

The Effects of Formal and Informal Communication between Marketing and R&D Managers during New Product Development Projects

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Abstract

Effective cross-functional integration between Marketing and R&D functions is considered essential to achieve key NPD outcomes. To achieve this integration, functional specialists need to communicate effectively with one another to achieve their respective task goals. This paper examines the role of two forms of interpersonal communication, formal and informal, on three key NPD outcome variables—NPD success, perceived relationship effectiveness, and interpersonal collaboration. The relationships between these variables are tested in a structural model using PLS. Data was collected from 184 R&D Managers in Australia who worked on NPD projects. Our results show that both formal and informal communication have a positive effect on NPD success and on Marketing Manager/R&D Manager working relationships. This study provides empirical support for the proposition that whilst formal communication between managers is important in NPD projects, managers should also be aware that informal communication should also be encouraged, as it has strong positive effects on NPD project outcomes.

Key Words: Informal and formal communication, cross-functional relationships, new product development.

Track: Marketing Strategy and New Product Development

Introduction

The challenge for top management when trying to improve cross-functional integration on day to day issues, and on important projects such as new product development (NPD), has traditionally focused on increasing communication and information-sharing between departments and their managers. Consistent with this many formal NPD systems (e.g., Stage Gate; Concurrent Engineering; QFD) heavily emphasise cross-functional communication. Consistent with this, Moenart and Souder (1990) argued that the innovation process “is essentially informational, the transfer of information is therefore the major vehicle that allows individuals to become integrated (p.98)”. A key role played by communication in the NPD process is to reduce uncertainty for the key organizational actors in four key areas: (1) consumer related uncertainty where determining consumer needs and expectations is required, (2) technology related uncertainty where companies may be using unfamiliar technologies or creating new ones, (3) competitor related uncertainty where knowing what offerings currently exist and are likely to be developed is critical, and (4) organisational resource issues where trying to determine what assistance is available in terms of financial, people-based and political support are key concerns. Information transfers between functional units, and their managers, are a means to achieve this reduction in uncertainty (Moenaert and Souder 1992). The NPD literature also clearly identifies information transfer between Marketing and R&D as one of the key antecedents to effective cross-functional working relationships, and various studies have linked integration between Marketing and R&D functions and NPD success. (Ruekert and Walker 1987; Gupta and Wilemon 1988; Moenaert and Souder 1992; Moenaert *et al* 1994; Griffin and Hauser 1996).

Information transfers between functions have been conceptualised and measured in various ways: (1) the *amount* of communication between functions—often referred to as *communication frequency* and represent the intensity of information flows through all available forms of communication (e.g., formal meetings, reports, informal chats, emails, telephone conversations) (2) the *quality* of information defined as how credible, understandable, relevant and useful for task completion (Gupta and Wilemon 1988, Moenaert and Souder 1992; Moenaert *et al* 1994; Song, Xie and Dyer 2000) (3) *bidirectional communication*—where information flows are a two-way process and include feedback, a variable which has been found to be an important predictor of effective relationships (Fisher, Maltz and Jaworski 1997; Smith and Barclay 1998; Dawes and Massey 2005; Massey and Kyriazis 2007) (4) *communication openness*—i.e., the formal and informal sharing of timely information between relationship partners, and involves mutual disclosure of plans, programmes, and expectations (Anderson and Weitz 1989; Smith and Barclay 1998). In this paper however, we focus on the effects of two other communication dimensions—formal and informal communication, and their effects on three key NPD outcomes—the levels of *cross-functional collaboration*, *perceived relationship effectiveness*, and *NPD success*.

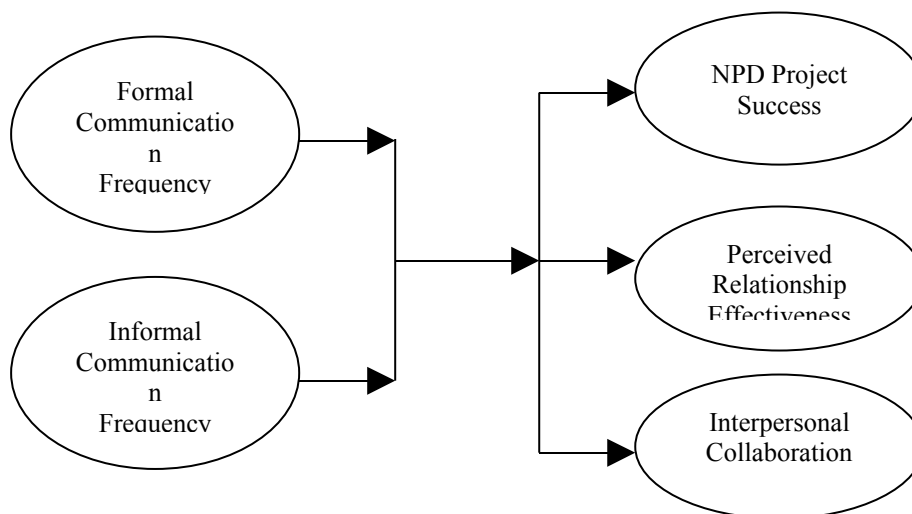
Our focus on formal and informal communication is justified by social interaction theory, which suggests that people have significant effect salience from the more personal communication channels (cf. Johnson, Donohue, Atkin and Johnson 1994). Similarly, the trust literature suggests that relationships develop more effectively when there is an opportunity to assess others behaviour through social interaction (Blau 1964; Hosmer 1995). The results we present here regarding formal versus informal communication between functional managers, and their effects on key NPD outcomes sheds light on the role of communication as an integration mechanism (Kahn 1996; Kahn and Mentzer 1998).

The paper is structured as follows. First we present the main theoretical framework we draw upon, then we introduce, define, and justify our choice of the three NPD outcome variables. Next we present our model and hypotheses, our methodology, and details regarding the measurement and operationalisation of our variables. Last, we discuss our results and their implications, limitations of the paper, and directions for future research.

Theoretical Framework

This research draws upon the interaction approach to cross-functional relations, a theoretical framework that has been used in many important studies of marketing's relationships (e.g., Ruekert and Walker 1987; Moenaert *et al* 1994; Fisher, Maltz and Jaworski 1997), and focuses on how factors such as communication predict satisfaction, performance, and relationship continuity in various contexts, e.g., buyer-seller and channel relationships (e.g., Anderson and Narus 1990; Morgan and Hunt 1994), and cross-functional relationships (e.g., Ruekert and Walker 1987). The interaction approach is an appropriate theoretical framework, as it relates to communication between functional specialists (Moenaert *et al* 1994). Effective communication during NPD is an aspect of highly integrated functions and a hallmark of collaborative relationships between functional managers (Jassawalla and Sashittal 1998).

Figure 1: Hypothesized Model of Marketing/R&D Manager Communication and Key NPD Outcome Variables



The Independent Variables

In their review of the Marketing/R&D interface literature during NPD, Griffin and Hauser (1996) identified the benefits of increased communication frequency between the two functions as being improved mutual understanding, more harmonious relations, an appreciation of the information styles and communication preferences of individual managers, better conflict resolution, and the development of trust. As a “global” construct, “communication frequency” refers to the number of times information is transmitted from one functional manager to another over a period of time (cf. Van de Ven and Ferry 1980). It is measured as the intensity of information flows through all available forms of communication e.g., formal meetings, reports to informal chats, emails, telephone conversations. In this paper however, we decompose this global construct into two underlying dimensions—*formal*, and *informal communication frequency* between functional managers working on NPD projects. Formal communications are

defined as those communications that occur through scheduled structured means e.g., formal NPD systems, and formal meetings. Informal communication is that communication that is impromptu, not requiring any planning, and not organised or required by the formal organisation.

Key NPD Outcome Variables and Hypotheses

In this study three outcome measures are used. First, an objective measure—*NPD success*, which is based on financial returns to the organization. Second, *perceived relationship effectiveness*, a subjective measure used in a number of previous studies of cross-functional relationships. Finally, *interpersonal collaboration* which captures behavioural aspects of cross-functional working relationships. The three measures are described below:

New Product Success: Measuring a project's success or failure is an accepted practice of many NPD active companies (Griffin and Page 1993; Kahn, Barczak and Moss 2006). New product success is conceptualised as the extent to which the project met several important performance measures, e.g., meeting budget, time, sales, and profit targets (Moorman 1992; Griffin and Page 1993; Griffin 1997). Research suggests that NPD projects in which there is high frequency of cross-functional communication tend to be more successful (Griffin and Hauser 1996). Accordingly we hypothesize:

Hypothesis 1_a: Greater formal communication frequency between the Marketing Manager and the R&D manager will lead to greater NPD success

Hypothesis 1_b: Greater informal communication frequency between the Marketing Manager and the R&D manager will lead to greater NPD success

Perceived Relationship Effectiveness: The outcome variable *perceived relationship effectiveness* is drawn from Van de Ven (1976) and relates to the extent to which the R&D Manager perceives their relationship with the Marketing Manager to be worthwhile, equitable, productive and satisfying. Consistent with other studies (e.g., Ruckert and Walker 1987; Anderson and Narus 1990; Smith and Barclay 1997; Dawes and Massey 2006; Massey and Dawes 2007) this construct is operationalised at the interpersonal level rather than the interdepartmental level. This subjective outcome measure is used as there is significant empirical evidence to suggest that effective communication is strongly associated with successful product development outcomes (e.g., Souder 1981, 1988). Therefore we hypothesize:

Hypothesis 2_a: Greater formal communication frequency between the Marketing Manager and the R&D manager will lead to greater perceived relationship effectiveness

Hypothesis 2_b: Greater informal communication frequency between the Marketing Manager and the R&D manager will lead to greater perceived relationship effectiveness

Interpersonal Collaborative Behaviour: Collaborative behaviour is the expression of all the positive aspects of interpersonal working relationships i.e., trusting behaviour, volitional co-operation, 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 organisational pressures (e.g., task specification, politics). Interpersonal

collaboration 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 to view the other manager in a favourable way (Kahn, 1996; Jassawalla and Sashittal 1998; Kahn and Mentzer 1998). Accordingly we hypothesize:

*Hypothesis 3_a: Greater **formal** communication frequency between the Marketing Manager and the R&D manager will lead to greater interpersonal collaboration.*

*Hypothesis 3_b: Greater **informal** communication frequency between the Marketing Manager and the R&D manager will lead to greater interpersonal collaboration.*

Sampling Procedure and Operational Measures

Data was collected from R&D Managers in Australian firms, acting as key informants on the relationship with their counterpart Marketing Manager. The survey used a pretested, mailed, self-administered questionnaire. This resulted in a 184 usable responses, a net response rate of 54%. The sample of 184 firms comprised mostly goods producers (96.2%), while the remainder (3.8%) were software producers. Consumer marketers accounted for 47.0%, business-to-business marketers 23.5%, and 29.5% sold into both markets.

Formal communication frequency was measured by creating a 5 item formative measure composed of various formal communication methods drawn from the relevant literature (e.g., Fisher, Maltz, and Jaworski 1997; Morgan and Piercy 1998). These include: scheduled one-to-one meetings, scheduled one-to-one phone conversations, teleconferencing, reports and e-mail. Similarly, informal communication was measured using a 3 item formative measure which includes: impromptu one-to-one phone conversations, impromptu face-to-face conversations, and informal face-to-face conversations in a non-work setting. Respondents were asked how frequently they communicated by the methods listed above, scale anchors: 1 = “Never”, 7 = “Very Frequently”. Our three dependent variables were reflective multi-item measures, using seven-point Likert scales anchored by 1 = “Completely Disagree” and 7 = “Completely Agree.” All three reflective constructs displayed good measurement properties e.g., perceived relationship effectiveness (composite reliability = .96; average variance extracted =.746), interpersonal collaboration (CR = .94; AVE = .815) and new product success (CR = .92; AVE = .689). We therefore believed that it was appropriate to proceed to analyse our structural model.

Model Testing

Partial Least Squares (PLS) was used to estimate our structural model as: (1) the primary concern is prediction of endogenous variables (cf. Chin 1998; Diamantopolous and Winklhofer 2001; Fornell and Bookstein 1982), (2) both formative and reflective measures are used, (3) PLS allows the use of constructs that are lower in theoretical development, without as great a risk of model misspecification (Chin 1998), (4) no assumptions are made about multivariate normality, and (5) the final sample size is not large (n = 184). The stability and significance of the parameter estimates were established by computing t-values using 500 bootstrap samples. As shown in Table 1, all 6 hypotheses were supported indicating that both forms of communication play important roles in the NPD process.

Table 1: Structural Model Testing Results

Linkages in the Model	Hypoth.	Std.	t-stats.
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		Sign	Betas	
Formal communication	→ NPD success	H1 _a (+)	.243	3.930***
Informal communication	→ NPD success	H1 _b (+)	.133	2.451**
Formal communication	→ Perceived Relationship Effectiveness	H1 _c (+)	.250	3.554***
Informal Communication	→ Perceived Relationship Effectiveness	H2 _a (+)	.248	3.631***
Formal communication	→ Collaboration	H2 _b (+)	.228	3.208***
Informal communication	→ Collaboration	H2 _c (+)	.302	4.645***

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ One-tailed tests

NPD Success

$R^2 = .110$

Perceived Relationship Effectiveness $R^2 = .159$

Interpersonal Collaboration

$R^2 = .187$

Results and Managerial Implications

The NPD process within firms is often very formalised, and many organizations use NPD systems such as quality functional deployment (QFD) to ensure that formal communication between functional specialists does occur and is documented (Griffin 1992). Importantly, senior management need to know which forms of communication are most effective during NPD. Our results suggest that firms wishing to improve their NPD outcomes should focus not only on increasing formal communications between functional managers involved in NPD, but also increasing informal communications, as both forms of communication lead to improved NPD outcomes. Of particular interest is our finding that informal communication has a much greater effect on collaboration during NPD than formal communication. Hence whilst NPD systems may improve outcomes via increased formal communication flows, collaboration during NPD is best achieved via informal contact. The results for the effects of both forms of communication on the perceived effectiveness of the Marketing Manager/R&D Manager working relationship were approximately equal, suggesting that both forms of communication are important. Turning now to our third dependent variable NPD success, we do see formal communication taking a more dominant role, as its effects on this dependent variable are approximately 80% stronger than informal communication. The main implications of these findings for senior management are that emphasis should not be placed solely on formalized NPD systems. Whilst they are important means by which to structure activities and interactions to improve NPD outcomes, informal communications should also be encouraged. The uncertainty of NPD work, its changing nature and the potential for unexpected competitor actions require key managers to communicate effectively with each other, and an overly formalized process may suppress some important informal interactions. Working relationships in which there is greater informal communication and resulting collaborative behaviours, will bolster the effects of firms' formal NPD systems.

Limitations and Future Research Directions

One limitation of these results and a possible future research direction is the interpretation of "email" as either a formal or informal communication method. In addition, future research disaggregate "formal" and "informal" communications further into specific formal/informal modes of communication in order to assess the differential effectiveness of these forms of communication on NPD outcomes. Such research could go some way towards identifying the appropriate balance between formal and informal communication during NPD projects.

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