

How does mobile business create value for firms?

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Abstract— Mobile business is expected to create a large spectrum of business opportunities. There are many studies analyzing the contribution of IT to firm performance and whether IT is capable of creating value. One process-level model of IT business value, defined as the contribution of IT to firm performance, focuses on how IT impacts critical business activities within the firm's value system (in the context of the firm's value chain). Building on these concepts, we argue that the m-business value corresponds to the impact of m-business usage on firm performance, which is estimated through the perceived impact on the three major groups of activities on the value chain: (i) downstream dimension; (ii) upstream dimension; and, (iii) internal operations. We claim that m-business leverages the potential of the unique features of mobile technologies to improve business performance. This paper is exploratory and aims at answering the following research questions: (i) How does m-business create value to firms? and (ii) Which are the components of the construct m-business value for firms? Interviews were conducted with experts to explore the construct of m-business value and its components. The interviews' results show that m-business does have impacts on the organizational downstream and internal dimensions. However, its impacts on upstream dimensions are not clear yet. We discuss the implications of these findings for future research and the limitations of the current study.

Keywords- mobile business, business value, IT value, business process

I. INTRODUCTION

The advent of wireless computing technology and the continuously improving versatility of mobile devices not only create a unique channel for marketing but also pave the way for new business opportunities. In spite of the fact that there are some restrictions regarding the price, availability, and standards and security, mobile technologies have been widely adopted. Technological developments advancements in mobile communications enable new ways of doing business [3] often referred to as “mobile business” or “mobile commerce” and this has led to an increased interest in the usage of mobile business applications in firms [4].

One of the most distinguishing characteristics of mobile business is mobility, as it represents its main advantage upon which mobile businesses can create their value propositions of (i) ubiquity, allowing easier real time access to information; (ii) convenience, through devices that store data and have Internet, intranet or extranet connections; (iii) instant connectivity through easy and quick connection to the

Internet, intranet, other mobile devices and databases; (iv) personalization for individual consumers; and (v) localization of products and services, which involves knowing where the user is located at any given time and providing matching services [5, 6]. With these unique features, “m-business as a transformational force is here to stay. In the next few years, m-business will emerge as a powerful new approach for conducting business” [7, page 25]. These advantages may only contribute to business value if they result in some business process improvement [8]. Furthermore, if organizations would be able to leverage mobile technologies for process improvements, they could benefit from improved productivity and decision making, lowered operational costs, increased customer satisfaction and improved decision making [4].

Although mobile business has gained much attention in the past decade, being a key priority for some organizations, its actual development and application have not yet fully met market expectations, namely the achievement of mass adoption. It is not yet clear how mobility can impact businesses and what the implications of mobile technology usage on the organizational environment are [4]. Most research on mobile commerce and mobile business focus on consumer adoption issues [9 - 14] describing the relevant factors to be considered when analyzing m-business adoption. There has also been extensive research focusing on identifying a framework to guide the m-business research [11, 15, 16]. Other studies analyze m-business from an organizational perspective [4, 8, 17 - 21]. The main results of these studies identify a broad set of characteristics as important factors to effectively conduct m-business initiatives. However, there is presently no unified view of how this can affect or change the way companies can leverage the potential value of this technology. There is also a lack of empirical research on how to develop a successful m-business strategy [13, 22].

Global leaders in mobile technology and m-business are not necessarily the richest economies or the leaders on fixed line communications or Internet adoption [23]. Portugal, for example, has less than one third of the incomes of countries like Japan, Switzerland and the United States and lower penetration on fixed line telephony and Internet usage, but is far ahead in terms of mobile penetration [23]. This fact provides an interesting opportunity to launch the present research in Portugal, leveraging on the Portuguese high mobile penetration rates.

Research in this area has been conducted from different fields of knowledge, such as information systems, network engineering, marketing and strategy. The present research reviews the literature on mobile business and on Information Technology (IT) and e-business value and claims that the phenomenon of mobile business from an organizational perspective deserves a closer look in order to identify which factors determine mobile business value. Such results will support managers on their decisions about mobile business initiatives.

This study is therefore guided by the following research questions: (i) How does m-business create value to firms? (ii) Which are the components of m-business value for firms? Based on the literature review on IT business value and mobile business we develop the concept of mobile business value and its components. Data is collected through expert interviews to explore the mobile business concept and components.

This paper is organized as follows: Section II presents the literature review in terms of mobile business concepts, Section III presents the conceptual model, Section IV discusses the research design, Section V provides an analysis of the data collected and, finally, Section VI presents the concluding remarks.

II. LITERATURE REVIEW

A. Mobile Business

The Internet-enabled mobile technologies have rapidly achieved worldwide diffusion, due to personalized products and services and sophisticated technologies, but academic research on Internet-enabled mobile technology has seen only modest progress [24].

Balasubramanian et al. [15] have developed a detailed concept for m-commerce defining it as any phenomenon that exhibits all of the following characteristics: (i) *“It involves communication, either one-way or interactive (...)”*; (ii) *“At least one of the parties engaged in the communication must be mobile (...)”*; (iii) *“The ability to communicate must possess the potential to be continuously maintained for at least one of the parties during a substantial physical movement from one location to another”*; (iv) *“The communication signals between parties must be primarily carried by electromagnetic waves (...)”*; (v) *“If humans are communicating, at least one seeks to benefit economically from the communication, either in the short or the long run”*.

This last characteristic of m-commerce focuses on the fact that the ultimate objective of e-commerce is economic in nature. For example, this concept can include GPS monitoring and routing of truck fleets, which may not be directly linked to transactions between parties but are important from a business perspective. Therefore this m-commerce characteristic suggests that the *“term m-commerce is being treated here as substantially equivalent to the term m-business”* [15, page 350]. But this matter of m-commerce and m-business definitions has not yet achieved a consensus. Some authors do not distinguish between the two, while

others define mobile business as the application of mobile technologies to improve or extend business processes and open new market segments, while m-commerce is mainly related to handling transactions on the mobile space [8].

Although many of the existing e-business applications can move on to the mobile environment, m-business also involves new applications and functionalities that are unique to the mobile infrastructure features and can leverage those features. Another definition of m-business is that m-business refers not only to m-commerce applications (the front-line operations) but also supporting applications that are necessary to keep the business relationships and to sell products, services and information through mobile devices [25]. Thus, for those authors, the mobile business concept includes the m-commerce operations and all operations and management processes beyond it.

In this research, we adopt a broad definition of m-business to include the commercial transactions and related interactive business processes that may occur before and after actual commercial transactions, utilizing handheld mobile devices and wireless communications networks to conduct those transactions (based on the definition suggested by [26]).

M-business applications have two major characteristics: mobility (which implies portability) and broad reach [22]. They have been first offered to and adopted at the individual level, mainly for personal use but they have also been adopted at the organization level. As m-business applications have shown potential significant impact through generating enormous business value, improving operational efficiency, as well as flexibility, and the ability to handle situations in current operations. This allows users to have access to critical information from anywhere at any time, resulting in greater abilities to seize business opportunities [20]. The applications of m-business for organizations can be grouped into the following four categories: (i) mobile financial applications (e.g., mobile banking, mobile brokerage, mobile money transfer, mobile micro-payments); (ii) mobile advertising (using demographic information collected by wireless service providers and information on the current location of users, very targeted advertising can be done, informing the users about various on-going specials in restaurants, malls and shops in surrounding areas), (iii) mobile inventory management (which involves location tracking of goods, services and even people), (iv) proactive service management (collecting pertinent information about current or near-future user needs and providing services to user proactively as, for example, collecting information about the aging components of an automobile, whole that information could be collected and used by car dealers for ordering components) [27].

B. IT Business Value

In order to analyze the business value of the mobile business applications, we first discuss IT value in general.

There are many studies analyzing the contribution of IT to firm performance and whether IT is capable of creating value [1]. Some focus on financial data [28, 29] while others focus on the managers’ perception of IT impacts on the value

