Boundary Uncertainty in Interorganizational Information Sharing

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ABSTRACT

Interorganizational Information Sharing of a digital service confronts customers with privacy situations that involve high uncertainty. This study conceptualizes boundary uncertainty to capture customer perceptions of this phenomenon. Based on Construal Level Theory (CLT) we examine the effect of how and why explanations on boundary uncertainty and subsequently different types of privacy-related behaviors. We plan to conduct an online survey-based experiment on a mobile app specifically developed for this study.

Keywords: Privacy, Interorganizational Information Sharing, Uncertainty, Construal Level Theory, Boundary Theory, Communication Privacy Management, Experiment.

INTRODUCTION

Online companies share customer data to conduct web analytics, provide personalized advertisements, enhance their services, or sell it to data aggregators. Such data-driven business models confront customers with privacy situations that involve high uncertainty (Acquisti et al., 2015). Privacy regulations, such as the European GDPR, regulate that data may only be shared if given the customer's consent and providing transparent information (Art. 12 GDPR, 2018). However, prior research shows that customers rarely acknowledge what is presented in privacy policies, giving their consent based on heuristics, peripheral cues, or biases, rather than based on

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a decision reflecting their desire for privacy (Dinev et al., 2015). Aiming to understand customers' rationale behind such discrepancies, prior research on information privacy mainly studied customers' perceptions and decisions regarding information sharing between one customer and one organization (Dinev & Hart, 2006; Smith et al., 2011). With the rising complexity of data sharing that comes with interorganizational information sharing (IIS), explanations of customers' privacy perceptions and subsequent consent may need to be reconsidered to fit this phenomenon. We define *IIS* as *the intentional sharing of customer information among organizations, where a customer is directly sharing information with at least one organization* (based on Al-Natour et al., 2020). We introduce boundary uncertainty to adapt privacy concepts to the changing environment. To further understand the phenomenon of IIS and boundary uncertainty at its core, we rely on Construal Level Theory (CLT) and conduct an experiment, manipulating transparency by providing different types of explanations (how and why explanations). We are interested in how this affects customers' privacy behaviors when confronted with IIS. With that, we approach two research questions: *RQ1: How does boundary uncertainty affect customers' privacy and usage behavior when faced with IIS? RQ2: How do different types of explanations of IIS impact boundary uncertainty?*

LITERATURE REVIEW AND THEORY

Below, we lay out the theoretical background of our foundational concepts, boundary uncertainty and explanations, and introduce CLT.

Boundary Uncertainty

Inspired by a discussion by Acquisti and Grossklags on perceived privacy risk and uncertainty in privacy-related situations (Acquisti & Grossklags, 2012), we argue that a relevant concept to understand privacy perceptions in IIS is perceived uncertainty. In many privacy

situations, it is unrealistic to assume known probabilities over possible outcomes because of their high complexity and information asymmetries (Acquisti & Grossklags, 2012). In IIS, these complexities and information asymmetries become even more pronounced as more parties become involved in information sharing. This renders it difficult for the information owner to assess potential consequences arising from IIS (Al-Natour et al., 2020; Pavlou et al., 2007).

To capture perceived uncertainty in IIS, we introduce boundary uncertainty. We base our conceptualization on the idea of managing collective boundaries introduced by Sandra Petronio in her Communication Privacy Management (CPM) theory (Petronio, 2002), as well as on Al-Natour et al.'s (2020) conceptualization of privacy uncertainty (Al-Natour et al., 2020). We derive three dimensions of *boundary uncertainty* as an *information owner's difficulty in assessing (i) who the information co-owner is sharing information collected about them with (Boundary linkage uncertainty), (ii) what information is shared with others (Boundary ownership uncertainty), and (iii) the conditions under which the information co-owner is sharing this information with others (Boundary permeability uncertainty).*

Explanations

Transparency features allow customers to "access the data collected about them and inform them about how and for what purposes the acquired information is used" (Malhotra et al., 2004, p. 371). We focus on the informational aspect that such features can provide by informing customers about IIS with reasoning-trace explanations, which can be how (i.e., explaining the mechanisms of IIS) and why (i.e., explaining the purpose of IIS) explanations (Ji-Ye Mao & Benbasat, 2000).

Prior research and practice proposes various purposes for which companies engage in IIS. The first purpose is being able to *offer personalized services*. Prior privacy research discovered

the personalization-privacy paradox, where offering transparency cannot persuade privacy-sensitive customers to provide data for personalization (Awad & Krishnan, 2006; Karwatzki et al., 2017). Yet, personalization is still a widely accepted reason for companies to engage in IIS in practice. In the US, for example, 37% of online customers were willing to give their data in exchange for a customized shopping experience in the United States as of May 2022 (Statista, 2022).

The second purpose is *to improve the customer's experience across applications*. Marketers and app providers increasingly rely on digital signals that customers emit throughout their activities to adapt their customer journey (Schweidel et al., 2022). As a result, app providers are able to offer co-created service innovations to their customers, which can simultaneously benefit customers and providers (Stocchi et al., 2022). One driver of such service innovations is the collaboration between different companies (Tien & Berg, 2007) – often necessitating exchanges of customer data and raising the topic of privacy in such IIS settings.

The third purpose is *to enable social connectivity* through sharing data with third parties. Websites and mobile applications integrating social media features induce their customers' perception of being able to socialize on their website or application – and thereby increase the likelihood of those customers disclosing personal information (Zalmanson et al., 2022). In the context of IIS, it is therefore important to understand customers' perceptions about the purpose of an information co-owner sharing customer information with an information consumer for the purpose of providing social connectivity.

Along the dimensions of collective boundary management from CPM theory, we distinguish between three types of how explanations for IIS: Which parties is information shared with, what data is shared, and how long is data shared.

Construal Level Theory (CLT)

Data collection and sharing are occurring at an increasing level of complexity – as in the case of IIS – necessitating more abstract thinking. CLT explains how different levels of psychological distance relate to different levels of construal. *Psychological distance involves when, where, to whom, and whether an event occurs*. *Construal* refers to *the representation of an event as higher-level or lower-level with regard to its abstraction* (Trope & Liberman, 2010). Higher-level construal is abstract, associated with long-term decision-making and long-term goals, desirability, and is rather biased toward positive expectations (Lee et al., 2019). Lower-level construal is concrete and contextualized (Liberman & Trope, 2008). It brings to mind proximate objects, is associated with immediate decision-making and feasibility, and focuses on details and potential risks (Lee et al., 2019). With that, abstract construal can be related to higher levels of uncertainty. Both occur when information seems unreliable, inaccessible, or unknowable (Glaser et al., 2015; Trope & Liberman, 2010). Uncertainty in the form of low probability was found to cause a focus on central and abstract features of events (Wakslak et al., 2006). In addition, abstract construal can reduce uncertainty by simplifying complex situations (Namkoong & Henderson, 2014) through the reliance on heuristics (Tversky & Kahneman, 1974). From these findings, we can infer that a lack of information is related to higher levels of uncertainty and induces abstract construal. Such an abstract construal simplifies complex situations and creates a stronger sense of understanding – and, as a consequence, reduces uncertainty.

HYPOTHESIS DEVELOPMENT

In the following, we present our research model (see Figure 1) and our hypothesis development.
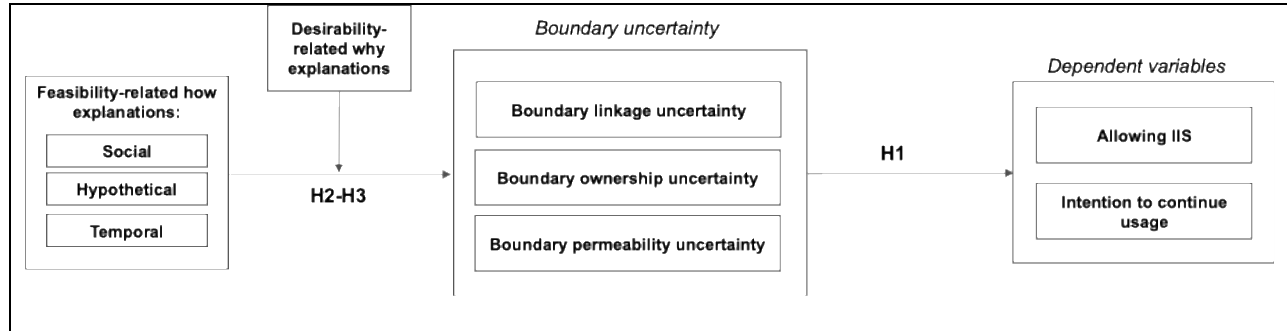
Figure 1. Research model

IS privacy research has commonly focused on privacy concerns explaining various disclosure behaviors (Smith et al., 2011). In the context of IIS, what becomes dominant is not solely the "what" that can happen but the "not knowing" of what can happen. Customers are often subjected to a lack of transparency regarding parties involved, information shared, or conditions under which such information is shared. Within the context of information sharing between two parties, privacy uncertainty was found to be a predictor of information-sharing behaviors (Al-Natour et al., 2020). In IIS, we expect the relevance of uncertainty in predicting information-sharing-related behaviors to become even more pronounced. We therefore hypothesize:

H1: Customers perceiving high boundary uncertainty are less likely to a) allow IIS and b) continue their usage.

Different types of how explanations related to who information is shared with, what information is shared, and how information is shared relate to different dimensions of uncertainty. How explanations are related to feasibility and thereby evoke a more concrete construal of IIS. More specifically, this concrete construal is evoked through high levels of proximity with regard to social distance, hypotheticality, and temporal distance that these how explanations are referring to (Trope & Liberman, 2010). Such concrete and proximate construal shifts the individual's focus towards attending to details and towards valuing the explanations

they are provided as an effort of the information co-owner to increase transparency. As an effect, different types of how explanations are expected to reduce different dimensions of uncertainty. We formally propose:

H2a: "Who" explanations of IIS reduce boundary linkage uncertainty.

H2b: "What" explanations of IIS reduce boundary ownership uncertainty.

H2c: "When" explanations of IIS reduce boundary permeability uncertainty.

Why explanations are related to desirability and thereby evoke a more abstract construal of IIS. This abstract construal is related to high levels of distance with regard to social distance, hypotheticality, and temporal distance and makes customers think about their long-term desirability and the consequences of IIS (Trope & Liberman, 2010). As discussed, providing a more distant mindset reduces the complexity of the situation and, thereby, uncertainty (Namkoong & Henderson, 2014). At the same time, providing information about the purpose of IIS fulfills the customers' informational needs. Transparency about IIS is highest if both how and why explanations for IIS are provided. Accordingly, the effect of how explanations on reducing boundary uncertainty is expected to be positively moderated by the provision of why explanations. We formally propose:

H3: The effect of "how" explanations on decreasing boundary uncertainty is positively moderated by "why" explanations.

PROPOSED RESEARCH DESIGN AND PRELIMINARY RESULTS

We are planning to conduct an online survey-based experiment, situated within the context of the mobile health application "FitLife Pro", for which a prototype was developed specifically for this study. App developers pretend to conduct a prototype testing session, for which participants have to open and test the prototype on their mobile phones. After switching

through several screens, participants are shown a pop-up window asking them whether they would allow "FitLife Pro" to share their activity with other parties. Within this pop-up, different combinations of how and why explanations are provided. Subsequently, participants are guided back to an online survey to answer several measures on their privacy behaviors, their boundary uncertainty perceptions, manipulation checks, as well as various control variables and demographics. At the end of the study, participants are debriefed and informed about the actual purpose of the study. We are currently running pretests for the experiment. Initial results show that participants are aware of the manipulations when going through the prototype.

POTENTIAL CONTRIBUTIONS

Our contribution to theory is fourfold. First and foremost, we introduce the phenomenon of IIS and its core concept of boundary uncertainty to adapt to changing landscapes for privacy (Xu & Dinev, 2022). Second, we provide insights into the conditions of boundary uncertainty: different types of explanations of IIS and their interrelation. Third, we gain insights into the transparency and control paradox (Awad & Krishnan, 2006; Brandimarte et al., 2013) by taking the perspective of CLT (Trope & Liberman, 2010). We propose that different levels of abstraction may explain contradicting findings when customers are faced with transparency. This understanding can help to better adapt privacy protection laws. Practitioners planning to or already engaging in IIS can build on our findings on proposed transparency features to soothen their customers' uncertainty about IIS.

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