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PROFITING FROM CUSTOMER DATA: A PROPOSED RESEARCH AGENDA

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Abstract

The unprecedented volume of data captured by modern hospitality firms during the co-production of the service experience can be used to create economic value. In this article we describe two frameworks grounded in the cross-disciplinary literature in information systems, strategy and marketing, that can help in conceptualizing future research directions in this area.

In the first framework, the IS cycle describes the process by which data, generated by transaction processing systems, become the basis for future analyses and initiatives. The second framework enables a disciplined industry analysis by allowing for joint evaluation of the theoretical repurchase rate, degree of customizability of products and services, and degree of unobtrusive data capture that characterizes a given firm's value proposition.

This paper focuses on setting the theoretical framework of reference. A discussion of future research directions and propositions is reserved for the conference presentation due to space limitations.

1   DATA RICH AND SERVICE POOR

Because of the Internet, most data are born digital and firms are gathering large volumes of data in their every minute transactions. This is particularly common for hospitality and tourism firms that engage in co-production of the service experience with their customers. While many recognize that customer data and information are critical to business success (Brohman, et al. 2003; Watson, et al. 2004; Watson, et al. 2005), too often these vast data stores are underutilized or exploited ineffectively. Many firms are adept at using information systems to collect data but inept at using these data to create superior customer service.

Businesses recognized that data are a crucial organizational resource alongside capital and human resources (Glazer 1991; Glazer 1999; Grover & Ramanlal 1999). Firms know that customer-relationship management (CRM) and business intelligence (BI) applications can enable the competitive use of business data (Goodhue et al. 2002; Wixom & Watson 2001). For example, hotel companies that manage large resorts with services such as spas, athletic facilities, shops, restaurants, and outdoor activities, can gather valuable data about customer interests and preferences, which can then be used to make decisions about who should receive promotional offers and when to send them. If occupancy is low at one of the golf resorts in the firm's portfolio of properties, for instance, a tailored offer could be delivered to golf-oriented customers. This simple example highlights how customer data can help an operation target its marketing offers and elevate its message above the noise produced by typical broad-brush offers that most guests receives. However, companies lack a simple and compelling model for matching service strategy and information analytics, and sparse rigorous empirical research exists in this area.

2   THE INFORMATION SYSTEM CYCLE

Business data are typically generated by transaction processing systems (TPSs). These include slot machines in a casino, restaurant POSs, and call-accounting systems in hotels. TPSs are developed to support the business's daily operations, but as a side benefit, they capture information about the business's customers.

A critical insight, often overlooked despite its disarming intuitiveness, is that the data generated by a TPS during the natural course of business often have value beyond the completion of the fundamental business transaction. The Information Systems Cycle (Figure 1). shows how transactional data, if properly stored and analyzed, can provide insights for new business systems.
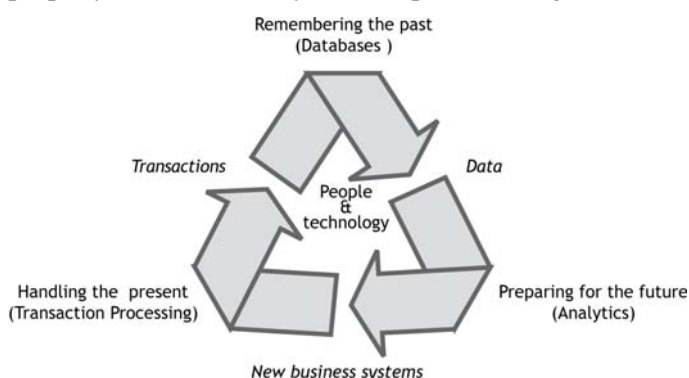

Figure 1. The Information Systems Cycle (Watson, 2006)

An organization's information systems and technologies are linked in a cycle. Transaction process systems handle the routine ongoing business of the firm. These systems handle the present. They process airline reservations, track parcels, accept orders, report inventory levels, update time sheets, and perform the myriad of automated processes necessary for a firm to meet the minute by minute needs of customers and other stakeholders.

Transactions are data driven (e.g., a customer entering a name, address, and credit card details) and data generating (e.g., a flight booked, a seat allocated, and an amount billed). All these data must be remembered, or the firm will soon be out of business. Thus a firm's databases are a record of the past, the history of the organization and its interaction with those with whom it conducts business. Analysts using a variety of software can convert these data into information. Importantly, in our context, analysis of

past transactions can provide insights into how to recruit new customers, reward loyal customers, or personalize interactions with key customers. In addition, analytic software can also assist in identifying new systems for automating other interaction with customers. The entire cycle is driven by people using technology (e.g., a customer booking a hotel room via a Web browser).

Despite recognizing that data have considerable potential value, managers with whom we've spoken point to the difficulties of deciding how to use those data and in making the business case for initiatives that employ the available information. The difficulty of deciding how the data can be used all too often freezes firms in the first step of the IS cycle. Nevertheless, examples abound of enterprises that have successfully harnessed the business information cycle to their benefit.

Harrah's Entertainment has received much publicity for its initiatives that involve using data about customers' gambling behavior, mostly captured from slot machines, to predict customers' lifetime value and to better allocate the marketing budget (Lal & Carrolo 2002). Darden Restaurants and Marriott International have also received attention for their ability to compete on analytics and their efforts to drive value from the wealth of data they accumulate during business operations (Davenport 2006).

Examples, however, can only go so far in helping researchers and managers decide where to focus their attention.

3 REPURCHASE AND CUSTOMIZABILITY: THE DIMENSIONS OF DECISION MAKING

Profit-oriented enterprises frequently fashion their entire strategy around recruiting new customers (i.e., increasing market share), retaining current customers and enticing them to do more business with the firm (i.e., gaining a greater share of the customer). Whether a company should focus on recruitment or retention is mainly determined by an industry's potential repurchase frequency.

3.1 Potential repurchase frequency

Potential repurchase frequency represents the regularity with which the average customer acquires goods and services offered by the firms in the industry or segment of interest. This measure is concerned with the potential for high repurchase frequency, not with the actual repurchase rates any specific firm is experiencing – hence the use of the term *potential* repurchase frequency. If a firm in an industry characterized by high potential repurchase frequency has very few returning customers, this is a signal that the company is missing an opportunity.

Imagine going to a McDonald's in your neighborhood and finding it dirty and painfully slow in service. If this state of affairs is not quickly rectified, you most likely will not return to the same store. However, it is unlikely that you will stop patronizing fast food restaurants. More likely, you'll shift your demand to a clean store with fast service. The critical intuition here is that theoretical repurchase frequency is a function of a firm's industry and the characteristics of the product or services it offers. It is not determined by how well any given firm is fulfilling the value proposition to its customers.

Destination spas (Piccoli & Applegate 2004) and cruise lines (Kwortnik et al. 2005) are example of hospitality and leisure operations characterized by a medium or low potential repurchase frequency. Resorts in distant exclusive fly-in destinations such as the Outriggers Hotels and Resorts properties (Piccoli 2005) are also in this category.

In essence, firms in industries with low potential repurchase frequency may need to focus their efforts on recruitment because in most cases customers seldom make purchases. Those firms in high theoretical repurchase frequency industries may need to pay considerable attention to customer retention, in which case they need to decide when to focus on loyalty systems or customization.

3.2   Customizability

Degree of customizability represents the extent to which the product or service the firm offers can be tailored to the specific needs and requirements of individual customers or a segment of customers. This dimension is a function of the complexity of the product or service being offered. Gasoline, like most commodities, is an obvious example of a product with a very low degree of customizability. Airline service, creative attempts by some innovative firms like Virgin notwithstanding, represents another example of a service with limited degree of customizability. After all, what the airline offers to most of its customers is a seat on a plane that gets them from point A to point B. Of course, this simplistic view of airline service can be challenged if we define the product being offered in terms of transportation, or reliable transportation. Yet, the success of low cost airlines seems to suggest that price is a key driver of the customer airline purchase decision thus leading us to conclude that differentiation is very hard in this commodity-like industry.

If some debate can be had about the degree of customizability of airline service, it is quite clear that there are industries that offer highly customizable products and services. Large resorts and destination spas are a perfect example. For example, Canyon Ranch, the leading luxury destination spa in the US, offers upwards of 230 paid spa and health and healing services ranging from the most exotic massage and therapeutic services to medical procedures and lab tests worthy of the most advanced hospitals in the country. Canyon Ranch also offers countless free fitness classes, wellness and self-improvement lectures, and outdoor activities. It is this staggering array of options that allows every Canyon Ranch guest to "experience a different Canyon Ranch" as the firm is fond of saying. Moreover, each of the services offered can further be tailored to the unique needs of the guest by changing lighting, music, scent, intensity, and so on. Cruise lines represent another example of an industry selling highly customizable products.

4   A TAXONOMY OF CUSTOMER DATA STRATEGIES

When taking into account the characteristics of the industry in which a given firm competes, and the product and services that it offers, the decision matrix (Figure 2) enables simultaneous consideration of the two critical dimensions identified previously and can be used to find a matching customer service strategy.
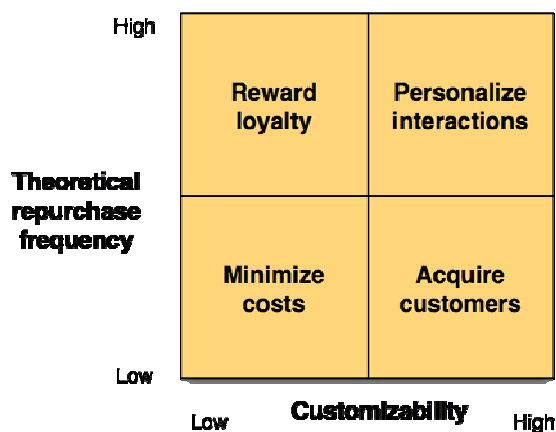

Figure 2. Customer Data Strategies

A firm may or may not fit neatly into one the matrix's four quadrants. Yet, this matrix will aid in the evaluation of the advantages and disadvantages of each general strategy and, more importantly, the natural fit of each of the four approaches to the firm's characteristics.

4.1   Minimize costs

When there is little likelihood of repeat business and few options for customization, then the firm should focus on minimizing costs. Transactions should be efficient and uneventful. The customer is served at minimum cost and neither party expects to have a future encounter.

There seems to be little potential for crafting a strategy around customer data. This is because very little data will likely be generated and managers' hands are tied with respect to what they can do with it. A chain of budget or limited service tourist hotels in an exclusive fly-in destination (e.g., Hawaii, Fiji) offers an apt example. Mid-scale hotels in these locations are generally a "window on an experience" rather than the experience itself and their value proposition is to offer guests an affordable opportunity to experience a great location. Because

of the time commitment and cost of reaching these destinations repurchase is relatively infrequent. Under these conditions the firm is better off focusing on efficiency and low prices.

Data collection and analysis should be aimed at finding ways to reduce costs. Cost allocation and reporting systems will help the firm fine-tune its revenue management.

4.2 Personalize interactions

A typical service personalization or product customization strategy is most appropriate for firms competing in industries characterized by both a high theoretical repurchase frequency and a high degree of customizability. Under these conditions the potential is there to collect significant individual level data because of the repeated interactions the firm has with its returning customers. Moreover, because of the high degree of customization management has many opportunities to use this information to tailor the product or service to the specific needs – learned or inferred – of the returning customers. Thus the firm can use the information to modify its operations and differentiate its product or services.

The Ritz Carlton, with its use of the CLASS system, has provided a prime example of this strategy over the years (Sasser et al. 1994). Event planning may also be a good example of an industry that fits in this quadrant – particularly those firms that work closely with customers who need the organization of many recurrent events (e.g., large investment banks).

4.3 Reward loyalty

A rewards strategy is predicated on the notion that the firm's product and service will be purchased frequently but these same products are fairly standardized and it is difficult for the organization's managers to tailor them to specific customer requests. Under these circumstances the firm can use customer data to evaluate the profitability of each customer – actual and potential – and use this information to reward behavior in an effort to increase customer loyalty or boost share of wallet (i.e., make sure that customers consolidate their purchase behavior in the industry by sourcing from the company rather than competitors).

The firm can also use the individual level data collected to generate accurate reports and improve its operations (e.g., grocery stores performing basket analyses). Note that this means understanding customer profitability as well as their propensity to repurchase without incentive – a strategy much more complex and sophisticated than the "buy nine coffee cups and receive the tenth one free" that many firms seem to settle for. The passenger air transportation industry is a classic example for this quadrant.

4.4 Acquire customers

Much conventional thinking about strategies based on customer data seems to imply that when an industry has little potential for repurchase (i.e., low theoretical repurchase frequency) customer data is not worth using. This could not be further from the truth. Even in the face of low theoretical repurchase frequency, a firm in an industry with a high degree of customization may benefit from an acquisition strategy.

Following this approach the firm collects exhaustive data about its current customers in an effort to profile them and develop predictive models to identify and attract new profitable customers while avoiding non-profitable and marginal ones. The availability of such deep business intelligence becomes all the more important during slow periods when marketing budgets get slashed and efficiency in attracting new profitable customers becomes paramount. A good example of an industry that falls in this quadrant is the wedding reception business – an industry offering highly customizable products but typically enjoying low repurchase frequency.

4.5 A comprehensive strategy

It is important to note that while we can argue that every business has both very recurrent and very rare customers, it is hard to unequivocally fit a firm in a quadrant. Thus, the use of the potential repurchase frequency dimensions is important because, under resource constraint, a business cannot be all things to all people and the various programs generally have high fixed costs. So the potential for payoff needs to be looked at over the entire customer base (or a large proportion of it) so that the fixed cost can be spread amongst a large number of customers. In other words, there is no point in doing significant personalization (creating the systems and processes of training people, and so on) unless the personalization strategy can yield a return by being valued by a large number of customers or a limited percentage of customers who account for the majority of the firm's profits.

5 THE CENTRAL ROLE OF INFORMATION SYSTEMS

As suggested by the IS cycle, it is the firm's information systems that enable it to collect data, analyze data to create information, and act to meet strategic goals. The strategic initiatives described previously are predicated on the organization's ability to capture the needed data. Given the potential difficulties and the cost associated with using customer data, it is imperative to evaluate how difficult it will be to collect, store, process and distribute the needed data during strategic planning and information systems design. While proposed initiatives must be evaluated individually, it can be useful to think about this dimension early on during the industry analysis to evaluate how amenable the firm's operations are to the implementation of customer data strategies.

The degree of unobtrusive data capture indicates the extent to which, in the normal course of business, customer data is collected and stored in a readily usable format. For example, hotels rely heavily on customer satisfaction and check-out surveys. But such surveys require that guests take time out of their busy schedule to complete them.

Compare this example with the natural course of business in modern cruise lines. In the mid 1990s cruise operators began to move away from cash onboard, to the use of magnetic strip cards (Kwortnik et al. 2005). Ironically, the elimination of cash on cruise ships was driven by a typical transaction oriented focus: control theft and increase the efficiency of onboard operations. Yet, this shift introduced a similar highly accurate data collection infrastructure and its main benefit in the long run may very well be its unobtrusive data collection potential.

The simple examples above show that some organizations are highly constrained when it comes to gathering customer data. In other contexts firms have access to significant high-quality data and can leverage it to support one of the strategies mentioned above. While the degree of unobtrusive data

Figure 3. The role of Information Systems

capture for a firm is largely known at any point in time, technology improvements and innovation may pay off for those firms that are willing to shoulder the cost of changing people's habits. This is particularly fertile ground in the hospitality industry where customers are eager to provide significant personal information in order to improve the service they receive.
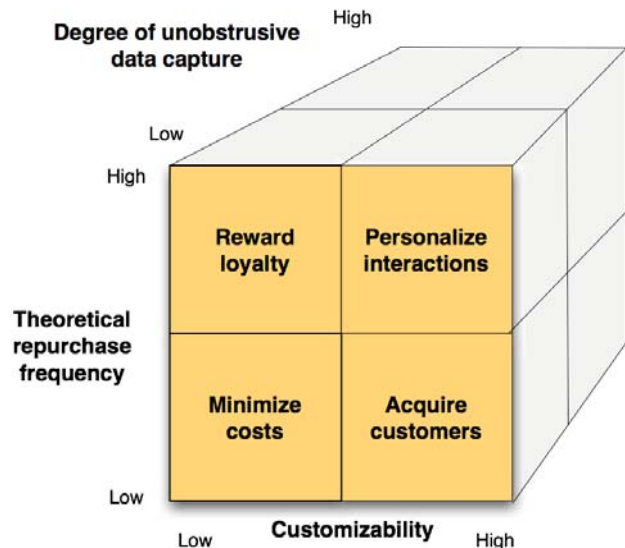
6 IMPLICATIONS FOR RESEARCH AND PRACTICE

The main contribution of this article is to make a practical case for the power of information and the value creation potential offered by customer data when used appropriately. The paper can also serve as the basis for future research. New research directions and propositions will be discussed during the presentation.

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