Handle with care: How online social network providers' privacy policies impact users' information sharing behavior

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ABSTRACT

Privacy policies determine online social network providers' options to monetize user data. However, these statements also intrude on users' privacy and, thus, might reduce their willingness to disclose personal information, which in turn limits the data available for monetization. Given these conflicting interests, we conducted an experimental survey to investigate the relationship between privacy policies and users' reactions. We show that users' privacy risk perceptions mediate the effect that changes in policies' monetization options have on users' willingness to disclose information. Our findings emphasize privacy policies as a delicate managerial concept for companies relying on data monetization.

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Introduction

OSNs[3] are among the most popular websites on the Internet. It is very important for OSN providers to accurately characterize their network members using the user-provided data, as targeted advertising is a cornerstone of most OSN businesses. However, the commercial use of data raises privacy issues for users (e.g., Acquisti and Gross, 2006). Users particularly fear that providers might misuse shared information, sell it to third parties, or aggregate the information to comprehensive personality profiles (Krasnova et al., 2009a).

Providers use their privacy policies to disclose how they handle user data (e.g., Milne and Culnan, 2004; Tsai et al., 2011), and individuals who want to participate must agree to the OSN's policy when signing up. Previous research has emphasized the important role privacy policies play in users' assessments of Internet services in general (e.g., Earp and Baumer, 2003; Hui et al., 2007; Xie et al., 2006). Note that users need not read the policies in their entirety to become knowledgeable about their contents, since media reports effectively make the policies' commitments transparent to (potential) users—as has been seen in the cases of Google and Facebook (e.g., Rizk et al., 2009; Vaknin, 2012; Washington Post, 2012). Furthermore, current technological developments allow users to visually evaluate a website's privacy policy without having to read it (e.g., Gross, 2014).

For an OSN provider, the privacy policy's contents are an integral part of the business model, which both enable and restrict business opportunities. For example, a privacy-unfriendly policy might open avenues for the provider to monetize user data, but such policies also tend to scare off potential users, or lead participants to disclose less information. In contrast, a more privacy-friendly policy may attract many users, but simultaneously restrict the provider's ability to utilize their data. This trade-off makes it crucial for OSN providers to find a suitable data-handling strategy and articulate it in a privacy policy. We term this trade-off *pricing-by-privacy*, which is similar to classic price-sales functions, where vendors have to find a

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[3] "Online social network" is abbreviated "OSN" throughout this article.

balance between high prices coupled with low sales (privacy-unfriendly policies and smaller amounts of user data) and low prices coupled with high sales (privacy-friendly policies and larger amounts of user data). The photo-sharing network Instagram provides an example of the challenge this trade-off poses for OSN providers. After being acquired by Facebook, Instagram changed its privacy policy in a way that would enable the provider to monetize user photos without having to pay or even notify the creators. This announcement immediately ignited a revolt within the community, and many users declared their intention to delete their accounts. Instagram reacted quickly, admitting that its updated privacy policy was confusing and promised to change the wording of the statements (McCullagh and Tam, 2012).

The central role that the contents of privacy policies play in the OSN context makes it crucial to understand the interplay between the divergent interests of providers and users in this regard. However, there is a lack of studies on this topic in the privacy literature (Bélanger and Grossler, 2011). This is surprising, given privacy policies' significant role in the businesses of OSN providers. A few studies have, however, examined the possible influences of privacy policies on users' behavior. Thereby, two issues are particularly noteworthy: first, this research has yielded inconsistent results concerning the significance of the hypothesized effects (e.g., Berendt et al., 2005; Hui et al., 2007). Second, existing studies have taken a more traditional perspective on privacy policies that stems from an e-commerce context, in which revenue streams are typically based on the trade of goods and services. In such a rather traditional context, a provider's success usually depends less on the monetization of user data and, as a consequence, less on explicit formulations within the privacy policies. This has resulted in these studies' use of rather coarse concepts of privacy policies (e.g., absence vs. presence). However, as we will detail below, the nature of privacy policies has changed and revenue for OSN providers is based on *secondary data use*, which Culnan has defined as "the use of personal information for other purposes subsequent to the original transaction between an individual and an organization when the information was collected" (Culnan, 1993: 342). Therefore, a concept of privacy policies is required which includes providers' options for monetizing user data as those statements are central to OSN providers' revenue streams.

Bearing in mind this potential for research as well as the pricing-by-privacy trade-off, we integrate OSN providers' business goals and users' privacy needs to investigate the research question: *How are an OSN provider's data-handling practices, as reflected in the contents of its privacy policy, linked to users' willingness to disclose personal information?*

To answer this question, we first elaborate on the conceptual differences between privacy policies used in more traditional settings and those that result from OSN providers' business models. We subsequently present our research framework and introduce users' perceptions of privacy risks as a mediator of the stimulus–response link between privacy policies and the resulting user behavior, a link that previous research has treated as a black box. Based on an experiment with 1116 participants, we analyze the impact that changes in privacy policies' contents have on user reactions, systematically varying the extent to which the policies allow for monetizing user data and consequently have the potential to harm users' privacy. Note that this research does not aim to provide a comprehensive model of users' information sharing behavior, as excellent work addressing the facilitators or inhibitors of such behavior is presented elsewhere (e.g., Dinev and Hart, 2006; Dinev et al., 2008; Hann et al., 2007; Wakefield, 2013). This article rather takes an in-depth look at the interplay between privacy policies' contents and users' privacy-related perceptions and behavior in the context of OSNs.

Conceptual background

Privacy policies and their nature in an OSN context

An online *privacy policy* is a statement that informs users how a service provider handles personal user information (Awad and Krishnan, 2006; Mai et al., 2010). As previously mentioned, studies examining the effect of privacy policies on users' willingness to provide personal information have led to mixed findings. For example, Berendt et al. (2005) found that the contents of privacy policies do not have a significant effect on users' information-sharing behavior. They provided a privacy-friendly policy to one group and a privacy-unfriendly policy to another group. When members of these groups were asked to voluntarily provide their address to a shopping agent, no significant behavioral differences were observed. Metzger (2006) confirmed this result, finding that the presence of a privacy-friendly policy had no significant effect on participants' information-sharing behavior. These results seem to contradict a study conducted by Miyazaki and Fernandez (2000) who analyzed commercial websites' privacy policies along with consumer perceptions regarding their privacy practices. The authors found a significant link between the presence of privacy-related statements and the likelihood of online purchases from the corresponding companies. In the same vein, Hui et al. (2007) conducted an online shopping experiment to investigate the effect of a privacy policy on participants' information disclosures. They found that the presence of a privacy policy had a marginally significant effect on information disclosure.

To date, research has taken a more traditional perspective on the nature of privacy policies. Prior studies focusing on the context of e-commerce have often assumed that posting a privacy policy is inherently beneficial to companies (e.g., Hann et al., 2007; Hui et al., 2007; Xie et al., 2006). This holds true for companies that primarily generate revenue by trading goods online, as the privacy policy can assure customers that no information is misused. However, business models of OSNs are often based on the idea of secondary data use and, recently, more and more companies other than OSN providers have started using their customers' data beyond the original purposes. Thus, the function of privacy policies has changed in recent years and differs significantly for OSNs compared to a more traditional context. For a conventional e-commerce merchant, a privacy policy can signal trustworthiness (e.g., Hui et al., 2007; Pan and Zinkhan, 2006; Xie et al., 2006). In contrast, a privacy policy directly enables and restricts business opportunities for OSNs by ensuring that the provider has particular rights to monetize user data. Hence, OSN providers face the pricing-by-privacy trade-off and must weigh the effect their secondary