

Examining the role of information technology in cultivating firms' dynamic marketing capabilities



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ARTICLE INFO

Article history:

Received 7 October 2011

Received in revised form 16 April 2012

Accepted 30 April 2013

Available online 5 June 2013

Keywords:

Dynamic marketing capabilities

Dynamic capabilities

Market orientation

IT support for CRM

IT infrastructure

ABSTRACT

Most prior research has investigated an organization's dynamic capabilities in general and overlooked their effect on critical business functions. Our study considered the role of IT in improving firm's dynamic marketing capabilities. We developed a model consisting of market orientation, IT infrastructure capabilities, and the use of IT in customer relationship management (CRM). With data collected from 135 manufacturing and service firms in Taiwan, our results supported most of our hypotheses. Our results showed important direct effects of a firm's market orientation, use of IT to support CRM, and the functionality of IT infrastructure capabilities on its dynamic marketing capabilities.

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1. Introduction

Business researchers have coined the term dynamic capabilities (DC) to capture the firm's ability to adapt to unpredictable, changing environments. They allow the firm to reconfigure its resources and respond to market changes effectively while responding to changing environments [10]. Considerable previous research has examined the key mechanisms or processes that contribute to a firm's DC [23].

The concept of DC is broad and involves different business aspects and processes [18]. Although IT literature provides some interesting strategic insights, few studies have analyzed DC specific to a business area. Firms vary in their relative strengths in business operations and may choose to focus on particular functional areas; it is therefore important to investigate DC at a finer-grained level, especially with respect to fundamental business aspects in which firms must cultivate DC [6]. Marketing is a critical area in which firms must develop DC. Thus marketing constitutes a crucial dimension in which analysts should assess a firm's capabilities in order to satisfy customers' needs, wants, and preferences [13].

In the evolving marketplace, dynamic marketing capabilities (DMC) allow firms to identify important market signals, evaluate new processes or services, and design and execute effective responses to market change. They refer to a set of processes that a firm needs to be able to use while responding to market change. They directly influence a firm's product development, innovative service design, and long-term customer relationships, which jointly define its competitiveness [3]. We examined a firm's DMC by focusing on the important marketing processes and activities, particularly those related to CRM.

DMC, IT has been recognized as a major enabler of DMC by creating an arena in which competitive advantage can be exploited through process improvement, service excellence, and customer intimacy [16]. IT infrastructure capabilities and IT support of specific business aspects are crucial and deserve attention.

We developed a parsimonious model that relates a firm's DMC with its market orientation, IT infrastructure capabilities, and IT support for CRM. We empirically tested this model and its associated hypotheses with data collected from a survey of major Taiwanese manufacturing and service firms.

2. Literature review and theoretical foundation

In the area of competitive advantages analysis, the resource-based view (RBV) has been used as a theoretical lens to explore the contributions of IT to firm performance [5,21]; it provides a framework for understanding how firms gain sustainable

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competitive advantage, assuming that resources are distributed heterogeneously across the firm and that this distribution remains relatively stable over time. These assumptions, of course, make the RBV less applicable in highly volatile environments. Some researchers therefore shift their focus to DC [22]. Then, the firm must decide how to build, integrate, and reconfigure their limited resources and relative strengths to respond to key market change or new technology.

A firm's DC are difficult to replicate [7], even when competitors can observe or infer their trend from the firm's behavior and performance. In industries characterized by continuous technology advancement, the success or failure of firms depends on how effectively they can deploy an appropriate technology and assimilate it within the business. Thus DC allows a firm to extend its operations beyond routine production and service delivery, thereby improving its performance.

The relationship between marketing and dynamic orientation has been studied in the context of the product life cycle and market development [11]. These aspects also relate to an organization's agility, which is the firm's ability to detect and seize market opportunities rapidly [18]. DMC encompass a firm's capabilities in product development or service design, pricing, channel design, and promotion [22], which together define its marketing mix.

Equipped with DMC, firms can adjust their marketing processes and activities to increase sales, better serve customers, cultivate favorable long-term customer intimacy, or quickly respond to changing conditions [20]. We built on the theoretical foundation of the capability-building process to analyze key factors for cultivating a firm's DMC.

IT competence affects the organizational base of IT resources, with IT infrastructure being a typical, important elements of its competence. Thus, firms with a high level of digital options are better at utilizing IT.

A firm's IT infrastructure capabilities are the IT resources that support its processes, whereas IT support for CRM shows the extent to which the firm utilizes technology to achieve its market position. By considering market orientation, we can better understand firms' strategies for developing competitive advantages in general and DMC in particular.

2.1. IT infrastructure capabilities

The IT infrastructure can allow a firm to exploit the benefits of technology through process improvement and operational excellence. It offers firms the flexibility necessary to cope with uncertainty about future IS needs [15]. It embraces both connectivity and functionality, which is more stable than business operations or the applications it supports [4]; it also extends or restricts a firm's ability to add, modify, and remove business applications, with few adverse effects on existing applications.

2.2. IT support for CRM

Firms constantly seek opportunities to solve their business problems and respond to market changes better and faster [9]. By collecting and analyzing customer demographic and behavioral data, firms improve their communications with customers, enhance marketing strategies and activities, choose appropriate distribution channels, and provide effective customer support and services. Effective CRM allows firms to identify valuable customers, obtain and accumulate crucial knowledge about them, and create greater customer value [17], but it requires seamless integration of the business functions and operations, and its effectiveness depends on the firm's ability to gather and integrate data about customers and their behavior, perform detailed processing and analyses of the data, and propagate this information and

knowledge throughout the organization. Through IT, firms can improve their customer intimacy, anticipate and stay abreast of market changes, cut costs, increase sales, and foster customer satisfaction and loyalty.

2.3. Market orientation

Modern firms need to generate market intelligence about current and future customer needs and disseminate it to departments and business units to ensure, timely response to market change. Highly market-oriented firms constantly strive for customer value creation and performance improvement. They also monitor market conditions, perform market trend analyses, and gain a thorough understanding of customer needs and competitor strategies; this also aids in promoting organizational learning and innovation [12].

3. Research model and hypotheses

We developed a model in which market orientation, IT infrastructure capabilities, and IT support for CRM were considered to be critical factors in explaining a firm's DMC. Our model distinguishes the connectivity and functionality of the firm's IT infrastructure capabilities, because they serve distinct purposes. It also emphasizes the central role of IT in its support for CRM, as well as the infrastructural capabilities of network connections and data transmissions, and the kernel services necessary for data processing and information sharing throughout the organization. Fig. 1 shows the research model.

A firm's market orientation dictates how it can adapt to the business environment [12] and move toward a winning position by leveraging the technology, resources, and its relationship with suppliers and customers. A firm's market orientation should be that of a culture that values new information in the marketplace. The effectiveness of CRM demands substantial capabilities for collecting, integrating, and analyzing large volumes of customer data. Strategic insights generated from market orientation are vital for firms to anticipate opportunities. Thus, a highly market-oriented firm tends to seize any opportunity to create good CRM applications via IT resources. Accordingly, we propose a hypothesis:

H1. A firm's market orientation is positively associated with its IT support for CRM.

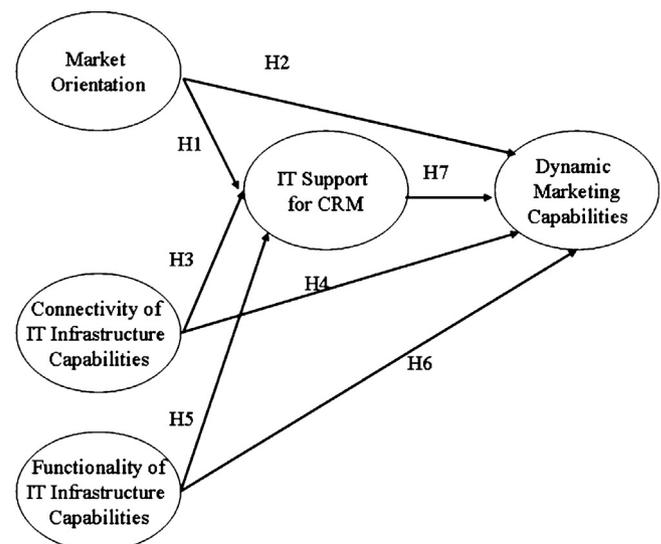


Fig. 1. Our research model.

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