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The influence of formal controls on customer interactivity in new product development

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Abstract

This study examines how formal control mechanisms, specifically output, process, and team reward controls used in new product development (NPD) projects, influence the degree of customer interaction during the project. It is argued that controls can differentially focus the efforts of the project team either internally on the organization's process or externally on the market and its customers. Data from 95 projects across several industries suggest that the use of output control and team rewards leads to higher customer interactivity. However, heavy reliance on process control can lead to reduced customer interactivity if not also accompanied with output controls. This study extends our understanding of using management controls to integrate the voice of the customer into new product development.

Keywords: Organizational control; New product development; Controls; Customer interaction

1. Introduction

A strong market orientation and customer knowledge competence are vital to the success of new products (Jaworski & Kohli, 1993; Li & Calantone, 1998). Understanding the voice of the customer in new product development (NPD) leads to the development of superior products that meet customer needs better than the competition (Griffin & Hauser, 1993). Researchers and practitioners have stressed the importance of ongoing interactions with customers throughout the NPD process. Several organizational mechanisms tend to enhance customer interaction, market orientation and processing of market information. These include interdepartmental connectedness, top management support, training, market-oriented rewards (Jaworski & Kohli, 1993; Ruekert, 1992), formalization (Deshpande & Zaltman, 1982), and culture (Moorman, 1995), among others. Another potential driver of customer interactivity that warrants examination is the kind of formal controls used to keep NPD projects on track and to avoid unwelcome surprises.

NPD managers are faced with the difficult decision on how much and the type of control to use. Researchers have conceptualized several kinds of formal controls, including process and output controls (Jaworski, 1988; Merchant, 1985; Ouchi, 1979). Process controls are used to influence the means to achieve desired ends. For instance, in new product development, the use of highly specified procedures for project activities, and frequent observation and evaluation of project members' behaviors would constitute process control (Cardinal, 2001). In contrast, output controls are used to achieve desired ends by setting performance standards as outcomes of the project. Output controls would include the specification of standards, such as technical performance, quality, profitability and market share for the product developed.

Interestingly, researchers have uncovered evidence that process and output controls differentially impact NPD performance (Bonner, Ruekert, & Walker, 2002; Sarin & Mahajan, 2001), innovation (Cardinal, 2001), and market-

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ing management (Jaworski, Stathakopoulos, & Krishnan, 1993), and sales management effectiveness (Challagalla & Shervani, 1996; Cravens, Ingram, LaForge, & Young, 1993). They have argued that process control tends to lead to routine actions resulting in resistance to change while output control directs attention to the end result (Cardinal, 2001; Jaworski, 1988; Merchant, 1985; Sarin & Mahajan, 2001). Building on this work, the key notion raised in this study is, perhaps, overreliance on process controls may place too much focus for the project on the internal process, and away from external influences, including customers. However, output controls focus the project on market and financial success that could provide meaningful motivation for project members to interact with external stakeholders, including customers. Another intriguing idea is that the use of output control, in combination with process control, may allow project teams to overcome the disadvantages of process control. Therefore, this study examines both the direct influence of process and output controls on customer interactivity, and the interaction effects between output and process controls.

New product success relies upon exceptional teamwork across members from different functional departments (Griffin, 1997; Olson, Walker, & Ruekert, 1995). NPD managers have increasingly used rewards that are linked to team outcomes in order to foster cross-functional cooperation (Kessler & Chakrabarti, 1996; Sarin & Mahajan, 2001). An interesting question is whether the use of team rewards increases the intensity of customer interaction in projects. The perspective advanced in this study is that team rewards can serve as a catalyst encouraging all team members, regardless of functional department affiliation, to become more involved with customers.

It is important to note that formal control is the focus of this study as opposed to informal control, such as cultural, social, professional, and input controls (Jaworski, 1988). It is felt that formal controls have perhaps a more direct influence at the project level. The next section covers the conceptual framework and hypotheses. This is followed by a description of the methodology used for an empirical test of the hypotheses using a sample of NPD projects. Finally, the results are reported followed by a discussion of the results.

2. Conceptual framework and hypotheses

Fig. 1 shows the conceptual framework. The framework indicates that the degree of customer interactivity in a project is influenced by three formal control mechanisms: process control, output control, and team rewards. Each control mechanism is proposed to have a direct effect on customer interactivity, and process and output control to have an interactive effect on customer interactivity.

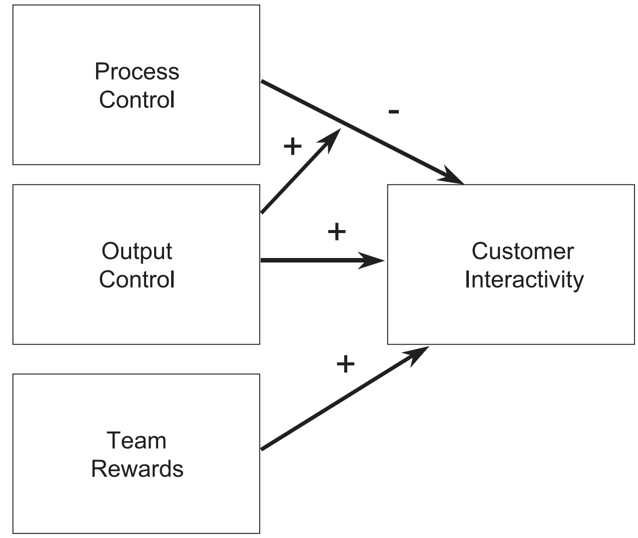

Fig. 1. Conceptual model.

2.1. Direct effects of process and output control on customer interactivity

Process controls are attempts by NPD managers to influence the means used to achieve the desired ends (Jaworski, 1988). In NPD projects, managers may provide a broad process framework, such as stage-gate, QFD, and the like (Griffin & Hauser, 1993; Hauser & Clausing, 1988). Managers may choose to further control project members' behaviors by specifying how and when tasks are to be completed; frequently monitoring progress; and making ongoing adjustments to behaviors (Bonner et al., 2002; Cardinal, 2001; Sarin & Mahajan, 2001).

Research exists suggesting how formalization (i.e., formalization of procedures, roles, authority relations, and communications) is linked to market information seeking and use. Researchers have argued that formalization is negatively related to market orientation and marketing research use (Jaworski & Kohli, 1993; Deshpande & Zaltman, 1982). Formalization restricts people making them less motivated to change, and less likely to seek and use new information from the market. Other researchers have emphasized that process controls make people overly dependent on the process, and less likely to experiment and deal with uncertainty (Cardinal, 2001; Merchant, 1985).

Following this research, it seems reasonable to argue that NPD projects which extensively use formal process control may be prone to ignoring perceived sources of change that would threaten the existing process or make it less predictable. Over the life of the project, interactions with customers reveal new market opportunities, customer need changes, requests for new features, and new competitive issues. The knowledge gleaned from these interactions can lead to reevaluation of project plans, readdressing previously made decisions, adding new contingencies, and, potentially, redoing project phases. Of course, this customer information can improve the quality and value of the