

Patricia Morizio

Understanding privacy-control arrangements based on a theory of interactive computation in B2C service models

**Article (Accepted version)
(Refereed)**

Original citation:

Morizio, Patricia (2016) *Understanding privacy-control arrangements based on a theory of interactive computation in B2C service models*. [Proceedings of the 49th Annual Hawaii International Conference on System Sciences](#). pp. 5348-5357. ISSN 1530-1605

DOI: [10.1109/HICSS.2016.660](https://doi.org/10.1109/HICSS.2016.660)

© 2016 [IEEE](#)

This version available at: <http://eprints.lse.ac.uk/67251/>

Available in LSE Research Online: July 2016

LSE has developed LSE Research Online so that users may access research output of the School. Copyright © and Moral Rights for the papers on this site are retained by the individual authors and/or other copyright owners. Users may download and/or print one copy of any article(s) in LSE Research Online to facilitate their private study or for non-commercial research. You may not engage in further distribution of the material or use it for any profit-making activities or any commercial gain. You may freely distribute the URL (<http://eprints.lse.ac.uk>) of the LSE Research Online website.

This document is the author's final accepted version of the journal article. There may be differences between this version and the published version. You are advised to consult the publisher's version if you wish to cite from it.

Understanding Privacy-Control Arrangements Based on a Theory of Interactive Computation in B2C Service Models

The impact of surveillance and social control, the dangers of big data, and other highly relevant topics have recently come to the forefront of current digital privacy discussions. However, the dynamics of dominant service models in relation to privacy-control arrangements between corporations and consumers are not well understood. As such, the main focus of this paper is to explore how to understand emerging and existing individual privacy arrangements in the Business-To-Consumer (B2C) domain. By re-addressing the dominant model based on one-off "encounters" to consider another that is based on ongoing interactions, we can begin to envision the possibility for, and consequences of, new pro-consumer control arrangements. This paper does not recommend which arrangement should prevail, but seeks to serve as a starting point for this understanding and subsequent debate by exploring how we can make sense of privacy-control arrangements in B2C service models.

This paper appears in: [2016 49th Hawaii International Conference on System Sciences \(HICSS\)](#), Issue Date: [5-8 Jan. 2016](#),

SECTION I

INTRODUCTION

Recent technological changes have spawned new types of relationships between consumers, citizens, commercial entities, and governments. Conceptual notions of digital materiality have developed new questions regarding ethics in interpersonal relationships and emerging structures of society [23]. These changes lead to implications in the construction of our own identities based on our interactions with information systems and the "digital breadcrumbs" left behind in our data trails [35]. New service-dominant logics paired with technology physically becoming closer to our bodies-galvanised by mobile and the "Internet of Things (IoT)" - has made the issue of privacy even more pertinent now that we have a closer relationships, both literally and figuratively, with organisations [18].

Despite the hype around topics such as business intelligence (BI) and the obvious opportunities they hold, tales of the "dark side" of this big data and those who control it paint a frightening portrait of the world we are entering in which these organisations have acquired privacy rights at the expense of the ordinary user [37]. A world dogmatically led by metrics over contextualised reality has dangerous implications [1].

Apart from the regulatory challenges and conflicts between privacy advocates and free marketers, there is a clear lack of individual and collective understanding of themes such as privacy and personal information that is only compounded as massive amounts of data are collected by countless firms on an ongoing basis. More questions - from the legal to the conceptual, social, and ethical - inevitably come into play as more information is recorded [27].

This poses challenging questions, specifically for information system designers who need to make sense of these competing issues. What happens if we consider shifting the balance in favor of the consumer so she has better operational control over her personal information [23]? One possible starting point is to consider the relationship between businesses and consumers. The dynamics of dominant Business-To-Consumer (B2C) service models in relation to privacy-control arrangements are not well understood. As such, the main focus of this dissertation is to explore how to make sense of emerging and existing privacy arrangements. This paper seeks to problematise something that is complicated and interconnected to many topics simultaneously, namely personal, individual privacy; control; and their connection to different types of B2C interactions.

To examine this complexity, this dissertation adopts an interpretative approach. A conclusion is ultimately made to summarise the outcome of the research, demonstrating how it can serve as a starting point for this understanding and subsequent debate by exploring how we can make sense of privacy-control arrangements in B2C service models. The following section will review the state of the art in three related literature to frame the setting for the empirical results and subsequent analysis.

SECTION II

LITERATURE REVIEW

The definition of privacy is not straightforward, as it holds different meanings depending on the context in which it is discussed. Flaherty (1989) categorises descriptions of privacy into 13 elements, while Phillips (2004, p. 691) confirms that privacy is an opaque concept “encompassing personal autonomy, democratic participation, identity management, and social coordination,” each reflecting various, yet interrelated, social concerns. Phillips notes that we should use the different concerns together as a compass through the “philosophical, cultural and ideological terrain of privacy discourse” (p. 693).

The “privacy vs. convenience” paradox is widely acknowledged i.e., the more convenience one forfeits, the more privacy she can have, and vice versa. Even users who are cognisant of the trade-offs they make in their internet-mediated interactions struggle to navigate through uncharted, ever-evolving privacy territory [2]. Acquisti and Grossklags (2007) describe the remarkability of the paradox due to the contradiction users express in feeling entitled to personal information protection while, simultaneously, being quick to forfeit that same information for small incentives, thereby exhibiting possibly dangerous inconsistencies in attitudes.

In navigating the complicated world of digital privacy, users demonstrate various coping mechanisms to deal with cognitive limitations to full comprehension [10]. The issue of consent is central to the discussion of privacy [35]. Uninformed consent should not be confused for ambivalence or apathy [7]. As Kerr et al. (2006) write, behavioral economic theories such as cognitive dissonance, discounted subjective utility, and prospect theory show how psychological factors can affect the probability of initial consent and discourage later withdrawal of it.

Certain academics feel the actual privacy debate is instead about surveillance and that we should reduce our focus on the notion of “personal intrusion” [32]. Viewing privacy as “a kind of bubble that surrounds each person” under the absolute discretion of the individual user risks applying a “19th century conceptual framework to a 21st century problem” (Stalder 2002, p. 122). Understanding that the IoT is increasingly pervading our daily lives and recording data through almost all of our electronic relationships will allow us to shed outdated misconceptions. As people will have different privacy preferences, paired with their varying abilities to handle the cognitive load associated with the paradoxes discussed, agreeing on the distinct confines of the privacy “bubble” is impossible (Stalder 2002, p. 122). Rather, Stalder recommends viewing privacy in terms of social power, thereby demanding accountability of those who hold it, just as we do with political power.

Whether users cope with the complexities of surveillance through trust in authority, or actively battle it through privacy-enhancing technologies and techniques [20], others understand the issue to be more a matter of control. As Weiser (1991) notes, “the [social] problem, while often couched in terms of privacy, is really one of control.” As such, some of the basic control literature related to the context of this dissertation will now be reviewed.

There can be no discussion of control in the digital age without reference to Beniger's seminal work on the “Control Revolution”. His definition of control is useful for its breadth, being “purposive influence toward a predetermined goal” (Beniger 1986, p. 7). The core of his thesis depicts the unique power of information technologies to exert control.

Connecting control and surveillance studies, we can look to Deleuze's concept of “control society”, which is commonly used as a theoretical model to analyse surveillance [6]. While Foucault's (1975) panopticon metaphor delineates the phenomenon of self-surveillance, already highly applicable to digital surveillance, Deleuze (1995) builds on Foucault's hypothesis. Though acknowledging the continued significance of self-surveillance, Deleuze's theory describes a distributed form of surveillance that has emerged, “as slippery, smooth and encompassing of everyday life, rather than organised into disciplinary sites” (Best 2010, p. 9).

Similar to Stalder's (2002) call for democratic accountability, Pietsch calls for systematic regulation and supervision of institutionalised surveillance - “a plea driven not by fears for the privacy of the individual but by worries that a privileged knowledge of the mechanics governing the social world could allow for a one-sided and largely unrecognised control of the masses” (Pietsch 2013, p. 307). According to Pietsch, there are two types of control that rule the world: “normative” (e.g., official laws) and “causal”, which he describes as unconscious laws that underlie all human actions (p. 310). He argues that those with operational knowledge of these laws can control us without our notice and even cause us to believe these actions are part of our deliberate and rational decision-making.

This last idea ties in with Whitley's (2009) focus on consent as imperative to a more current comprehension of personal data control. The user-centric trend in privacy discussions arguing for granting consumers greater control of their personal information as a prerequisite for their trust and, thus, usage of a technical artefact is “impoverished” and based on outdated understandings (Whitley 2009, p. 154). Whitley, instead, suggests that

we conceptualise retraction of consent as a more appropriate notion in understanding informational privacy and control.

Continuing the commercial perspective, some of the related basic B2C literature will now be reviewed. Morgan and Hunt (1994) define Business-To-Consumer relations as “all marketing activities directed towards establishing, developing, and maintaining successful relationship exchanges,” drawing from the social and clinical psychology literature (p. 34). Bagozzi (1975) categorises earlier B2C transactions as separate exchanges in which goods or services are exchanged for money or other goods or services. Scholars have contrasted this means of exchange to current, increasingly digital, transactions that allow consumers to offer their personal data for sometimes non-monetary value such as improved service quality, discounts, or personalisation [11].

Kolsaker and Payne (2002) argue that the importance of trust and factors that engender integrity in the B2C online environment is heightened due to the lack of material signs which normally serve that purpose in offline transactions. However, others have warned against the over-emphasis on the role of trust within consumer markets [26]. Dimensions such as service quality and cooperation through allocating users control over the use of their data were classified as the key elements in building successful B2C relationships [31].

Revisiting the concept of consent, in terms of B2C relations, the concept of negotiation of consent over time is important. As Kerr et al. (2006, p. 21) write, “one cannot expect individuals who are unaware of the implications of consenting to the collection, use, or disclosure of personal information to recognise, let alone remedy, their tendency to ‘stick with’ their initial consent.” Furthermore, the commonly-held impression that it is “an all-or-nothing, take-it-or-leave-it, instantaneous transaction; an offer that they cannot refuse,” is “archaic” (p. 21). Unfortunately, as the authors point out, this is how most companies still approach consent i.e., as a “click-wrap” agreement to overarching authorisation to almost unlimited access to consumers' proprietary data. This mentality diminishes the special bridging role that consent is meant to occupy between technology and people (p. 21).

For organisations involved in this type of “soft paternalism”, the conception of consent within a transactional (encounter-based) view “allows them to engineer the consent-seeking process so that individuals are steered toward automatically offering up their consent...without further reflection” (p. 21). This outlook suggests that commercial entities fully understand people's behavioral tendencies and are becoming more skilled at exploiting them to advance their own aims (p. 21). Similarly, Pietsch (2013, p. 310) warns of the increasing commercialisation of our personal information paired with the decreasing spatio-temporality of marketing where a handful of oligarchic commercial entities can direct consumers how they see fit through the digital environment silently, without notice, and, presumably, without (*de facto*, if not *de jure*) consent. The importance of the critical distinction between encounters and relationships will be examined further in this dissertation's Theoretical Framework.

SECTION III

METHODOLOGY

The case project called “My Big Data” will hereafter be referred to by the pseudonym “MyBiDa”. The names of all people, institutions, and associations in this study will remain anonymous. The main subjects of the study are the four principal system designers (also referred to as simply “designers”). A brief description of their roles and background is as follows: A) Designer #1: Academic specialising in information systems innovation and in charge of MyBiDa's consumer advocacy; B) Designer #2: CEO of privately-owned telecommunications company providing MyBiDa's seed funding; C) Designer #3: Project manager and technical lead; D) Designer #4: Academic specialising in information system design and innovation, mainly in charge of user interface (UI) design. Their conversations centered around the value they felt they were creating for consumers and service providers.

For this study, transcripts of all conversations of system designers and related stakeholders throughout the planning and initial development of the application lifecycle, in addition to some supplementary documents, were qualitatively analysed. Second-order document analysis was used as the main method of data collection. 87.4 hours of recorded and transcribed conversation were combined with insights from the above literatures.

The design of this case study strives to answer the following question: How can we begin to understand the dynamics of existing and emerging privacy-control arrangements between commercial entities and individual consumers? To explore this question, the document analysis revolved around three areas of interest - how MyBiDa privacy-control arrangements relate to: (1) consumer privacy, (2) individual data control, and (3) B2C service models.

Overall, a qualitative method was chosen to allow for in-depth and detailed investigation of the case and issues at play. Quantitative methods could neglect the factors that influence individual decisions and, therefore, from a constructivist outlook that views knowledge as relative, we conclude that a case study technique is apposite to the discussion at hand. A recognised limitation of the selected approach is the generalisability inherent in analysing a single case. However, the primary aim of qualitative analysis is not to generalise findings, but to develop an interpretation of events and, in this particular case, to serve as a starting point for the discussion.

SECTION IV

THEORETICAL FRAMEWORK

4.1 Encounters vs. Relationships

The distinction between encounters and relationships has long been studied in the marketing and service research literature. A [service] encounter is considered a single exchange where an individual transacts something, usually of monetary value, for a good or a service from a commercial provider [12]. The identities and past behavior of both parties are inconsequential [19]. As Czepiel notes, a [service] relationship, on the other hand, is an accumulation of individual encounters over time. In these “long-run phenomenon(s)”, personalities, past and future behaviors, and interpersonal relations between the buyer and the seller come into play (Czepiel 1990, p. 13). This vulnerability, paired with repeat encounters, results in a multi-dimensional and long-term relationship, ultimately developing

what Czepiel calls “psychological loyalty”, or bonds “in situations when such constancy seems contrary to self-interest” (Czepiel and Gilmore 1987 as cited in Czepiel 1990).

Apart from the marketing and service research literature outlined, the distinction between encounters and relationships has also been discussed in management [37], systems theory [21], and computer science [33]. Similarly, Mathiassen and Sørensen (2008) have adapted the constructs to the organisational information services domain. Echoing the former definitions, Mathiassen and Sørensen describe encounters as having minimal interaction and variation between them. In comparison, relationships rely on standardised models of information processing to apply available and emerging information to distinct contexts [22].

Mathiassen and Sørensen's (2008) contingency theory of organisational use of information services separates organisations' service portfolios into four service categories and hypothesizes that organisations choose which portfolio(s) to use based on the equivocality and uncertainty profile of their information processing needs (p. 313). As the theory suggests, in situations of high equivocality and low uncertainty, an “adaptive” service should be employed to make use of available information within a relationship-based service (e.g., a commercial transaction). For situations of high equivocality and high uncertainty, a “collaborative” service may be more appropriate, which produces information within a relationship-based service (e.g., a remote work collaboration platform).

Besides the clear linkages of privacy and control to B2C relations outlined in the Literature Review, the unique applicability of B2C service models to answer the research question will be elaborated in the Discussion. The organisational information services literature's encounter vs. relationship distinctions, which call in part on Wegner's work, are particularly relevant to the given study. As Wegner examines more explicitly the superiority of the application of interaction over algorithms in increasingly dynamic digital societies, it was chosen to form a complementary and combined theoretical lens.

4.2 Theory of Interactive Computation

Wegner (1997) argues that there has been a paradigmatic transformation in computing over the past decades from algorithmic to interactive information processing due to the more robust problem-solving capacities of interactive mechanisms. Whereas algorithms immediately transform inputs into outputs based on explicit instruction, interactive actions, like driving, cannot be accomplished through pure algorithms. Wegner makes a more general metaphor of algorithms as “sales contracts” - a simple input-output exchange - and interactions as “marriage contracts” - where the customer periodically indicates desired behavior and “contingencies (in sickness and in health)” throughout the span of the relationship (p. 81).

Wegner credits the “smartness” seen in mechanical devices to the work of interaction enhancing inherently “dumb” algorithms and transforming them into “smart agents” (p. 82). As he explains, “interactive systems are grounded in an external reality both more demanding and richer in behavior than the rule-based world of non-interactive algorithms” (p. 82). Through investigating the previously unexplored theoretical foundations of

computer science, Wegner challenges the field's simple acceptance of "irreducibility" of algorithms to, instead, explore deeper "what it is" (p. 82), which he proposes can be done through the conceptualisation of interactive models.

In his hypothesis that interactions are more appropriate in dealing with real-world complexity, Wegner refutes the traditionally upheld Turing Model of computation, which cannot take dynamic data into consideration. The model is based on Turing machines that robustly and reliably convert input into output mechanically by arrays of state changes. However, critics eventually observed that Turing machines and their corresponding algorithms could handle neither externalities nor the passage of time, effectively barring input from the external world; this limitation became known as the "Turing tarpit" (p. 83). As Wegner notes, the seemingly logical advancement to interactivity complicates computation through the possibility of incorporating multiple input sources and asynchronous tasks. Interactive machines were, consequentially, seen as "too rich for nice mathematical models" and, therefore, unpalatable to rationalists (p. 83).

From a technical position, scientists, including Turing himself, have since acknowledged that Turing machines are not the strongest computationally. Psychologically Wegner notes that relinquishing the expectation of complete functionality specification through algorithmic instructions (in what he refers to as "closed systems"), in favor of interactive interfaces ("open systems") that piece together individual algorithms based on continuous external input, requires an adjustment. Certainly, closed systems are easier to comprehend as well as to implement, though they limit the real-world flexibility that partial specification through open systems allows (p. 85).

From an ontological and philosophical point of view, Wegner argues that algorithmic models are based in rationalism, while interactive models are based in empiricism. He explains:

"Turing machines correspond to Platonic ideals by focusing on mathematical models at the expense of empirical models. To realise logical completeness, they sacrifice the ability to model external interaction and real time. The extension from Turing to interaction machines...is the computational analog of liberation from the Platonic world view that led to development of empirical science" (p. 87).

The "liberation" from the "Turing tarpit of algorithmic computation" that interactive models perform frees us from the "comfortable completeness" of rationalist reductionism (pp. 87–88). Though incomplete and unpredictable behavior is disconcerting to those who rely on formal models, like it was for Descartes and Plato, it is more relatable to empiricists (p. 88).

While algorithms are more mechanically powerful than interactive machines, they lack the range of possible actions that interactive machines use to employ external inputs to respond to queries more rapidly than incorporeal machines (p. 90). The enhanced expressiveness of interaction allows it to be used for non-algorithmic problems as well as to supplement the solution of inherently algorithmic ones, resulting in increased ease and efficiency.

This section introduced theories on the distinction between encounters and relationships in B2C service models and computational algorithms vs. interactions in information processing.

The combined lens relating to a theory of interactive computation in B2C service models will be used to analyse the following case study results.

SECTION V

RESULTS AND ANALYSIS

MyBiDa is an unfinished mobile software application and big data startup attempted by its designers who tried to go against the grain of standard B2C service models. It intended to track users' activities and maintain a "personal data store" (PDS) for each user. The application would gather and process data from device sensors including an accelerometer, camera, light level-indicator, sound, face recognition, microphone, GPS, and more for granular tracking and analytics. The PDS would allow users to manage their relationships with service providers of their choosing. Through this, MyBiDa was uniquely positioned to provide real-time user insight to enhance experiences with brands. MyBiDa designers' main goal was to build a powerful ecosystem of users and service providers who are able to create and maintain enhanced relationships in enriched, dynamic, and transparent ways or, as Designer #1 portrayed it, "intimacy at scale."

The designers' apparent and expressed logic throughout the design process follows a model sometimes known as "privacy by design" (PbD) in which informed consent and delegation of control to users is built-in from the beginning during application design and development [8]. A similar concept that motivated MyBiDa designers is known as VRM, or Vendor Relationship Management, in which standard vendor-client control relations are rearranged in favor of consumers so that they have the upper-hand in specifying the nature of the relationships they have with companies [30]. MyBiDa designers sought to build a service based on the related assumption that by making users feel more comfortable with providers, they could simultaneously be empowered and more willing to contribute their data, highlighting the importance for companies to embed complex privacy controls within honest and intuitive UIs.

Over the course of seven months, the designers and other stakeholders debated at length their intentions for and limitations faced by MyBiDa. In the rest of this section, the results of this analysis will be presented - namely how the application's main affordances and limitations as discussed by the designers were interpreted - organised by this dissertation's overarching themes of privacy, control, and B2C service models.

The motivational concepts of PbD and VRM are operationalised in MyBiDa through its main affordance of a PDS. The central idea of PDSs is that consumers own their own data. PDSs are encrypted and only the owners have access to them. Additionally, owners can specify which individuals or companies have access to which parts.

As the designers had expressed throughout the planning process, one of the major benefits of the application would be its ability to authenticate users' identities to participating commercial organisations, since MyBiDa's intended direct partnerships with MNOs would supposedly enable this confirmation. Similarly, in its role as authenticator, MyBiDa could fill the need of extremely powerful security measures for users by ensuring the identities of the

companies to which they are opening up their very personal data, again, through the aid of their partners.

Reversing standard, societally-ingrained privacy-control relationships, however, is not without complexity. The designers expressed their concern at potentially overwhelming users with information on privacy which, as discussed in the literature, is a dense and often opaque topic. Conveying information explaining how to use the application for users with differing privacy preferences, personalities, and abilities to make sense of these abstract topics, both completely and concisely, was thought to be a significant hurdle. A substantial data control-related issue identified was the practicality of allowing for granular and ongoing control specification. As Designer #3 noted, since the application intended to enable data collection from many different types of sensors, the combinations of different accesses based on sensor types, participating company, and time ranges (for example, a user could feasibly grant or disallow one of these accesses for certain times of the day or week) would create an enormous amount of complexity - not only technically, but also from a user experience perspective.

MyBiDa designers mostly agreed on not having traditional advertisements from commercial entities to consumers, but more so offers or information based on users' preferences and sensor-tracked behavioral patterns. This possibility is predicated on companies, through the aid of MyBiDa, using this user data to make time-specific, desirable offerings. This individual specificity and timeliness was seen to be key to the application's value-add. Designer #2 joked that "if you are stuck in the Sahara and dying for your last drop of water, the value of that glass of water is infinity as far as you are concerned." Essentially, MyBiDa intended to give consumers meaningful commercial offerings when they would be most receptive to them.

The basic data control arrangement of MyBiDa was outlined as allocating control of private data to the users. According to the designers, this would allow MyBiDa to allay users' privacy concerns and, ideally, make them feel more secure to contribute their personal information (Designer #1). A main affordance of the app was seen as its ability to foster veritable B2C relationships. Designer #1 expressed his observation that companies are so desperate to have ongoing relationships with consumers, but they simply do not know how. They rely on elicited cookies because they lack more efficient ways of understanding the user. Moving beyond cookies, the designers predicted that the future of marketing would be scaling one-to-one B2C relationships. In this model, there is no guessing on the part of the service provider of who the consumer is or what she wants, hence improved accuracy and decreased costs. Designers #1, 2, and 4 agreed that consumers crave more meaningful relationships with service providers but lack the trust to achieve that. In this vision of the classic two-sided market, customers contribute value through their data, companies through targeted and timely offers, and MyBiDa through mediating it all.

However, development of MyBiDa was ultimately suspended. The project was seen as too early for its time, potential investors lost interest, the designers could not contribute their time indefinitely and, consequentially, project funding came to a halt. More deeply, MyBiDa's problem was seen as being unable to close the "end-to-end" loop. How we are able to make sense of the vastly different control arrangements in today's privacy landscape

relies on an understanding of where the balance lies in relation to several types of control - namely application-layer, end-user, and commercial-provider control. Through the proposed application, users and MyBiDa managed control of the first two, but were unable to guarantee the third i.e., that consumers would get more targeted service offerings without being surreptitiously surveilled or spammed. Essentially, MyBiDa saw no way to protect users' privacy all the way through the supply chain. As a platform, MyBiDa would be ultimately responsible for such violations.

SECTION VI

DISCUSSION

Through use of the conceptual framework and empirical analysis, this study argues that by readdressing dominant B2C service models based on one configuration i.e., encounters - interpreted in this paper as analogous to Wegner's algorithms - to consider another that is based more on ongoing relationship - analogous to interactions - we can begin to make sense of new privacy-control arrangements. The document analysis produced the following four themes which can contribute to this sense-making: (i) If B2C privacy-control arrangements were based on relationships rather than encounters, they would better reflect environmental and cognitive realities and, thus, be more appropriate to the rapidly-evolving digital age;(ii) If B2C privacy negotiations were more like relationships, users could have more control of their data through informed consent; (iii) Increased personal control over data can lead to more open and, eventually, more productive, satisfying, and profitable B2C relationships; and (iv) Organisations that attempt relationship-based B2C privacy-control arrangements cannot attain economic viability without an ecosystem of other market players interested in, and capable of, participating.

To argue the hypothesis, the discussion will synthesise these into the overarching theme of opportunities of interactive, relationship-based privacy-control arrangements in B2C service models.

6.1 Using a Theory of Interactive Computation in B2C Service Models

MyBiDa desired to “flip” the traditional mobile marketing market around to achieve what they believed would lead to enhanced profits for businesses and greater privacy controls for consumers. This would have required a fundamental rearrangement of B2C privacy-control arrangements as they traditionally operate and are understood.

Relating Wegner's (1997) distinctions to people themselves, he claims that human behaviors and thinking processes naturally reflect interaction machines. Therefore, it makes sense that their cognitively-complex dealings with commercial entities, specifically in terms of negotiating their personal data preferences, are more appropriately dealt with as interactions, as opposed to the existing, Turing-like model. MyBiDa designers intended to allow users to establish their personal privacy requirements and have participating companies agree to respect them in an ongoing, negotiatory and, hence, interactive manner in an attempt to rectify the broken consent in standard B2C privacy-control arrangements.

As Wegner challenged computer science to probe further beyond its comfortable reliance on the irreducibility of algorithms through the use of interactive models and, much earlier, empiricists challenged rationalists' derision of incomplete knowledge (and the value of relevant, partial comprehension), so too can experimenters of new privacy-control arrangements, such as MyBiDa, be seen as challenging traditional market dogmas. New privacy-control arrangements support ongoing and inherently contextual interactions. As interaction allows for a greater range of possible actions between input sources and parties involved, so too do privacy-control arrangements actively and continuously negotiated by users allow for enhanced relationships between them and their service providers. As we have seen in the case of MyBiDa, the common consensus among designers, stakeholders, and investors involved was that personally-negotiated B2C relationships (over impersonal and infrequent encounters) would enhance not only quality, but also frequency and consistency, of interactions, leading to more satisfied and protected consumers and increased profits for vendors. The enhanced expressiveness of interaction, as highlighted by Wegner, allows for more accurate, real-time, and efficient computation. Similarly, the enhanced expressiveness of new privacy-control arrangements can allow for more accurate, real-time, and efficient B2C relationships, also addressing the high equivocality and low uncertainty of consumer privacy-related matters.

6.2 New B2C Privacy-Control Arrangements in Practice: Opportunities and Limitations

More interactive and, thus, more transparent B2C privacy and data control relationships not only reflect real-world contexts (such as differing and evolving privacy preferences, whether individual, social, or environmental), as Wegner's interactive machines did for computing, but also accommodate consumers' psychological capacities to understand what they are agreeing to and getting in return. However, as observed through this project's failure to launch, an entire ecosystem of investors, service providers, and consumers must all be ready, willing, and able to participate to make the model viable. The general consensus by many stakeholders seemed to be that MyBiDa was too revolutionary of an idea to gain traction in today's marketplace. But the argument that shifting the pendulum of data control in the consumer's favor would be overwhelming or infeasible has an impression of patronising reductionism which only reinforces the status quo that is, arguably, becoming increasingly less acceptable.

A concrete benefit of algorithmic models, however, is their purely mechanical superiority (if discounting external factors). Relating this computer science notion to economics, reductive business strategies centered on maximizing outputs by simply minimizing inputs may very well be better executed in encounter-based privacy negotiations. After all, one-time encounters asking users to agree to businesses' generic privacy terms and conditions would require very little effort on the part of the business. Negotiating privacy and data control preferences over time with each individual consumer could be seen to increase labor or technological costs, and the potential benefits of having more empowered users may only become apparent in the long term.

But companies that are able to look beyond this restricted view and see the potential for future rewards in more transparent and open B2C data ownership negotiations hold a similar foresight to the pioneers of interactive computing in achieving enhanced and more

efficient results. Similarly, Mathiassen and Sørensen's theory addresses the potential problem of increased strain on organisational resources in establishing and maintaining relationships with customers. As they outline, relationship-based services can make use of standardised processes to translate information in highly variable contexts. In this sense, organisations can focus on standardising a process for establishing meaningful privacy-control relationships with their customers. Once this is established, opting for relationships becomes no more of an organisational burden than using encounters. Additionally, with more frequent and informed data control negotiations with users, companies could increase the quality of their data, just as interaction machines enhanced the contextual accuracy and "freshness" of computations. The issue of potentially relinquishing control of valuable user data, however, might prove harder to swallow. Ignoring momentarily matters of principle or legality, whether more open and honest B2C relationships actually lead to greater long-term profits that offset the immediate value of total organisational control of user data should be empirically analysed.

As privacy is still an opaque topic and attempts at rearranging notions of data ownership are just starting to be introduced, the way forward in reconciling the myriad of consumer and commercial demands with regard to privacy is still unclear. Taking the case study as an example, a possible implication for similar innovators could be focusing scope. Attempting to create an entirely novel marketplace for vendors and consumers to exchange data and service offerings might have been infeasible for any company, especially a startup like MyBiDa. Targeting one industry or niche, for example automobile insurance, and piloting the project within it could be more realistic in terms of attracting users and service providers to create more purposeful offerings. From there, a company like MyBiDa could begin to grow a user base, analyse the problem of the end-to-end loop on a more manageable scale, test the business model, and introduce a relatively radical transformation on a gradual, organic learning curve. Once other companies and other industries are able to see the tangible value in such B2C relationship-based service models, they could begin to experiment with similar models of their own and construct the necessary ecosystem and common mindset necessary for it to succeed in practice.

Mathiassen and Sørensen's contingency theory of organisational use of information services would suggest that commercial organisations can take advantage of the generally low uncertainty of privacy negotiations with consumers while addressing the innate high equivocality by crossing the threshold from technologically-mediated encounters to relationships. Similarly, Wegner's theory of interactive computation demonstrates the advantage interactive models hold in handling context and externalities, which we have analogised to the advantages of B2C relationships (over encounters), particularly as they relate to privacy and data control negotiations. Although this paper has suggested the superiority of relationships and interaction in B2C privacy relations, assuming ingrained service models and data control paradigms will switch over instantly based on ideals and theory alone is impractical, as the case study has demonstrated. The intention is to use the theoretical framework and empirical data to offer a conceptual perspective of a complex reality and serve as a basis for discussion of the role that interactivity and dynamic relationships can have within B2C privacy and control discourses.

The scope of this dissertation has obviously been limited to the control of private information in the relations between commercial entities and individual consumers. In order to reach a broader understanding of the intricate interactions within digital privacy and control domains, it would be worthwhile to research the comparable dynamics in the G2C, G2B, B2B, and P2P spheres and the related paradoxes, consequences, and possibilities involved in reversing the standing arrangements in each. Additional directions for future research could include longitudinal studies of the effects of different privacy-control arrangements within an organisation over time or, alternatively, cross-sectional studies which observe these dynamics across various types of companies, industries, or demographics. This research could even explore differing arrangements on a less radical scale than the present case study attempted, such as existing companies experimenting in allocating more personal data control to their users and documenting the measurable results.

SECTION VII

CONCLUSION

In review of the prevailing privacy and personal data control landscape, two starkly different situations emerge: the current, “big business”-controlled environment and another where users specify, and are able to fully comprehend, who has access to their data and for what reasons. On one hand, in the current environment, there is a world in which users are normally not in control of their own data and, for the most part, are not even aware. Privacy is sacrificed for the sake of indexing so that society can pool, search, and find information in greater quantities and with improved accuracy. In a world where the consumer is given more control of her data, however, the convenience and opportunities of the “data revolution” can become lost in the aim of increased privacy and user control over data. Focusing on how to reconcile the two will prove paramount in the future of digital interactions.

Reminiscent of Stalder's (2002) critique of our outdated conceptual frameworks in dealing with unprecedented modern dilemmas, Zuboff (2014) summarises the gap in the current privacy and social control discussion:

“It's an urgent new public conversation that can't be reduced to 20th century technical debates about Google's monopoly status or competitive practices. We tend to revert to these old categories in the absence of ready language and law that can help us discern the full implications of what is taking shape ... These new forms of power, poorly understood except by their own practitioners, threaten the sovereignty of the democratic social contract.”

The aim of the above analysis has been to provide a possible starting point for this call to understanding. By readdressing taken-for-granted, encounter-based B2C privacy and control negotiations in a theoretical light, and using a realworld study of a design project that tried to make sense of emerging arrangements, this paper highlights the practicalities in repositioning this ownership as well as the limitations of remaining with the status quo. Once we are able to expand our collective comprehension of the variety of individual issues

involved - from data ownership rights, to BI, informed consent, and beyond - along with a better understanding of the interplay between them in practice, we can begin to envisage new privacy-control arrangements between businesses and consumers. Only then can we begin an informed debate.

Footnotes

No Data Available

References

1. Aaltonen and A.

“The beauty and perils of metrics”

Mercury Magazine, vol. 2, no. 3, pp. 44-47, 2013

2. Acquisti and A.

“Nudging Privacy: The Behavioral Economics of Personal Information”

vol. 7, no. 6, pp. 82-85, 2009

3. Acquisti, A., Grossklags and J. and A. Acquisti, S. Gritzalis, C. Lambrinoudakis and S. di Vimercati

Digital Privacy: Theory, Technologies, and Practices

pp. 363-374, 2007, Auerbach Publications, Boca Raton, FL

4. Bagozzi and R. P.

“Marketing as Exchange”

Journal of Marketing, vol. 39, no. 4, pp. 32-39, 1975

5. Beniger and J. R.

The Control Revolution: Technological and Economic Origins of the Information Society

1986, Harvard University Press, Cambridge, MA

6. Best and K.

“Living in the control society: Surveillance, users and digital screen technologies”

International Journal of Cultural Studies, vol. 13, no. 1, pp. 5-24, 2010

7. Castro and D.

“Do Consumers Care About Online Privacy Anymore?”

The Innovation Files, July, 2013

8. Cavoukian, A., Jonas and J.

Privacy by Design in the Age of Big Data

2012, Ontario, Canada

9. Coviello, N. E., Brodie and R. J.

“Contemporary marketing practices of consumer and business-to-business firms: how different are they?”

Journal of Business & Industrial Marketing, vol. 16, no. 5, pp. 382-400, 2001

10. Culnan and M. J.

““How Did They Get My Name?”: An Exploratory Investigation of Consumer Attitudes Toward Secondary Information Use”

MIS Quarterly, vol. 17, no. 3, pp. 341-363, 1993

11. Culnan, M. J., Milberg and S. J.

The Second Exchange: Managing Customer Information in Marketing Relationships

1998

12. Czepiel and J. A.

“Service encounters and service relationships: Implications for research”

Journal of Business Research, vol. 20, no. 1, pp. 13-21, 1990

13. Deleuze and G.

Negotiations 1972–1990

1995, Columbia University Press, New York, NY

14. Flaherty and D. H.

Protecting Privacy in Surveillance Societies: The Federal Republic of Germany, Sweden, France, Canada, and The United States

1989, University of North Carolina Press, Chapel Hill, NC

15. Foucault and M.

Discipline and Punish: The Birth of the Prison

1975, Editions Gallimard, Paris

16. Kerr, I. R., Barrigar, J., Burkell, J., Black and K. and I. Kerr, V. Steeves and C. Lucock

Lessons From the Identity Trail: Anonymity, Privacy and Identity in a Networked Society

vol. 6, pp. 1-22, 2006, Oxford University Press, Oxford

17. Kolsaker, A., Payne and C.

“Concerns, Engendering trust in e-commerce: a study of gender-based”

Marketing Intelligence & Planning, vol. 20, no. 4, pp. 206-214, 2002

18. Lusch, R. F., Vargo and S. L.

The Service-dominant Logic of Marketing: Dialog, Debate, and Directions

2006, M.E. Sharpe, Armonk, NY

19. Macneil and I. R.

The New Social Contract: An Inquiry Into Modern Contractual Relations

1980, Yale University Press, New Haven, CT

20. Marx and G. T.

“A Tack in the Shoe: Neutralizing and Resisting the New Surveillance”

Journal of Social Issues, vol. 59, no. 2, pp. 369-390, 2003

21. Mathiassen, L., Nielsen and P. A.

“Interaction and Transformation in SSM”

Systems Research and Behavioral Science, vol. 17, no. 3, pp. 243-253, 2000

22. Mathiassen, L., Sørensen and C.

“Towards a theory of organizational information services”

Journal of Information Technology, vol. 23, no. 4, pp. 313-329, 2008

23. Mitchell and A.

Personal data stores will liberate us from a toxic privacy battleground

May, 2012, Wired.co.uk

24. Mitchell and W. J.

Me++: The Cyborg Self and the Networked City

2004, MIT Press, Cambridge

25. Morgan, R. M., Hunt and S. D.

“The Commitment-Trust Theory of Relationship Marketing”

Journal of Marketing, vol. 58, no. 3, pp. 20-38, 2014

26. O'Malley, L., Tynan and C.

“Relationship marketing in consumer markets - Rhetoric or reality?”

European Journal of Marketing, vol. 34, no. 7, pp. 797-815, 2000

27. Peters and T. A.

Computerized Monitoring and Online Privacy

1999, McFarland, Jefferson, NC

28. Pietsch and W.

“Data and Control: a Digital Manifesto”

Public Culture, vol. 25, no. 2, pp. 307-310, 2013

29. Posner and R. A.

“The Economics of Privacy”

The American Economic Review, vol. 71, no. 2, pp. 405-409, 1981

30. Searls and D.

The Intention Economy: When Customers Take Charge

2012, *Harvard Business Review Press, Cambridge, MA*

31. Sorce, P., Edwards and K.

“Defining business-to-consumer relationships: The consumer's perspective”

Journal of Database Marketing & Customer Strategy Management, vol. 11, no. 3, pp. 255-267, 2004

32. Stalder and F.

“Privacy is not the antidote to surveillance”

Surveillance & Society, vol. 1, no. 1, pp. 120-124, 2002

33. Wegner and P.

“Why Interaction Is More Powerful Than Algorithms”

Communications of the ACM, vol. 40, no. 5, pp. 80-91, 1997

34. Weiser and M.

“The Computer for the 21st Century”

Scientific American, vol. 265, no. 3, pp. 94-104, 1991

35. Whitley and E. A.

“Informational privacy, consent and the “control” of personal data”

Information Security Technical Report, vol. 14, no. 3, pp. 154-159, 2009

36. Zuboff and S.

Frankfurter Allgemeine Feuilleton

April, 2014, Frankfurt

37. Zuboff, S., Maxmin and J.

The Support Economy: Why Corporations Are Failing Individuals and the Next Episode of Capitalism

2004, *Penguin, New York, NY*