Technovation 29 (2009) 517–526

Contents lists available at ScienceDirect

Technovation

journal homepage: www.elsevier.com/locate/technovation

Creating a market-oriented product innovation process: A contingency approach

Robert A.W. Kok [a,*], Wim G. Biemans [b]

[a] Nijmegen School of Management, Radboud University Nijmegen, P.O. Box 9108, 6500 HK Nijmegen, The Netherlands
[b] Faculty of Management and Organization, University of Groningen, P.O. Box 800, 9700 AV Groningen, The Netherlands

ARTICLE INFO

Keywords:
Innovation
New product development
Market orientation
Customer orientation
Contingency approach
Strategic change
Implementation

ABSTRACT

This study analyzes how and why a firm's change program to create a market-oriented innovation process depends on its environmental, innovational and organizational context. Based on an organizational-learning capabilities framework, the results from a multiple case study indicate how a firm's change objectives, activities and approach are affected by this context. Whereas in low-tech firms a market-back approach with changes in organization structure and project management structure was effective, high-tech firms were more effective implementing a combined programmatic and market-back approach with changes also in philosophy and process management structure. The study contributes to theory by demonstrating that a firm's change program depends on its context and a one-best-way-fits-all change program is not feasible. It also shows that the change program could start with a coherent set of changes in structures, systems instead of starting with people's values and attitudes in order to change their behavior. The findings suggest that firms use a much more fragmented emergent approach to organizational change than the literature suggests. In addition, managers creating a market orientation in a key process – product innovation – need to use an approach different from a cultural change program as often advocated to change a whole organization.

1. Introduction

Increasing competition, shortening product life cycles and the need for successful new products have put market orientation on the agenda of innovating firms. There are several reasons why firms stand to benefit from a market-oriented product innovation process. Product innovation – hereafter abbreviated to innovation – is a core process for creating superior customer value through new products (Day, 1994; Srivastava et al., 2001). Gaining insight into customer value and competitive advantage, and the effective translation of insight into appropriate actions, are enabled by a firm's market orientation (Kohli and Jaworski, 1990; Narver and Slater, 1990). Also, while a customer orientation may hinder developing breakthrough products for new emerging markets (Voss and Voss, 2000; Zhou et al., 2005), a market orientation has a positive effect on firm performance (Rodriguez Cano et al., 2004; Kirca et al., 2005) and is a key driver of new product success (Atuahene-Gima et al., 2005; Langerak et al., 2004; Narver et al., 2004; Han et al., 1998). In addition, because of its interfunctional nature, a market-oriented innovation process can be used to initiate changes in other key business processes such as manufacturing and after-sales service, and thus improve the firm's overall level of market orientation (Day, 1994).

While managers readily acknowledge the need for a market-oriented innovation process, they lack specific guidelines to assist them in creating such a process. First of all, the academic literature does not explain what a market-oriented product innovation process is and how it may differ across firms. Consequently, it is not clear *what* managers of different firms must change in the innovation process and the underlying organizational structures and systems. In other words, the perceived end result of the change process is likely to be ambiguous. This is partly because the results of earlier studies are inconclusive as to whether market orientation (as market information-processing activities) has a direct effect on new product success or (as organizational culture) has an indirect effect on new product success for instance through the proficiency of innovation activities. In addition, hardly any study shows how market orientation should be integrated in the innovation process (Adams et al., 1998; Varela and Benito, 2005).

But in addition to knowing what the perceived end result of the change process is, managers also need to know *how* to implement the required changes to create a market-oriented innovation process. This involves amongst others choosing an effective approach – e.g. programmatic versus emergent – to

* Corresponding author. Tel.: +31 24 36 11 922; fax: +31 24 36 11 933.
E-mail addresses: r.kok@fm.ru.nl (R.A.W. Kok), w.g.biemans@rug.nl (W.G. Biemans).

0166-4972/$ - see front matter
doi:10.1016/j.technovation.2008.12.004

structure the change process given the circumstances. And academic progress in that area has also been limited. While the extant market orientation literature stresses the importance of implementation issues and includes some studies on the guidelines for implementing a market orientation at the firm level (Beverland and Lindgreen, 2007; Day, 1999; Gebhardt et al., 2006; Lichtenthal and Wilson, 1992; Narver et al., 1998) or for implementing a customer orientation (Kennedy et al., 2003), it fails to address the specifics of the innovation process and the other contingency factors that may influence the implementation. Typically, the literature suggests a one-best-way-fits-all approach of change that does not justify differences in environmental, organizational and innovation context. In addition, although the innovation literature shows how innovation should be managed, it fails to examine how firms change their innovation approach and which environmental and organizational factors determine such changes (Ettlie and Subramaniam, 2004).

To sum up, despite the numerous studies about innovation and market orientation, research into change programs describing what and how firms could change to create a more market-oriented innovation process are sorely lacking (Adams et al., 1998; Varela and Benito, 2005). The purpose of this research is to analyze how and why a firm's change program to create a market-oriented innovation process depends on contingency variables in the environmental, innovational and organizational context. Both the pattern of required changes in systems and structures amongst others, and the most effective approach to implement those changes depend on these contingency variables. This paper is structured as follows. In Section 2, we discuss the literature on market orientation, innovation and change, and present our conceptual framework. Next in Section 3, the case research method is explained and the results from our exploratory empirical investigation of Dutch industrial firms are presented in Section 4. We conclude with a discussion of the study's theoretical contributions, management implications, limitations, and suggestions for future research in Section 5.

2. Literature review and conceptual framework

Our research builds on several streams of literature. The first one investigates market orientation as antecedent of innovation activities and performance, e.g. new product success and innovativeness (Atuahene-Gima, 1995; Han et al., 1998; Leskiewicz Sandvik and Sandvik, 2003). These studies suggest that market orientation influences new product performance either directly or indirectly, depending on how market orientation is conceptualized in the context of innovation (e.g. as market-related activities, market information-processing activities, or organizational culture or competence). Langerak et al. (2004) found that a market-oriented culture is positively related to proficiency in strategic planning, idea generation and idea screening, which in turn influence new product performance, but found no direct effect on new product performance. In contrast, Wei and Morgan (2004) argue that new product performance is directly influenced by a firm's market orientation, in terms of market information-processing activities, with market orientation being affected by the firm's climate. These findings show that market orientation is a key variable in successful innovation and that the relationship between market orientation and innovation is quite complex (Atuahene-Gima et al., 2005). In addition, these studies emphasize the relevance of market information-processing activities and cultural aspects.

A second stream of literature studies the integration of market orientation and innovation. Most researchers focus on specific aspects of market-oriented innovation, such as the adoption of tools and techniques, role of the marketing department, marketing–R&D interface, (virtual) customer input, and cross-functional collaboration (Callahan and Lasry, 2004; Füller and Matzler, 2007; Moenaert and Souder, 1990; Griffin and Hauser, 1993; Workman, 1998). Others use a more holistic approach and conceptualize market orientation as both cognition and behavior (Biemans, 1995; Biemans and Harmsen, 1995), focus on a firm's learning capability (Adams et al., 1998; Day, 1994; Kok et al., 2003) or describe various degrees of market-oriented innovation and their organizational and managerial antecedents (Varela and Benito, 2005). All of them offer valuable suggestions about the integration of innovation and market orientation, but they lack an underlying theoretical framework on how to create a market-oriented innovation process.

A third body of literature investigates how firms implement or develop a market orientation (Beverland and Lindgreen, 2007; Bisp, 1999; Day, 1999; Gebhardt et al., 2006; Kennedy et al., 2003; Lichtenthal and Wilson, 1992; Narver et al., 1998). These studies offer useful insights at firm level, but do not address the specifics of organizational processes, such as the innovation process, that need to be taken into account (Day, 1994). The few studies that do look at how firms enhance market-oriented innovation (Biemans, 1995; Biemans and Harmsen, 1995; Adams et al., 1998) contribute to our understanding of barriers to market information processing in innovation. But, these studies neglect to analyze the kind of changes required, approaches to implement these changes and contingency factors influencing change programs. Though some researchers studied change approaches (Narver et al., 1998) and others focused on the actual process of change (Beverland and Lindgreen, 2007; Day, 1999; Gebhardt et al., 2006) as propagated in the organizational change literature (Garud and Van de Ven, 2002; Pettigrew et al., 2001), they lacked a contingency approach and consequently arrived at a one-best-way-fits-all approach to implementing a market orientation at the firm level.

Drawing from the literature on strategic organizational change, which strongly advocates a contextual change process perspective that includes environmental and organizational factors (Lichtenthal and Wilson, 1992; Dunphy and Stace, 1988; Pettigrew et al., 2001), we suggest that a firm's approach to creating a more market-oriented innovation process is contingent upon organizational, innovational, and environmental factors. Using these different streams of literature, we formulated a conceptual framework for our exploratory study (Fig. 1).

This framework is based on two key notions. The first is that market-oriented innovation is an organizational-learning capability that combines organizational cognition and behavior (Day, 1994). Behavior is governed by underlying cognitive elements such as values, beliefs, knowledge, structures and artefacts (Hurley and Hult, 1998). This organizational capability has two components. One is the ability to learn about the market in order to improve the firm's innovation efforts to create superior customer value. Through this market-sensing process a firm collects, disseminates and utilizes market information (Kohli and Jaworski, 1990) during all stages of the innovation process (Day, 1994; see also Adams et al., 1998). The second component of an organizational-learning capability is improving the market-learning ability. This consists of evaluation, reflection, and intervention. Such an organizational-learning capability results in a change program describing both *what* to change to improve market learning and *how* to change it.

The nature of the changes (*what* must be changed) is operationalized in terms of four capability elements (Leonard-Barton, 1992):

- *skills and knowledge*, that are the core of market-oriented innovation (e.g. knowing how to gather and interpret relevant market information or to conduct beta tests);