

# Effects of marketing-manufacturing integration on new product development time and competitive advantage

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## Abstract

There is a need to better understand the advantages and disadvantages of marketing-manufacturing integration (MMI) in new product development. In this paper we examine the influences of MMI in each of four stages of new product development (NPD) on new product time and success. A path analysis of data collected from 467 completed NPD projects indicates that increased MMI in each stage of product development is respectively associated with greater product competitive advantage, which in turn is associated with higher project return on investment (ROI). Greater MMI is also significantly associated with longer product commercialisation (PC) stages of new product development, but the data indicate little significant relationship between NPD project time and project return on investment. Hence, increased MMI may require added NPD time, but this drawback appears to be outweighed by the added benefits accrued to greater product competitive advantage.

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## 1. Introduction

Marketing and manufacturing are arguably two of the most opposed functional perspectives represented in new product development (NPD) activities (Kahn and Mentzer, 1994; Finkelstein and Hambrick, 1996; Tatikonda and Montoya-Weiss, 2001). Marketing personnel tend to focus outwardly on customer and

competitive issues (Song et al., 1997) and they may shy away from technical issues (Veryzer, 2005). Manufacturing personnel tend to be inwardly focused, concentrating on efficiencies, capabilities and capacity issues (Gerwin, 1993; Vasconcellos, 1994; Song et al., 1997, 2000). Researchers have shown that marketing and manufacturing personnel have different goals and occupy different “thought worlds,” leading to interactions that often involve conflict and misunderstandings (Dougherty, 1992; Song et al., 1997; Maltz and Kohli, 2000; Xie et al., 2003). The dominance of one or the other perspective throughout NPD stages can lead to deficiencies in new product launch, either in terms of market relevance or in terms of the firm’s ability to successfully deliver what is promised. Thus springs the

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argument that marketing and manufacturing strategies and design inputs should be closely integrated throughout the new product development effort. Integration of this sort is thought to lead to improved product design quality.

On the other hand, researchers suggest that cross-functional integration is not needed in every NPD stage, and it is not cost free (Adler, 1995; Song et al., 1998; Olson et al., 2001; O'Leary-Kelly and Flores, 2002). One argument is that early manufacturing inputs can squelch creative ideas (Burns and Stalker, 1961; Gerwin, 1993). Another argument states that heavy marketing influence can divert attention from technical problems in production ramp-up (Atuahene-Gima and Evangelista, 2000). In this article, we expand on these and other relevant arguments in order to extend the theory describing the effects of marketing-manufacturing integration (MMI) in NPD. We develop and test hypotheses regarding the influences of MMI in each stage of NPD on that stage's length and on the ultimate competitive advantage created in the new product.

This study makes several important contributions. First, it fills a void in research. Prior research has focused on overall or multi-dimensional cross-functional integration (e.g., Kahn, 2001; Olson et al., 1995; Ettl, 1997; Moffat, 1998; Xie et al., 1998); on marketing-R&D integration (e.g., Gupta et al., 1986; Ruekert and Walker, 1987a,b; Parry et al., 1993); or on R&D-manufacturing integration (Rubenstein and Ginn, 1985; Ettl and Reifeis, 1987; Adler, 1995; Ettl, 1997; Swink, 1999; Terwiesch et al., 2002), respectively. Much less attention has been given to MMI (Kahn and Mentzer, 1994; Calantone et al., 2002). Furthermore, most of the extant research is limited in that it concentrates primarily on the technical development (TD) stage of NPD. Little research has been done to study the effects of marketing-manufacturing integration in earlier and latter stages of NPD. The few studies that have addressed the timing of MMI in NPD are limited to business level analysis and/or small samples (Olson et al., 2001; Song et al., 1998).

Another general limitation of prior research is a focus only on the benefits of integration. Few studies have addressed the potential trade-offs associated with integration. Our study examines the potential detrimental influence of MMI on NPD timing as well as its supposed influence on NPD quality. We examine MMI across four major stages of new NPD projects in a large, multi-industry sample. In doing so, we provide a more granulated study of MMI, thus amplifying our understanding of functional roles in NPD and furthering the development of theory explaining new product success.

The next section in this article discusses the theoretical underpinnings and the specific hypotheses addressed in this research. The following two sections describe the research methodology employed and the results of the study. The final two sections of the paper discuss the implications of the findings, identifying conclusions and opportunities for future research.

## 2. Theory development

For the purposes of this research, we define marketing-manufacturing integration as the coordination of the timing and substance of functional strategies and development activities performed by the two disciplines in new product development. This behavioral focus on rich communications and cooperation among product development team members is consistent with other studies of cross-functional integration in NPD (Ruekert et al., 1987a,b; Olson et al., 2001; Song et al., 2000). Integration is a managerial approach, which occurs through the coordinated overlap and interaction of certain NPD activities (Gerwin and Barrowman, 2002). Successful integration depends upon effective communication and cooperation among NPD project participants, and these aspects may be enhanced by organization structural adaptations, problem solving routines, and information technologies.

Arguments for the value of cross-functional integration in NPD find a basis in resource dependency theory (Pfeffer and Salancik, 1978), which argues that the degree of interdependence and the nature of interactions among functional specialists in an organization are influenced by the collective task being accomplished. The roles of marketing and manufacturing personnel in product design and development involve many specialized tasks that are highly interdependent. For example, marketing's interpretation of customer needs leads to specifications of product features that dictate required manufacturing capabilities. Because of these interdependencies, achieving higher levels of cooperation and information sharing among marketing and manufacturing representatives is considered an important goal.

Integration in NPD is thought to proffer certain advantages and disadvantages to the project. The readily apparent advantage is that horizontal linkages are improved (Moenaert and Souder, 1990). Each functional group gives the other group specific information that is needed to make good decisions due to interdependencies among functional tasks. This information exchange reduces equivocality (ambiguity) in the NPD project (Daft and Lengel, 1986). A more subtle benefit occurs when one functional group prods the other group toward a

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