A power-responsibility equilibrium framework for fairness: Understanding consumers' implicit privacy concerns for location-based services ☆

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ABSTRACT

Location-based services rely on geospatial technologies that involve data that offer information of a prosocial nature – such as a nearby highway closure. The objective of this mixed method research is to examine consumers' concerns about privacy and fairness that pertain to these services. The basis for this research is the theory on the power-responsibility equilibrium. Study 1 qualitatively examines 332 comments; Study 2 uses a quantitative structural equation model with a sample of 291 non-students. Our findings indicate that fairness perceptions of privacy-related policies are enhanced when a consumer has a higher internal locus of control, higher attitude toward the communication, and lower level of privacy concern.

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1. Introduction

Imagine receiving a text or mobile alert from a government agency or contractor, such as an Amber alert or an emergency highway closure, because of your physical location or, more accurately, the location of your cell phone. Location-based services are technologies that involve data, such as navigation, tracking, and information services (Beinat, 2001). In general, these services and applications are a financial stronghold in the mobile commerce revolution. In 2014, location-based services generated approximately $12.2 billion in worldwide revenue according to a white paper by Jupiter Research (Parker, 2014). The white paper projects that the revenue from these services will be $75 billion (Statista, 2016). This is a substantial spike in the market and indicates that marketing needs research with a basis in theory to help the industry understand the consumers' perspective on any policy that affects location-based services.

The power differential between governments and consumers is an important context to study because of the prevalence of government-initiated policy. The recent research examines the effects of government privacy policies on consumers' concerns and behaviors toward risk (Miltgen & Smith, 2015). However, the literature has yet to address the effects, if any, of understanding the saliency of these issues in relation to specific non-privacy policies. For example, many states use automatic toll payments for bridges and roads to reduce traffic congestion (IBTTA, 2015) as well as 311 apps for non-urgent citizen concerns (Adler, 2016). The government policies related to these examples are not specific to privacy per se, but rather are specific location-based services in the form of automatic payments and communications.

Governments or businesses are power holders, especially when they hold customers' information, such as their location (Lwin, Wirtz, & Williams, 2007). Consumers must feel comfortable with how mobile providers use the location information that they generate. Before businesses or government organizations adopt a platform that uses the intended recipient's physical location, they must understand the consumers' perspectives on privacy and fairness.

Location-based services offer benefits to the consumer, such as targeted, relevant, and timely advertisements (Schumann, von Wangenheim, & Groene, 2014); however, disclosure of a consumer's location involves privacy concerns (Abbas, Michael, & Michael, 2014). Since the consumer is a moving target that receives specific messages because of his or her location, privacy issues continue to escalate. A consumer's response to mobile marketing and geographic targeting is relatively new territory for marketing scholars; most of the attention

on this topic focuses on firms who use mobile marketing initiatives. Given the importance of consumers' privacy concerns, a need exists to address marketing questions relating to privacy and how to effectively communicate and enhance privacy practices. Specifically, governmental organizations must understand how to communicate privacy practices with an appropriate balance so that concerns about information privacy achieve prominence.

Because of the proliferation of location-based services, firms, organizations, and governments must understand these privacy concerns because they can inhibit the adoption of mobile marketing (Kuittinen, 2013). This study examines the perceptions of fairness in the policies around location-based services using the lens of the power-responsibility equilibrium.

This research uses a mixed method approach with two studies to better understand the privacy concerns of consumers as they relate specifically to the policies for vehicle miles travelled (VMT). Responding to calls from scholars such as Harrison (2013) and following the approach in the recent research (e.g., Cruz-Cardenas, Gonzalez, & Nunez, 2016; Krishen, Agarwal, & Kachroo, 2016), this sequential mixed approach allows researchers to confirm and discover ideas that use alternative methods (Woodside, 2010). Also known as the "third wave" of research or Pragmatism, a mixed method allows for both the inductive discovery of patterns combined with the deductive testing of theory (Johnson & Onwuegbuzie, 2004). Combining multiple methods also introduces several benefits, such as stronger results, a broader approach to research questions, and a more holistic phenomenological understanding of a topic (Davis, Golicic, & Boerstler, 2011). Study 1 provides an exploratory, qualitative, and netnographic content analysis that identifies important themes with respect to privacy and fairness. The study uses these themes to conduct a literature review and to identify a theoretical model to test the quantitative hypotheses. Study 2 tests this model by using a covariance-based structural equation.

2. Qualitative Study 1 and theoretical framework for power-responsibility equilibrium and privacy

2.1. Sampling

The National Surface Transportation Infrastructure Financing Commission (NSTIFC) recommends the VMT as a possible solution to meet infrastructure needs in the United States (NSTIFC, 2009). A VMT program charges a fee for each mile a motorist drives. This program replaces the current indirect method of paying taxes through fuel consumption. That system no longer is sufficient to cover the increasing infrastructure expenses, which creates a budget gap. Another cause of the budget gap is that more fuel-efficient cars are on the road than ever before; meanwhile, the requirements for structural maintenance and repair continue to grow. Many states in the United States are considering when and how to implement a VMT policy, so research is essential on this policy. For example, Oregon has implemented a pilot policy based on the VMT. Similarly, many European countries have implemented various versions of VMT policies. The netnographic data for Study 1 comes from a sample of consumers who post comments about the VMT policy in open forums on the States' Department of Transportation (DOT) websites. During a two-month period, the study collected and analyzed 332 unique comments.

2.2. Procedure and analysis

To conceptualize the specific behavioral reports in these comments, this study uses an iterative analytic approach, which Kozinets (2002) recommends for netnographic data. This approach interprets online content in stages, first to develop a comprehensive understanding of the consumers' comments, and then to identify patterns and differences across the comments (Thompson, 1997). The data in this study describes the consumers' everyday experiences as they relate to location-based services and privacy.

Initially, three professional judges serve as content coders (Reynolds & Arnold, 2000) who separate the comments on whether they have non-privacy or privacy content. To ensure the reliability of the process, two judges first analyze the content independently and then a third judge resolves any discrepancies (Einwiller, Fedorikhin, Johnson, & Kamins, 2006).

After the initial categorical coding, the study compares the sets of comments (Corciolani & Dalli, 2014) by using DICTION, a content analytic software (Digitext, 2000). This procedure is similar to previous qualitative studies that use netnographic content. According to Hart (2000), DICTION extends many packages through their word count by using the linguistic theory from social researchers (Short & Palmer, 2008). In addition, the software uses dictionaries to search the text based on five semantic features: certainty, activity, optimism, realism, and commonality. The software also uses 35 sub-features (see http://www.dictionsoftware.com/diction-overview/ for more details). As such, several studies use this software for content analysis (Bligh, Kohles, & Meindl, 2004; Zachary, McKenny, Short, Davis, & Wu, 2011). Once entered into the software, the study divides the two sets of comments into 500-word units for analysis. This process results in 46 units for non-privacy concerns and 42 units for privacy concerns.

2.3. Results

2.3.1. Analysis of all comments

The first set of results consists of an examination of the entire set of comments. To do so, the authors and content coding judges initially examine the semantic features available in DICTION as they pertain to research on mobile privacy (Krishen, Raschke, Kachroo, LaTour, & Verma, 2014). Based on a review of pertinent literature, the four semantic features that address the key ideas behind the VMT and privacy are *exclusion*, *communication*, *cognition*, and *satisfaction*. Although several other features might be interesting for future research, this study selects these to retain the most parsimonious understanding of the comments. Table 1 details the four semantic features with their corresponding ideas as pertains to the theory.

2.3.2. Comparison of privacy versus non-privacy comments

Because DICTION also provides numeric files for statistical analysis, including word counts and percentages, the next set of results uses a quantitative inferential analysis. Thus, the study tests the differences between standardized score outputs from DICTION of non-privacy and privacy comments by using multiple analyses of variance (MANOVA). Table 2 shows that all four constructs yield significant differences between comments on non-privacy and privacy concerns (Wilks' λ = 0.70, $p < 0.01$).

The exclusion feature demonstrates the consumers' need for social isolation. As such, exclusion encompasses the idea of either a voluntary disconnection from society, which includes a heightened need for privacy, or an involuntary separation from society, which might be from social nonconformity. From this feature, the study concludes that definite differences exist among consumers who have a high need for privacy versus a low need for exclusion. Given those differences, the results of Study 1 indicate that a consumer's concern for privacy should be a predominant construct in Study 2.

The communication feature entails social interactions of any nature, whether they are in person or through electronic means. Accordingly, the study links this semantic feature to privacy because the research argues that higher communication from an organization leads to a consumer's higher willingness to disclose information. In fact, this study indicates that communicative consumers are likely to have a more pronounced attitude toward marketing communications; therefore, their attitude should be more likely to contribute to their subsequent behaviors. Cognition and satisfaction both form the ideas