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Abstract

The complex nature of new product development (NPD) activities within firms often requires high levels of integration between the Marketing function and the Research and Development (R&D) function. The nature of this cross-functional relationship has received considerable research attention with an emphasis on achieving successful departmental integration during NPD projects. This study examines the nature of cross-functional relationships (CFRs) from a micro-management perspective. That is from the perspective of the R&D Manager and the Marketing Manager, continues previous conceptual development by (Anon) that suggested that this working relationship is more complex than previously conceptualised by NPD researchers. By using data collected from 184 Australian NPD projects, this study provides empirical support for the proposition that interpersonal trust (affective and cognitive), interpersonal conflict (functional and dysfunctional) and interpersonal collaborative behaviour, do indeed have a strong association with new product project success.

Keywords

Effectiveness, Marketing, Working, Relationship, during, NPD, Projects

Disciplines

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The Effectiveness of the R&D/Marketing Working Relationship during NPD projects.

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Abstract

The complex nature of new product development (NPD) activities within firms often requires high levels of integration between the Marketing function and the Research and Development (R&D) function. The nature of this cross-functional relationship has received considerable research attention with an emphasis on achieving successful departmental integration during NPD projects. This study examines the nature of cross-functional relationships (CFRs) from a micro-management perspective. That is from the perspective of the R&D Manager and the Marketing Manager, continues previous conceptual development by (Anon) that suggested that this working relationship is more complex than previously conceptualised by NPD researchers. By using data collected from 184 Australian NPD projects, this study provides empirical support for the proposition that interpersonal trust (affective and cognitive), interpersonal conflict (functional and dysfunctional) and interpersonal collaborative behaviour, do indeed have a strong association with new product project success.

Key words: interpersonal trust, collaboration, conflict, NPD success

Introduction

The working relationship between functional specialists during NPD activities has long been recognised as a problematic area for top management with new product failure often attributed to low levels of integration between the Marketing function and Research and Development (R&D) function (Gupta, Raj and Wilemon 1986; Moenaert, Souder, De Meyer, and Deschoolmeester 1994; Cooper and Kleinschmidt 1987; Griffin and Hauser 1996). Empirical evidence clearly indicates that successful integration between Marketing, and (R&D) functions during the NPD process does have a significant positive impact on new product success rates (Aaker and Day 1986; Cooper and Kleinschmidt 1987). There are numerous NPD tasks, (e.g., setting new product goals and objectives, generating new product ideas, screening ideas, which require effective integration between the two functions (Griffin and Hauser 1996). It is when these roles are not performed effectively due to poor integration that many of the causes of new product failure emerge. To ensure that integration occurs between functional specialists, top management have often relied on linkage mechanisms which have increased the volume of communication between functions e.g., Quality Functional Deployment, project formalisation and formal meetings. This 'interaction approach' (Griffin and Hauser 1996, Ruekert and Walker 1987) emphasises the use of communication in the form of meetings and information flows between departments to improve integration levels has been questioned in terms of its overall effectiveness in reaching truly effective working relationships between functions. Specifically, Kahn (1996) examined the nature of 'integration' and how it was characterised in past research. He found that a significant proportion of this literature has focused on interaction, while others have viewed integration as collaboration (Lawrence and Lorsch 1967, Souder 1977). By not treating 'information sharing and involvement' as separate empirical constructs Kahn suggests that the complex nature of departmental relationships are not adequately captured. As a result he proposes that integration be defined as a multi-dimensional process that subsumes interaction and collaboration. He defines collaboration as "an affective, volitional,

mutually/shared process where two or more departments work together, have mutual understanding, have a common vision, share resources and achieve collective goals p.139". Jassawalla and Shahittal (1998) provide support for Kahn's argument that integration and collaboration are separate constructs. They defined "collaboration" as a more complex, higher intensity cross-functional linkage where "in addition to high levels of integration, is characterised by participants who achieve high levels of at-stakeness, transparency, mindfulness and synergies in their interactions (p.240)". They found that high levels of trust existed amongst functional managers who had achieved collaboration between themselves. Their finding adds support to Jones and George (1998) who studied teamwork and also found that the existence of trust has a beneficial effect on several social processes including: the existence of broad role definitions leading to greater citizenship behaviours, better communal relations, high confidence in others, help-seeking behaviour, free exchange of knowledge and information, subjugation of personal needs and ego for the greater common good, and high involvement in processes. Their description of the behaviours which characterise the existence of trust is very similar to that of the behaviours exhibited by managers in collaborative relationships (Jassawalla and Shashittal 1998) and therefore further strengthens the argument for the need to study interpersonal trust in working relationships. This study therefore aims to provide empirical support for the proposition that several key relationship variables such as interpersonal trust (both affective and cognitive-based), functional and dysfunctional conflict and interpersonal collaboration do influence NPD outcomes. In addition, for the first time the relationship between several communication behaviours and these key relationship variables are explored in the context of NPD projects.

Theoretical Framework

The theoretical framework for this study is drawn from two areas, social exchange theory (Blau 1964) where the social aspect of working relationships is explained, and the interaction approach which focuses on understanding how factors such as communication predict relationship performance (e.g., Moenaert et al 1994; Ruckert and Walker, 1987). Several variables determine whether or not the interpersonal dynamics between the two managers have "positive" or "negative" outcomes. Interpersonal dynamics are measured in terms of communication frequency, bi-directional communication, affect-based trust and cognitive-based trust, functional conflict, dysfunctional conflict and interpersonal collaborative behaviour. These variables (discussed below) are drawn from the interpersonal trust and social exchange theory, where the process of developing interpersonal trust and the outcomes of interpersonal trust have an effect on interpersonal relationships.

Communication based variables: Communication frequency is included because it is a key variable affecting many types of relationships (e.g., Mohr and Nevin, 1990; Ruckert and Walker, 1987) and is defined as the intensity of information flows between the Marketing Manager and the R&D Manager via means such as formal meetings, reports, and telephone conversations (Van de Ven and Ferry, 1980). Bi-directional communication which is defined as the extent to which communication between two focal managers is a two-way process is included due to its importance in CFRs and other exchange relationships (e.g., Fisher et al. 1997; Mohr, Fisher, and Nevin, 1996). Importantly, others have noted that bi-directional communication is especially important during NPD (e.g., Wheelwright and Clark, 1992). Lastly, communication quality is included as several studies have found that the quality of communication provided by Marketing to RandD on NPD projects affects the CFR (e.g.,

Gupta, Raj and Wilemon, 1986; Gupta and Wilemon, 1988). Communication quality in terms of how credible, understandable, relevant, and useful information provided by the Marketing Manager was for the RandD Manager's task completion (Moenaert and Souder, 1992).

Interpersonal trust (Affect-based and Cognitive Based): Trust between interdependent actors helps coordinate actions, and improve effectiveness (Salmond 1984; Pennings and Woiceshyn, 1987), and can therefore assist firms using cross-functional teams, or other cooperative structures to coordinate work. Trust is important in CFRs because managers need to act as boundary spanners and develop effective horizontal ties within the firm (Gabarro, 1990; McAllister, 1995). McAllister (1995) found that interpersonal trust between managers has two underlying dimensions, one cognitive, and the other affective. Where cognition-based trust arising from perceptions as to how competent, reliable and dependable another person is regards to their task performance. The perceived incompetence of marketing staff has been identified as a major barrier to integration (Gupta, Raj and Wilemon 1985, Souder 1988, Gupta and Wilemon 1988, Workman 1998, Shaw and Shaw 1998). In contrast, affect-based trust is an emotional form of trust, in which one party exhibits genuine concern and care for the welfare of the other person and is grounded in reciprocated expressions of interpersonal care and concern (Pennings and Woiceshyn 1987, Rempel et al 1985). McAllister (1995) found that managers expressing high-affect based trust looked for more opportunities to meet their peers' work-related needs and to engage in more productive intervention in task-related situations thus warranting its inclusion in this study.

Interpersonal Conflict (Dysfunctional and Functional): The NPD process does cause considerable "conflict" between Marketing and R&D personnel because of conflicting goals, objectives and priorities (Gupta and Wilemon 1985, Souder 1988, Dougherty 1992, Workman 1997, Song, Xie and Dyer 2001). Much of the NPD integration literature has taken the traditional view of conflict held in the organizational literature, wherein conflict is seen as negative and should be minimized or managed. However, Menon et al (1996) examined the role that conflict plays in organizations and proposed that it should be measured on two dimensions: firstly, as dysfunctional, defined as "unhealthy behaviours within an organization such as distortion and withholding information to hurt other decision makers, hostility and distrust during interactions ... and creating obstacles to impede the decision making process" (p.303) and, secondly, as functional conflict which refers to "the healthy and vigorous challenge of ideas, beliefs and assumptions" (p.303). Functional conflict leads to consultative interaction, with useful give-and-take among organizational members, where opinions and feelings are expressed freely, and where there is a willingness to consider new ideas and changes (Menon et al 1996). They found strong empirical support for functional conflict improving interdepartmental relations, communication quality, and "esprit de corps". Thus providing sufficient theoretical and empirical evidence to justify that functional conflict is an important variable that needs to be included in a conceptualization of interpersonal working relationships.

Interpersonal Collaborative Behaviour: This is the expression of all the positive aspects of interpersonal working relationships i.e., effective communication, trusting behaviour, volitional cooperation, mutual problem solving, and esprit de corps. As such, the concept of interpersonal collaboration is grounded in social exchange theory (Blau 1964). Interpersonal collaborative behaviour is distinct from co-operation, where people may co-operate with each other because they feel that they have to i.e., where participants do not want to engage in such behaviours but feel constrained by organizational pressures (e.g., task specification,

politics). It is a form of “volitional co-operation”, where participants want to co-operate with and freely interact with others. When collaborative behaviour occurs amongst managers, there is a tendency to view the relationship as productive and the other manager in a favourable way (Kahn 1998; Kahn and Mentzer 1998; Jassawalla and Shashittal 1998).

Sampling Frame, Unit of Analysis and Method

The respondents for this study were R&D Managers (e.g., R&D Managers, Engineering Managers, Manufacturing Managers) from Australian manufacturing companies, who had been involved in a new product development project within in the last 3 years and also had significant interaction with a Marketing Manager during that project. Data was collected using a pre-tested, mailed, self-administered questionnaire. The sampling frame came from a commercial mailing list which identified companies with both a Marketing Manager and an R&D Manager. By screening the mailing list, 334 Managers agreed to participate in the study, and after 2 mail-outs this resulted in 184 usable responses, a net response rate of 54%. Of this achieved sample, 95.1% were goods producers, and the remaining 4.1% were software producers. Consumer marketers accounted for 47.7%, business-to-business marketers 44.8%, and 7.5% sold into both markets.

Operational Measures and Measure Refinement

The measures used in this study comprised of seven reflective multi-item constructs measured on a seven-point scale anchored by 1 “Completely Disagree” and 7 “Completely Agree.” All constructs displayed good measurement properties (e.g., bi-directional communication $\alpha = .73$ (c.f., Fisher, Maltz and Jaworski), quality of communication $\alpha = .93$ (Moenaert et al 1994, cognition-based trust $\alpha = .88$, affect-based trust $\alpha = .93$ (McAllister 1995), functional conflict $\alpha = .79$, dysfunctional conflict $\alpha = .71$ (Menon et al 1996), and interpersonal collaboration = .91 (Kahn and Mentzer 1996) These reflective multi-item measures were examined using exploratory factor analysis and found to be uni-dimensional. Only one formative scale was used, new product success.

Results

Both types of trust, affect-based and cognitive-based trust were found to have strong associations with several key relationship variables. Cognitive-based trust (CBT) had a strong positive association with the key relationship variables, functional conflict (.630**), interpersonal collaborative behaviour (.667**) indicating that the perception of the Marketing Manager as competent in their discipline does affect working behaviours. Conversely, where there was low CBT there is a strong association with dysfunctional conflict (-.572**). CBT had a strong association with the communication variables, quality of communication (.685**) and bi-directional communication (.603) yet a weaker yet still significant correlation with communication frequency (.292*). Affect-based trust (ABT) was found to have the strongest association of all variables with NPD success (.430**) and a strong positive association with functional conflict (.573**), interpersonal collaborative behaviour (.679**) and indicating that the perception that the Marketing Manager “has care and concern” for the R&D Manager does affect working behaviours. Conversely, where there was low ABT there is a strong association with dysfunctional conflict (-.413**). The data indicates a positive correlation between interpersonal collaborative behaviour and new product success, providing some empirical support for the viewpoint (Kahn 1996, Jassawalla and Shashittal 1998, anon) that interpersonal collaborative behaviour during new product

success does have a positive effect on new product outcomes. As expected dysfunctional conflict was found to have a strong negative association with interpersonal collaborative behaviour (-.544**) and functional conflict a very strong positive relationship (.654**). Interpersonal collaborative behaviour is also positively correlated with all three communication variables, communication frequency (.348**), bi-directional communication (.710**) and quality of communication (.727**) supporting the viewpoint that communication between functional specialists is an important area of investigation.

Table 1: Correlations between the Key Constructs

	Comm Freq.	Bi-di Comm	Qual. of Comm	CBT	ABT	Funct. Conf.	Dysf. Conf	Collab Behav
Comm Freq.	1							
Bi-di Comm.	.388**	1						
Qual. Of Comm.	.352**	.745**	1					
Cognitive Trust	.240**	.603**	.685**	1				
Affective Trust	.292**	.620**	.559**	.698**	1			
Funct. Conflict	.218**	.561**	.530**	.630**	.573**	1		
Dysfunct. Conflict	-.148*	-.482**	-.564**	-.572**	-.413**	-.506**	1	
Collab. Behav.	.348**	.710**	.727**	.667**	.679**	.654**	-.544**	1
New Prod Success	.246**	.403**	.302**	.367**	.430**	.359**	-.323**	.383**

** Correlation is significant at the 0.01 level (2 tailed) * Correlation is significant at the 0.05 level (2 tailed)

Discussion and Implications for Future Research

The results of this study provide support for the proposition that working relationships between Marketing and R&D Managers are more complex in nature than previously conceptualised (Kahn 1996, Jassawalla and Kahn 1998) and that interpersonal collaborative behaviour does have a positive association with NPD success. Further these results indicate that interpersonal trust, conceptualised as a two-dimensional variable may indeed play a more important role in NPD working relationships than previously thought. Thus supporting the viewpoint of several management researchers (Williams 2001; McAllister 1995; Dirks and Ferrin 2001) that interpersonal trust is indeed associated with many of the behaviours such as communication, conflict and collaborative that are exhibited in working relationships between functional managers. Future research needs to focus on the structural nature of the relationships between the key variables identified in this study as having an association with NPD success. Specifically does trust lead to collaboration, does functional conflict precede collaboration or follow it? Does quality communication precede frequent communication? Once the direction of these relationships has been established management will have a much clearer picture in terms of strategy development for improving the working relationship between functional managers.

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