

National culture and R&D and marketing integration mechanisms in new product development: A cross-cultural study between Singapore and New Zealand

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Abstract

The integration of R&D and marketing in new product development (NPD) is an important contributor to NPD performance. Of the mechanisms developed to aid functional integration, many have been developed in western cultural environments and may not have applicability in other national cultural settings. Using a sample of NPD workgroup personnel in New Zealand (NZ), the western cultural environment, and Singapore, quantitative and qualitative data have been used to measure national culture and determine the applicability of different organization integration mechanisms. Results show key differences between the two samples, indicating a link between formalization, centralization, role flexibility and interfunctional climate mechanisms with the Hofstede dimensions of Power Distance, Masculinity and Uncertainty Avoidance of national culture. Managerial implications are that national cultural values and settings of the respondents are important when determining best integration mechanisms.

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1. Introduction

The use of the national context as a mediating, moderating or explanatory variable has been under increased attention in the new product development (NPD) management literature, reflecting the reality that no managerial decision, action, or process is undertaken in a vacuum without due consideration of the environmental and human factors impacting upon them. Contingency theory literature highlights contextual importance when determining and utilizing NPD business tools especially the nation (e.g., Hoppe, 1993; Nakata & Sivakumar, 1996; Song & Parry, 1997). This notwithstanding, much of the NPD best practice literature has been derived from western cultural envi-

ronments, most notably Western Europe (e.g., Hultink, Griffin, Hart, & Robben, 1997; Rothwell, 1977) and North America (e.g., Griffin & Hauser, 1993; Souder, 1988) with only a few from the Australasian (e.g., Atuahene-Gima, 1996; Dwyer, 1990; Souder, Buisson, & Garrett 1997) and Asian contexts (e.g., Atuahene-Gima & Evangelista, 2000; Song & Parry, 1997; Xie, Song, & Stringfellow, 1998). Important as they have the distinction of identifying national differences in NPD behavior, they do not, however, explicitly measure national cultural values, and at best use existing cultural or value paradigms to explain or generate the directions of their proposed research questions and the differences observed.

Effective NPD occurs once functional knowledge is mobilized and integrated (Souder & Moenaert, 1992) leading to the widely reported NPD success factor, functional integration. There is wide ranging empirical support found for this factor across all industry (e.g., Dougherty, 1990; Souder, 1988), product (e.g., Leenders & Wierenga, 2002) and national contexts (e.g., Moenaert & Souder, 1990; Souder et al., 1997; Takeuchi & Nonaka, 1986), with it being linked to all key NPD performance

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dimensions, e.g., NPD cycle time (e.g., Griffin, 1997), lead times, innovativeness, and NPD efficiency and effectiveness (Brown & Eisenhardt, 1995; Kahn & McDonough, 1997; Montoya-Weiss & Calantone, 1994; Song, Montoya-Weiss, & Schmidt, 1997). Integration is complicated by the complex networks of knowledge and business environments within which the modern firm operates (Griffin & Hauser, 1996; Leenders & Wierenga, 2002; Souder & Moenaert, 1992; Van den Bulte & Moenaert, 1998). The complex organizational environment gives rise to physical, social, and organizational functional integration barriers hindering the effectiveness of NPD activities (Dougherty, 1992; Griffin & Hauser, 1996; Leenders & Wierenga, 2002).

A number of mechanisms to alleviate these integration problems have been proposed by the extant literature (e.g., Griffin & Hauser, 1996; Gupta, Raj, & Wilemon, 1986; Kahn & McDonough, 1997; Leenders & Wierenga, 2002). These range from the most potent mechanism identified, functional collocation (Griffin & Hauser, 1996; Kahn, 1996; Kahn & McDonough, 1997; Leenders & Wierenga, 2002), to others that fall broadly into the categories of formalization, centralization, role flexibility, and interfunctional climate mechanisms (Moenaert, Souder, & De Meyer, 1994). The latter of these mechanisms are social in nature suggesting that the national environment in which they are implemented could enhance or hinder their effectiveness. Already there are examples in the literature that highlight that some mechanisms tend to be used in some national environments but not others, e.g., role flexibility and formalization mechanisms in New Zealand (NZ) (Souder et al., 1997), interfunctional climate mechanisms in Scandinavian environments (Souder & Janssen, 1999), and centralization mechanisms in Singapore (Yap, Foo, Wong, & Singh, 1998). Fundamental questions arise: is there a linkage between the use of differing integration mechanisms and the national cultural context? If so what are the national cultural dimensions that could offer the best explanation for the differences?

This paper examines therefore one national contextual difference, national culture, as a variable to explain differences in the use of integration mechanisms in evolutionary NPD projects in a two country comparative study: NZ (the western cultural environment) and Singapore (the Asian cultural environment). This paper first elaborates the core conceptual underpinnings leading to the propositions. An explanation of the two stage research design follows with the results and conclusion and implications.

2. Integration of R&D and marketing

R&D and marketing integration has three bodies of literature guiding its definition (Kahn & McDonough, 1997). The first, the association between integration and interaction, emphasizes communication and regular meetings between the two functions (Griffin & Hauser, 1992; Moenaert, Souder et al., 1994; Urban & Hauser, 1993). The second, integration and collaboration, is associated with collective goals, mutual respect and teamwork (Griffin & Hauser, 1996; Kahn, 1996). The third definition is that effective integration is achieved when there is sufficient

interaction and collaboration between the marketing and R&D functions (Griffin & Hauser, 1996; Gupta et al., 1986; Kahn, 1996).

Integration of R&D and marketing has been identified as a significant success factor (e.g., Cooper & Kleinschmidt, 1987; Souder, 1988). The importance of integration increases as the business environment becomes more dynamic with firms facing intensifying pressure to find a competitive edge through faster development cycles, lead times, and NPD efficiency and effectiveness (Griffin & Hauser, 1996; Kahn & McDonough, 1997; Montoya-Weiss & Calantone, 1994; Song et al., 1997). Integration has been empirically established across all environments: organization, industry, and country (e.g., Dougherty, 1990; Moenaert, Souder et al., 1994; Souder et al., 1997)). Mechanisms that foster effective integration are not so rigorously examined (Griffin & Hauser, 1996; Leenders & Wierenga, 2002).

Achieving effective integration is problematic with a propensity for disharmony between the R&D and marketing functions argued by some to be the norm rather than the exception (Moenaert & Souder, 1990). The Griffin and Hauser (1996) review summarized the barriers to integration as being differences in R&D and marketing personalities, cultural thought worlds, language, organizational responsibilities (including reward systems), and environmental factors such as physical barriers. When these barriers exist in NPD, they are significantly linked to limiting NPD performance.

A myriad of different integration mechanisms have been proposed by the literature. Griffin and Hauser (1996) generated six general approaches from the literature that organizations use to integrate functional activities. These include the physical design (or co-location (Kahn & McDonough, 1997)) of R&D and marketing, the movement of personnel across functions (or role flexibility (Moenaert & Souder, 1990; Moenaert, Souder et al., 1994)), informal social systems, organizational structures, incentive and reward systems, and formal integrative mechanisms. These are component titles for specific tools that have been linked to enhancing NPD integration and NPD performance (Griffin & Hauser, 1996). Apart from physical location and design of the facilities, the mechanisms identified in Griffin and Hauser's (1996) paper can be linked to four mechanism types: formalization, centralization, role flexibility, and interfunctional climate (Moenaert & Souder, 1990; Moenaert, Souder et al., 1994). Each of these will be discussed in turn.

2.1. Formalization

Project formalization relies on a set of rules and procedures for performing the NPD task including the integration. Formal integrative mechanism tools can include phase review, the stage-gate process (Cooper, 1990, 1994), PACE (Product and Cycle Time Excellence), and QFD (Quality Functional Deployment) (see: Griffin & Hauser, 1993, 1996). Their purpose is to take away the "fly by the pants" aspects of NPD by detailing the activities, decisions, processes, and integration requirements throughout the NPD process by providing formal rules and procedures. Management needs to examine the use of these

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