Chapter 8.8
The Impact of RFID Technology on a Firm's Customer Capital:
A Prospective Analysis in the Retailing Industry

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ABSTRACT

The emergence of radio frequency devices associated with smart tags—in what is called radio frequency identification (RFID) technology—has been widely discussed in the logistics field, mainly with respect to the implications accrued from this technology in the improvement of organizational efficiency and the creation of strategic ecosystems. However, very little research is available regarding the benefits of this technology in leveraging the relationship of firms with their customers, especially in the retailing arena. Hence, the purpose of this chapter is to analyze the potential of RFID technology with respect to the relationship between retailers and their clients, in order to understand how this technology is capable of increasing a firm's customer capital, in-line with intellectual capital taxonomy. Lastly, from this study, prospective scenarios are elaborated concerning the use of this technology to increase a firm's customer capital.

INTRODUCTION

The consolidation of intellectual capital as an actual knowledge field is still in progress. It should be remembered that years ago some mavericks foresaw the importance of intangible assets for a company, laying down the initial foundations for this very recent discipline.

In 1945, Frederick Hayek presented research about the use of knowledge in society (Hayek, 1945). In a seminal work, Fritz Machlup from Princeton University produced an eight-volume work in 1962, under the general title: *Knowledge: Its Creation, Distribution, and Economic Signifi-*

cance (Machlup, cited in Stewart, 1997, p. 11). In this work, using data gathered in 1958, it was established that 34.5 percent of the gross national product of the United States could be ascribed to the information sector. In 1993, Peter Drucker analyzed the new knowledge economy and its consequences (Drucker, 1993). Consequently, academics, researchers and practitioners have increasingly highlighted the importance of the intangible assets of a corporation and even those of both countries and other organizations, including non-profit entities.

A watershed was reached in July 1994 when a meeting took place in Mill Valley with a view to establishing how the knowledge of an organization could be measured. Knowledge may be intangible, but that does not mean that it cannot be measured. Markets do precisely that when they value the stock of highly knowledge-intensive companies way above their book value.

In 1995, Skandia—the largest insurance and financial services company in Scandinavia—released its Intellectual Capital Annual Report, based on its Navigator framework (Edvinsson & Malone, 1997). Some other companies, like Dow Chemical, the Canadian Imperial Bank of Commerce, Posco, and so forth, to name but a few, also entered this new era.

On the other hand, relationship marketing literature presents some empirical and theoretical evidence regarding the mutual benefits – both to sellers and buyers – accruing from deepening the commercial relationship between them (McKenna, 1993; Reichheld & Teal, 1996; Peppers & Rogers, 1997; Seybold, 1998; Kotler, 1999).

In-line with this, the relationship between a firm and its clients has been called its customer capital, according to intellectual capital taxonomy, as explained in greater detail later in this chapter (Edvinsson & Malone, 1997). Customer capital, according to these authors, is a component of a broader capital, namely either relationship capital or external capital (Röos et al., 1997; Stewart, 1997; Sveiby, 1997; Joia, 2000). This capital deals with the intangible assets of a firm accrued from its external relationships with its main stakeholders (suppliers, customers, partners, etc.), as well as with the firm's brand name, its distribution channels, and so forth. However, among all these components, the firm's relationship with its clients can be considered the major contributor to a company's external capital (see, for instance, Sveiby, 1997, pp. 142-165; Röos *et al.* p. 44; Joia, 2004, p.590, to name only a few).

On the other hand, the emergence of smart tags based on radio frequency technology allows mass retailers to identify their clients and to offer services and products in-line with each customer's interests and financial potential. Moreover, the customization of offerings is considered an important competitive advantage for the suppliers, as well as a distinctive source of value for them, according to the customers' perceptions (Seybold, 1998; Peppers et al., 1999).

The use of radio frequency devices in smart tags is usually called RFID (Radio Frequency Identification), a technology explained in greater depth in the course of this chapter. Hence, the scope of this chapter is to discuss the potential impacts accrued from the use of RFID technology in the relationship between firms and their clients, that is, in their customer capital, as well as to propose feasible scenarios addressing the implementation of this technology in the Brazilian retailing realm.

BACKGROUND

Intellectual Capital Taxonomy

Based on research carried out by Edvinsson and Malone (1997), Röos et al. (1997), Sveiby (1997), Stewart (1997) and Joia (2000), it is proposed that corporate capital taxonomy be used in this chapter.

The taxonomy adopted is based on the equation[1].