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Together We Are Stronger - Paving the Way for Value Co-Creation in Data Breach Responses

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Abstract. Data breaches pose severe risks to companies. In fact, those incidents generate adverse effects on the customer relationship and companies' financial performance. To this end, prior research has demonstrated that a dedicated response strategy to a data breach can mitigate these consequences. Nevertheless, contemporary research focuses on one-way response communication with the affected customer. Customers receive notification of the incident and are offered a pre-determined solution but are not actively integrated into the data breach response process. In turn, informed through service failure literature, we argue that a value co-creation perspective of data breach response strategies holds merit. We identify six distinct research avenues for future data breach research through a hermeneutic literature review of salient co-recovery literature. Our research represents a novelty to the field of data breach response strategies. We synthesize the service failure, data breach, and co-creation streams of literature and highlight research shortcomings and opportunities.

Keywords: Data Breach, Service Failure, Value Co-creation, Co-response

1 Introduction

Leveraging consumer data to improve and tailor services has become an integral part of today's business models [1]. The inherent merits of standardization, automation, and personalization render this business orientation a fruitful practice [2, 3]. Nevertheless, dark sides of this trend are present, which entered our everyday lives through the pervasive service landscape: the phenomenon of *data breaches*. Alongside the impact on customers and companies resulting from the disclosure and potential compromise of sensitive data [4–6], recent literature has provided relevant insights into how to respond to these information security incidents [7]. It has been strikingly shown that responding to a data breach by offering product or service compensation can favorably affect financial performance and customer perceptions of the company [8, 9]. Furthermore, providing an apology has been demonstrated to have a positive effect on customers in terms of trust and WOM [10, 11].

However, a closer look at these studies reveals that all response strategy components currently examined indicate a unilateral path: responses invariably flow only from the company to the customer [12]. This means, that customers are not afforded any opportunity to interact with the company, e.g., to express an opinion. Thus, they cannot

participate in the data breach response process. This approach demonstrates sharp contrasts to the concept of value co-creation that is increasingly gaining importance [13–15]. Value co-creation views consumers not only as passive actors but as active stakeholders who contribute value to processes [16]. Thus, in the context of data breach responses, we argue that increased perceived control [14, 17] through active customer participation [16, 18] can exploit the potential for increased customer loyalty [13, 19], resulting in mitigating the damage to the customer relationship caused by data breaches. Hence, providing a key advantage over currently studied strategy components. Although this strategic logic has proven to be promising in many areas (e.g., crowdfunding [20] or smart services [21]) and paves the way for redesigning activities from scratch [22, 23], it has not been adapted to data breaches.

Nevertheless, referring to the discipline-related service failure research, we identify indications on how a value co-creation of data breach response strategies (further referred to as co-response) may be designed. In recent years, this body of knowledge laid the foundation for the active integration of customers into the recovery process of service failures [18, 24], for instance, through a joint collaboration between the customer and the company for identifying suitable recovery solutions for both sides [25, 26]. Service failure studies have shown that the recovery of a service failure by integrating consumers, a co-created recovery (CCR), into this particular process can lead to an increase in customer satisfaction [27] and repurchase intentions [28]. This effect can be argued based on the theory of justice and control [29, 30]. By directly involving customers, they perceive recovery as a more open and integrated process, which increases the perceived control and procedural fairness [31, 32]. The successful integration and development of CCR in the service failure literature raises the question of how and to what degree data breach response strategies can also be conceptualized in terms of co-responses. Against this background, this paper investigated the following research question (RQ):

RQ1: What approaches to co-creation exist in the domain of service failure recovery?

RQ2: How to transfer these approaches to the area of data breach response strategies?

To answer these questions, we adopt the service failure lens [7] and conduct a comprehensive literature analysis using the methodology of the hermeneutic literature review [33]. In addition to prominent research applications and theoretical framings, we identify that CCR can influence many variables. We also reveal that literature can be divided into four different understandings of CCR. In conceptualizing the emergent findings, we establish a foundation for multifaceted co-creation research in data breach responses.

2 Conceptual Background

2.1 Data Breaches and Response Strategies

Data breaches, i.e., the disclosure and compromise of personally identifiable information [34], threaten companies across various industries [35]. Due to the

advancing digitalization, it is assumed that the number of data breaches will continue to climb in the coming years [36]. Research suggests that companies should not ignore these events but instead devote attention to their management [7]. In particular, this is justified because, in addition to the negative impact on a company's stock market value [5, 37] data breaches also cause direct damage to customers [4], e.g., through identity theft, misuse of personally identifiable information [34], and credit card fraud [9]. Customer satisfaction towards a company decreases when a data breach occurs [38]. Beyond these effects, the criticality of tackling the management of these incidents is also reinforced by emerging laws requiring companies to inform their customers of any data breaches occurring [39, 40].

To counteract these adverse effects and comply with legislation, literature has focused on investigating potential response strategies to these data breaches [7, 9]. In this context, it has already been shown that selecting an appropriate response strategy leads to a less severe impact on the stock market value [41], on the customer relationship [10, 34, 42], and the general financial performance [12].

Strategy components investigated include offering compensation (positive impact on customer experience and repurchase intentions) [7, 9], apologizing and showing remorse (restoring customers' trust) [10, 42], whitewashing (small positive impact on a company's stock market) [41], and denial (positive complex effects especially in the context of cyber-attacks) [10]. Additionally, drawing on the crisis literature, Gwebu et al. [12] propose a comprehensive set of strategy components that companies can employ to respond to data breaches. While all these components provide a prolific and manifold way to respond to data breaches, a distinct overarching characteristic emerges: All strategy components emanate only from the company without actively engaging the customer in the data breach response process.

This section informs our research through three aspects: First, we can show that data breaches constitute a peril for companies not to be ignored. Secondly, we demonstrate that a response to these data breaches is essential to establish long-term management of these breaches. Third, the literature review provides indications that the current response strategy landscape is experiencing a one-sided, company-outbound focus.

2.2 Service Failure and its Domain Proximity to Data Breaches

In line with nascent data breach literature, we adopt the view of data breaches as special and electronically mediated service failures [7, 9]. Service failures represent violations of services in which customers' expectations are not met by the service but fall below an expectation threshold [43]. In this context, the body of literature on service recoveries, which deals with the reaction and response to service failures, has been established in recent decades [44, 45]. As part of this, various recovery actions have been studied by examining their effects on a wide range of variables [46]. Data breach literature particularly profited from this by adopting results, approaches, and hypotheses [7, 9].

The adoption of these approaches can be explained by reference to information-based services and their potential breach of trust. Customers provide their personal information to companies to access services or products [9, 47]. If, in the course of this

collaboration between customers and companies, the information provided is disclosed through data breaches, a disruption in the use of the service occurs due to the breach of the service quality expectation [7, 9]. As a result, customers experience a loss of trust, which subsequently adversely affects the perception of a service quality – a service failure arises from the impact of a data breach [47].

While taking a service failure view of data breaches is valuable, it is important to note the differences between these two events. In particular, the direct breach of customer security and privacy is relevant. Whereas in the case of service failure, the customer's trust in the service provider is worsened by a deterioration of the situation [48], no long-term consequences for the customer exist [18]. This is different from data breaches. The disclosure of personal information not only causes damage at the time of the data breach [34] but, due to the inherent risk of data misuse [49], may well cause harm in post-breach situations. Thus, despite the company's efforts to remedy the situation, customers' long-term privacy is severely violated.

Furthermore, we identify a difference between how service recoveries and data breach responses can be conducted. While service failures and their recoveries can occur both digitally (online) [50] and physically (offline) [51] during the provision of a service, this is only possible to a limited extent in the case of a data breach. The response to data breaches typically consists of a notification [49], which must comply with legal guidelines [39, 40]. A dynamic and individualized personal response, as is often the case with service failures [24], is thus not viable.

Introducing service failures and comparing them to data breaches supports our research endeavor in several ways. First, drawing on nascent IS literature, we highlight that the service failure lens can provide valuable results in the data breach context. Secondly, we indicate that despite striking analogies, differences between service failures and data breaches exist that need to be considered when conceptualizing service failure-related insights in the context of data breaches.

2.3 Bridge Building: Transferring Co-Recovery to Data Breach Responses

During the last decades, service failure research has achieved pioneering conclusions for the recovery of service failures. In the wake of this, the seminal idea of CCR has emerged as a promising development of this approach [51, 52]. Karande et al. [24] were the first to discover that a consumer's satisfaction with a service recovery increases when their voice is actively heard, allowing them to become involved in the service recovery process. In addition, Dong and colleagues [18] introduced the concept of consumer participation in service failure and demonstrated that active collaboration between the customer and the company during a service recovery leads to increased satisfaction.

Expanding on this work, research has impressively demonstrated that a CCR is superior to a traditional service recovery [50] and positively influences customers' perceptions of justice [17]. The wide range of articles indicates not only that a CCR supports a sustainable customer relationship [32, 53], but also suggests that the integration of customers in any form (i.e., actively as partial employees [25] or as a social influencer [54]) can be beneficial. Nevertheless, given the numerous novel and

diverse approaches to CCR, a literature review and synthesis of the research efforts appear valuable and promising.

Reflecting on the data breach response literature stream, which has not yet addressed the idea of active customer involvement in response strategies, these approaches reveal a fruitful avenue for further research. Thus, considering the domain proximity to service failures, we argue that exploring potential options for conceptualizing co-created data breach responses by leveraging a bridge-building approach is sensible.

3 Hermeneutic Literature Review

3.1 The Hermeneutic Literature Review Approach

To analyze and identify key aspects of CCR, we adopted and applied the methodology of the hermeneutic literature review according to Boell & Cecez-Kecmanovic [33] for the literature search. The approach is an iterative method in which the researcher is increasingly involved with the literature as the review progresses and thus acquires a holistic understanding of the relevance of a particular body of knowledge [33]. Boell & Cecez-Kecmanovic's [33] method consists of two cycles: The search and acquisition of literature and the analysis and interpretation of the obtained results. The search and acquisition process can be structured and designed in a comprehensible way, following classical literature reviews, avoiding deficiencies towards scientific integrity [55]. The second cycle of the hermeneutic literature review is the analysis and interpretation cycle. This cycle is responsible for analyzing and interpreting the results identified in the first cycle in a structured way, preparing them for research [33].

An important part of the analysis and interpretation cycle is the activity of mapping and classifying [33]. Boell & Cecez-Kecmanovic [33] define various means that enable a standardized and effective classification of the literature: the category of conceptual framework considers the usage of an existing or proposed framework (*conceptualization and definition of co-recovery*). Furthermore, examining the methodology, the data basis, and the different levels of investigation (*methodology, data sample, and unit of analysis*) is of central importance to reveal the articles research goal. Analyzing the disciplinary and theoretical lens helps to understand which pivotal concepts are employed (*theoretical foundation*). Finally, it is particularly necessary to classify the constructs to identify and analyze relationships (*independent & dependent variables*) [33]. The adoption of such a classification approach has been shown to be useful in recent IS literature [7, 55].

Several considerations drive our choice of this methodology. First, the hermeneutic approach combines the structured literature search with the interpretation and foundation of a deeper understanding. Secondly, especially against the background aiming at a transfer to the data breach literature, an understanding, and a critical assessment is crucial and desirable for our research endeavor.

3.2 Literature Acquisition and Analysis

To substantiate and verify the rationale of our study, a thorough literature search process was conducted for the keywords "data breach" and "co-creation". In this initial search, title, abstract, and keywords were scanned. We did not specify any restriction regarding the year of publication. Furthermore, besides the Basket of Eight, the databases EbscoHost, ProQuest, AISEL, ScienceDirect and IEEE were analyzed. However, no identifiable outcomes were discovered from this examination, supporting the assumption that a co-creation perspective is lacking in the context of data breach response strategies.

With the research problem in mind, we then proceeded with a full-text literature search of the renowned AIS Basket of Eight (using the journals webpages) (see Figure 1). This is due to the vast amount of data breach and service literature in the IS discipline. The keywords employed were "service failure" and "co-creation". We did not specify the publication years. Nevertheless, no result was found, thus requiring us to expand the scope to include surrounding literature. To generate a first dataset, we then examined all journals and conferences ranked up to C by the VHB [56]. The appropriateness of this ranking has already been proven by various articles [57–59]. We searched the title, abstract, and keywords in the databases EbscoHost, ProQuest, AISEL, ScienceDirect, and IEEE. No restriction in terms of the year of publication has been specified. Overall, eight different papers were selected as the result set.

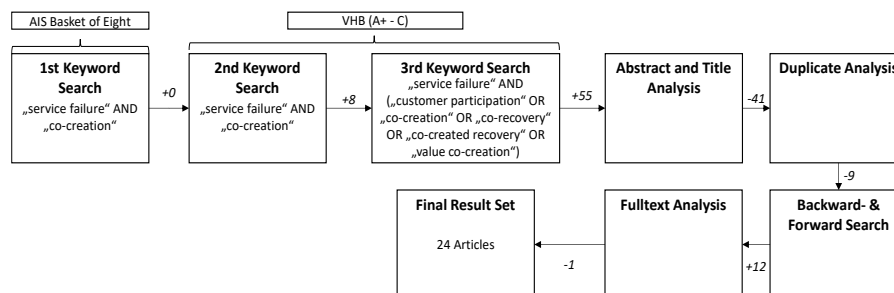


Figure 1. Literature Search

Following the completion of the cycle of the hermeneutic literature review, various relevant keywords were identified, which were included in the subsequent literature search: "customer participation", "co-recovery", "co-created recovery", "value co-creation", all in combination with "service failure". We were able to identify a total of 63 papers in an additional iteration, which were reduced to 13 by a subsequent title, abstract, & duplicate analysis. Furthermore, according to Webster & Watson [60], a forward and backward search was performed. In total, we were able to generate a result set of 24 papers at the end of the search and acquisition cycle. In the search and acquisition cycle, the hermeneutic approach enabled us to already identify first directions and commonalities of the research domain under investigation. Based on this, we subsequently mapped and classified our results [33] in five key concepts, providing us with a profound understanding of the service failure recovery research landscape.

4 Results: Key Concepts of Service Failure Co-Recovery

4.1 Conceptualization and Definition of Co-Recovery

Analyzing existing literature on service recovery co-creation, we notice that the novel phenomenon of co-recovery is examined from various perspectives and by different definitions. Overall, we identify four co-recovery concepts with two overarching dimensions (see Table 1): the company-to-customer dimension, and the customer-to-customer dimension. The different approaches adopted indicate that co-recovery is mainly considered as joint collaboration. Nevertheless, additional perspectives on the CCR exists. Given the relevance of experimental variables and settings in the hermeneutic literature review [33], a closer look at the explicit conceptualization of co-recovery is sensible.

Table 1. Definitions of Service Failure Co-Recovery

Joint Collaboration (based on [18, 24–27, 50, 51, 53, 61–66])	<i>Joint Collaboration refers to co-recovery as a collaborative effort between companies and customers, enabling the latter to be actively integrated and engaged as partial employees in the process of solution generation through interactions, thereby shaping the service recovery content together with the company involved.</i>	Company-to-Customer
Co-Recovery through Control (based on [17, 31, 32])	<i>Co-Recovery through Control refers to the integration of customers in the recovery process through different levels of control: (1) control over processes and the ability to perform changes, (2) control over outcomes and the determination of these, and (3) control over the interpretation of the overall situation, through the provision of information.</i>	
Co-Recovery through Resources (based on [28, 52, 62, 67])	<i>Co-Recovery through Resources assumes that service customers and providers own a set of resources: tools, skills, and knowledge. Co-recovery is achieved when the resources of both actors are integrated (in the best possible way) by aligning the customer's resources with those of the provider.</i>	
Customer-based Co-Recovery (based on [54, 68])	<i>Customer-based Co-Recovery indicates that service customers can initiate a customer-to-customer co-recovery. It emerges when the impact of existing customers, through social influence or the provision of informational and emotional support, guides other customers to improve service failure recovery.</i>	Customer-to-Customer

In the experimental context of joint collaboration and co-recovery through resources, we are able to locate major similarities. Both mainly conceptualize the cooperative search for solutions or the selection of specific solutions through direct face-to-face [28, 53] or telephone [18] communication. Co-recovery through control shows overlaps with both co-recovery perspectives [32], yet is further conceptualized in the experiment through the organization's careful listening, the ability to determine outcomes, and continued information updating [31]. Furthermore, we recognize that the company-to-customer approach conceptualizes CCR to some extent in the context of value co-creation of services [18, 26, 69]. Customer-based co-recovery, in contrast, exhibits no correspondence with the previous definitions. It is experimentally conceptualized as either the support of other nearby customers who have experienced the same service failure [68] or as likes and comments on social media platforms [54].

Exploring the definition and conceptualization of co-recovery advances our research in several ways. First, we understand how the specific theoretical consideration of co-recovery is defined. This provides us with multifaceted opportunities to draw inferences

for the data breach context. Second, the analysis of the experimental conceptualization supports later study designs in topic-related contexts.

4.2 Methodology, Data Sample, and Unit of Analysis

The methodology, timing, setting, data utilized, and unit of analysis provide an indication of how and within what scope potential research may be conceptualized in the context of data breaches. Examining the methodology, 18 of the articles studied employ a between-subjects experiment, investigating CCR in a scenario timing (e.g., [52, 53]). Five papers employ a survey asking respondents about previously experienced service failures, providing post-failure inferences about the construct under study (e.g., [31, 67]). Gathering participants is mainly carried out via mTurk (e.g., [50, 68]), with some studies acquiring participants via consumer panels (e.g., [61, 63]) and via university surveys in return for course credits (e.g., [18, 51]). In light of the chosen experimental setting, we identify offline and online settings (e.g., [26, 65, 66]). Given the purpose of our research question, the analysis of the applied methodology and set boundaries assists us in understanding the experimental background of CCR research within the service failure literature.

We further examined the unit of analysis. The unit of analysis refers to the context and scope in which studies observe and frame particular issues [33]. This approach allows us to identify the major themes of the literature in relation to the focus and level of analysis of the objects studied. An examination of the identified articles at the level of analysis highlights a definite research focus on the individual level. While some studies integrate concepts of groups and consider the effects of these [54, 68], their research focus is on that of individuals. No paper could be assigned to the level of analysis of organizations, societal, or a mix of these. While these findings may reveal research and exploration gaps, the identified focus is in line with other studies of the service failure domain [7, 70] and indicates a relationship with the data collection and experiment design methodology [71].

4.3 Theoretical Foundation

To identify the scope for the theoretical derivation of research designs and approaches, the theoretical framing of each article was analyzed. We identified two different primary branches of theoretical strands: customer behavior-related and customer decision making-related concepts. We derived a total of 5 different models and theories. It should be mentioned that in the context of the literature review, only theories are considered in more detail, which have been applied at least more than once. To explain and predict consumer behavior, service recovery research leverages the expectation-disconfirmation-theory (EDT) (2), the attribution theory (4), and the control theory (3). EDT describes satisfaction as the result of comparing expectations with reality [72]. In the context of service failure co-recovery, Bagherzadeh et al. [65] thereby argue that a deterioration of the performance of the service due to a service failure is moderated by co-recovery. Furthermore, with attribution theory stating that people associate causes with events [73], it can be argued that customer involvement in

a co-recovery can lead to better attribution and explanation of service failures [50]. Last, with control theory, which states that individuals want to rule over control [29], an alleviation of decisional, process, and informational control can be hypothetically associated with improved perception [31].

In contrast, the justice theory (13) and the concept of outcome favorability (2) exhibit substantial similarities regarding distributive fairness, describe the form and the basis on which customers form their decisions [74, 75]. Justice theory, which is by far the most widely used theoretical framework with 13 cases, argues that individuals perceive situations and events in three different dimensions of justice [30]. Utilizing this approach, the impact of co-recovery on customers' subjective perceptions of justice of the recovery strategy can be measured and depicted [32, 76]. In contrast, outcome favorability indicates the extent to which an outcome of an activity is perceived as positive by an individual [77]. The justification for using this concept as a replacement or extension of justice theory emphasizes that an outcome can be favored even if it is not fair [66, 78]. In the context of service failure, a co-recovery can be exhibited to influence the outcome favorability while accounting for brand equity [28].

4.4 Independent & Dependent Variables

During the analysis and interpretation of the dataset, we identified that a large proportion of the articles utilized structural equation modeling. Thus, drawing on current IS research [79], we examined each study's dependent and independent variables. We first identified variables that were influenced by co-recovery. Secondly, we examined the effects that the influenced variable had on other variables. This allowed us to ensure that we only obtained variables associated with co-recovery. We only analyzed direct effects. It is important to note that we limited the representation of the relationships between the variables to maximize the added value of the analysis. Thus, we did not include any indirect effects and only mapped direct mediating effects. Only relationships were considered, which were demonstrated in at least two articles. Furthermore, co-recovery with the help of other consumers [68] and co-recovery in the context of co-delivery [18] were omitted as only a minor body of literature addressed these concepts. A discussion of these approaches is provided later.

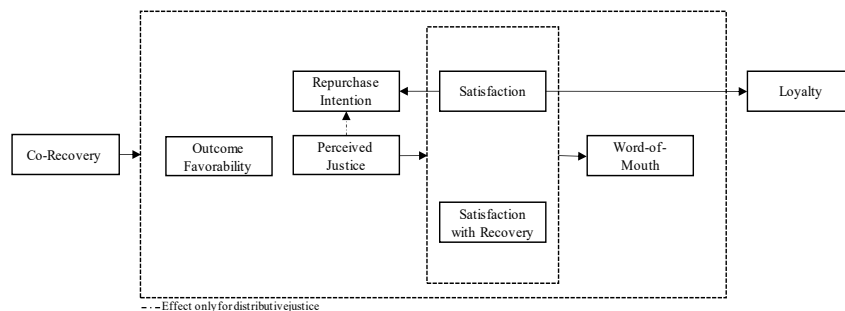


Figure 2. Research Summary of Key Findings

Figure 2 reveals the results of our analysis (for all paths, a positive effect persists). We show that a CCR has a positive influence on outcome favorability, repurchase intention, overall as well as satisfaction with the recovery, perceived justice (distributive justice, interactional justice, procedural justice), and word-of-mouth. Furthermore, different effects between variables affected by CCR were revealed.

Table 2 further provides an overview of all observed effects that coexist between the identified variables (positive if not stated otherwise). Effects were excluded that were only illustrated by single articles. Identifying the different independent and dependent variables under investigation supports our research endeavor in two aspects: First, concepts and models are identified that constitute a fruitful avenue in the data breach domain when designing research experiments. Furthermore, the relationships revealed can be leveraged to predict and hypothesize effect relations in the data breach context.

Table 2. Relationships and Effects Between Variables

Relationship of Variables		Reference/Source
Dependent on Independent		
Co-Recovery	Satisfaction	[53, 62, 64, 65, 69]
	Word of Mouth	[53, 64, 65]
	Outcome Favorability	[31, 66]
	Satisfaction with Recovery	[18, 28, 32, 64]
	Repurchase Intention	[32, 53, 62, 64, 69]
	Perceived Justice	[17, 32, 64], [24] (no IJ & DJ)
Perceived Justice	Satisfaction	[26]
Utilitarian Value	Distributive Justice (*)	[63]
Hedonic Value	Distributive Justice (*)	[63]
Independent on Independent		
Satisfaction	Word of Mouth	[17, 26, 64, 65]
	Loyalty	[17, 26]
	Repurchase Intention	[26, 64, 69]
Satisfaction with Recovery	Outcome Favorability (*)	[66]
	Word of Mouth	[17, 64]
	Loyalty (*)	[17]
	Satisfaction (*)	[64]
	Repurchase Intention (*)	[64]
Repurchase Intention	Outcome Favorability (*)	[66]
Co-Recovery	Satisfaction with Recovery	[27]
	Perceived Justice	[27]
	Utilitarian Value*	[67]
	Hedonic Value (-*)	[67]
Perceived Justice	Satisfaction with Recovery	[27], [17, 64] (no IJ)
	Repurchase Intention*	[69]
	Satisfaction	[17, 64] (no PrJ), [24, 69] (PrJ)
Outcome Favorability	Distributive Justice (*)	[31]
Distributive Justice	Repurchase Intention	[31, 63]
Loyalty	Word of Mouth (*)	[17]

* = not depicted in Figure 2, IJ = Interactional Justice, PrJ = Procedural Justice, DJ = Distributive Justice

5 Conceptualization of Co-Creation in Data Breach Responses

By performing a structured analysis of the CCR literature, we gained a deeper understanding of contemporary service failure research. In light of data breach response

specific characteristics and the reflection of current research tendencies, several research avenues (RA) can be deduced. While the literature analysis offers numerous and manifold opportunities for research, in the following, we will focus on key issues.

Prior to presenting the specific conceptualization and research opportunities, a key research avenue must be outlined. By revealing the focus on the individual unit of analysis, we are able to unravel a potential research opportunity for data breach response research and identify a research gap in the context of CCR. In turn, not a single article deals with the challenges, success factors, or process establishment for internal co-recovery management. While this may be a more structural problem related to the methodology performed [71], we identify a crucial gap in current research. Thus, drawing on this shortcoming, we propose the following research opportunity for the data breach and service failure stream:

RA1: *While analyzing at the individual level is beneficial, a holistic understanding of co-creation in recoveries or responses demands research at various levels of analysis*

Given the pervasive use of between-subject scenario experiments, both in CCR [61, 62] and data breach response studies [10, 42], the first question to consider is how an experimental setting might look. This is limited by the data breach characteristics outlined earlier. While service failures occur online and offline and on either a face-to-face or a virtual basis [50, 51], data breaches and their responses only arise in virtual online environments [49]. Accordingly, co-creation possibilities that replace traditional face-to-face communication need to be explored. Initial approaches might stem from the service failure literature domain. This stream conceptualizes the co-creation of online service failures with the help of phone calls [31] or hotlines [26]. Nonetheless, given the different circumstances, future research should explore this aspect in more detail. For instance, drawing on recent research, the use of conversational agents (i.e., chatbots) [21] and live chats [76] may be promising candidates. Thus, we propose:

RA2: *Alongside phone calls and hotlines, an investigation, and analysis of potential communication and integration opportunities enabling co-creation of data breach responses should be performed*

Data breach response researchers should consider which independent variables to examine to draw conclusions related to the effectiveness of a co-response. While numerous variables were identified through the literature review, transactional satisfaction (satisfaction with recovery) and overall satisfaction constitute pivotal elements [53, 64]. Using these, not only can the effect on other surrounding variables (e.g., loyalty [17, 26]) be determined, but also on numerous other independent variables [65, 69]. In turn, data breach response research predominantly focuses on transactional satisfaction [42, 80]. Although overall satisfaction is examined, it remains a secondary objective [81]. Against this background, we propose the following:

RA3: *Measuring the impact of co-responses on customers' perception should be conducted using transactional and overall satisfaction levels*

In terms of theoretical framing, service failure literature mainly utilizes justice theory. The theory has been established as a valuable measurement tool for perceived fairness [25, 69]. Similarly, by relying on the service failure domain, the data breach response literature employs this theory in a variety of ways yielding promising results

[34, 42]. Thus, co-response studies based on justice theory could contribute important insights and complement existing literature. Hence, the application of justice theory appears reasonable in the context of co-responses. Furthermore, we discovered that perceived justice is the only independent variable across studies addressing both satisfaction levels [26, 27]. Thus, theorizing with justice theory and integrating appropriate constructs appears appropriate. Additionally, viewing outcome favorability as an extension of, rather than a substitute for, justice theory [31], we propose the following:

RA4: *Examination of co-responses should be performed by employing justice theory broadened by the concept of outcome favorability*

Moreover, while company-to-customer recovery represents the main research focus, we identify customer-to-customer recovery as a viable opportunity for data breach research [54, 68]. While current data breach response literature examines the effects of data breaches on social media [82, 83], a customer-to-customer response effect has not yet been addressed. In particular, drawing on the possibility that loyal customers can influence existing customers through their behavior on social media [54], we suggest investigating the following avenue in data breach research:

RA5: *Investigating the effect of customer-to-customer co-response as an alternative data breach response strategy component*

The service failure literature frequently studies co-recovery in conjunction with service delivery value-co-creation [26, 76]. Interrelationships that influence the effectiveness of co-recovery and future co-creation have been demonstrated [18, 69]. Therefore, data breach research must assess to what extent value co-creation of pre-breach services impacts the perception of co-response. Subsequently, industries that are more suitable for co-response may be identified.

RA6: *Analyzing the impact of pre-breach customer value co-creation on the effectiveness of co-response and future co-creation tendencies*

6 Concluding Remarks

The goal of this paper was to first analyze the concept of service failure co-recovery through a hermeneutic literature review and, second, conceptualize the identified knowledge in the data breach response context. Thus, addressing the hitherto neglected issue of value co-creation in the response strategy process. This approach enabled us to broaden and complement the existing data breach literature in several areas. Drawing on the multifaceted nature of the examined literature, we provide research with six key research avenues. While these are constrained by the scope of the literature reviewed, they indicate pivotal points of interest for investigation. Furthermore, our study is limited to the concepts of CCR. Future research should consider co-creation-based approaches, transferable to data breaches, to enrich our findings. Beyond considering and examining the different perspectives on co-responses, future research should also elaborate on the consequences of data breach specific characteristics on the co-creation concept. In turn, data breach literature can be advanced by addressing the suggested research avenues, given the nature of value co-creation.

References

*Asterisks indicate articles included in the literature review

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