After performing the selection process and identifying relevant articles, this section examines CDR-related individual competencies, mentioned in previous literature. Therefore, the analysis focuses on providing an overview concerning the different fields of competencies according to Le Deist and Winterton (2005). discussed in section 2.2. By creating initial CDR-related competency categories, the results will be organized for further use in the empirical analysis.

The most frequently mentioned competencies in the data set are of functional nature (6), followed by social (5), cognitive (3), and meta competencies (1). This means that all competency areas from the framework of Le Deist and Winterton (2005) are addressed within

the CDR context so far. The competencies from the literature refer to employees coordinating CDR in a company, which will be denoted as CDR managers in the following. For an overview and mapping to the respective journal articles, please refer to Table 2.

Table 2: Overview of Results from the Systematic Literature Review by Competency Fields (Source: own depiction)

#	Author(s)	Cognitive	Functional	Social	Meta
1	Carl et al. (2023)	x		x	
2	Gogoll et al. (2021)			x	
3	Horneber and Laumer (2023)		x		
4	Weber-Lewerenz (2021)	x	x	x	x
5	Papagiannidis et al. (2023)		x	x	
6	Cheng and Zhang (2023)		x		
7	Bastidas et al. (2023)	x	x	x	x
8	Wirtz et al. (2023)		x		

In the context of CDR, **cognitive competencies** (cf. chapter 2) incorporate knowing the internal and external stakeholders and understanding their different interests and needs, e.g., to motivate the company's employees to implement CDR measures (cf. Wirtz et al., 2023). Moreover, this knowledge enables for a detailed consideration of different customer segments with regard to digital products or services as well as data management (cf. Carl et al., 2023). In addition, CDR managers should know about the diverse interdependencies between a company's business model, business processes, digital technology, and methods, as well as organizational data (cf. Bastidas et al., 2023). Comprehending that "digital responsibility does not occur in isolation in practice" (Carl et al., 2023) facilitates a holistic management of CDR.

In order to understand the future business needs of a company, such as technology developments and associated opportunities and risks, CDR managers are also expected to have **functional competencies** (cf. chapter 2) entailing advanced strategic thinking skills (cf. Bastidas et al., 2023). It is important to identify short-term and long-term challenges and effectively solve problems as they arise by being able to critically examine current digital tools and question the choice of technologies used in the future (cf. Bastidas et al., 2023).

In addition to the mentioned soft skills, competencies in the area of requirements management may be also necessary to contribute to the definition of digital tools, processes, and essential qualifications (cf. Weber-Lewerenz, 2021). Therefore, CDR managers need to possess basic technical know-how to ensure that the available data can be interpreted as a basis for management decisions (cf. Cheng and Zhang, 2023).

In order to sustainably implement the digitalization of products and processes in companies, project management skills might be also important and should cover the entire project cycle, from planning to the formulation of lessons learned (cf. Weber-Lewerenz, 2021). Since these projects often include the establishment of safeguard systems (cf. Wirtz et al., 2023), CDR managers may be required to demonstrate competencies in the area of organizational policy development (cf. Horneber and Laumer, 2023). As a result, they are able to formulate guidelines which subsequently can be operationalized into measures, thus contributing to an effective CDR culture (cf. Papagiannidis et al., 2023). Furthermore, AI-related projects may

differ from other projects in the organization, making specific planning and resource allocation necessary (cf. Papagiannidis et al., 2023).

Furthermore, CDR professionals are required to possess **social competencies** (cf. chapter 2) covering the ability to effectively work with others, both within and outside an organization, to address digital responsibility issues and challenges (cf. Bastidas et al., 2023). This includes for example the collaboration within industry-wide initiatives (cf. Carl et al., 2023). Increased transparency may be necessary due to the higher risks in the area of technology and digitalization (cf. Weber-Lewerenz, 2021). This can be achieved by actively listening and empathizing with CDR stakeholders, thus creating trust, and supporting diversity and inclusion (cf. Papagiannidis et al., 2023).

In the context of **meta competencies** (cf. chapter 2), CDR managers should use current and emerging technologies to explore, obtain, sustain, and enhance competencies to enable personal and professional growth (cf. Bastidas et al., 2023). Furthermore, adaptability and flexibility might be necessary for them to work in complex digital contexts as well as to promote cultural change and innovation within an organization (cf. Bastidas et al., 2023). This includes constantly challenging personal opinions and changing perspectives, e.g., on the use of advanced technologies in the light of newly acquired knowledge (cf. Weber-Lewerenz, 2021).

The consolidation of the selected CDR competency specifications produces a preliminary set of nine CDR-related individual competencies: (C1) Understanding internal and external stakeholder needs; (C2) Comprehending of (inter)dependencies data, processes and an organization's business model; (F1) Developing CDR strategy; (F2) Applying basic technological understanding; (F3) Managing CDR programs and projects; (S1) Realizing teamwork and collaboration; (S2) Creating trust by transparency and empathizing with CDR-stakeholders; (M1) Employing adaptability in CDR contexts; (M2) Enhancing personal and professional competencies.[8] Building the foundation for the further analysis, all domains serve as an input to the empirical exploration.

5. Empirical Exploration: Insights from CDR Experts

In this chapter, the results of the qualitative content analysis according to Kuckartz and Rädiker (2022) are presented and evaluated based on the transcripts of seven semi-structured expert interviews. It provides a summary and discussion of the findings in the context of previous CDR-related literature as well as competency research in the digital age.

5.1 Qualitative Content Analysis and Results

5.1.1 Cognitive Competencies

First, the cognitive competency area is examined encompassing knowledge required to implement CDR in organizations. All experts described competencies from this domain (cf. Figure 5)[9]. A total of six individual competencies were identified, which are outlined consecutively below (cf. Figure 6).

[8] For the following analysis, the fields of competency according to Le Deist and Winterton (2005) are referenced in the nomenclature according to their initial letters, i.e., "C" corresponds to the cognitive realm.

[9] Due to the qualitative research design, all figures and quantitative information related to the data analysis are not generally applicable or transferable, as they are only intended to create transparency. This applies to all the following graphs or numerical citations.

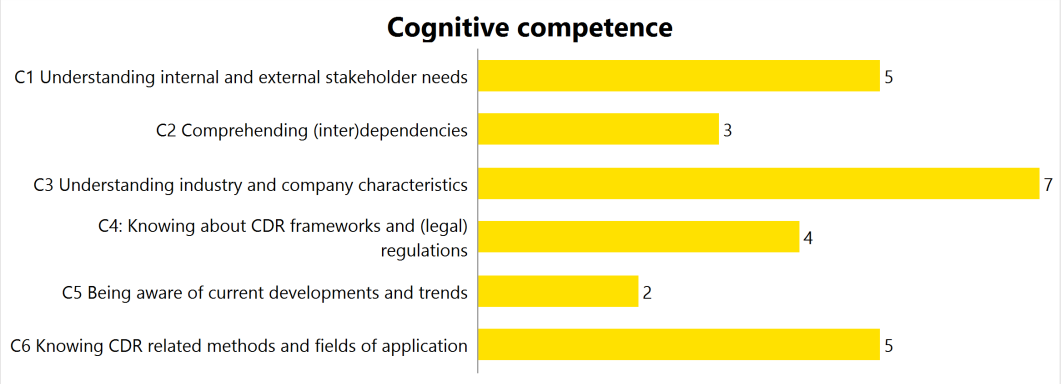

Figure 5: Cognitive Competencies Identified by Experts (Source: own depiction)

CDR professionals should **understand internal and external stakeholder needs**, as it provides the basis for a comprehensive assessment of the different perspectives on the topic of CDR as well as related aspects within the company (cf. Interview 5/12). On the one hand, this knowledge can be related to individual persons and, on the other hand, to specific groups within the company, e.g., departments (cf. Interview 7/18). With regard to external stakeholders, CDR professionals may need insights about shareholders as well as customers for decision-making purposes (cf. Interview 5/42). For internal stakeholders, in contrast, the focus might be on understanding requirements and concerns about digital transformation, which helps to develop suitable solutions and involve those affected in the implementation process (cf. Interview 6/20; Interview 5/42). Overall, the interviewees emphasize that needs and interests may vary significantly. One expert describes these differences as follows:

> *"Some people need visibility, others need the feeling that nothing happens overnight without them being involved. Others on the contrary just need one, two, three, okay, got it" (Interview 7/18).*

Another important element is to be able to **comprehend the dependencies** between processes, stakeholders, and digital transformation. According to the consulted experts, this includes an intraorganizational perspective, which refers to the dependencies and processes within the organization, as well as an interorganizational approach, in which cross-value chain considerations have an impact (cf. Interview 1/28). In this context, interdisciplinary thinking (cf. Interview protocol 2/19) and an understanding of the broader picture (cf. Interview 7/20) may be required.

The most frequently named cognitive competency among the experts interviewed is an **understanding of industry and company characteristics**. First, this entails a profound familiarity with the organization's (digital) products and services (cf. Interview 1/30), its processes (cf. Interview 2/22), as well as its general business model (cf. Interview 5/20). Furthermore, in certain areas it can be useful to have sector-specific expertise when considering the impact of digitization on the industry (cf. Interview 4/20). Thereby, the key aspect to a successful implementation of CDR might be having distinctive insights into a company's formal and informal decision-making procedures, including knowledge about key stakeholders (cf. Interview 3/16). The following statement outlines what this means in practice for the work of CDR professionals:

> *"That means being prepared to maybe take a step back in order to get two more people, who are strategically important, two more departments on board. Well, that's what's needed: How does the company work? Which departments work with whom? Which stakeholders need information from whom?" (Interview 7/14)*

In addition, an **understanding of CDR frameworks and legal regulations** provides orientation for the implementation of digital responsibility in companies. One example mentioned in the context of guidelines is the CDR Building Bloxx of the Bundesverband Digitale Wirtschaft (BVDW) e.V. (cf. Interview 1/40). From a legal perspective, the entire range from human rights (cf. Interview 1/24) to the Artificial Intelligence Act (AI Act) of the European Union (EU) is considered relevant (cf. Interview 2/25).

Assuming that digital transformation within a company takes place in an interconnected ecosystem, **being aware of current developments and trends** can be important for CDR professionals. This includes both a future oriented sensitivity to societal and socio-economic trends (cf. Interview 1/30) as well as to technical developments, such as in the field of generative AI (cf. Interview 5/48).

Completing the cognitive competence field, the experts identified the **knowledge of CDR-related methods and respective fields of application** as a crucial aspect of CDR implementation. The following examples were mentioned: „Materiality Assessment“ (Interview 5/20), “Technology impact assessment” (Interview 1/32), and CDR calculus (cf. Interview 1/42). The use of these methods is described as one of the foundations for subsequent CDR measures.

Overall, the cognitive competencies outlined are oriented toward both an understanding of internal company practices and a broader sense of external influencing factors. Thereby, a connection between two individual components appears to be evident. The experts' response behavior shows that stakeholder understanding as well as knowledge of industry and company specifics might be interrelated. On the one hand, insights into customer requirements reflect the sector-related competition in which the company operates. On the other hand, key stakeholders can be relevant to internal decision-making processes. Accordingly, the successful acquisition or application of the two competencies may be mutually complementary.

5.1.2 Functional Competencies

The second field of competency to be assessed involves functional competencies referring to individual know-how for effective CDR management. In all interviews, individual competencies of this field were mentioned, resulting in a set of six functional competencies for CDR implementation (cf. Figure 7).

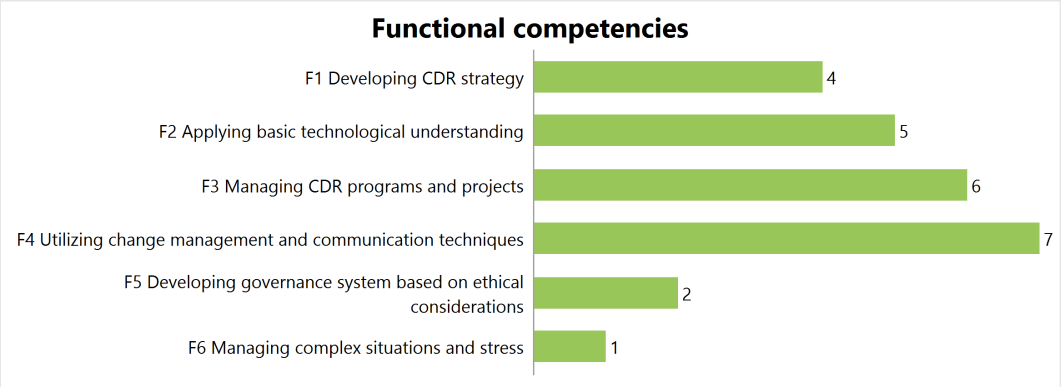

Figure 6: Functional Competencies Identified by Experts (Source: own depiction)

In order to establish CDR on a long-term basis, competencies in the area of **CDR strategy development** can be valuable (cf. Interview 4/42). One of the prerequisites for using this skill is the ability to get an overview of the firm's overall situation and thus identify the areas with the greatest impact on a company's digital responsibility (cf. Interview 7/22). Therefore, it is important to always consider the future implementation and operationalization of the strategy

to prevent the non-realization of defined goals in practice (cf. Interview 5/40). However, it is also possible, for example, due to external influencing factors, that the conditions change, and a strategy must be adjusted (cf. Interview 6/44). From a holistic perspective, it is essential to prepare strategic decisions within the company in favor of a responsible approach to digitization and to translate these into strategic measures (cf. Interview 7/12).

Furthermore, CDR professionals should be able to **apply basic technological understanding**. This includes a range of digital applications to which one needs to demonstrate general expertise (cf. Interview 5/22). Nevertheless, interviewees agree that an academic computer science degree is not required to achieve the desired level of proficiency (cf. Interview 6/14). One expert describes other people's expectations towards CDR professionals as follows:

> *"Well, I think a rough understanding of how programming language works, how human-machine interaction works in a technical way is needed. That doesn't mean that I have to be able to program anything completely myself, but I would suggest that you should have at least some fundamental experience, even if it's only basic HTML knowledge. […] I actually have to be able to provide information on all kind of questions, so I get asked about AI, I get asked about the tools that we use in our daily work. People assume [I] am a Webex pro (laughing)" (Interview 6/18).*

A further skill which might enable or facilitate successful CDR implementation is the competence to **manage CDR programs and projects** (cf. Interview 6/16). On the one hand, this comprises the planning and implementation of CDR-related projects (cf. Interview 2/33; Interview 4/16). On the other hand, it includes the support of other IT projects, e.g., customer projects, with expertise and management know-how (cf. Interview 7/30). In both cases, the key challenge is to organize oneself and other people for the purpose of achieving the defined CDR objectives and realizing a company's strategy (cf. Interview 4/26). Therefore, it is crucial to stay on top of things and be able to coordinate several different tasks at the same time (cf. Interview 6/43).

The most frequently mentioned functional competency, and most often referred to competency related to CDR in general, is the **utilization of change and communication management techniques**. Focusing on this competence is justified by the fact that internal and external stakeholders have to be involved in the CDR-related changes, as they are often directly affected by them (cf. Interview 1/14). In this context, both internal and external communication skills can be beneficial, including general media skills and knowledge in the area of written as well as oral communication, e.g., in one-on-one meetings or workshops (cf. Interview 3/48; Interview 6/22). Using digital or analogue formats might require communicating intermediate steps at regular intervals in order to achieve the CDR objectives (cf. Interview 4/34).

When creating a structural framework for CDR programs and measures, competencies for **developing governance systems** are recommended. This becomes especially crucial when the subject of CDR is not well-established within a company so far. Considering ethical concerns and expertise in control systems and quality management, it is imperative to establish a system that is both operationally effective and amenable to third-party audits (cf. Interview 3/52–54).

Due to rapid technological innovation and the interconnected nature of the CDR domain, there is often a need for skills in **managing complex situations and dealing with stress** (cf. Interview 6/36). One expert describes this requirement as follows:

> *"Well, hopefully, they're relaxed when things get tough, and they just stay calm in these complex situations without getting discouraged." (Interview 6/36).*

The skills mentioned focus on strategic planning as well as on the practical implementation of CDR in an organization. They emphasize the need to possess coordination skills, both in the execution of individual measures as well as in the establishment of management systems. Connections between individual functional competencies can be identified.

Firstly, there is a simultaneous referencing of communication competences and the application of a basic technological understanding. Through the application of communication and change management techniques, a connection between people and IT can be effectively created, potentially driving responsible digitalization, and increasing employee satisfaction. Secondly, a link between change and communication as well as the ability to manage CDR-related projects is observed, specifically because these projects often result in change for employees. The professional management of such a transformation can positively influence the efficiency and quality of results of CDR programs. Overall, the proficient utilization of change and communication management techniques might be seen as a functional core competency contributing to other individual skills.

5.1.3 Social Competencies

With a total of seven competencies, most of them address the social domain (cf. Figure 8). The following section describes each of these behaviors and attributes that are relevant to CDR professionals in an interpersonal context.

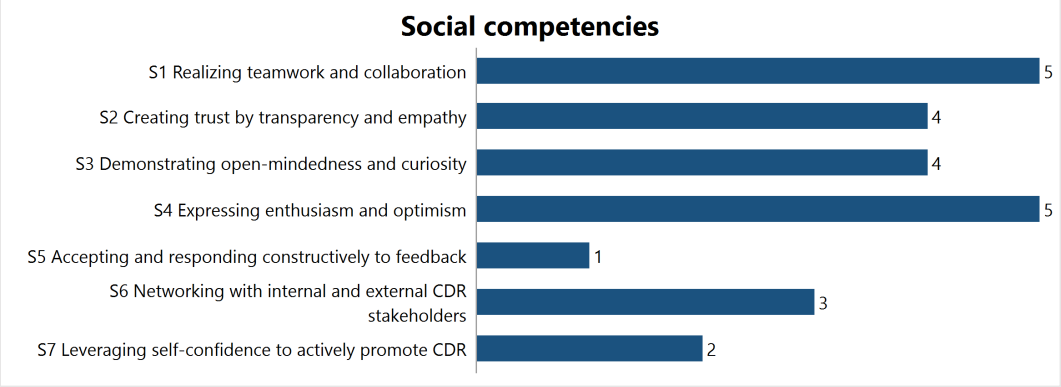

Figure 7: Social Competencies Identified by Experts (Source: own depiction)

One of the most frequently mentioned social competencies focuses on the **realization of teamwork and collaboration**. Primarily, it is about interdisciplinary teams in a cross-functional setup, which CDR professionals coordinate or in which they play an active role (cf. Interview 4/26). In order to promote the topic holistically, the need for cooperation within a company as well as across organizational boundaries is highlighted (cf. Interview 5/12). One expert describes cooperation within a team explicitly as a fundamental success factor for integratively establishing the topic of CDR:

> *"I think one thing that is important is to understand: Nobody can do it alone and don't try to be a hero. Yes, it's really that, if the issue is important to you and you really have the responsibility, it's okay if you're going to be in the background, because if you really want it to become part of the objectives of the respective departments, you have to give visibility to the individual departments as well" (Interview 7/30).*

An integral part of this competence is to organize communities where interested and motivated people come together on the subject of CDR. In this context, the aim is to encourage dialog, provide input, and take on a coordinating role (cf. Interview 7/12).

In addition, the requirement for competencies in **building trust through transparency and empathy** with CDR stakeholders is emphasized. Firstly, this implies actively listening to other

people, therefore enabling CDR professionals to put themselves in the shoes of others (cf. Interview 4/24), and secondly, creating transparency in dealing with achievements and failures (cf. Interview 7/30). This may be challenging as the perspectives of stakeholders can be diverse and creating transparency might be difficult (cf. Interview 5/32). Nevertheless, transparency and empathy are considered to be highly relevant for the achievement of goals in the CDR context.

The variety of topics and individuals encountered in the field of CDR demands the ability to **demonstrate open-mindedness and curiosity**. This entails being tolerant and interested in people, especially those belonging to minorities (cf. Interview 1/26), various subject matters (cf. Interview 4/38) as well as different perspectives and opinions (cf. Interview 5/26).

Furthermore, it might be important to **express enthusiasm and optimism**. By demonstrating intrinsic motivation, it may also be possible for CDR professionals to inspire others (cf. Interview 6/48). For this purpose, it is essential to show dedication and commitment for CDR as well as related topics, resulting in a generally positive attitude that others can follow (cf. Interview 5/34; Interview 6/28). One expert explained the reason for the importance of this competency:

> *"Well, and a little bit of enthusiasm. I'd say that's because it's a topic that appears to be a bit exotic. You have to approach it with a bit of drive. To keep people in a good mood, especially when you're doing a longer workshop or accompanying a process over several weeks and months, it's important to have a certain kind of drive" (Interview 5/34).*

Accepting and responding constructively to feedback might be a crucial competency for effectively implementing CDR in an organization. This requires the ability to accept criticism openly and to learn from one's own mistakes (cf. Interview 4/32). Moreover, CDR professionals should create a setting which provides a safe space for feedback as well as actively embodying a constructive 'no blame culture' (cf. Interview 4/36).

Another social competency mentioned by experts interviewed is about **networking with internal and external CDR stakeholders**. This implies a proactive engagement with both individuals inside and outside of the organization (cf. Interview 2/32). At the same time, it is about creating visibility for oneself as well as the CDR topic (cf. Interview 6/32). Therefore, it is essential that CDR professionals have a general understanding of human nature (cf. Interview 7/20) and are able to approach people, regardless of their level in a company's hierarchy (cf. Interview 6/32).

In addition, it might be important to **leverage self-confidence to actively promote CDR** measures and projects in an organization. It is a vital social competency characterized by individual courage and assertiveness (cf. Interview 7/18-22). CDR professionals are expected to place trust in their abilities, even when met with skepticism or resistance from people inside or outside the company (cf. Interview 6/32). This may be particularly vital as they often have to take on the role of a CDR lobbyist, trying to persuade others on an unfamiliar topic (cf. Interview 7/30).

Overall, the competencies outlined show the diversity of requirements for CDR professionals, both in terms of interpersonal relationships within their own company and beyond the boundaries of the respective organization. Within the competence field, there are mutual connections between the ability to act self-confidently and networking. Individuals often need to step out of their comfort zone to genuinely get to know new people and perspectives, making self-confidence one prerequisite for successful networking behavior.

5.1.4 Meta Competencies

The competency set is completed by four different meta-competencies specified as part of the interviews (cf. Figure 9). They enable CDR professionals to manage and adapt their own competencies and learning processes. In the following, these aspects are described, and their connections are explored.

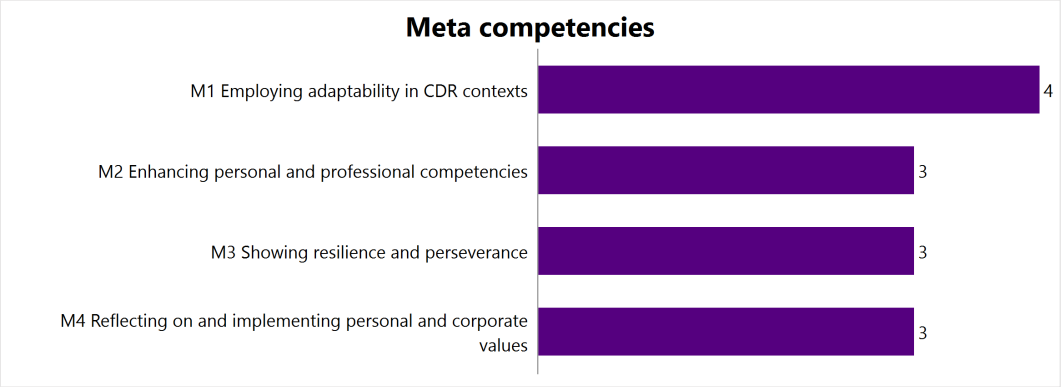

Figure 8: Meta Competencies Identified by Experts (Source: own depiction)

The first meta-competency refers to **employing adaptability in the CDR context**. On the one hand, this entails to consistently question one's own perspective and insights (cf. Interview 5/48). On the other handy, CDR professionals are encouraged to demonstrate flexibility when interacting with CDR stakeholders (cf. Interview 6/28). Additionally, CDR managers should modify their own actions in response to changing conditions and learn from mistakes (cf. Interview 4/32; Interview 7/30).

As a result of the rapid pace of technological developments it may be important to continuously **enhance personal and professional competencies**. In this context, knowledge has become increasingly transit, challenging the utility of information in an ever-evolving digital environment (cf. Interview 5/48). This requires constant proactivity in terms of looking for learning opportunities, as well as a high level of receptiveness (cf. Interview 4/38), which can be a considerable challenge, given the diversity of topics in the field of CDR (cf. Interview 6/50).

Several experts indicate that it is critical for CDR professionals to **be resilient and show perseverance**. Individuals with this competency show determination and endurance as well as a high tolerance for frustration while remaining energetic when confronted with challenges (cf. Interview 6/42). They do not take setbacks personally and explore new approaches, if necessary (Interview 6/46).

The meta competencies are completed by the ability to **reflect on and implementing personal and corporate values**. One expert describes this as follows:

> *"For me, I have discovered one fundamental thing in the discussions, which I think is decisive for the whole CDR topic, and that is in fact: Do I have an understanding of values and have I found ways to take values seriously, to actually bring them into life through my actions and doings" (Interview 3/32).*

It is about ethical and moral values serving as orientation for personal but also CDR specific actions (cf. Interview 6/16). This is therefore a basic requirement for the development of other CDR related competencies, besides other meta competencies (cf. Interview 3/34).

5.1.5 Cross-competency Relations

This section examines the presented individual competencies for inter-code relationships, to detect respective interconnections or dependencies. For this purpose, the MAXQDA tool *Code*

Relation Browser is used to search for intersections within a text segment considering all seven Interviews. Only the most frequent intersections with at least three overlaps are considered.

Firstly, a relation between social competencies in general and the cognitive competency C1 – *Understanding internal and external stakeholder needs* is evident. In particular, there may be a link to the social competence S2 – *Creating trust by transparency by empathy*. The reasons can be derived from the experts' statements. On the one hand, CDR professionals need to put themselves in the shoes of others in order to fully understand their interests and requirements (cf. Interview 5/32). On the other hand, an understanding of the general needs of stakeholder groups helps them to act empathetically towards individuals associated with a certain community (cf. Interview 7/18).

In addition, the competency C1 demonstrates a relationship to the functional skill F4 – *Utilizing change management and communication techniques*. Proactiv communication is considered as a means to comprehend stakeholder interests (cf. Interview 5/30). It requires constant interaction with the people (groups) affected by CDR measures to develop a comprehensive understanding of their needs (cf. Interview 7/18). Both associations with other competencies reinforce that stakeholder understanding is critical, but equally challenging to attain.

Finally, in the dataset, there is an intersection between two competencies: C3 – *Understanding industry and company characteristics*, and F2 – *Applying basic technological understanding*. It is evident from the experts' statements that, particularly in the context of digital products and services, utilizing a general understanding of technology can serve as a prerequisite for comprehending a company's business model (cf. Interview 6/18). Therefore, proficiency in skill F2 has the potential to greatly support the development of competency C3.

5.1.6 Prerequisites for CDR and Competency Overview

In order to use CDR-related competencies effectively and subsequently make CDR implementation a success, a number of prerequisites were outlined by the interviewees. The indicated aspects resonate with findings from previous studies, thus reaffirming their consideration. (cf. Deloitte, 2022). One expert highlights the significance of taking these preconditions into account as follows.

> *"Digitalization is always a cross-sectional issue, and digital responsibility is also a cross-sectional issue. It affects all areas of the company, and not just one single person can do everything that needs to be done." (Interview 4, item 8)*

Management buy-in and the active top-down support of digital responsibility projects and measures are fundamental requirements for the successful implementation of CDR. By endorsing subject related initiatives, managers are able to send a clear message throughout the company about the relevance of the topic (cf. Interview 1/18). In this regard, the role of the Chief Information Officer (CIO) is crucial, as the CIO possesses expertise in the area of information technology (IT) as well as in relation to the organization's strategic vision (cf. Interview 2/12). All in all, management buy-in can demonstrate commitment to CDR and therefore be an essential driver for its successful implementation (cf. Interview 7/10).

Moreover, the **allocation of a sufficient level of resources**, including both time and personnel might be a critical factor in promoting CDR (cf. Interview 1/18). This includes the provision of project-level as well as individual-level support, ensuring that employees receive the time they actually need for personal competency development (cf. Interview 4/18). Consequently, making resources available for CDR professionals as well as other functions in an organization may empower its workforce to confidentially navigate the evolving digital landscape.

Since CDR is a value-driven concept, **corporate culture and corporate principles** equally play a role for CDR implementation. These principles should be aligned with digital responsibility objectives, potentially ensuring a profound integration of CDR in an organization, e.g., with regard to decision-making processes or day-to-day operations (cf. Interview 2/12).

In total, a set of 23 individual competencies is identified which appears to be relevant for the successful implementation of CDR (cf. Table 3). Within the proposed framework, there are interconnections both inside a competency category and across the four domains. To some extent, they may be mutually dependent, as elaborated in section 5.1.5.

Table 3: Overview of Individual Competencies Supporting CDR Implementation (Source: own depiction)

Meta competencies		
M1 Employing adaptability in CDR contexts		
M2 Enhancing personal and professional competencies		
M3 Showing resilience and perseverance		
M4 Reflecting on and implementing personal and corporate values		
Cognitive competencies	**Functional competencies**	**Social competencies**
C1 Understanding internal and external stakeholder needs	F1 Developing CDR strategy	S1 Realizing teamwork and collaboration
C2 Comprehending (inter)dependencies	F2 Applying basic technological understanding	S2 Creating trust by transparency and empathizing with CDR-stakeholders
C3 Understanding industry and company characteristics	F3 Managing CDR programs and projects	S3 Demonstrating open-mindedness and curiosity
C4 Knowing about CDR frameworks and (legal) regulations	F4 Utilizing change management and communication techniques	S4 Expressing enthusiasm and optimism
C5 Being aware of current developments and trends	F5 Developing a governance system based on ethical considerations	S5 Accepting and responding constructively to feedback
C6 Knowing CDR related methods and fields of application	F6 Managing complex situations and stress	S6 Networking with internal and external CDR stakeholders
		S7 Leveraging self-confidence to actively promote CDR
Prerequisites and conditions for effective CDR management		
Management buy-in and support		
Appropriate level of resources		
Corporate culture and values		

5.2 Discussion

Aiming to develop a specific set of personal and professional competencies for successful CDR management, the following research question underlies this paper: "*Which individual competencies support effective CDR implementation?".* The analysis showed that a diverse set of 23 competencies from four overarching domains might be required for effectively integrating CDR in a company's strategy and operations. In addition, there are prerequisites which appear to be necessary for the successful application and development of the relevant competencies.

These competencies reflect the dynamic environment where CDR professionals operate, characterized by constant change with regard to both technological and social developments. First, the digital transformation of businesses has a strong influence on CDR-related tasks and competencies. On the one hand, the development of disruptive technologies implies that CDR professionals should be highly sensitive to trends (C5) and apply basic technological understanding to different areas and processes of the respective company (F2). On the other hand, it seems to be essential to keep up with current developments in the field of digital innovation through a high degree of curiosity (S3) and the ability to continuously expand one's own competencies (M2).

Second, the compilation of the competency framework highlights the increasing expectations of stakeholders, particularly with regard to the sustainability of products and services, but also concerning entire businesses and brands. In this context, it is crucial that CDR professionals have a comprehensive understanding of stakeholder needs (C1) and continuously expand and strengthen this competency through constant networking (S6), the use of appropriate communication techniques (F4), as well as empathic behavior (S2).

Overall, it is apparent that CDR professionals should be able to permanently adjust to changing circumstances while focusing on long-term strategic objectives. This can be facilitated by a mix of meta competencies. One important aspect involves showing adaptability in CDR contexts (M1), thus staying flexible with regard to modifying conditions. However, competencies concerning resilience (M3) and respecting personal and corporate values (M4) may ensure that CDR activities are embedded sustainably in a company's structure and operations.

Consequently, CDR professionals require a diverse set of competencies to successfully navigate the opportunities and challenges resulting from ever-evolving technological and social developments. Their role extends beyond compliance and involves a proactive attitude for changing corporate practices. Therefore, competencies play a critical role in promoting digital responsibility within companies.

This finding resonates with the results of the SLR, which also highlights the importance of different cognitive, functional, social, and meta competencies for the successful implementation of CDR in organizations (cf. chapter 4.2). The empirical exploration validates and confirms all competencies discussed in the current academic discourse. By means of the interviews, additional competencies are identified further enhancing the competency framework for CDR professionals.

Besides adding further competencies to the academic state of the art, the study provided more specific insights into aspects which have already been recognized and the findings emphasized further dimensions of these competencies. For example, most of the existing scientific papers so far have focused on the fact that stakeholder interests should be understood, particularly, in terms of needs and aspirations (cf. Wirtz et al., 2023). According to the interviews, awareness of the different fears and concerns of stakeholders can also contribute to the success of CDR in an organization (cf. Interview 6/20). Moreover, academic literature to date focusses mostly on understanding intraorganizational dependencies and relationships (cf. Bastidas et al., 2023). However, based on this study, interorganizational connections may be equally important (cf. Interview 1/28).

When compared with the CSR-related reference study, apart from digital competencies, the rapidity of technological developments might be an influencing factor. CDR tends to be much more dependent on the consideration of short-term trends and therefore potentially requires a greater sensitivity to changes in the (digital) market. Thus, the CSR-related competency set focuses more on the ability to predict medium and long-term developments (cf. Osagie et al., 2014), whereas the CDR-oriented analysis shows that competencies (e.g., C5 or F6) in this context are oriented toward a highly volatile environment (cf. section 5.1.1).

However, several similarities can also be identified, specifically in the area of meta competencies. First, it seems to be important for both domains to possess a fundamental understanding of ethics (cf. Osagie et al., 2014). Moreover, demonstrating perseverance might be crucial in both contexts as the specifications for M3 clearly correspond with the following statement:

> *"It is not about how you fall in case of resistance, rather it is about how to stand up and move forward again. Resilience is the word I am looking for"' (Interviewee O, Senior advisor and strategist Sustainability in Osagie et al., 2014).*

In the light of previous CDR-related academic studies, trends concerning respective competencies can be observed. A study from 2021 shows that the identified meta-competencies M1 and M2 are among the top three future skills for specialists and managers, demonstrating the increasing importance to constantly adapt to change and promote personal learning and development (cf. Kienbaum Institute and Stepstone, 2021). Furthermore, competencies related to communication (F4), project management (F3), as well as teamwork (S1) are ranked under the top ten in-demand competencies by companies (cf. LinkedIn, 2023). Already in 2015, the HR consultancy Hays has conducted a study documenting the increasing importance of social competencies (cf. Hays, 2015), a fact which underpins the results of this paper.

As the competencies required for performing job-related tasks have generally changed by around 25% since 2015, a number expected to double by the year 2027 (cf. LinkedIn, 2023), companies need to address these modified demands. Therefore, this study contributes to the implementation of CDR measures by providing guidance for establishing the function of CDR professionals in organizations. Targeting both, companies already involved in CDR activities as well as firms not yet implementing CDR measures, this paper presents an overview and in-depth analysis of relevant individual competencies for successfully realizing digital responsibility. On the one hand, it may serve as a starting point for a company's CDR journey. Alternatively, findings can be used to evaluate established management practices. Beyond the organizational perspective, the competency catalogue might be utilized by employees, e.g., by CDR Professionals for personal development purposes or by Human Resource (HR) managers as an input for a competency-based recruiting process. In addition, this study adds to the academic discourse regarding CDR, CDR implementation as well as the differentiation to CSR by providing empirical evidence based on a qualitative research design.

6. Summary

In total, this paper identified a set of 23 individual competencies, which might be relevant for the implementation of CDR referring to four domains, namely cognitive, functional, social, and meta competencies. These show interconnections both within a competency category and across domains. To some extent, they may be mutually dependent. CDR professionals potentially require a variety of different competencies to effectively address progressing technological as well as social changes and should therefore invest in continuously developing their competencies. In addition, considering current developments, the demand for social and meta competencies might continue to increase in the future.

These findings are relevant both theoretically and practically and contribute to the further development and anchoring of CDR in business as well as academia. On the one hand, the derived competence framework serves as a guideline for organizations which are already committed to the CDR topic, but also for companies that are just getting involved with the subject of digital responsibility. This paper provides a foundation for the selection and development of employees and points out structural requirements for the successful application of competencies. On the other hand, as it is the first scientific study in this area of research to date, the study generates crucial empirical insights regarding competencies in the field of CDR.

However, the results may be subject to limitations. Even though the pool of experts exceeds a critical number allowing for saturation, only a higher number of interviews would generate a data set which makes it possible to rate competencies based on their subject-specific importance. Therefore, the findings should be validated, e.g., by applying a quantitative research design to gain insights based on a larger number of observations. A further qualitative analysis may generate knowledge concerning specific competencies or domains.

All in all, this paper constitutes a starting point for an in-depth academic examination of the aspects required for the successful implementation of CDR, especially with regard to the competencies needed to comprehensively establish the topic in organizations. The study shows interdependencies with two highly relevant topics, namely digitalization and sustainability, emphasizing the significance of constantly reflecting on societal developments in the context of CDR. The derived competency framework should therefore be understood as an orientation for organizations and individuals, always considering that its components are interconnected and should be continually evaluated in the light of contemporary trends. Even if the debate about the distinction between CSR and CDR might continue, the results highlight the potential for synergies in the management of both topics, despite the identified competence-related differences.

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