



Balancing customer privacy, secrets, and surveillance: Insights and management

Kirk Plangger^{a,*}, Richard T. Watson^b

^a King's College London, University of London, 150 Stamford Street, London SE1 9NH, UK

^b Terry College of Business, University of Georgia, Athens, GA 30602-6273, U.S.A.

KEYWORDS

Customer surveillance;
Customer privacy;
Market intelligence;
Customer data;
Customer secrecy strategies

Abstract As surveillance technology advances and becomes more data rich and less intrusive and costly, brands collect vast quantities of customer data in order to gain customer insights to remain competitive. Brands conduct customer surveillance often without considering the consequences on customer relationships. Because of customer surveillance activities, customers may also experience privacy intrusions and turn to customer secrecy strategies that hide or disguise their data. To reduce this reaction, we propose a set of surveillance prompts to structure market intelligence databases to increase the efficiency of, and thus reduce the quantity of, customer surveillance activities while increasing data integrity and the potential value of customer insights. By discussing the need for brands to collect business and market intelligence, as well as detailing five types of customer data resources, we lay the groundwork for selecting potential customer data resources that best fit a brand's customer insight needs. We conclude with a discussion of two important considerations of a brand's customer surveillance strategy.

© 2015 Kelley School of Business, Indiana University. Published by Elsevier Inc. All rights reserved.

1. When personal data becomes secret

Advances in information technology—such as facial emotion recognition, real-time location tracking, and social media platforms—have made surveillance less obtrusive, less costly, and data rich (Bauman & Lyon, 2012; Lyon, 2007). Thus, it is

increasingly easier for brands to collect and capture personal data from customers in order to construct market intelligence databases which contain data on customers' needs, preferences, characteristics, behaviors, and other relevant attributes. However, brands must temper their need for market intelligence in order to protect valuable customer relationships. Privacy intrusions detected by customers can threaten relationships and possibly encourage customer secrecy strategies.

Customer secrecy strategies involve the intentional withholding of personal data from or providing

* Corresponding author
E-mail addresses: kirk.plangger@kcl.ac.uk (K. Plangger),
rwatson@terry.uga.edu (R. T. Watson)

misinformation to a brand (Zwick & Dholakia, 2004). Secrets are personal data that are not known to others and are not disclosed without the secret holder's knowledge (Hannah, Parent, Pitt, & Berthon, 2014). Customers convert their personal data into secrets partly to hide this information from brands conducting intrusive customer surveillance, which entails the collection, capture, use, and storage of customers' personal data (Lyon, 2007; Malhotra, Kim, & Agarwal, 2004). Thus, brands face a difficult balancing problem: they want to maintain customer relationships by limiting customer surveillance but at the same time improve a customer's experience by learning more about her.

Finding the appropriate balance between reducing customer surveillance and improving customer experiences is an important issue for senior marketing executives (Culnan & Bies, 2003). The car buyer who will not reveal details of her family size, price range, driving patterns, and so forth is going to spend a lot of time kicking tires because the assisting salesperson will be unable to narrow down potential vehicle choices. However, the car dealership that deploys a facial recognition system to identify customers as they walk into the showroom might be rejected by some individuals because they resent the intrusion. Ignorance is a poor basis for customer service, but too much knowledge can damage the relationship with the customer. Advances in information systems have changed the dynamics of customers' tolerance for marketplace espionage, yet there is little systematic analysis of customer surveillance (Bauman & Lyon, 2012; Turow, 2008).

This article advocates using surveillance prompts to structure market intelligence databases to more efficiently collect customer data and consequently reduce the need for broad customer surveillance by targeting specific customer data resources. We start by first exploring brands' data needs and strategic data orientations. Then we examine customer surveillance, discuss customer data resources, and detail customer secrecy strategies. We propose the use of surveillance prompts to aid in identifying the customer data needed to create an effective market intelligence database. Finally, we conclude with two important considerations for a brand's customer surveillance strategy.

2. Business and market intelligence

Brands of all sorts are collecting and analyzing data from a variety of sources. This can be distilled into two data categories: business intelligence and market intelligence. Business intelligence refers to data that is collected internally regarding the

manufacturing, engineering, financial, employee, sales, marketing, and other operational activities in which brands engage (McAfee & Brynjolfsson, 2012). In contrast, market intelligence refers to data that is collected externally regarding the needs, preferences, characteristics, behaviors, attitudes, and other attributes of consumers (Kohli & Jaworski, 1990). Brands that use both business and market intelligence to form strategies do better than brands that base their strategies on managerial intuition or experience (McAfee & Brynjolfsson, 2012). There is also evidence that the kind of intelligence and data analysis methods used offer different levels of value to the brand (LaValle, Lesser, Shockley, Hopkins, & Kruschwitz, 2011), which supports the general theoretical and empirical conclusions of the market orientation literature (Kirca, Jayachandran, & Bearden, 2005). Very generally, this literature theoretically advocates and empirically shows that brands that use market intelligence to inform strategy do better than those relying only on improving efficiency or business intelligence. In the following paragraphs and in Figure 1, three strategic data orientations—internal, external, and mixed—are described in terms of their use of business or market intelligence, as well as how managers use the results of these data analyses.

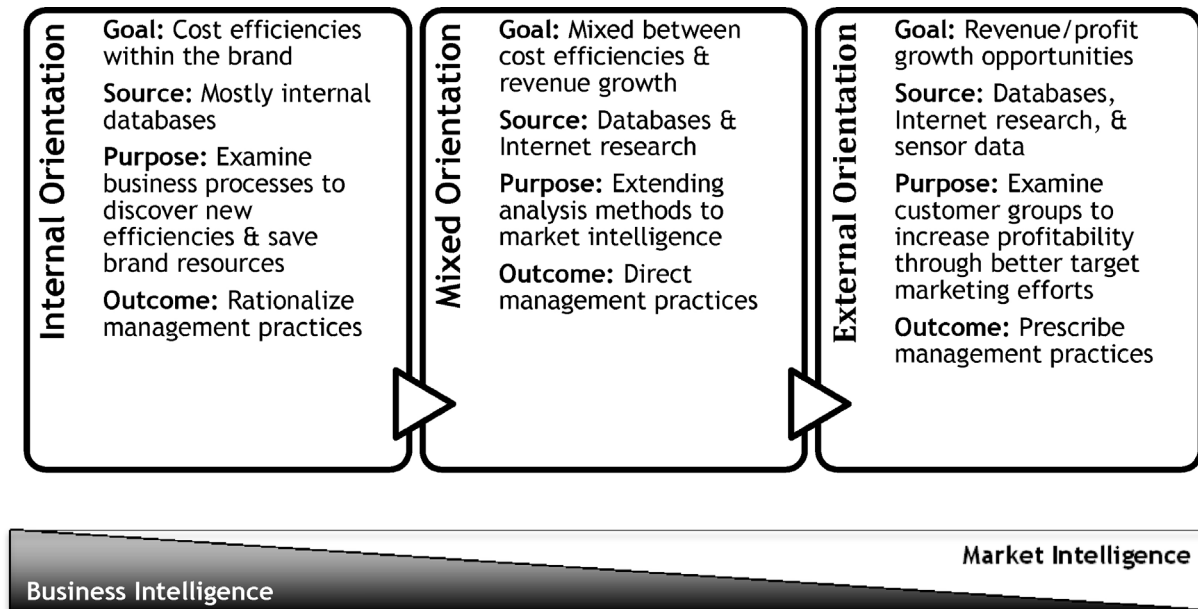
Internal data orientation describes the generation of business intelligence that is used to measure and then improve a variety of business processes, such as hiring and promotion of employees, manufacturing and production, distribution and logistics, and other daily operations (McAfee & Brynjolfsson, 2012). Business intelligence analyses often rationalize or justify management actions, strategies, and practices, but often without examining information external to the brand (LaValle et al., 2011).

External data orientation is when market intelligence is collected and analyzed to reflect on and judge the value of current products and services and to direct the future of the brand (Kohli & Jaworski, 1990). With this orientation, a brand is more likely to listen to market intelligence insights that emerge from data analyses, which could result in an incremental improvement of market offerings or a dramatic shift in what and how the brand offers its products and services to customers (LaValle et al., 2011).

A mixed data orientation melds business and market intelligence and analyzes them jointly to guide management actions and practice, although radical change is unlikely since market intelligence has not been fully embraced (LaValle et al., 2011).

The consumer shipping industry illustrates how these corporate data orientations bring value to

Figure 1. Strategic data orientations



brands. In an effort to ‘modernize,’ Canada Post has cut some of its basic consumer services (e.g., door-to-door delivery, 5-day delivery, closing of owned post offices in favor of franchises) that are key to the value it offers customers, while concurrently raising prices (Ha, 2014). This increases the operational efficiency of Canada Post but reduces the value of its service to customers. Thus, the brand may have missed out on potential growth opportunities by relying only on business intelligence.

In contrast, United Parcel Service (UPS) recognizes that customers value the reliability and speed of its service, and thus uses business intelligence to predict optimal maintenance for its fleet of 90,000 vehicles. Breakdowns cause significant trouble for the company in terms of delivery and pickup delays, so UPS must ensure high availability of its fleet to protect its customer value proposition. Instead of a costly regular maintenance regime that replaces some parts that are working fine, sensors monitor vehicle performance and data analysis detects when to pull the vehicle into the shop for repair (Watson, Boudreau, Li, & Levis, 2010). This switch to condition-based maintenance saves UPS considerable resources, but it does not consider marketing intelligence in a radical fashion that might transform the service it provides customers.

In December 2013, Amazon announced it is beta-testing a new drone delivery service, Prime Air, that delivers small parcels directly to customers from its warehouse. Amazon hopes it will be launched within 5 years. The idea for Prime Air surfaced from

customer feedback requesting quicker delivery for urgent purchases. Once fully operational, this service promises to deliver packages within 30 minutes of an order being placed, thus satisfying the needs of a customer segment that no other consumer shipper has yet met (Trotman, 2014).

In short, some brands closely examine their internal data (e.g., manufacturing, employees, suppliers’ databases) to become more efficient and save corporate resources, and some have also been collecting customer data (e.g., purchase data) to better understand customer needs. However, in many cases, brands have not realized the potential value of market intelligence and thus have overlooked it as a source of value. Market intelligence is a source of value, however, only when customers tolerate customer surveillance. Therefore, we critically explore customer surveillance in the next section.

3. Customer surveillance

Many brands have invested heavily in computerizing their data capture and processing infrastructures, thus making customer surveillance activities more powerful and less visible (Blattberg & Deighton, 1991; Turow, 2008). Since the 1980s, brands have set up large databases of customers’ personal data or customer relationship management (CRM) systems, and these databases have become a central part of marketing operations for many brands across

Table 1. Types of customer data resources

Data Resource	Customer Data Captured	Examples of Customer Surveillance Methods
Basket	Detailed purchase data (restricted to a brand or a network of brands)	Loyalty programs, grocery store cards, frequent flyer programs
Financial	Basic purchase data (unrestricted)	Credit and debit cards
Spatial	Physical location data	GPS, RFID, Foursquare, OnStar, Yelp, credit cards
Journal	Video or audio record, Web tracking activity data	In-store CCTV cameras, telephone recording systems, DoubleClick, comScore
Network	Social media data (e.g., events, pictures, status, posts)	Facebook, Flickr, LinkedIn, Yelp, Foursquare

a wide variety of industries (Blattberg & Deighton, 1991; Piccoli, Brohman, Watson, & Parasuraman, 2009; Piccoli & Watson, 2008).

There are five major types of customer data resources: basket, financial, spatial, journal, and network. Each resource captures a different set of personal data from customers and often utilizes different methods (see Table 1).

Basket data consists of the specific content of customers' purchases in a brand or a network of brands. Basic basket data can be collected at the point of sale, but more detailed customer surveillance might be tolerated in return for tangible benefits (e.g., discounts at the point of sale, points redeemable for larger prizes, targeted coupons) that may be tailored to the needs and interests of the customer. This data type is often found in loyalty programs, where the objective is to increase stickiness to a specific brand or network of brands by raising the switching and opportunity costs of patronizing other brands (Lyon, 2007; Turow, 2008). The discounts, rewards, points, and recognition that a customer accumulates is aimed at increasing the repurchase frequency with the brand or a network of brands operating a loyalty program. Brands that are members of large loyalty programs, such as the airline alliances, may be privy to vast databases of customers' purchase behavior across multiple brands. Whether or not a brand has a loyalty program, it can capture basket data and use it, for example, to improve the selection and placement of products to encourage repeat and impulse purchases, attempt to increase the basket size or value of its contents, evaluate marketing campaigns, or refine marketing strategies to appeal to niche markets (Blattberg & Deighton, 1991; Turow, 2008).

Financial data capture the purchase value—and often location—associated with payment of goods received when a customer uses a credit card, debit card, or online payment service (e.g., PayPal, Google Wallet). This type is similar to basket data in that both

types collect and capture transaction data; however, the exact purchase details might not be revealed with financial data. Financial data capture a wider scope of customer data since they are not limited to a specific loyalty network and record data every time a payment is used. Thus, financial brands, and also purchasers of their databases, can gain a more holistic view of the purchase behavior of a specific customer and groups of customers, though such a view is often incomplete because customers may use a variety of financial services and cash (Brohman, Watson, Piccoli, & Parasuraman, 2003). Nevertheless, such data potentially aid and refine marketing efforts and foster collaboration among brands.

Spatial data capture customers' physical location (Junglas & Watson, 2008). These data use location-tracking technologies such as Radio Frequency Identification (RFID), Bluetooth, or Global Positioning Systems (GPS) to track consumer movements in real time and space. These tracking technologies are currently built into many mobile phones, automobiles, and even some shopping carts. Location tracking may be within the confines of a specific store or brand of store, for example, using RFID technology; alternatively, it may track movements of customers nearly anywhere using Bluetooth or GPS technology contained in the electronic devices customers use on a daily basis.

Journal data capture audio, video, or Web-tracking records of customer behavior (Lyon, 2007; Turow, 2008). These may assist brands in, for example, improving store layouts by using CCTV video recordings of the paths customers take when shopping in a store, improve customer experiences by using audio recordings of customer service inquiries on a brand's customer hotline, or improve the visitor's experience of a website.

Network data collect and capture customers' social interactions and activities using social networking sites that include, for example, pictures, events, 'likes,' and friend or colleague

networks (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011; Parent, Plangger, & Bal, 2011). Because of this social content, network data may provide additional insights into consumption behavior, including the potential motivation behind purchase decisions (Bauman & Lyon, 2012). For example, network data could be used to produce marketing promotions tailored to special events in a customer's life (e.g., friend's birthday, sister's pregnancy) or to provide a friend's consumption information (e.g., book, song, film) to influence a gift purchase.

Together, these five customer data resources describe the major types of data that are potentially captured and collected by brands using various customer surveillance methods. Now that the variety of customer data is described, we consider the impact on customer relationships and specifically discuss customer secrecy strategies employed when a customer experiences a privacy threat.

4. Customer personal information and secrecy strategies

Brands have a competitive need to engage in customer surveillance to collect market intelligence, but the collection of customer data may breed mistrust among customers and some consumer privacy protection groups (Lyon, 2007; Turow, 2008). When a brand requests personal data, customers may consider the tradeoff between the loss of personal privacy and the gain or benefit from a desired service (Culnan & Bies, 2003). For example, the cancer sufferer will disclose much private data in return for a possible cure. The cautious car dealership visitor, however, might not even want to reveal his name. In some situations, customers often expect to provide personal data (Bauman & Lyon, 2012; Kietzmann et al., 2011). When applying for a credit card, financial services brands often ask for customer data that is outside of what is required to check the financial health of applicants. These brands request such customer data to form a more complete picture of customers before the new cardholder even starts using the credit card, which produces a more valuable customer data resource to financial services brands and potential third-party brands.

Although creating valuable customer resources seems attractive, brands need to consider customers' privacy costs when disclosing personal data in order to prevent damage to customer relationships (Berry & Linoff, 2004). Personal data are typically deemed private when they are highly central or intimate to a customer. *Centrality* refers to how

close a specific piece of personal data is to an individual's self-concept, such as birth date, sexual orientation, relationship status, address, and financial and health information (Marshall, 1972). *Intimacy* reflects the closeness of relationship with the person or group receiving the personal data (Marshall, 1972). Thus, the centrality of personal data combined with the level of intimacy between the data provider and the receiver dictates the sensitivity of a piece of personal data and outlines the potential privacy costs. A person will likely willingly reveal more to her personal physician or a trusted personal friend than a casual acquaintance.

Customers can have intimate relationships with brands they interact with on a regular basis (Fournier, 1998), and may feel that personal data provided to these brands are not truly private due to the nature of their relationship and the level of centrality of data requested. For example, Apple's iTunes service requests credit card data before any purchase. Credit card data are arguably considered quite central personal data due to the risks associated with identity theft and fraud. Customers that provide this personal data prior to a transaction must feel that their relationship with Apple is intimate enough to reduce the privacy cost. However, if customers feel that their personal information privacy is threatened, they may use secrecy strategies (Zwick & Dholakia, 2004).

Customers turn to secrecy strategies in order to limit the amount and the accuracy of personal data disclosed (Zwick & Dholakia, 2004). For instance, some retail clothing brands ask for customers' zip codes at the point of purchase. If customers consider such data private, they may either refuse to disclose it or purposely give a wrong code. Missing and misleading data can confuse data analysts and reduce the effectiveness of future marketing efforts. Thus, these retail brands should consider the purpose of collecting this specific data, the consequences of low data integrity, and the reasons behind the customer motivation to deceive. In some cases, customers may actively avoid the retailer because of the perceived privacy threat. Brands need to reflect thoughtfully on their customer surveillance activities to avoid damaging customer relationships and reducing customer secrecy strategies.

5. Rethinking market intelligence

In designing market intelligence databases, managers need to carefully select which customer data to collect and capture as opposed to collecting and capturing all possible customer data. This section proposes a market intelligence framework that

Table 2. Surveillance prompts

Prompt	Data Example	Potential Data Resource
When?	January 3, 2015, at 10:12am	Basket data
Where?	150 Stamford Street, Fresno, CA	
What?	2 black coffees & 2 croissants	
How?	VISA Debit card number	
Who?	Brand Loyalty card number	
Why?	Facebook check in with a friend	Network data
Outcome?	Revenue of \$6.50	Basket data

selects customer data resources to seek answers to fundamental questions, or surveillance prompts, that brand managers have about customers' characteristics, needs, preferences, behaviors, and other attributes. A data orientation is appropriate for designing a multidimensional framework for a market intelligence database. Based on the hypercube, multidimensional databases categorize data as either *facts* (i.e., discrete data points) or *dimensions* (i.e., groups that describe the facts; Thomsen, 1997; Watson, 2013).

Using a set of questions or generic prompts—i.e., when, where, what, how, who, outcome (Thomsen, 1997)—is a common multidimensional database design tool. In the context of market intelligence, these surveillance prompts store discrete customer facts collected and captured by customer surveillance activities (see Table 2). The question of motivation (i.e., why) was missing from Thomsen's original list, but has been added here to make seven core dimensions. These basic surveillance prompts are independent of customer surveillance technologies or customer data resources, as data could be gathered using a variety or a combination of technologies or resources to answer a prompt. All in all, this framework is appropriate in the current and also future technological environments.

Many of these surveillance prompts can be answered with routine basket data, as is illustrated by the coffee shop example in Table 2. To add further depth and aid understanding, basket data could be augmented using additional sensors to extract supplementary and perhaps more precise data. For example, facial recognition software could be used to estimate the age and gender of the customer, or even their affective state or attitude toward aspects of the service experience.

Even aided by additional sensor technology, basket data provides limited understanding of customer behavior and motivation. These customer insights have been difficult to obtain without directly surveying customers. Even when customers are asked why they did something or their motivation for an

action, they may respond with bias due to social desirability, expectations, or the like; sometimes, they may not know or explicitly understand themselves. Network data is a possible solution to these problems because social media sources can potentially provide clues to purchase motivation. Some customers openly discuss their needs and desires in forums, seek advice from others, check in to locations with their friends, and discuss shortcomings of currently owned products. Network data can be mined to identify possible motivators and married with other data to paint a more complete and detailed picture of customers (Bauman & Lyon, 2012; Kietzmann et al., 2011). Of course, this requires that the retailer be able to uniquely identify the buyer—through a store account, loyalty program, or credit card—and use this identity to collect network data from social media platforms.

Market intelligence database designers cannot possibly anticipate all the potential questions that managers may need to ask of the data. To overcome this, surveillance prompts inform the selection of appropriate customer data resources so a wide range of customer insights can be gained (Watson, 2013). Data-capturing technologies, combined with the revelatory nature of social media, allow the data resources to collect answers to these surveillance prompts in a single repository: a market intelligence database. We now examine the surveillance prompts individually, outlining some examples of current technologies that collect relevant customer data.

The *when* prompt tries to uncover the temporal nature of customer behavior by understanding the frequency, time, and/or date of customer activity. Temporal data could easily be collected from basket or financial data that is generated when a customer makes a purchase. Firms may seek to evaluate a loyalty or promotional campaign's effectiveness by comparing the before-and-after purchase frequency of loyal customers. In addition, they can better plan schedules of customer service staff and other firm resources to save money and increase customer satisfaction.

Capturing the *where* prompt involves obtaining data on the physical or virtual location of customer activities that are well suited to spatial and journal data resources. A retail brand might collect spatial data by using GPS, RFID tags, or other spatial tracking technologies to trace the journey of customers when shopping in a physical store. Brands could capture journal data by using audio, video, or Web-tracking recordings of customer activities both offline and online. Used aggregately, these data can potentially aid brands in better designing more profitable retail experiences—for example, by placing frequently purchased items in more inconvenient areas to encourage customer exploration of the retail environment—or to anticipate customer needs.

It is essential that brands collect *what* information to manage inventory stocks and effectuate increased sales. Through this data collection, firms can determine which products and services are popular and which offerings are frequently bought (or not bought) together. For example, retail brands can mine basket data for customer insights regarding how they might change the design of their stores to encourage the impulse buying of products or services. Other firms may see these customer insights as an opportunity for price or promotion innovation. The *outcome* prompt can easily be answered using basket or financial data and can help to assess the profitability of marketing strategies.

The *how* prompt aids in understanding customers' preferred methods of activity, including shopping orientations, payment type choices, and other potential customer (dis)satisfaction points. Given these insights, brands might seek to heighten the shopping experience by strategically increasing or changing payment points/methods or by developing a better store/website layout to facilitate shopping ease. Other brands may use these customer insights to reform business processes that are important for customer satisfaction, such as changing payment terms to reflect customer preferences and developing more impactful in-store or online advertising.

The *who* prompt can be used to create unique customer profiles that might include characteristics such as interests, demographics, psychographics, memberships, and links to other customers. These data could be collected via surveys when customers sign up for loyalty programs or credit cards so that customers are identified from basket or financial data, or potentially captured from network data resources. Using network data, customer data can be captured from social media platforms and mined to discover groups of customers that share certain attributes. These customer groupings can aid micro-segmentation efforts that can be used, among

other things, to increase the persuasiveness of marketing promotional messages and campaigns by tailoring the message to speak to specific customers' interests, opinions, and values. Brands also could utilize these customer insights to build a more advanced repertoire with customers that potentially enhances or creates intimate customer relationships.

Finally, the *why* prompt determines the reasons or motivations that customers interact with and provide patronage to brands. In contrast to the other prompts, customer motivations may need to be derived from context. These motivations might sometimes become explicitly evident in network data, as customers often comment on an experience with a particular brand using social media or they may reveal their motivations in journal data or in recorded audio conversations with a brand representative on a customer service telephone call. These customer insights have the potential to improve sales attempts, service recovery efforts, and service delivery.

In short, the surveillance prompts provide the basic building blocks for an efficient market intelligence database that guides brands to purposely collect and capture data, even if a specific question about a customer has not yet been identified. Customer surveillance technologies collect and capture discrete data points or the facts, and together these facts make up a market intelligence database that can provide customer insights, such as the needs, preferences, characteristics, behaviors, attitudes, and other attributes of customers. The next section presents two important considerations when deciding a brand's strategy for customer surveillance.

6. Whither customer surveillance?

Opportunities for customer surveillance will likely increase significantly over the next decade due to continued development of the Internet of Things, wearable computing, and sensor technology. For example, the smartphone app provider for a wearable exercise monitor or smartwatch might well know more about the state of a person's health than her doctor. Such smartphone apps are often in a grey zone with respect to health records privacy legislation. How can enterprises prepare for this emerging deluge of customer data?

6.1. Insulate against competitive innovations with market intelligence

A key challenge facing many brands entails avoiding the innovation wasteland (Child, 1987). Most have

no choice but to continually improve upon their products and services, and at a pace exceeding the competition. The creative destruction of the cellphone market in recent years has demonstrated the disruptiveness of invention. Brands therefore must be innovative in learning about their customers. They need to be scanning new information technologies to determine which of the surveillance prompts technology can capture. For example, casinos have inserted RFID chips in gambling chips to track who gambled what, when, where, and the outcome (Piccoli & Watson, 2008). Once brands realize what new data can be captured, they must assess how they can convert these data into actionable information. To drive ongoing improvement, they must continually discover how to create information by merging and processing real-time data streams from multiple sources (Piccoli & Pigni, 2013).

6.2. Reduce customer secrecy strategies to improve market intelligence integrity

To reduce customer secrecy strategies, customers need to feel secure in disclosing personal data and realize the positive consequences of data sharing with certain brands. Thus, brands might switch from furtive customer surveillance to voluntary customer disclosure by demonstrating the value customers can gain from divulging certain data. This does not mean that brands should forego the collection of high-integrity data resulting from transactions with customers. Customers understand that this is a necessary element of business, and many appreciate databases that tally and report patronage points. It is the unobtrusive but perceptively intrusive surveillance that probably concerns most customers (e.g., using facial recognition to identify and track a shopper unknowingly). Furthermore, such technology is not 100% accurate and thus can lower the quality of business analytics. When customers willingly disclose in anticipation of tangible benefits (e.g., advanced information, discounts, improved convenience), data integrity is likely to be higher and the customer relationship maintained, if not enhanced.

Humans have long realized that secrecy is the foundation of privacy, but secrets gain value through sharing, sometimes by attracting financial rewards or creating beneficial relationships. People share secrets when the payoff is worthwhile and they trust the other party. By overplaying the intrusive hand of information technologies (e.g., facial recognition) to increase customer surveillance, brands might force consumers to see secrecy as the only

means of protecting their privacy. Consequently, both parties will lose. The customer will lose a chance to teach the brand what she wants, and the brand will lose an opportunity to serve an unknown need. A thoughtfully designed market intelligence program structured by the surveillance prompts can have its cake (better customer data) and eat it too (stronger customer relationships) by enticing customers to disclose their personal data.

References

- Bauman, Z., & Lyon, D. (2012). *Liquid surveillance: A conversation*. Hoboken, NJ: John Wiley & Sons.
- Berry, M. J., & Linoff, G. S. (2004). *Data mining techniques: For marketing, sales, and customer relationship management*. Hoboken, NJ: John Wiley & Sons.
- Blattberg, R. C., & Deighton, J. (1991). Interactive marketing: Exploiting the age of addressability. *Sloan Management Review*, 33(1), 5–14.
- Brohman, M. K., Watson, R. T., Piccoli, G., & Parasuraman, A. (2003). Data completeness: A key to effective net-based customer service systems. *Communications of the ACM*, 46(6), 47–51.
- Child, J. (1987). Information technology, organizations, and the response to strategic challenges. *California Management Review*, 30(1), 33–50.
- Culnan, M. J., & Bies, R. J. (2003). Consumer privacy: Balancing economic and justice considerations. *Journal of Social Issues*, 59(2), 323–342.
- Fournier, S. (1998). Consumers and their brands: Developing relationship theory in consumer research. *Journal of Consumer Research*, 24(4), 343–353.
- Ha, T. T. (2014, October 20). Canada Post rolls out first wave of door-to-door delivery cuts. *The Globe and Mail*. Available at <http://www.theglobeandmail.com/news/national/canada-post-rolls-out-first-wave-of-door-to-door-delivery-cuts/article-21167673/>
- Hannah, D., Parent, M., Pitt, L., & Berthon, P. (2014). It's a secret: Marketing value and the denial of availability. *Business Horizons*, 57(1), 49–59.
- Junglas, I. A., & Watson, R. T. (2008). Location-based services. *Communications of the ACM*, 51(3), 65–69.
- Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, 54(3), 241–251.
- Kirca, A. H., Jayachandran, S., & Bearden, W. O. (2005). Market orientation: A meta-analytic review and assessment of its antecedents and impact on performance. *Journal of Marketing*, 69(2), 24–41.
- Kohli, A. K., & Jaworski, B. J. (1990). Market orientation: The construct, research propositions, and managerial implications. *Journal of Marketing*, 54(2), 1–18.
- LaValle, S., Lesser, E., Shockey, R., Hopkins, M. S., & Kruschwitz, N. (2011). Big data, analytics and the path from insights to value. *MIT Sloan Management Review*, 52(2), 21–31.
- Lyon, D. (2007). *Surveillance studies: An overview*. Cambridge: Polity.
- Malhotra, N. K., Kim, S. S., & Agarwal, J. (2004). Internet users' information privacy concerns (IUIPC): The construct, the scale, and a causal model. *Information Systems Research*, 15(4), 336–355.

- Marshall, N. J. (1972). Privacy and environment. *Human Ecology*, 1(2), 93–110.
- McAfee, A., & Brynjolfsson, E. (2012). Big data: The management revolution. *Harvard Business Review*, 90(10), 60–68.
- Parent, M., Plangger, K., & Bal, A. (2011). The new WTP: Willingness to participate. *Business Horizons*, 54(3), 219–229.
- Piccoli, G., Brohman, M. K., Watson, R. T., & Parasuraman, A. (2009). Process completeness: Strategies for aligning service systems with customers' service needs. *Business Horizons*, 52(4), 367–376.
- Piccoli, G., & Pigni, F. (2013). Harvesting external data: The potential of digital data streams. *MIS Quarterly Executive*, 12(1), 143–154.
- Piccoli, G., & Watson, R. T. (2008). Profit from customer data by identifying strategic opportunities and adopting the “born digital” approach. *MIS Quarterly Executive*, 7(3), 113–122.
- Thomsen, E. (1997). *OLAP solutions: Building multidimensional information systems*. New York: Wiley.
- Trotman, A. (2014, December 9). Amazon threatens US government over drone testing. *The Telegraph*. Available at <http://www.telegraph.co.uk/finance/newsbysector/mediatechnologyandtelecoms/electronics/11281531/Amazon-threatens-US-government-over-drone-testing.html>
- Turow, J. (2008). *Niche envy: Marketing discrimination in the digital age*. Boston: MIT Press Books.
- Watson, R. T. (2013). *Data management: Databases and organizations* (6th ed.). Athens, GA: eGreen Press.
- Watson, R. T., Boudreau, M.-C., Li, S., & Levis, J. (2010). Telematics at UPS: En route to Energy Informatics. *MIS Quarterly Executive*, 9(1), 1–11.
- Zwick, D., & Dholakia, N. (2004). Whose identity is it anyway? Consumer representation in the age of database marketing. *Journal of Macromarketing*, 24(1), 31–43.