

**İSTANBUL TECHNICAL UNIVERSITY ★ INSTITUTE OF SCIENCE AND TECHNOLOGY**

**THE ROLE OF MARKETING ACCOUNTABILITY AT THE MARKETING  
AND RESEARCH AND DEVELOPMENT DEPARTMENTS' INTEGRATION  
AND THE NEW PRODUCT SUCCESS**

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**Programme : Management Engineering**

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**FEBRUARY 2009**

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**PAZARLAMA HESAP VEREBİLİRLİĞİNİN, PAZARLAMA VE  
ARAŞTIRMA-GELİŞTİRME DEPARTMANLARININ ENTEGRASYONUNA  
VE YENİ ÜRÜN BAŞARISINA ETKİSİ**

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**ŞUBAT 2009**

## **FOREWORD**

This thesis is a consequent of a strong commitment and high endeavor. I believe and hope that it will contribute to marketing theory and provide important managerial insights for companies.

I would like to express my sincere appreciation to those who have supported my work on this thesis. First of all, I would like to thank to Assist.Prof.Dr. Elif Karaosmanođlu and Prof.Dr. Ed Nijssen, for serving as my supervisors. Their support, criticism, suggestions and guidance, all the way through the project, are greatly appreciated.

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December 2008

Ođuz Ali Acar  
Management Engineer



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## **ABBREVIATIONS**

<b>ANA</b>	: Association of National Advertisers
<b>B2B</b>	: Business to Business
<b>B2C</b>	: Business to Consumers
<b>CLV</b>	: Lifetime Value of the Customer
<b>HOQ</b>	: House of Quality
<b>ICT</b>	: Information and Communication Technology
<b>INT</b>	: Integration
<b>JL</b>	: Joint Learning
<b>MA</b>	: Marketing Accountability
<b>MMA</b>	: Marketing Management Analytics
<b>MR</b>	: Marketing Recognition
<b>NPD</b>	: New Product Development
<b>NPP</b>	: New Product Performance
<b>NPS</b>	: New Product Success
<b>PACE</b>	: Product and Cycle-time Excellence
<b>QFD</b>	: Quality Function Deployment
<b>R&amp;D</b>	: Research and Development
<b>ROI</b>	: Return on Investment
<b>SA</b>	: Soft Approaches
<b>TR</b>	: Trust



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# **THE ROLE OF MARKETING ACCOUNTABILITY AT THE MARKETING AND RESEARCH AND DEVELOPMENT DEPARTMENTS' INTEGRATION AND THE NEW PRODUCT SUCCESS**

## **SUMMARY**

Marketing accountability is accepted as an important issue in various studies due to the current business working atmosphere, in which proof of contribution is demanded. At the same time, the integration between marketing and research and development (R&D) departments is stated as crucial for successfully commercialization of new products. Recognizing that these both fertile research areas but also a lack of integration between them, this study sets out to conjoint these streams. The purpose of our research is to provide new insights to the antecedents and outcomes of the marketing and R&D departments' integration. In summary, marketing accountability affects perceived marketing competence, which may improve the R&D department's trust towards marketing department. Moreover, marketing accountability also impacts R&D department's recognition towards marketing department. Increased trust and recognition may breed higher levels of integration between marketing and R&D departments. It is also proposed that soft approaches may have a moderating role in trust-integration and recognition-integration relationships in addition to affecting integration of marketing and R&D departments directly. Furthermore, it can be expected that increased integration may lead to higher new product success (NPS). Importantly, joint learning of the departments has a mediating effect between integration and NPS. In other words, higher integration creates an environment which fosters joint learning and hence higher NPS.



## **PAZARLAMA HESAP VEREBİLİRLİĞİNİN, PAZARLAMA VE ARAŞTIRMA-GELİŞTİRME DEPARTMANLARININ ENTEGRASYONUNA VE YENİ ÜRÜN BAŞARISINA ETKİSİ**

### **ÖZET**

Pazarlama hesap verebilirliğinin, firmaya ne ölçüde katkı sağlandığının ispat edilmesinin çok daha fazla talep edildiği günümüz iş dünyasındaki önemi, birçok araştırma tarafından ortaya koyulmuştur. Aynı zamanda, yeni ürünlerin başarılı bir şekilde piyasaya sürülmesi için pazarlama ve araştırma-geliştirme (Ar-Ge) departmanlarının entegrasyonun gerekliliği de birçok araştırma tarafından belirtilmiştir. Bu iki alandaki zengin araştırmalara rağmen literatürde bu alanları birbiriyle entegre eden bir araştırmanın eksikliği görülmektedir. Bu araştırma pazarlama ve Ar-Ge departmanlarının entegrasyonunun öncelleri ve sonuçları üzerine yeni yaklaşımlar getirmeyi amaçlamaktadır. Özet olarak, pazarlama hesap verebilirliği, pazarlama departmanının algılanan yetkinlik düzeyini artıracak bu da Ar-Ge departmanının pazarlama departmanına olan güven düzeyini artıracaktır. Ek olarak, pazarlama hesap verebilirliğinin artması Ar-Ge departmanının pazarlama departmanını tanıma düzeyini artıracaktır. Bu tanıma ve güven düzeyi artışı, pazarlama ve Ar-Ge departmanlarının daha yüksek düzeyde entegre olmalarını sağlayacaktır. Ayrıca pazarlama departmanının Ar-Ge departmanını yumuşak etkileme yaklaşımlarının, entegrasyona doğrudan ve pozitif etkisinin yanısıra, güven-entegrasyon ve tanıma-entegrasyon ilişkileri üzerinde de moderator etkisinin olması beklenmektedir. Buna ek olarak, artan entegrasyon düzeyinin yeni ürün başarısı üzerinde pozitif bir etkisinin olması beklenmektedir. Önemli bir başka ilişki de pazarlama ve Ar-Ge departmanları arasındaki ortak öğrenim düzeyinin entegrasyon ve yeni ürün başarısı arasındaki ilişkide aracı etkisinin olmasıdır. Başka bir deyişle, yüksek entegrasyon düzeyi, ortak öğrenimi destekleyen bir atmosfer oluşturmakta ve bu da daha yüksek yeni ürün başarısı sağlamaktadır.



## 1. INTRODUCTION

Environmental conditions increasingly force organizations to innovate and bring new products and services to the markets that they operate. Since only limited percentages of innovations are successful, comprehending the factors affecting innovation is crucial (Barkema et al., 1998). It is widely agreed that effective integration of marketing, product engineering and manufacturing is vital for successful development and commercialization of new products. Therefore, it is concluded that product innovation is a multidisciplinary process (Gupta et al., 1986a, 1986b; Shaw et al., 2004). Although all functional interfaces are important in the product development process, the interface between research and development (R&D) and marketing is one of the most critical ones. They jointly put input into many organizational tasks upon which the success of enterprise rests such as next generation of product improvement, new product development (NPD), resolving engineering design and customer need tradeoffs (Griffin & Hauser, 1996; Gupta et al., 1986a, 1986b). Despite the importance of integration within the dyad, anecdotal and empirical evidence suggest that there is still a higher possibility of conflict between marketing and engineering personnel (Shaw et al., 2004). Therefore, there is still a considerable need to focus on what can increase the integration within marketing and R&D departments.

On the other hand, despite the vital role of marketing as an organizational function for product acceptance in the marketplace and identifying avenues of growth for a firm, it generally has a low level of credibility and less influence than it should have in a firm. The main reason for this can be marketing departments' lack of accountability and the misrepresentation of their abilities and desire to explain and measure the impact of their actions on firm performance (Sheth & Sisodia, 2002). Authors who focus on this area (e.g. Atuahene-Gima & Evangelista, 2000; Baker & Holt, 2004; Workman, 1993) stress the distrust and lower recognition towards marketing by R&D department, which may be a consequence of the lower accountability attribution to marketing department.

This thesis takes the discussion above into consideration, and sets out to conjoint the areas of marketing-R&D integration and marketing accountability. Linking the two may spur a better integration within R&D and marketing departments. Marketing accountability affects perceived marketing competence, which will improve the trust,



and recognition. Increased trust and recognition will breed higher integration and learning. It is also proposed that soft approaches may have a moderating role within the marketing and R&D dyad.. Furthermore, it can be expected that increased integration may lead to higher new product success (NPS). Importantly, joint learning of the departments has a mediating effect between integration and NPS.

In the following sections, first why the above subject has significance in the marketing field (Section 1.1), and second, what this research aims to examine are explained (Section 1.2). Third, the context of the study and the targeted population for the data collection are described (Section 1.3). Fourth, how the investigation was conducted, and which data collection and analysis methods were used are presented (Section 1.4). Fifth, the contribution of the research is discussed (Section 1.5). Finally, the structure of the chapters and the definitions of the key concepts are provided (Section 1.6).

### **1.1 Relevance of the Research**

The need for managing flows across marketing and R&D boundaries was recognized as important in the 1970s, and research in the area was initiated. Managing the interface became critical in the 1980s and has continued to be important to firm success since then (Griffin and Hauser, 1996).

There exist a broad range of scientific evidence that demonstrates better integration within marketing and R&D, is essential for new product success of the company (e.g. Cooper, 1979, 1984a, 1984b; Griffin and Hauser, 1996; Gupta et al., 1985b; John and Smelson, 1990; Madique and Zirger, 1984; Moenaert and Souder, 1990; Shaw et al., 2004; Souder, 1988).

While studies (e.g. Nonaka, 1994; Shih et al., 2006) have suggested that knowledge sharing among individuals strengthens knowledge creation and recent empirical evidence also indicates that knowledge sharing among NPD members can facilitate NPD performance (Chang et al., 2006), identifying effective mechanisms for stimulating knowledge sharing among NPD members across different functional areas has largely remained an untapped source of competitive edge (Chang et al., 2007).

The concept of accountability has become increasingly important in organizational practices over the past decades, given the centrality of the concept in corporate governance and new public management, both frameworks steering current public and private sector organizational change (Vandekerckhove, 2006). There exist

various studies that introduce the problem about accountability of marketing both in practitioner and academic journals (Matthews, 2002).

Moreover, organizational learning stated as a popular context in modern managerial studies (Argyris and Schon 1978). The significance of organizational learning for success of company is pointed out in various researches (e.g. Argote and Ingram, 2000; Dimovski and Skerlavaj 2005; Darr et al. 1995; Cohen and Levinthal 1990; Montes 2005).

In summary, the above evidence from earlier studies shows that both integration of marketing and R&D, marketing accountability and organizational learning are major strategic concerns for the success of a company and so that successful management of them is crucial. Therefore, it is imperative to understand antecedents and outcomes of all of them.

## **1.2 Aim of the Research**

The purpose of our research is to provide new insights to the antecedents and outcomes of the marketing and R&D departments' integration. It specifically aims to investigate the role of marketing accountability on achieving higher integration of these departments which in turn may lead to higher new product success (NPS). Basically, it interrogates a mechanism in which marketing accountability affects perceived marketing competence, which may improve the trust, and recognition of R&D department towards marketing department. Furthermore, it is claimed that higher integration creates an environment which fosters joint learning and hence higher NPS. Moreover soft approaches are thought as moderator, within the mechanism, while trust affects integration and also while recognition impact integration. In summary aims of our research are:

- Comprehending the role of marketing accountability on integration of R&D and marketing departments.
- Investigating the antecedents, components and outcomes of relational attitude between marketing and R&D departments
- Understanding the role of soft approaches within the mechanism
- Comprehending the role of joint learning between integration and new product success relationship

### **1.3 The Context and the Respondent Base of the Study**

The questionnaire recipients were R&D department's managers. We wanted to contact to R&D people as we want to measure the effect of marketing accountability at R&D-Marketing integration. Obviously, marketing accountability aims to change other departments&peoples perceptions rather than their own. So that measuring the perceptions of R&D people instead of marketing is more appropriate for our context. Moreover we wanted to measure the perceptions of managers, which relied heavily upon the assumption that managers represented the sentiments of their departments (Philips, 1981). Because each manager oversees the functioning of their respective departments and deals directly with other department managers, it was presumed that each manager would be most involved with interaction and collaborative activities, and thus, most able to reflect appropriate characterizations of interdepartmental situations (Kahn, 1996). The questionnaire is applied in Turkey. Garten (1997) states that Turkey is one of the emerging markets which may influence the world trade substantially.

Contacts were obtained mainly through our personal network and some associations, as there weren't an existing database that includes the contact of R&D managers. The existing databases were no more than general contacts of the companies which will be almost useless to reach R&D managers as response rate is extremely low for general contacts. Usage of our personal network and associations helped us to reach the exact contact of the R&D managers and provided us a reference in our contacts which was expected to increase the participation of R&D managers. Moreover, associations broaden our sample to a great extent, since they have many member organizations and they shared our questionnaire with them.

An email was sent to the R&D managers containing a short message that explained briefly the purpose of the project and its relevancy. A link to the electronic questionnaire was also attached. 10 and 20 days after the initial contact, a first and a second reminder were sent by email. All responses gathered were stored in a website.

### **1.4 Methodology and the Methods Used**

In order to analyze the effect of marketing accountability on marketing-R&D department's integration and NPS, a questionnaire developed. The first step in questionnaire development is specifying the domain of the construct. In this stage, the researcher must thoroughly draw the borders of the constructs under investigation. The robustness of the conceptual framework relies on a good quality literature review covering all related areas (Melewar, 2001).

The focus of this study is the role of marketing accountability in marketing-R&D integration and NPS. Therefore, the literature review comprises of studies in marketing accountability, integration, NPS and knowledge management. On the basis of theoretical information obtained, academic discussions and analysis of potential linkages, the conceptual model was developed. Marketing accountability, marketing's competence, marketing's recognition, soft approaches, integration, joint learning and new product success are defined as the main components of our research.

The second step is generating the items that capture the domain of the construct. Most of the items representing the constructs and their sub-components were generated for the initial item pool from the existing literature. Multi-item scales were used for each component (Churchill, 1979). Some of the scales were based primarily on items demonstrating high reliability and validity in previous studies while the rest of the scales were created by the researcher.

### **1.5 Contribution of the Study**

We make four principal contributions to literature. First we bridge marketing-R&D integration and marketing accountability literatures. Yet no certain study ascertains this linkage and the effect of marketing accountability at marketing-R&D integration and hence new product success. Second, we specifically include soft approaches in our model which received little attention (Workman, 1993). Third, we delineate the relational context between marketing and R&D departments differently by addressing the research that demonstrates distrust and lack of recognition about marketing by R&D department (Atuahene-Gima & Evangelista, 2000; Baker & Holt, 2004; Workman, 1993). We defined relational context within departments, through two determinants, i.e. marketing recognition and trust, which was usually defined by other components in previous studies (e.g., Kostova & Roth, 2002; Ruyter & Wetzels, 2000; Tsai & Ghoshal, 1998). Finally, we introduced a new concept, joint learning, as a mediator between integration of marketing-R&D departments and new product success, by being inspired of joint venture and organizational learning literatures.

### **1.6 Outline of the Thesis**

This thesis has six chapters along with appendices and references. The first chapter discusses the significance, the purpose and the contribution of the study. It continues by presenting the methodology adopted and the context in which it was studied.

Chapter 2 outlines the background of the integration, accountability and organizational learning studies and the outcomes of integration. It also includes definitions and the scope of the key concepts. These are: integration, relational context, competence, influence approaches, barriers of integration, accountability and organizational learning.

Chapter 3 presents the conceptual framework which links the above concepts together. It depicts the indicators for the constructs and sets out the hypotheses for the empirical testing.

Chapter 4 describes the methodology adopted and the methods used to collect the data. It presents the preliminary research and its findings in terms of scale simplification and research instrument design. Chapter 5 presents the analysis and the findings of the main survey. It consists of the initial data analysis, respondent characteristics and the procedures for construct validation and model testing.

Chapter 6 discusses the outcomes of the analysis and provides a link between the literature review and the findings. It also outlines the contribution of this study to the theory as well as to the practice. Moreover, it provides the limitations of the research and suggests directions for future research. The references follow this section.

## **1.7 Definitions of Constructs and Concepts**

**Marketing Accountability:** Observable behaviors to demonstrate systematically the effectiveness of marketing activities and their contribution to the success of the company.

**Marketing's Competence:** Combination of knowledge, skills and behavior utilized to properly perform the marketing tasks and reach high success levels.

**Marketing's Recognition:** The degree of comprehension about marketing department's importance within the company.

**Trust:** The dimension of a business relationship that determines the level to which each party feels they can rely on the integrity of the promise offered by the other party.

**Soft approaches:** The ways of influencing others in none coercive and none threatening way.

**Integration:** Integration in the model is the process consisting of a unified effort by marketing and R&D departments to accomplish company tasks and the demands of the competitive environment which includes both interaction and collaboration processes

**Joint learning (JL):** Learning through collective activities and experiences. In the model JL connotes the degree of the knowledge and skill gathered by both R&D and marketing departments through collective activities and experiences.

**New product success (NPS):** The outcomes of the new product process for the company.



## **2. LITERATURE REVIEW**

As the purpose of our research is to provide new insights to the antecedents and outcomes of the marketing and R&D departments' integration, we investigated the related literature on integration of marketing and R&D departments. The literature on integration highlights many components affecting integration, such as barriers to the integration, approaches for overcoming the barriers, relational context, competence, components of integration (collaboration and interaction), and influence attempts of the departments. Accountability is considered as another antecedent for higher integration and it is evidenced both in academic and business journals (e.g. Matthews, 2002; Moorman & Rust, 1999). Additionally, while investigating the relationship of marketing and R&D departments, we inspired from organizational learning studies which relate organizational learning to the factors that bring success to a company (e.g. Cohen & Levinthal 1990; Crossan, Lane, White, & Lisa, 1995; Skerlavaj & Dimovski, 2005; Swierczek & Dhakal, 2004). Lastly, the outcome of integration is investigated and relation between integration and new product success analyzed. Our literature review is expanded as four broad categories: integration, accountability, organizational learning and outcomes of integration.

### **2.1 Integration of Marketing and R&D Literature Review**

#### **2.1.1 Integration**

There is a rich body of literature on integration but there is little agreement on definitions and components of integration (Kahn, 1996; Kahn and Mentzer, 1998). A considerable part of literature highlights that effective integration is predicated on interaction which emphasizes the use of communication in the form of meetings and information flows between departments (e.g., Carlsson, M., 1991; Griffin and Hauser, 1993; Ruekert and Walker, 1987; Moenaert et al., 1994). In fact, much of marketing literature highlights that "effective" integration is predicated on interaction, and thus, prescribes marketing's increased contact with other departments through information flows (e.g., Carlsson, 1991; Griffin and Hauser, 1992; Moenaert et al., 1994; Urban and Hauser, 1993). Interaction activities are information exchange activities that include committee meetings, teleconferencing,



conference calls, memoranda, and the exchange of standard documentation (Galbraith, 1977; Van de Ven and Ferry, 1980). Other stream of literature has described interdepartmental integration as collaboration, where departments work collectively under common goals where teams and resource sharing symbolize interdepartmental relationships (e.g., Lawrence and Lorsch, 1986; Schrage, 1990; Clark and Fujimoto, 1991). The collaboration view has defined integration as a state of high degrees of shared values, mutual goal commitments, and collaborative behaviors (Souder, 1987). Collaboration is distinguished from interaction in that collaboration focuses on working together, having mutual understanding, having a common vision, sharing resources, and achieving collective goals (Kahn and Mentzer, 1998). Another group of literature has implied a composite view of integration which implies a multidimensional perspective (e.g. Gupta et al., 1985a, 1985b, 1986a; Song and Parry, 1993). Specifically, Gupta et al. (1985a, 1985b, 1986a) and Song and Parry (1993) characterized and operationally defined interdepartmental integration as information sharing and involvement. Clark and Fujimoto (1991) defined it as communication and teamwork.

Authors also do not have a consensus about the degree of utility of cross-functional interaction. While many researchers have argued for positive performance implications of cross-functional interaction, such as improved coordination and integration, improved learning, spanning of organizational boundaries, reduced cycle times, and enhanced new product development (Krohmer et al., 2002; Griffin and Hauser, 1996), there are also possible dysfunctional effects of such a cross-functional approach. Specifically, decisions could be slowed down since more people with different interests are involved in the decision process (Cespedes, 1995) and even though different functional groups interact, there might be detrimental disharmony (Souder, 1988) and conflict between them (Weinrauch and Anderson, 1982). Additionally, persons outside of marketing with less expertise in marketing issues get involved in the decision making process concerning marketing activities. Therefore, the quality of decisions might decrease. Thus, given potential beneficial and dysfunctional effects, the important question arises if decisions on marketing activities should be made cross-functionally. (Krohmer et al., 2002)

Marketing and R&D jointly contribute to many tasks including strategic ones which are crucial for the company. To specify, marketing and R&D share responsibilities for setting new product goals, identifying opportunities for the next generation of product improvement, resolving engineering design and customer-need tradeoffs, and understanding customer needs (Griffin and Hauser, 1996). So in the lights of arguments above the question rises: Should marketing and R&D departments be integrated? According to Griffin and Hauser, (1996) these responsibilities require

cooperation throughout the entire task performance and combined expertise of both functional groups. Moreover, responsibilities evolve as new technological solutions become available, as customer needs change, as competitors offer new products, and as governmental and environmental constraints shift. Long-term profitability requires repeated product (or service) renewal, money, materials, information, and technical expertise flow across the boundaries between the functional areas to continue developing new products. Lastly, since marketing and R&D's responsibilities in new product development are neither independent nor static; they cannot be analyzed separately (Griffin and Hauser, 1996).

The need for managing flows across marketing and R&D boundaries was recognized as important in the 1970s, and research in the area was initiated. Managing the interface became critical in the 1980s and has continued to be important to firm success since then. Competitive pressures drove companies to reduce new product development cycle times and manufacturing lead times. Many firms applied leaner management approaches, flatter organizations, cross-functional teams, and cross discipline management processes. Managing the marketing and R&D functional groups for innovations has led to new perspectives in the academic literature (Griffin and Hauser, 1996).

Although there is strong evidence for the relation between integration and new product success, there are different approaches for new product development processes in the literature. These have usually been approached from two contrasting perspectives. Supply-side or technology-push approach proposes that products should be developed by first advancing cutting edge technology. They later create a market. This perspective asserts that marketing should get involved only after R&D has developed the product and should focus instead on me-too products because marketing has historically been unable to produce consumer research leading to true innovations (Shanklin, 1983). Opposite to the supply-side approach is the demand-side, or market-pull, perspective. Demand orientation contends that the firm's focus should be on the market and consumers should drive the development of new products. Those supporting market-pull have criticized supply driven view on several grounds, including the failure to see if the products satisfy the wants and needs of consumers. Inflexibility, over sophistication and unresponsiveness are among other charges levied by marketers against R&D personnel (Lucas and Bush, 1988).

Lastly, while studies (e.g. Nonaka, 1994; Shih et al., 2006) have suggested that knowledge sharing among individuals strengthens knowledge creation and recent empirical evidence also indicates that knowledge sharing among NPD members can facilitate NPD performance (Chang et al., 2006), identifying effective mechanisms

for stimulating knowledge sharing among NPD members across different functional areas has largely remained an untapped source of competitive edge (Chang et al., 2007). Thus, it is important to comprehend the relationship between marketing and R&D functions is very important.

### **2.1.2 Relational Attitude**

Research in organizational behavior has revealed that interdepartmental cooperation and goal congruence depends first and foremost on the establishment of high-quality exchange relationships (Konovsky and Pugh, 1994). The concept of a relational attitude has been used to explain why employees exhibit loyalty to the organization and engage in behavior that is neither formally rewarded nor contractually governed (Ruyter and Wetzels, 2000). Furthermore, Konovsky and Pugh (1994) argued that a relational attitude contributes to the establishment of reciprocal relationships between functions in organizations. Ruyter and Wetzels (2000) defined relational attitude as the orientation that motivates functional units in a relationship to derive complex, personal, noneconomic satisfactions engage in social exchange based on implicit and explicit assumptions of trust, bonding, reciprocity and empathy.

Callaghan et al. (1995) postulates four dimensions that constitute a relational attitude between exchange partners which are trust, bonding, reciprocity and empathy. Trust is defined as the dimension of a business relationship that determines the level to which each party feels they can rely on the integrity of the promise offered by the other person (Callaghan et al., 1995). According to Wilson (1995) trust is an essential building block of a relational attitude. Bonding is defined as working together toward common goals. Buchanan (1974) suggested relationships that bonding plays role last longer than those based solely on the material merits of the exchange. Reciprocity is essential in a relationship as research shown that exchange partners tend to end up in a relationship in which there is a more or less even distribution of outcomes for both partners. Empathy reflects the ability of partners in relational exchange to take each other's perspective (Ruyter and Wetzels, 2000). As it requires effort to understand each other better, it is expected to end up with better level of mutual understanding which, we think, very important in relationships.

Sin et al. (2005) proposed two different dimensions for a relational attitude that are communication and shared values. Shared value is defined as the extent to which partners have beliefs in common about what behaviors, goals, and policies are important or unimportant, appropriate or inappropriate, and right or wrong, whereas communication is defined as the formal as well as informal exchanging and sharing of meaningful and timely information between partners (Sin et al, 2005). Lastly, Sivadas and Dwyer (2000) proposed a component, cooperative competency, which

refers to midrange variable composed of three interrelated facets trust, communication and coordination.

Ruyter and Wetzels (2000) empirically supported that there exist a positive relationship between mutual resource dependence, procedural fairness, and a negative relationship between inter-functional rivalries with relational attitude. There was no support for negative influence of communication difficulties and inter-functional distance to relational attitude. However, this finding can be related to two factors. This study was done at the marketing and finance interface which have relatively similar educational background compared to marketing and R&D departments. Secondly, the existence of high communication technology use by the case organizations examined. Therefore, there is still a need for investigating the impact of communication as a relational context factor for R&D and marketing integration.

Fisher et al. (1997), in their research about the moderating role of relative functional identification (RFI) in communication, found that in organizations in which low-RFI managers predominate the development and promotion of policies that encourage information sharing norms appear to be the most effective factor in elevating inter-functional communication behaviors whereas goal integration might be the most advantageous element in high RFI organizations. Encouraging information sharing and construction of integrated goals are two key routes to managing inter-functional communications according to the marketing and organizational communication literature. Additionally, they addressed communication not only by measuring communication frequency but also its' bi-directionality and coerciveness.

Based on the studies above it can be argued there are different antecedents and drivers for the relational context. The difference may be due to the case-specific factors. Accordingly, we believe that taking the different conditions into consideration is very important to examine the relational context comprehensively.

The investigation on relational context demonstrates the importance of competence in building relational attitude (e.g. Dyer & Nobeoka, 2000; Sirdeshmukh et al., 2002). Thus deeper investigation of competence is necessary in order to better comprehend the antecedents of integration.

### **2.1.3 Competence**

In a generic way, competence can be defined as a skill, expertise or capability that a manager, a group of managers, or an organization, possess of relevance to the management and development of the organization (O'Driscoll et al.,2000). Cummings and Worley (2005) defined it similarly as a combination of knowledge,

skills and behaviors that drive performance. Moreover, Grant (1996, p. 377) suggests that an organizational competence is a firm's ability to perform repeatedly a productive task which relates either directly or indirectly to a firm's capacity for creating value through effecting the transformation of inputs to outputs. Day (1993; 1994) considers marketing capabilities as the integrative processes by which skills and knowledge are combined with tangible resources to transform marketing inputs to outputs.

The common objective of the competence based literature is to explain competitive advantages by focusing on the inside elements of the company which involves variety of terminology (Jüttner and Wehrli, 1994). It includes "resources" (Wernerfelt, 1984, p. 172), "invisible assets" (Itami, 1987, pp. 12-16), "strategic assets" (Dierickx and Cool, 1989, p. 1506), "firm resources" (Barney, 1991, pp. 101-2), "capabilities" (Stalk et al., 1992, p. 66), "competency" (Reed and De Fillippi, 1990, p. 89), metaskills" (Klein et al. 1991, p. 6) and "core competencies" (Prahalad and Hamel, 1990, p. 82). Nonetheless, a similarity can be observed when expressing the semantics of these denotations. Almost all of the authors explain the origin of competitive advantages by inside elements, which can be differentiated into unspecific, isolated components (normally resources of lower levels, skills and assets), and specific, integrated, idiosyncratic components (strategic assets, capabilities, competences, core competences) (Jüttner and Wehrli, 1994).

The idea of a competence can be found to have a long history in management literature whether at firm or individual level (O'Driscoll et al., 2000). Katz (1955) categorized classically the skill set of managers as including technical, human and conceptual capabilities. Mintzberg (1973) similarly identified a range of basic requirements in his analysis of managerial work and distinguished between 'hard', technically focused skills and 'soft', human oriented skills. Somewhat different thought about competence is revealed in the work of Albanese (1989) and Buchanon and Boddy (1992) which consider competence as also having a contingency dimension; it can be situation specific and can be in a sense distinctive.

O'Driscoll et al. (2000) considers competency development in the organization along three dimensions which are deepening, broadening and partnering. Deepening dimension reflects the requirement to deepen continually specialized expertise in a particular disciplinary field. For instance, a marketing department will try to nurture expertise in planning communication activities, database management or media evaluation. The broadening dimension of competency development acknowledges that in any functional area of an organization a number of the activities associated with that function are actually carried out by other departments or in cooperation

with other departments. Thus the successful management of R&D, marketing, logistics and so on inevitably involves crossdisciplinary cooperation. Managers and staff of a particular function co-own and co-manage much activity of their departments with others; a process approach and mindset become paramount in order to integrate and work seamlessly across the organization. The partnering dimension of competency development reflects the increasingly virtual nature of wealth and value creation. Firms decide to outsource certain value-adding activities, develop alliances with suppliers, customers, and even competitors, for possible mutual gain (O'Driscoll et al., 2000).

Competences form the basis and the source for competitive advantage. The competitive advantage resulting from competences is mainly dependent on four conditions which resources and competences have to meet: (1) they have to be heterogeneous from the competences of competitors; (2) there have to be forces that ex post limit the competition and protect from imitation and substitution; (3) the competences and resources must be imperfectly transferable and hence controlled by the company; and (4) there must be ex ante limits to competition expressed in different expectations about the future value of resources and competences (Peteraf, 1993).

As substantial and long term investments are needed to develop competencies internally (Dierickx & Cool, 1989), firms tend to specialize in a few core competencies (Prahalad & Hamel, 1990), and rely on their strategic suppliers to provide those that they lack. The relational view, an extension of the resource-based view, suggests that business ties are key sources from which skills and outside know-how can be gained (Dyer, 1996; Dyer & Singh, 1998; Fransman, 1994; Jap, 1999), because they allow to activate relationship-specific processes and mechanisms that facilitate interaction between parties and the transfer of even the most complex and tacit forms of knowledge (Dyer & Nobeoka, 2000).

The relevance of resources and competencies has been widely acknowledged in strategy (Barney, 1986; Peteraf, 1993; Rumelt, 1991) and marketing research (Day, 1994; Srivastava, Fahey, & Christensen, 2001). According to the resource-based view, firms that succeed in the marketplace are those best able to identify those resources and competencies most likely to increase the efficiency or effectiveness of business processes (Teece et al., 1997). Sirdeshmukh et al. (2002) identify competence as one of the dimensions that can affect the trust in a relationship. In addition to that Plaats (2001) segmented trust in different components; which includes competence trust as one of the components and he mentions that

competence can constitute trust. Also, Canen and Canen (2004) mentions that managerial competence creates trust within the organization.

In the domain of strategic marketing, there has been less concern among scholars about competency development (O'Driscoll et al., 2000). Day (1993; 1994) is one of the few writers to argue the importance of marketing competences and their contribution to commercial success. While it is generally acknowledged that the development of marketing competence is worthwhile and is associated most likely with superior firm performance, few studies have examined marketing competence in a strategic context. Vorhies (1998) found that firms' business strategy, organizational structure and market information-processing capabilities had a positive impact on marketing capabilities development. He also states that research is needed that investigates how various marketing competences contribute individually to organizational success.

Lastly, it might be hard to construct a relationship, even both departments are competent, when the power is distributed between departments in an unbalanced way. This situation can affect the mutual dependence of the departments to each other which may negatively affect the relational attitude. In such cases relatively weak department may need to influence the relatively strong department by using some influence approaches.

#### **2.1.4 Influence Approaches**

Influence refers to the degree of success that an influence source has, in changing the attitudes and behaviors of the influence target (Kohli, 1989; Venkatesh et al., 1995). Accordingly, marketing's influence should enable the NPD team to take account of market opportunities and threats and to enhance its understanding of the new product's commercialization strategy (Moenaert and Souder 1990; Ruekert and Walker 1987). Likewise, R&D's influence should provide signals about environmental and technological changes that ensure an effective NPD process (Moenaert and Souder 1990, 1994). Frazier and Summers (1984) stated power as the raw material of such influence, reflecting the source's ability to influence the perceptions, behaviors and decision making of the target. As power sources are only the potential for influence, Thompson and Luthans (1983) argued that power is manifested through behavioral actions.

Homburg et al. (1999) found that marketing as a highly influential group on general basis. They state marketing turn out to be a most influential group in terms of the business unit's strategic direction. They also summarize their findings as: marketing does not seem to lose its voice in strategic decision making, marketing's relative

influence is not lower in firms that adopt horizontal, process-based organizational forms and there are important differences in the relative influence exerted by marketing and sales on various issues. Moreover, they hypothesized external contingency determinants (market growth, market-related uncertainty and technological turbulence) can affect the influence of marketing. They statistically showed that frequency of major market related changes increase the influence of marketing while the rest of them do not change. For their hypotheses about internal contingency determinants (differentiation strategy, low-cost strategy, percentage of direct sales and customer concentration) are partially supported. While differentiation strategy affecting marketing's influence positively, percentage of direct sales/total sales affect it negatively. Institutional determinants, such as CEO with marketing background, found significantly and positively effecting in marketing's influence. Moreover, country of company also affects the influence of marketing (Homburg et al, 1999).

Conversely, Workman (1993) stated that the role of marketing in the process is low and hasn't risen as it is stated in the marketing books. Although, as stated above, it is suggested to have integration within marketing and R&D, especially in high tech companies, R&D may dominate the new product development process and cannot have a strategic role. Workman (1993) and Athuahene-Gima and Evangelista (2000) mentions that due to the nature of context in high-tech companies' marketing department need to influence R&D department in order to be yet enough involved in NPD process, since R&D department undervalue the role of marketing. In particular, Workman (1993) finds out that engineering driven culture, organization structure and processes and time to market pressures as the impediments on marketing's real existence.

Athuahene-Gima and Evangelista (2000) observed the lack of mutual appreciation between marketing and R&D departments. An example for the lack of mutual appreciation can be that each of the department think that they have more influence in NPD success. They also state that, unlike R&D, whose participation is directly related to new product performance, marketing's participation appears to affect new product performance only when it has higher influence in the firm (Athuahene-Gima and Evangelista, 2000). Since both party thinks their own influence will have more effect on success, it could be expected that misunderstanding and disavowing each other may appear. Additionally, Athuahene-Gima and Evangelista (2000) investigated the conditions affecting the influence of marketing department. They found that, R&D department think innovativeness of the product and complexity of NPD process is unrelated with marketing department's influence. However, marketing department think that, while increased innovativeness of the product will



decrease the influence of R&D department, increased complexity of the NPD process will increase it. Moreover, both marketing and R&D thinks product importance has negative effect on each other's influence. Additionally, from R&D department perspective, technology orientation and formalization hinder marketing influence whereas marketing department thinks formalization is unrelated to the influence of R&D department (Athuahene-Gima and Evangelista, 2000).

There are several tactics to increase the influence of a department in NPD and towards R&D in particular. Workman (1993) identifies these tactics as informal networks (having right contacts in engineering, having a higher credibility in the eye of other department, asking questions and relating stories without pushing the other department to a specific action etc.), forming strategic coalitions ( i.e. convincing the right people to advocate and support what you want), and product completion ( i.e. developing software or hardware to complete product or ask for third party to do). Moreover, Atuahene-Gima and Li (2000) define seven influence tactics that are information exchange (providing information and discussions on issues without suggesting specific actions), recommendation (using reason, logic and rational persuasion to convince the influence target), request (informing influence target to take suggested actions based on personal relationships), legalistic plea (citing organizational rules and regulations that require influence target to take a certain action), upward appeal (appealing to superior or high authority to support its viewpoint or demands on influence target), coalition formation (building alliances with co-workers and members to gain support for its viewpoint or demands on the influence target) and persistent pressure (the amount of effort, persistence and pressure that influence source brings to bear on the influence target to accept its viewpoint and demands). They categorized the influence tactics as soft and hard tactics based on the coercive intensity of the tactics. Coercive intensity connotes the extent to which an influence target feel that not complying the wishes of the influence source will lead to adverse consequences for him or her (Venkatesh et al., 1995). Accordingly, with a soft tactics compliance gained without threat and coercions to influence tactics while hard tactics involve coercion and threats. Thus, information exchange, recommendation, request, coalition formation are categorized as soft tactics whereas legalistic plea, upward appeal and persistent pressure as hard tactics (Atuahene-Gima and Li, 2000).

Lastly, it is important to comprehend, when to use which approach and how these approaches affect the influence compared to each other. Atuahene-Gima and Li (2000) evaluated the usage frequency and effectiveness tactics stated above. They found; persistent pressure, information exchange and recommendation as the most frequently used marketing's influence tactics. Coalition formation and upward appeal

has the modest usage while legalistic plea and request has the lowest frequency. Additionally, according to effectiveness results, persistent pressure, information exchange and coalition formation are the most effective influence tactics. While recommendation, legalistic plea and request tactics does not affect marketing's influence, upward appeal affects negatively. They also mention the difference in convenient tactic is due to the stage of process. According to them, in initiation stages informal tactics, coalition and information exchange, are more useful while in implementation stages formal tactics, legalistic plea and persistent pressure, lead to better results.

### **2.1.5 Barriers to Integration**

There are many barriers to achieve integration between marketing and R&D departments. Gupta et al. (1985a, 1986a) have studied the barriers to integration between marketing and R&D/engineering personnel and they identified five main barriers: poor communications, insensitivity towards each other, lack of senior management support for an integrated approach in new product development, differences in personality and culture between engineers and marketers and R&D personnel's limited knowledge. Moreover, Souder (1980) identified the four major areas of concern in the marketing-R&D interface as lack of communication, lack of appreciation, distrust and too-good friends. Of these four problems, he emphasized the importance of good communication between marketing and R&D. Griffin and Hauser (1996) also highlighted common barriers to achieve cooperation and communication between marketing and R&D which are: personality, cultural thought worlds, language, organizational responsibilities and physical barriers. We now will expand on these factors in the following.

Inherent personality differences have been found between marketing and R&D personnel in American corporations (Saxberg and Slocum, 1968). Some differences are stereotypes, many may have changed since 1968, and many may be unique to America's culture, but these differences do caution that there may be some natural interpersonal distance between marketing and R&D (Carroad and Carroad, 1982 and Lucas and Bush, 1988). Interestingly, research of Gupta et al. (1986b) has shed new light on these findings. They found that marketing and R&D managers at 167 high-technology firms were similar on many traits-differences existed mainly in time orientation. However, the true barrier may be a perceptual barrier of stereotypes rather than of actual personality differences. When they exist, these stereotypes can form formidable barriers between the groups. Even if the stereotypes are not based in fact, if one or the other group believes in them, this belief alone can become a barrier to mutual understanding. Because personality or stereotype barriers may be the most

difficult of all communication barriers to reduce or eliminate, the existence of these barriers suggests researchers seek mechanisms to enhance understanding and to build trust between functions (Griffin and Hauser, 1996).

Marketing and R&D personnel often differ in training and background. Marketing professionals are drawn primarily from business schools, often with a prior liberal arts background. R&D professionals are hired primarily from engineering and science schools. Business school training focuses on general problem solving, combining data and intuition to make decisions that lead to profitable corporate performance. Science and engineering school training focuses on the scientific method of hypothesis generation and testing and solving technical problems (Griffin and Hauser, 1996). Souder (1977, 1981 and 1988), in his studies of R&D/marketing project teams, found that marketers saw R&D people as being too scientific and sophisticated, too unaware of real world problems, difficult to understand and inclined to place too much emphasis on facts and proof. In contrast, R&D engineers thought that marketers were unable to appreciate technical details, were impatient, and interested only in temporary solutions, difficult to understand and always focusing on symptoms not problems. These world views and organizational routines are reinforced in the culture of a firm's functional departments (Dougherty, 1990 and Dougherty, 1992). Marketing thought worlds prefer the short time horizon of incremental degree of ambiguity and bureaucracy, and feel loyalty to the firm. In contrast, R&D thought worlds prefer the long time horizon of advanced projects. They focus on scientific development with a loyalty to their scientific profession and have low tolerances for ambiguity and bureaucracy. Naturally, these generalities do not apply to every marketing or R&D department, but rather indicate identifiable trends (Griffin and Hauser, 1996).

In addition to being company specific, these differences also can change from country to country. Shaw et al. (2004), in his research about relationships between engineers and marketers, compared German and UK engineers. They found that German engineers do not express the sources of conflict in terms of personal feelings whereas British engineers do. In the cited literature such feelings are seen as one of the barriers to integration and also a major source of conflict. Moreover their study also shows that German engineers believe that engineering and marketing are better integrated in their organizations and enjoy a better quality relationship than their British counterparts. These differences in thought worlds suggest that marketing and R&D run the danger of developing self contained societies in which they reside. Even though both functions work for the same corporation with the same overall corporate goals, the lenses through which each function interprets those goals differs (Souder, 1977). More importantly, separate thought worlds mean that marketing and

R&D may have difficulty in understanding the other's goals, solutions, and tradeoffs. To work together they must understand and appreciate the other's thought world (Griffin and Hauser, 1996).

As separate thought worlds develop, language barriers also arise. Marketing has and uses its own set of technical terms, and R&D uses different technical terms. Marketing professionals speak in terms of product benefits and perceptual positions while R&D professionals speak the quantitative language of specifications and performance. When miscomprehension occurs, customer needs and engineering solutions disconnect even though each group thinks they are talking about exactly the same thing. Subtle differences in language often imply vastly different solutions and can make the difference between a successful and an unsuccessful project (Griffin and Hauser, 1996). Even the level of detail used by each group varies. For example, marketing may find that consumers want a liquid dishwashing detergent to "clean my dishes better", this statement may be adequate for devising advertising strategy, but to design the "best" solution, R&D needs to know what kind of dishes, what dirt has to be removed, and in what type of water. Obviously, if each group does not understand customer needs at the level of detail that they need to do their job, they become frustrated with the communication process (Griffin, 1992).

Organizational barriers arise due to different task priorities and responsibilities (Dougherty, 1992, Souder, 1975, and Souder and Sherman, 1993), functional success measures unresponsive of integration (market share vs. number of patents) (Souder and Sherman, 1993), lack of top management support rewarding integration, and the perceived illegitimacy of product development (Dougherty and Heller, 1994). Although top management clearly controls these factors, organizational change to eliminate these differences can also create barriers in itself, due to resistance to change in long used procedures.

Physical barriers frequently isolate marketing from R&D. It is common for R&D facilities to be located on "campuses" in cities distant from the marketing offices. At a major computer company, the marketing offices are located in a northern state, whereas the R&D effort is headquartered in a southern state. The probability that two people communicate at least once per week drops off rapidly with the physical distance between their offices, with the probability of communication less than 10% at office separations of 10 meters (Allen, 1986). When marketing and R&D are in separate cities, there is much less interpersonal activity even with new communications technology. Separation decreases chance meetings, serendipitous information transfer or problem clarification in the halls or around the coffee machine. Long distances between groups make face-to-face communication

inconvenient, leading to decision-making delays. Physically isolating groups exacerbates other communication barriers. Isolation solidifies separate thought worlds, encourages short-cut, jargon-filled language development, and heightens perceptions of personality differences (Griffin and Hauser, 1996).

As stated above, there exist many barriers for the integration of marketing and R&D departments. Some of them are interior to the departments whereas some of them appear to be related to other characteristics of an organization. The extent of the barriers may change depending on specific factors of companies. However, empirical research indicates that disharmony between marketing and R&D is the rule, rather than an exception (Griffin and Hauser, 1996). In other words, although it can be in different extents, every company faces disharmony between marketing and R&D departments.

However although being evitable, there some methods to overcome those barriers. Companies use six approaches to overcome the stated barriers and achieve better integration: relocation and physical facilities design, personnel movement, informal social systems, organizational structure, incentives and rewards and formal integrative management processes (Griffin and Hauser, 1996). Below we will expand these titles in detail.

Relocations and physical facilities design connotes that co-locating marketing and R&D increases marketplace success by providing a higher level of information transfer across the interface, overcoming the barrier of physical separation (Dougherty, 1990). Because communication drops off rapidly with distance, one solution is to relocate people to reduce the distance between marketing and R&D. This provides the opportunity for, but does not by itself generate, coordination or communication. Providing communication opportunities through physical proximity must be complemented by providing groups with techniques that foster cross-functional relationships and encourage open-door policies (Griffin and Hauser, 1996).

Personnel movement reflects human movement between functional groups is one technique to improve flows across functional boundaries. People moving from one function to another, bring with them contextual information that is important to understand why decisions are made. Personnel movement may decrease the technical uncertainty of a project when they bring with them answers to previously unsolved technical problems. They also bring with them knowledge of the other group's jargon, contacts, and friendship-based links. These links reduce the barriers erected by differences in cultural thought worlds and languages across the groups, improve the probability of both information utilization and cross-functional coordination, and

decrease the uncertainties associated with the project. Companies try to find and hire those rare individuals with dual skill sets or try to induce some of their personnel to obtain training in both areas (Griffin and Hauser, 1996).

About informal social systems and culture, several researchers suggest that informal contact often substitutes for formal new product processes. (Feldman and Page, 1984, Moore, 1987 and Workman 1993) Many engineers and marketers claim that formal processes are not the primary means by which product development decisions are influenced in firms (Workman, 1993). Whereas cultural differences between marketing and R&D raise cooperative barriers, informal social networks encourage open communication and provide contact both across the functions within the team as well as outside a development team to ancillary functions. Informal contacts may have the requisite expertise to solve a particular problem or may identify who has the expertise. Developing informal cross-functional networks expected to reduce the language, thought world, and physical barriers to integration, enable more information to be communicated and utilized, increase coordination and decision-making, and decrease project uncertainties, leading to higher success on all three measures (Griffin and Hauser, 1996).

Organizational structure is also important in overcoming stated barriers and achieving better integration. Gupta and Wilemon (1988) found that six organizational characteristics are highly correlated with R&D-Marketing. (Table 1) An effective organizational structure should incorporate these characteristics if it is to succeed at fostering cooperation between these two functions (Griffin and Hauser, 1996). Ayers et al. (1997) also empirically supported that integration by the departments are constrained by centralized decision making and raised by role formalization.

More recently three organizational structures, coordinating groups, matrix organizations, and project teams, have been championed as more conducive for increasing cooperation than relying on a single integrator. Coordinating groups are expected to achieve higher market success and profit levels by overcoming language and organizational responsibility barriers, allowing better decisions to be made, and resolving conflicts. Their stability can reduce one dimension of uncertainty in extremely unpredictable environments. Moreover, a number of firms have implemented matrix organizations in an attempt to maintain functional specialization while improving cross-functional integration. Matrix organizations are expected to increase product-development success by reducing differences between functional responsibilities while increasing the amount of information available during a development project and enabling processes to be followed that lead to completed tasks. In some cases it's better to pulling some of the organization into cross-

functional teams in order to avoid the confusion of placing the entire organization into a matrix structure just to obtain the cross-functional integration required for some task. Cross-functional project-development teams are expected to lead to higher marketplace success and shorter times to market decreasing the barriers of functionally specialized thought worlds, languages, and organizational responsibilities and providing a forum in which information is utilized better, decisions are made more effectively, and conflicts are resolved.

**Table 2.1:** Organizational Characteristics that Enhance Cooperation (Gupta and Wilemon, 1988)

<b>Characteristic</b>	<b>Explanation</b>
Harmonious operations	Discuss important issues, resolve conflicts early, work together
Formalization	Clear performance standards, clear responsibilities, well defined guidelines
Decentralization	Issues resolved quickly by local knowledge
Innovativeness	Supports new ideas, tolerates failure, is responsive to change
Value cooperation	Provides opportunities to exchange views and perspectives
Joint reward system	Both marketing and R&D share in success (and do not blame the other for failure)

To sum up, coordinating groups, matrix organizations, and project teams have the potential to improve marketing/R&D coordination and communication; each has worked in a variety of circumstances. However, there is evidence that these organizational vehicles do not work in all situations. Because of the remaining barriers, uncertainties, and integrating tasks, an organizational structure may not be sufficient to generate adequate cooperation and communication. It must be supported by other means such as personnel co-location, moving personnel across functions, and formal integrative management processes. (Griffin and Hauser, 1996)

One more important method to achieving better integration is incentives and rewards. The importance of team-based rewards are attributed not only to the critical role in determining cross-functional integration among employees and units (Coombs and Gomez-Mejia, 1991; Sarin and Mahajan, 2001) and thus driving group and team performance (Griffin and Hauser, 1996), but also to the significant effects on knowledge sharing (Bartol and Srivastava, 2002; Milne, 2001; Shih et al., 2006) and knowledge exchange (Cabrera et al., 2006). Under such circumstance, the conventional reward mechanisms based on individuals or individuals within unit may

not be as effective as in NPD context where cross-functional team efforts are involved and valued (Barclay, 1991). Hence, a reward system that values collective efforts across functions and cooperative behaviors, like Joint Reward System (JRS), in NPD may be a more effective mechanism (Crittenden, 1992). Chang et al(2007) empirically found that joint reward system as measured by risk-free to participants yielded consistent significant and positive results in predicting not only knowledge sharing among NPD project members across R&D, marketing, and manufacturing, but also NPD performance.

In the current structure, marketing personnel frequently receive bonuses based on increases in market share, regardless of the reason share increased. R&D, on the other hand, often receives bonuses based on evidence of technology improvement such as patents and publications, whether or not the new technology has led to better performing products or improvements in market share. The current reward structures lead to differing organizational responsibilities across the functions, creating a barrier to effective integration. Because individual performance objectives do not reflect the interdependence required of the product development task, they can discourage the very efforts necessary to develop successfully new products (Danellon, 1993). These differing priorities may also mean that engineering prefers and champions projects that are not just different from those preferred by marketing, but whose goal is actually the reverse of the projects on which marketing would choose to work. Neither department's project preferences may align with the firm's goal of maximizing profits. Performance evaluations, which recognize the interrelated rewards to marketing and R&D, based on ultimate product-development profits (or indicators thereof) decrease tie inherent barriers between the functions due to differing organizational responsibilities and lead to increased profits by encouraging cross-functional decision-making and task completion and by providing incentives for resolving conflicts between the two functions (Griffin and Hauser, 1996).

Lastly formal integrative management processes are also an important method regarding the achievement of better integration. Formal phased processes for product development do not overcome any of the barriers between functions because they maintain the functions in their isolated situations. However, following a phase-review process is expected to increase product success and decrease development time by ensuring that necessary tasks are completed during development. This allows the reduction of project uncertainties (Griffin and Hauser, 1996).

The stage-gate systems follow the phase completion and review format of phase review processes. However, rather than isolating tasks by function, stage-gate projects are completed using simultaneous participation by people from multiple



functions. The stage-gate processes schedule tasks across all functional areas to minimize the critical path and to decrease the amount of engineering rework because of unknown downstream factors. By itself, stage-gate does not solve all a firm's product-development problems. The project focus of the stage-gate process makes it difficult to implement successfully across the firm in some consistent form. Process customization and maintenance, process training, and a process-management superstructure are necessary for a large firm to implement and manage a stage-gate product-development process (Griffin and Hauser, 1996).

Product and Cycle-time Excellence (PACE), is a facilitator-implemented stage-gate process. This facilitated process furnishes consistent cross company process and facilitator training, Project implementation and management, and a superstructure for managing product-development resources across the portfolio of projects (cross-project management). The developers claim that PACE increases profits and marketplace success and decreases product development cycle time, and they present anecdotal evidence to support their claims, using individual projects at specific companies (Griffin and Hauser, 1996).

Quality Function Deployment (QFD) provides procedures to enhance communication and structure decision-making between marketing and R&D (Griffin, 1992). It provides a translation mechanism from the language of the customer to the language of the engineer by explicitly linking the two kinds of information in a house of quality (HOQ). This translation mechanism overcomes many marketing/ R&D barriers. Marketing and R&D participate as equal partners in building the HOQ, gaining a mutual understanding of the problem and of one another. The HOQ encourages cooperation between marketing and R&D by requiring each functional group to quantify and articulate their inputs and assumptions. By specifying both languages and the means to translate one to another (relationship matrix), the HOQ prevents misunderstanding and forces each group to clarify their own thought world. QFD reduces the marketing/ R&D barriers of different thought-worlds, languages, and organizational responsibilities and provides mechanisms to increase information utilization across the functions as well as resolving conflict between them. The processes used to build the HOQ lead to reduced market uncertainties. These improvements may lead to increased market success but the results are more likely to be felt over the longer term rather than in QFD's first application at a firm (Griffin and Hauser, 1996).

A simple phase-review process improves a subset of the factors that affect the marketing/ R&D interface. As the complexity of the development process increases from a phase-review process to stage-gate and/or PACE, the number of affected

interface factors increases and the outcome dimensions improve. Each improvement to the phase-review process results from coupling additional integrating mechanisms to a formal process. Stage-gate adds a cross-functional team (and reorganizes the order of some steps). PACE adds a permanent coordinating group. QFD provides an information structure in which the cross-functional teams operate. These additions improve the operation of the marketing/R&D interface; however, they do so at the expense of increasing the overall complexity of managing the product- development process. The development process used should match the complexity and degree of innovativeness of the project and should be framed in such a way as to legitimize its use (Griffin and Hauser, 1996).

Moreover, other than tactics mentioned above there exist some more methods to influence integration. As stated by Ratnatunga et al (1989), in a paper about marketing finance interface, appointing an individual who has the organizational role of promoting mutual understanding between the functions may be useful. Such an individual would ideally be equally at home in either function, be educated and trained in both disciplines so that cross-functional communication would be enhanced as he/she would be a “fellow professional” talking in the jargon of each functions. This suggestion can be transformed to marketing and R&D relationship which means appointing an individual within the departments can be useful for the integration. This may be beneficial by decreasing differences in cultural thought worlds and languages across the groups. Moreover, there exists a cultural lag and knowledge gap within the functions. The obvious approach to bridge such constraints to interface development is through education and training of the staff of each of the functions in the basics of the other’s profession. Programs related to that point can be transformed to marketing and R&D relationship as:

- Having an assignment in R&D and marketing trainees
- Organizing business teams to which a Marketing and R&D Manager assigned
- Conducting company courses with a functional mix of personnel in attendance
- Assigning personnel positions in the other functions (Ratnatunga et al., 1989).

The methods mentioned above are not equally effective in achieving better integration. Leenders and Wierenga (2002) examines the effectiveness of the mechanisms stated above by developing a model that distinguishes between indirect effects of mechanisms on new product performance (NPP). They add information

and communication technology (ICT) as an additional method to overcome barriers and achieve a better integration in their research. Their findings show that most integrating mechanisms have a positive relationship of varying strength with integration, which in turn is positively associated with NPP, but also that some mechanisms have a direct relationship with NPP.

Firstly, they found that having formal integrative management processes, such as an influential cross-functional phase review board is, most strongly associated with integration in their pharmaceutical context. However, there are two sides to this story. Apart from the indirect relationship with NPP through increased integration, they also found that there is a direct negative relationship. They argue that this may be caused by the fact that this mechanism may lower employee initiatives and cause some loss of flexibility (Leenders and Wierenga, 2002).

Secondly, according to their research, the physical distance between marketing and R&D remains an important factor that is strongly related to integration. Moreover, incentives and rewards are likely to be important factors when companies try to stimulate certain behaviors and attitudes and increase performance. Their study shows that having equal remuneration and career opportunities for marketing and R&D is positively associated with integration and subsequently NPP. Furthermore, organizational structures in terms of the number of marketing and R&D employees that are members of a cross-functional team are also positively associated with integration. Interestingly, they found that informal social systems, for example brainstorm sessions, survival meetings and group dynamic processes, have a positive relationship with integration when the use of ICT and teams is low (Leenders and Wierenga, 2002).

Finally, there is not a significant effect of the use of personnel movement in the form of job rotation on integration or NPP next to the other mechanisms. ICT is the only mechanism that seems to have significant positive side effects on NPP, possibly because of the creation of better information and new knowledge within a particular area. Through ICT the day-to-day communication between the different parties in the companies becomes much easier, and this fosters the knowledge creation process within marketing and R&D. To summarize the findings, housing marketing and R&D closer to each other and using an influential cross-functional phase review board are the most effective mechanisms to foster integration; equal remuneration and career opportunities for marketing and R&D and cross-functional teams are somewhat less effective, whereas personnel movement and informal social group events contribute little. Additionally, ICT appears to be a very effective tool for enhancing NPP (Leenders and Wierenga, 2002).

In conclusion, on the light of findings above it could be seen there exist many studies to identify methods to improve integration between marketing and R&D departments. Comprehending various methods to achieve better integration may help practitioners to apply the best set of methods for their particular cases and thus have better integration. However, despite the importance of integration within the dyad and fertile researches about it, anecdotal and empirical evidence suggest that there is still a higher possibility of conflict between marketing and engineering personnel (Shaw et al., 2004). Therefore, it can be claimed that there is still a considerable need to focus on what can increase the integration within the dyad.

## **2.2 Marketing Accountability Literature Review**

### **2.2.1 Accountability**

The concept of accountability has become increasingly important in organizational practices over the past decades, given the centrality of the concept in corporate governance and new public management, both frameworks steering current public and private sector organizational change (Vandekerckhove, 2006). Accountability in organizations is based around the need for organizations to exert some level of control on the behaviors of employees, groups of employees, and, ultimately, organizational units (e.g., Tetlock, 1985). Ammeter et al. (2004) state that accountability mechanisms can range from formal (e.g., performance evaluation systems, financial reporting procedures, etc.) to informal (e.g., feelings of loyalty to an organization). They add that formal and informal mechanisms can intermingle, such as in the case of an organization trying to instill a cultural norm by using methods such as formal socialization (often in the form of mentoring) and informal mechanisms (e.g., the behavior of the CEO and other high-profile executives at the company picnic).

There have been different discourses on accountability, both explicit and implicit, and definitions of accountability range from answerability, through responsibility for disclosure and social welfare of the community, to issues of consent and to democracy itself (Green et al., 2008). Frink and Klimoski (1998) defined accountability as the perceived need to justify or defend a decision or action to some audiences which has no potential reward or sanction power and where such rewards and sanctions are perceived as contingent on accountability conditions. Accordingly, accountability is a perception based on shared expectations about a potential need to explain one's actions or beliefs regarding an organizational issue to a constituency for reasons such as social desirability considerations (Ammeter et al, 2004). Frink and Klimoski (1998) includes a description of accountability as being uniquely

ubiquitous in organizations, that is, that “Accountability might be thought of as the adhesive that binds social systems together. In a very wide sense, accountability as the act of rendering an account renders the economic subject an obligation to demonstrate the reasonableness of his or her actions to others (Arrington and Francis, 1993; Shearer, 2002). Tetlock (1992) stated that without accountability, there can be no basis for a social order that sustains the social systems in organizations as we know them. However, difficulties arise in implementing these notions of accountability into organisational practice, such as problems with the definition of standards, the criteria for corporate responsibility and the purveying of accurate and timely information (Medawar, 1976).

Marketing has long been primarily a creative discipline, an art form with a highly emotive focus. While this has not changed, what has changed in the era of accountability is the fact that marketers must be scientists as well as artists. (Peppers and Rogers, 2005) May be because of the history, the marketing department in many companies does not manage this linkage and inevitably financial accountability largely perceived in terms of cost (Moorman and Rust, 1999). There exist various studies that introduce the problem about accountability of marketing both in practitioner and academic journals. On the practitioners’ side, the question has been posed why “safe bean counters, rather than marketing entrepreneurs, get the top jobs” (Matthews, 2002). This and commentary by Stubbs (2002) take as their source a survey of the profession that suggests that while marketing is viewed as an important business tool, only 20 per cent of UK companies have a marketer at board level. They also report that fewer than 15 per cent of FTSE 100 chief executives would describe themselves first and foremost as marketers. This need to make marketing a boardroom issue, has been echoed elsewhere although recent research has revealed that unless more attention is paid to marketing accountability, marketers have only a slim chance of gaining a seat on the board (Simms, 2003; Ambler, 2003). That’s why, McDonald (2006) states that marketing accountability is indeed at the top of almost everyone’s agenda.

The academic perspective on this mainly focuses on making marketing financially accountable or on bridging the gap between the marketing and finance disciplines. Moorman and Rust (1999) suggested that marketing function should play a role in connecting customer with product, service delivery and financial accountability. The customer-financial accountability connection refers to efforts focused on linking customer to financial outcomes (Moorman and Rust, 1999). Stockley (2005) claimed that businesses are increasingly concerned about measurability and accountability, particularly in the area of marketing. They added executives and managers are searching for reliable methods to ensure that they are getting more out of their

marketing efforts, as well as for ways to continue successful operations. Additionally, Sheth and Sisodia (2002) argue that marketing's fundamental problem today is low productivity and lack of accountability. Moreover, Zinkhan and Verbrugge (2000) point out that marketing scholars rarely address the issue of firm performance or stockholder wealth and thus the effectiveness of marketing activities is more often assumed than empirically verified. They suggest that some of the large unanswered questions in marketing research remain those such as "does marketing work?" and "do marketing expenditures pay off?". According to Rust et al., (2004) that lack of accountability is the reason of the problem that top managers constantly struggle with how to trade off competing strategic marketing initiatives. For example, should the firm increase advertising, invest in a loyalty program, improve service quality, or none of the above? Such high-level decisions are typically left to the judgment of the chief marketing or chief executive officers, but these executives frequently have little to base their decisions on other than their own experience and intuition. A unified, data-driven basis for making broad, strategic marketing trade-offs has not been available (Rust et al, 2004). As a result, top management has too often viewed marketing expenditures as short-term costs rather than long-term investments and as financially unaccountable (Schultz and Gronstedt, 1997).

Additionally, Day and Fahey (1988) states, there is a recognition that, if marketing is to help ensuring business renewal and growth, winning and retaining customers, it also must result in superior cash flows. Srivastava et al. (1999) argued that the influence of marketing, as both a discipline and a function, has been diminished because of the absence of conceptual linkages and a language that would enable it to engage in a meaningful dialogue with financial and top management.

Other authors also concentrate on the links between marketing and the bottom line (e.g. Ambler, 2000a, 2000b; Shaw and Mazur, 1997) and the links between marketing and shareholder value (e.g. Doyle, 2000; McDonald et al., 2000, Srivastava et al., 1999). For instance, Srivastava et al. (1999) state that marketing success depends on their functional excellence and depth, as well as cross functional process competence to apply marketing ideas. Unless other functions appreciate the value of what marketers do a little progress can be achieved in terms of business embracing marketing concepts. So, there is still an important need for analyzing how the marketing metrics affect the shareholder metrics (Srivastava et al, 1999). Furthermore, Doyle (2000) contends that marketing has not had the impact in the boardroom that its importance justifies because marketers have failed to show how marketing activities and costs influence shareholder value. He offers a redefinition of marketing in value terms and advocates the use of shareholder value analysis to demonstrate the importance of marketing, value brands and test marketing strategies.

Finally, it is hypothesized and supported that “the more marketing function develops knowledge and skills to the customer-financial accountability connection, the greater the value of function to the organization.” (Moorman and Rust, 1999) It is not surprising, therefore, that marketing performance measurement and accountability has been one of the top three “gold” priorities for academic research of the Marketing Sciences Institute (Baker and Holt, 2004).

There exist several researches to point out the situation of companies in terms of marketing accountability. Patrick Marketing Group, in a research within B2B companies, demonstrated that companies are demanding more accountability from their marketing programs. The study, based on interviews with about 75 senior marketing executives, found that 81% said accountability had increased in their marketing organizations over the past 24 months whereas remaining 19% said it had not. Moreover, 26% of respondents said they are using new metrics to track ROI; 1% said there had been a shift to marketing-led initiatives at their companies; and 7% said they must hold themselves to the highest standards (Maddox, 2004).

In a newer research, it is indicated that, marketers have substantially improved their ability to measure and act on ROI data, but only just 36% have coordinated their marketing accountability programs with the finance division or a cross-functional team, according to the third annual ANA (Association of National Advertisers) Marketing Accountability Survey. When asked if they could measure the sales impact of a 10% cut in marketing spending, only 15.6% of respondents said yes. That response nearly doubled to 30% in this year's survey. 57% percent of respondents said they had established a formal marketing accountability program. The trend to become more accountable can be seen obviously. In the end, senior-level advocates can make or break any effort towards accountability. The survey revealed a disconnection between how senior executives rank the importance of accountability and their involvement in these initiatives. While 65% of respondents said that understanding the sales impact of marketing is important to senior executives, only 32% indicated there was a senior-level sponsorship of measurement initiatives (Krol, 2006).

The fourth annual ANA /MMA (Marketing Management Analytics) Marketing Accountability Study, in July, among 214 B2B (Business to business) and B2C (Business to consumers) marketers, indicated a number of worrisome declines. For example, in the 2006 survey, 28% of respondents said they could forecast the impact of a 10% reduction in marketing budget on sales, only 18% said this in this year's survey. Likewise, the percentage saying they used cross-functional teams from such departments as sales and finance declined from 45.3% in 2006 to 20.1% in 2007.

And only 22% said they had "full cooperation and an open dialogue with finance" to establish metrics and methodologies for marketing ROI. While there may be many causes, the lack of a financial commitment to measurement was one factor. The most recent survey found that 57% of marketers invested less than 1% of their working marketing budget into accountability and that only about half (49%) had a dedicated budget for accountability. (Booker, 2007) The decrease in one year is a bad sign for marketing's future due to the importance of marketing accountability. But anyway, even in the better results, marketing has long way to go in terms of accountability.

Baker and Holt (2004) investigated situation of marketing as the empirical research stated above. They sought to elicit the perceptions held by senior non-marketers about the paradigm in which their marketing colleagues operate by using Johnson's (1992) cultural web which was developed as a conceptual tool to surface the beliefs and assumptions that guide and constrain the development of strategy, the research study (See Figure 2.1).

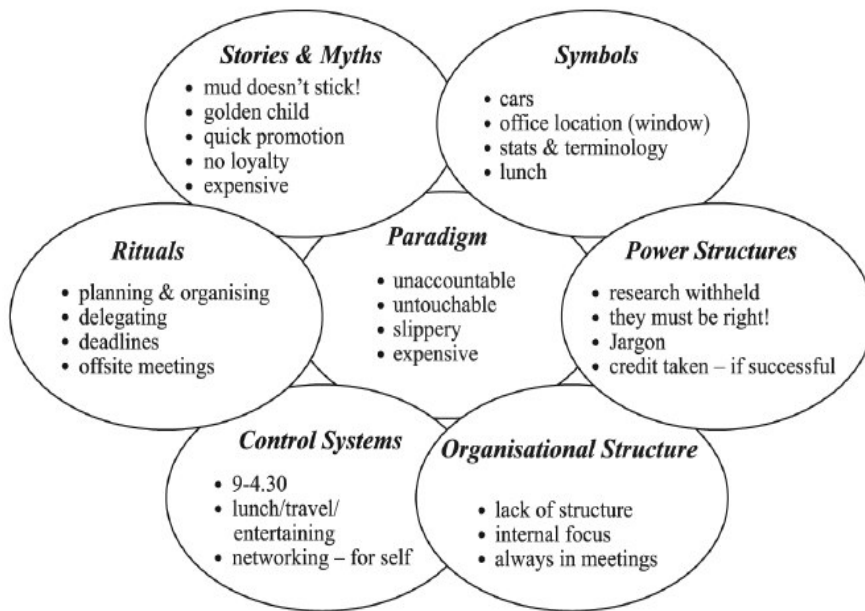


Figure 2.1 : Senior non-marketers' cultural web of the marketing function (Baker and Holt, 2004)

All these different aspects of organizational culture build the cultural paradigm at the centre of the web. However, the paradigm is not simply a set of beliefs or assumptions removed from organizational action; they lie within a cultural web which bonds them to the day-to-day action of organizational life (Johnson and Scholes, 1992). Marketers are perceived to be "unaccountable" by the rest of the organization; they are seen as unable to demonstrate a return on investment in the



activities they have control over. This was manifested in the web in a number of ways. The difficulties encountered by marketers can be explained both in terms of the paradigm itself, in which the apparent cost of marketing and unaccountability of marketers were significant, and also in terms of the different aspects of the culture web. “Untouchable”, a key element of the paradigm, was reflected in the perceived lack of accessibility noted in organizational structures, control systems and rituals. There were many stories related to the apparent need of marketers to operate outside the organization in off-site meetings and meetings over lunch with agencies. “Slippery” was a view that was enforced through use of jargon, lack of structure and “mud not sticking”, i.e. little responsibility appears to be taken for failure. One of the main problems described was in understanding what marketing actually is. This is complicated by the fact that marketing is generally referred to in a number of ways within an organization (Baker and Holt, 2004).

To conclude, various researches, both in practitioners’ and academic side, point out the problem of accountability in the business environment. The evidence about the situation is strong and the results of lack of accountability fatal for marketing department.

### **2.2.2 Measurement of Marketing Performance**

Measures of marketing performance employed by senior management to assess and evaluate the effectiveness of, and return from, marketing activity involve; the financial return on marketing activity inclusive of sales and market share, the management and contribution of service-profit chain relationships, the management and value of brands and other intangible assets as well as the more tangible assets of an organization and its product portfolio, the return on customers served and the extent to which marketing practice can be shown to increase the organizational wealth and value to shareholders. These measures represent significant challenges to marketers, particularly in terms of strategy decisions affecting, resource deployment and reported results. Correspondingly, over the past ten years there has been a noticeable shift in the accounting, finance and related literature from an emphasis on financial performance measurement per se to valuation, that is, how financial accounting data can be employed to estimate shareholder value. This shift has potentially significant implications for marketing practice. (Walker et al, 2004)

In organizations where shareholder value creation is emphasized, senior management and directors expect marketers to demonstrate in what respects marketing activity, classified as an intangible asset, contributes to an organization’s assessable shareholder value (Srivastava et al., 1999). Marketing and market-based assets include those of an intellectual nature – the knowledge that a firm possesses about its

business environment and those of a relational nature – relationships between a firm and key external stakeholders (Low, 2000; Mayo, 2000; Heskett et al., 1997).

Walker et al (2004) proposed a different approach about marketing's effect on shareholder and stakeholder value. They think both intellectual and relational nature assets imply human capital. They add, the former reside in an organization's accumulated knowledge, experience and expertise and the latter derive from relationships formed by, and maintained between, parties. Moreover, they mention these intangible intellectual and relational market-based assets contribute positively to shareholder value in five principal ways.

First, the personal knowledge, competence, relationships, experience and expertise that serve to create competitive advantage, value and wealth for an organization constitute and remain an asset only insofar as the personnel in whom they reside remain with the organization. Second, trust is embedded in the regard that one individual has for another, and is transferable to an organization only insofar as the personnel in whom it is grounded warrant it and continue to remain in a position where this trust can be beneficially leveraged by the organization they represent. Third, organizational culture, and shared values and behavioral norms that underpin this, is created and sustained by its personnel. Organizational culture is dynamic, and as the composition of people changes so do shared values and behavioral norms. Fourth, these assets are invisible. It is only the results of how the assets are employed that are visible and measurable. Thus the potential and actual value of these assets may not be understood or appreciated until they are withdrawn from an organization. Fifth, the accumulated knowledge, skills, abilities and experience of people cannot be replicated, and provide grounds on which important business relationships are established and maintained. These contributors to shareholder value demonstrate that good people represent assets that warrant investment, nurturing and retention. However, despite of the reasonability of stated means about the intangible assets (intellectual and relational), the current situations force marketers to find means to measure it (Walker et al., 2004).

### **2.2.3 Models of Marketing Accountability**

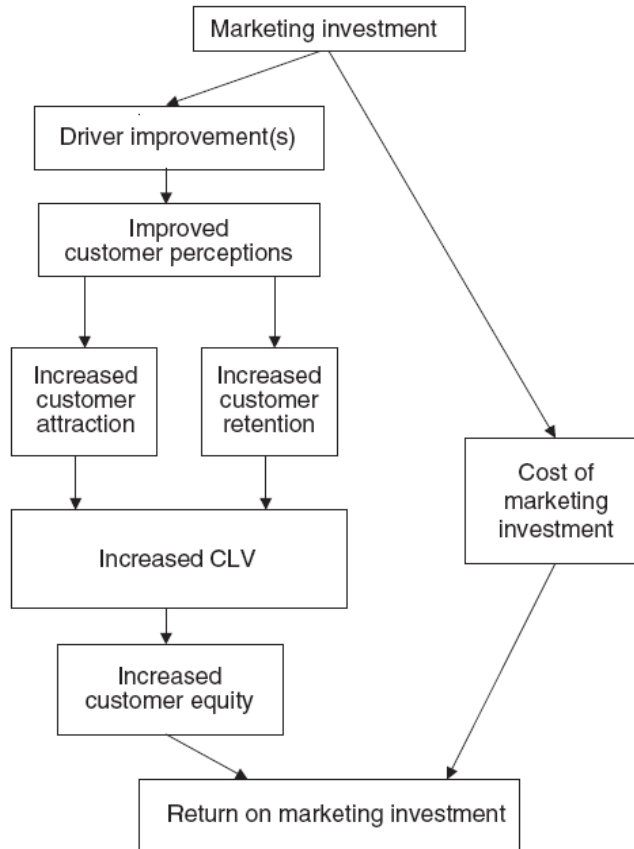
To respond the need of accountability, marketers have deployed a range of tools to show quantifiable value, from analytics solutions to full-blown resource management and performance management systems. However they need to pass the real accountability test, if the campaigns not only generate current earnings but also increase the Lifetime Value of the Customer (CLV). If it provides it, still it is needed to be proved. (Peppers and Rogers, 2005)

There exist various models to reach accountability goal. Rust et al (2004) compare their model with previous models that are aimed to either providing a framework for tradeoffs in marketing tools or measuring the added value of marketing expenditures. The differences within these models in terms of including strategic tradeoffs in marketing expenditures, including ROI, modeling competition, calculating CLV, applicability in various industries, including Net Present Value of revenues and costs, including brand switching and being statistically detailed are stated in the Table 2.2.

Although there is a lot to talk about each model, since it is not our research objective and as it is the most recent and integrative than others we will only talk about Rust et al.'s (2004) model briefly. Their definition suggests customers and customer equity are more central to many firms than brands and brand equity are, though current management practices and metrics do not yet fully reflect this shift. The shift from product centered thinking to customer-centered thinking implies the need for an accompanying shift from product-based strategy to customer-based strategy. In other words, a firm's strategic opportunities might be best viewed in terms of the firm's opportunity to improve the drivers of its customer equity. Figure 5 shows a broad overview of the conceptual model that they used to evaluate return on marketing. Marketing is viewed as an investment that produces an improvement in a driver of customer equity. This leads to improved customer perceptions, which result in increased customer attraction and retention. Higher attraction and retention lead to increased CLV and customer equity. The increase in customer equity, when considered in relation to the cost of marketing investment, results in a return on marketing investment. Central to their model is a new CLV model that incorporates brand switching. The implementation of their approach begins with manager interviews and exploratory research to obtain information about the market in which the firm competes and information about the corporate environment in which strategic decisions are made. They propose a general approach that uses a Markov Switching Matrix to model customer retention, defection, and possible return. In the model, acquisition is modeled by the flows from other firms to the focal firm, and retention diagonal element associated with the focal firm. The retention probability for a particular customer is the focal firm's diagonal element, as a proportion of the sum of the probabilities in the focal firm's row of the switching matrix. A shift in a driver (e.g., increased ad awareness) produces an estimated shift in utility, which in turn produces an estimated shift in the conditional probabilities of choice (conditional on last brand purchased) and results in a revised Markov switching matrix. In turn, this results in an improved CLV. By comparing the increase in the customer equity and the expenditure ROI of marketing can be found (Rust et al, 2004).

**Table 2.2:** Comparison of existing marketing accountability models (Rust et al., 2004)

Type of model	Exemplars	Strategic Tradeoff of any Marketing Expenditures	ROI modeled and calculated	Explicitly Models Competition	Calculation of CLV	Can be applied to Most Industries	Net Present Values of Revenues and Costs	Brand Switching Modeled at Customer Level	Statistical Details
Strategic Portfolio	Larrece and Srinivasan (1992)	Yes	No	No	No	Yes	Yes	No	Yes
CLV	Berger and Nasr (1998)	No	No	No	Yes	No	Yes	No	Yes
Direct Marketing Customer Equity	Blattberg and Deighton (1996); Blattberg, Getz, and Thomas (2001)	No	Yes	No	Yes	Yes	Yes	No	Yes
Longitudinal Database Marketing	Bolton, Lemon, and Verhoef (2004); Reinartz and Kumar (2000)	Yes	Yes	No, unless panel data	Yes	No	Yes	No, unless panel data	Yes
Service Profit Chain	Heskett et al. (1994); Kamakura et al. (2002)	No	No	No	No	No	No	No	Yes
Return on Quality	Rust, Zahorik, and Keiningham (1994,1995)	No	Yes	No	No	Yes	Yes	No	Yes
Customer Equity Book	Rust, Zeithaml and Lemon (2000)	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Return on Marketing	Rust, Zeithaml and Lemon (2004)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes



**Figure 2.2 :** Return on marketing conceptual model (Rust et al, 2004)

## 2.3 Organizational Learning Literature Review

### 2.3.1 Organizational Learning

Organizational learning has been defined in different ways and it is still a popular context in modern managerial studies. It has been understood as a process of detecting and correcting errors by early authors (Argyris and Schon 1978). Fiol & Lyles (1985) perceived it as a process of improving actions through better knowledge and understanding. Huber (1991) defined organizational learning as the processing of information with the aim to store knowledge in the organizational memory. According to Huber (1991), organizational learning consists of four phases: Information acquisition, information distribution, information interpretation, and organizational memory. Dimovski (1994) extended Hubers' information-processing perspective to include action and defined organizational learning as a process of information acquisition, information interpretation together with the resulting behavioral and cognitive changes which should, in turn, have an impact on organizational performance., Lastly, similar with Huber (1991), Zagorsek et

al.(2007) defined organizational learning as process consisting of four consecutive phases: information acquisition, the distribution of information, information interpretation and the resulting behavioral and cognitive changes. They also stated that the first three phases may be grouped in the information-processing stage.

The information-processing (and organizational-learning) cycle starts with the collection of information from both internal and external sources. The information gathered through various sources and ways needs to be distributed to those members of an organization that might require it (Huber 1991). Zagorsek et al., (2007) identified that several channels and conduits exist that allow for information distribution. They added that some conduits rely more on people (employees are acquainted with goals, take part in more cross-functional teams etc.), while others rely on systems (e.g. information system, organized meetings to inform employees, formalized mechanisms and systems to facilitate the transfer of best practices). Next, information must be interpreted and given meaning according to Zagorsek et al., (2007). Weick and Daft, (1984) defined interpretation as the process of translating events, of developing models for understanding, of bringing out meaning, of assembling conceptual schemes. The purpose of interpreting information is to reduce the ambiguity related to information. Recent research in the area of organizational learning culture and organizational performance has demonstrated that information interpretation also differs in the way people get together in order to understand the information acquired and distributed. Some vehicles might be formal such as official memorandums, expert reports, seminars and similar events. Other meetings might be more informal and involve team and personal meetings (Zagorsek et al., 2007).

The final stage organizational learning process is defined cognitive and behavioral changes (Zagorsek et al., 2007). Various research interrelate learning with change and claim that if no behavioral or cognitive changes occur, organizational learning has not in fact occurred and the only thing that remains is unused potential for improvements (e.g. Fiol and Lyles 1985; Garvin 1993, Spector and Davidsen, 2006). Sanchez (2005) supported this notion by stating that organizational learning can be said to occur when there is a change in the content, conditionality, or degree of belief of the beliefs shared by individuals who jointly act on those beliefs within an organization. Two levels of learning can be observed when discussing cognitive changes. Lower-level learning reflects changes within the organizational structure which are short-term and only partly influence the organization. Higher-level learning reflects changes in general rules and norms (Fiol and Lyles 1985). Argyris and Schön (1996) classified learning similarly: singleloop and double-loop learning, (Dodgson 1993) discussed tactical and strategic learning, while Senge (1990) used the terms adaptive and generative learning. By all means, with lower-level learning

the organization acts passively and only adapts to the environment, whereas higher-level learning involves an active influence on the business environment (Zagorsek et al., 2007).

All organizations learn in varying degrees (Harvey et al., 1998). Learning conforms to the culture promoted in an organization, and the culture either stimulates learning or inhibits the learning process (Nevis et al., 1995). The organizational orientation involved in analyzing and disseminating information concerning change has been categorized into four fundamental cultures: Knowing culture, understanding culture, thinking culture and learning culture. Knowing culture is the organizational culture which is dedicated to determining the 'best' way of undertaking the functions of the organization. Understanding culture is an organizational culture that establishes strong cultural values which become the 'ruling myth.' The corporate culture guides behavior, and change only occurs within the ruling myth. Moreover, thinking culture is an organizational culture which portrays business as a series of problems where the value of management is in identifying and isolating problems, and in collecting information on how to solve the problem. Lastly, learning culture is an organizational culture which encourages experimentation, promotes constructive dissent, acknowledges failure and promotes an open, continuous dialogue with stakeholders (McGill and Slocum, 1993).

In all organizational cultures in which learning occurs, the process of organizational learning takes place at three levels: individual, group, and organization (Crossan et al., 1994). To a large extent, learning occurs first at the individual level, then at the group level, and ultimately learning extends to the organization as a whole (Harvey et al., 1998). Steensma (1996) identified the role individual learning in organizational learning and stated that individual learning as a necessary but insufficient factor for organizational learning. Holmqvist (2003) suggested that organizational learning basically is individual learning taking place in a social context. It is also stated that organizational learning occurs when an individual learning is transformed to a collective state (Inkpen, 2000). Learning, hence, is regarded as a social affair; indeed it is seen as 'an integral and inseparable aspect of social practice' (Lave and Wenger, 1991). Organizations, described as a 'set of procedures for argumentation and interpretation' (March and Olsen, 1979), are seen as consisting of groups of individuals that collectively and incessantly try to make sense of a complex reality in their daily work activities (Brown and Duguid 1991; Weick 1995). The outcome of such processes is stored in organizational memories the organization has learnt (Walsh and Ungson 1991). This process is not simply transferring experiences between individuals, of accepting or of rejecting arguments and interpretations on

how to experience the same situation, but rather of jointly organizing reality so that it can be acted upon (Lave and Wenger 1991; Weick 1979).

Additionally, it is claimed that organizations frequently know less than their members because of the problems associated with communicating and filtering information (Steensma, 1996). Thus, it appears that organizations do learn in ways that differ from the sum of the knowledge of the individuals within the organizations (Meyers, 1990). The organized character of learning, the formality in the learning processes and the explicit political side of the phenomenon are indeed, what make the notion of organizational learning distinct from individually based approaches to learning. It is individuals who learn from experience and who consensually validate joint rules for action, but their learning is organized and contributes in this way to the maintenance or change of organizations (Holmqvist, 2003).

Another stance in the organizational learning literature is that learning is organized by existing standard operating procedures, practices and other organizational rules (Starbuck et al. 1978). Such organizational properties aim to make sure that individuals acquire particular community's subjective viewpoint and learn to speak its language (Brown and Duguid, 1991) and in this way make sense of reality according to dominant organizational beliefs (Weick, 1995). As all organizational rules reflect previous learning processes, learning is in this way not random or blind, but directed.

Given the significance of organizational learning for corporate performance, it is important to understand how managers can influence the learning process in organizations. Authors suggest several antecedents to organizational learning such as the organizational structure, organizational culture, and subordinates' autonomy (Bapuji and Crossan 2004), human resource management practices (Wright 2001), teamwork cohesion (Swieringa and Wierdsma 1992; Marquardt 1996; Dyerson and Mueller 1999; Montes et al., 2005), social capital (Nahapiet 1998) and information-communication technologies (Harvey et al., 1998; Tippins 2003; Ruiz-Mercader et al. 2006). In addition, several authors have emphasized the importance of leadership for organizational learning (Swieringa and Wierdsma 1992; Lei et al. 1999; Montes et al. 2005). The capability for transformational leadership has also been described as one of the most important means of developing learning organizations (Slater and Narver 1995; Snell 2001), especially since leadership also influences many of the previously listed antecedents to organizational learning.

Indeed, two approaches to organizational learning dominate the literature. (Holmqvist, 2003). One focuses on how formal organizations, such as companies, government agencies, universities, hospitals, for example, learn from experience



(Argyris and Schon 1996; March and Olsen 1979). Such analysis focuses on learning within organizations (Levitt and March 1988; March 1991) and is by far the most common unit of analysis in the organizational learning literature. By such intraorganizational learning processes are typically meant the learning from experience of integrated formal organizations, rather than the learning of single departments, groups, etc. (i.e. the learning of sub-organizations; cf. March and Olsen 1979).

The other stream of organizational learning literature concentrates on how organizations learn from each other through formal collaborations between organizations, which can be seen as the result of increased attention during recent years among students of organizations on interorganizational collaborations (Cooper and Rousseau 1999; Doz and Hamel 1998). Such learning is referred to in the literature as interorganizational learning (Child 2001; Ciborra 1991; Hamel 1991; Lane and Lubatkin 1998; Miner and Andersson 1999). We may define interorganizational learning as learning between organizations where there is (initially) a low degree of interdependency (Holmqvist, 2003). This literature has conceptualized how such partners in strategic alliances learn by producing sets of interorganizational experiential rules that are partly separate from the rules of each of its members, i.e. intraorganizational rules (Child 2001; Lorange and Roos 1993).

Although having many similarities within these two different kind of organizational learning, there are some differences and notions between them. Tuite et al (1972), stressed the role of formal authority to justify the separation of organizational learning by stating that, a basic difference in the alternative means available in an interorganizational setting for bringing about agreement to engage in joint decision making when compared with an intraorganizational setting is the absence of a natural authority relationship between the decision units. Moreover, interorganizational learning does not occur by itself; it occurs because of a confrontation and a combination of single formal organizations experiences (Holmqvist 1999; Nelson and Winter 1982). Formal organizations are thus the necessary building blocks of interorganizational collaborations. The two levels of aggregation are tied together in joint learning cycles and, as in the relation between individuals and organizations, the learning of single organizations is what drives the learning of interorganizational collaborations (Holmqvist, 2003). Additionally, the learning of interorganizational collaborations may affect the learning of single organizations, which is a primary reason to formally collaborate (Lyles 1988).

### **2.3.2 Joint Ventures and Organizational Learning**

Joint Venture (JV) represents a particular type of alliance that involves two or more partners forming a separate company (Richards and De Carolis, 2003). These are equity arrangements and as such, signify a substantial commitment on the part of each partner in terms of financial and human resources (Kim, 2008). Interorganizational learning is considered as one of the most crucial processes in a joint venture context (Janowicz and Niels, 2002). Additionally, Kukalis and Jungeman (1995) stated the importance of guiding joint ventures in a learning vision. As the relationship within joint ventures and organizational learning are concerned in this review, we will focus on the interorganizational learning in more detail.

Several determinants effect the outcome of learning process in an interorganizational context. Kale et al. (2000) state that learning, especially the acquisition of difficult-to-codify competencies, is best achieved through wideranging, continuous contact between individual members of the alliance partners. Moreover, Janowicz and Niels (2002) states that knowledge transfer between organizations depends on how much knowledge the partners are willing to make accessible to each other and how intent each of the organizations is on appropriating it. Since learning happens only by intention and hardly ever by default, strategic intent is an essential ingredient in the commitment to learning (Hamel et al., 1989; Hamel,1991). Furthermore, Makhija & Ganesh (1997) advance the importance informal control mechanisms (e.g. meetings and organized personnel contacts, transfers of managers) in order to achieve the transfer of tacit knowledge across organizational boundaries.

One more important determinant in interorganizational learning can be stated as transparency. It is stated that the more transparent the partners are, the more learning is possible (Hamel,1991; Kale et al., 2000). Transparency reflects the level of partners' openness and accessibility and is negatively correlated with the degree of protectiveness confronted by each other (Hamel, 1991). The risk of losing critical information or know-how due to accidental leakage or opportunistic behavior of the partner is particularly high for firms that enter into strategic alliances and thus they are bound to be more protective (Kale et al., 2000). The attitude will be stronger where the competitive overlap between the partners is high (Inkpen, 1998).

Janowicz and Niels (2002) identifies the importance of trust in the outcome of learning between organizations and suggest that more trust in the partner organization's perceived competence will result in higher intent to acquire knowledge from that organization and thus, all else constant, positively affect the amount of knowledge transferred. They also suggest more trust in the partner organization's perceived competence will result in higher intent to acquire

knowledge from that organization and thus, all else constant, positively affect the amount of knowledge transferred. They add higher perceived trustworthiness of the partner will result in higher openness to its knowledge and more susceptibility to its influence on the focal organization's part. Moreover, Bhatt (2000) argues that, if the source is not trustworthy and its intentions are perceived as 'less than clear', receivers need to check the authenticity and the veracity of the knowledge communicated. Trust also helps to curb the motivation of the partners to behave opportunistically and allows to make the organizational interface more leakage-proof (Kale et al., 2000). Therefore, governance based on trust provides partners with proper incentives to share information and know-how with each other (Dyer & Nobeoka, 2000; Dyer & Singh, 1998). In other words, trust is a lubricant for potentially useful and important information to travel quickly and accurately through the network (Kale et al., 2000). Accordingly, Janowicz and Niels (2002) suggest that more trust between partnering organizations foster higher transparency, which in turn results in more knowledge transferred between them.

Lastly, Swierczek & Dhakal (2004) identified that learning is facilitated if the Joint Venture is willing to make financial investments in training, communication and support programs. These programs are assessed in the Joint Ventures, along with the assessment of amount financial resources allocated for such activities. The strategies introduced to encourage group interaction within a manufacturing Joint Venture include: Total Quality Management Program (TQM), Continuous Improvement Program, Quality Circles (QC), Employee Suggestions, Early Supplier Involvement, Collective Team Problem Solving Technique, Benchmarking Schemes, Employee Participation, Customer Involvement, These programs provide opportunities for group interaction and sharing that facilitates learning.

### **2.3.3 Exploration and Exploitation**

Although much effective organizational activity results from accumulated experience, this does not imply that organizational experience reflects cleverness (March, 1994). When organizations learn from experience, they create sophisticated beliefs about reality and attend to an increasingly biased interpretation of it (Weick, 1979). Eventually, they may become skilfully incompetent by becoming removed from other sources of experience (Argyris 1993). If reality changes unexpectedly, experiential learning can then turn out to be self-destructive and the organization may find itself 'drifting into a decaying backwater' (Holmqvist, 2003). Experience becomes a hindrance to learning that aims to change present conditions. In short, organizations confront a paradox in their experiential learning (Miller 1994; Westenholz 1993).

What organizations learn today may certainly contribute to their current activities. Organizations learn to refine their capabilities; they exploit their existing knowledge; they learn to focus their activities on certain domains; they learn what brings success and failure. This is basically the process of exploitation (March 1991; Marengo 1993). Exploitation is about creating reliability in experience. It means productivity, refinement, routinization, production, and elaboration of existing experiences. At the same time, however, the very same learning processes contribute to an increased simple-mindedness, and a concomitant inability to explore new opportunities. What may be effective activities in the short term may turn out to be highly ineffective in the long run (Holmqvist, 2003). In order to counteract the potential drawbacks of exploitation, organizations need to create variety in their experiences as well, by experimenting, innovating and taking risks. This is the process of exploration (Levinthal and March 1993; Olsen and Peters 1996). It is certainly commonly stressed in the organizational learning literature that ‘maintaining an appropriate balance between exploration and exploitation is a primary factor in system survival and prosperity’ (March 1991); ‘renewal requires that organizations explore and learn new ways while concurrently exploiting what they have already learned’ (Crossan et al. 1999: 522); and ‘a key dilemma in organizations involves the trade-off between adaptation to exploit present opportunities and adaptability to exploit future opportunities’ (Weick 1982: 386).

## **2.4 Outcome of Integration: New Product Success**

### **2.4.1 Integration and New Product Success**

Various studies (e.g. Griffin and Hauser, 1996; Gupta et al., 1986a; Shaw et al., 2004) aimed to point out the determinants and outcomes of integration between marketing and R&D departments.

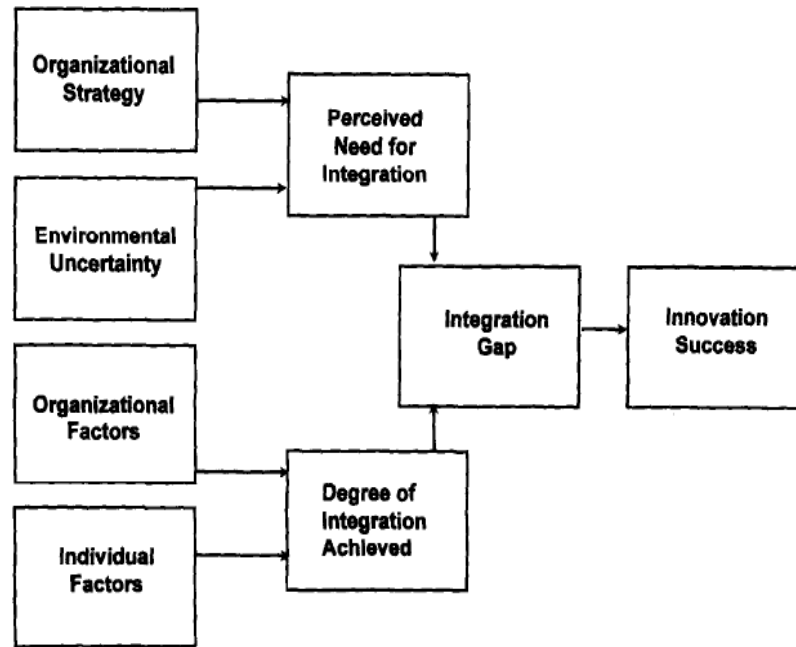
Not all companies in all operating environments, or even all projects within a particular company, need to achieve equal levels of cooperation for successful development (Griffin and Hauser, 1996). Gupta et al (1986a) postulate a model for R&D and marketing interface which combines “perceived need for integration”, “degree of integration achieved” and innovation success (See Figure 1). Major determinants of “perceived need for integration” are organizational strategy requirements and environmental uncertainty requirements. About the organizational strategy requirements they mention the need for integration is related to the aggressiveness of the firm's strategy. The perceived need for integration declines as the firm's stance shifts from actively prospecting for new product/market opportunities to passively reacting to the initiatives of others. About the

environmental uncertainty requirements, it is stated that the greater the environmental uncertainty, the greater the felt need for R&D and marketing integration.

Determinants of “degree of integration achieved” are organizational and individual factors. In the title of organizational factors it is postulated that the lower the degree of formalization (i.e., emphasis on following rules and procedures) and the lower the concentration of power (i.e., the degree of centralization), and the greater the degree of employee participation in the new product decision, the greater the degree of integration that will be achieved. Additionally, the more senior management encourages risk-taking, the more R&D and marketing managers perceive they are jointly rewarded for new product success, the greater the formal recognition by senior management of the need for integration, and the more harmonious R&D and marketing operating characteristics (i.e., early and continuous joint involvement), the greater the degree of integration that will be achieved. In individual factors component socio-cultural differences are implied: the greater the similarity between R&D and marketing managers with respect to their professional/bureaucratic orientation, with respect to their tolerances for ambiguity, with respect to their perspectives on time, and with respect to the types of projects preferred, the greater the degree of integration that will be achieved. Eventually, the greater the gap between the degree of integration ideally required and actually achieved, the lower the probability of innovation success (Griffin and Hauser, 1996).

Song and Parry (1993) have tested the constructs of Gupta et al.’s (1986a) model by surveying Japanese high-technology firms, generally found support for the hypotheses. More-integrated tasks which both groups indicate lead to higher success include:

- establishing development goals and priorities,
- analyzing customer needs,
- designing user and service manuals,
- designing communication strategies, and
- information sharing about competitor strategies and reactions.



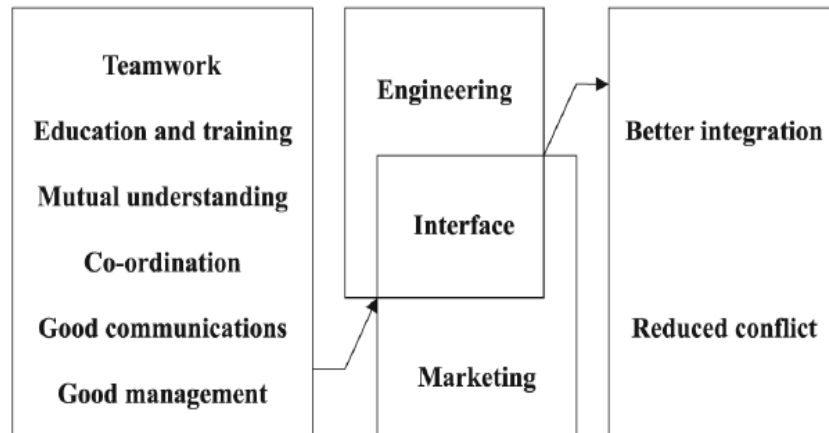
**Figure 2.3 :** A Model of R&D-Marketing Interface (Gupta et al., 1986a)

R&D managers also associate higher perceived levels of integration in determining customer requirements, analyzing test market results, and gaining customer feedback on performance with higher program success. These tasks are spread throughout product development. (Griffin and Hauser, 1996)

Another research consistent with the model reports that U.S. firms with more successful product-development programs have more integration between marketing and R&D than firms with less successful programs (Gupta et al, 1985b) More successful firms achieve more integration in the following tasks:

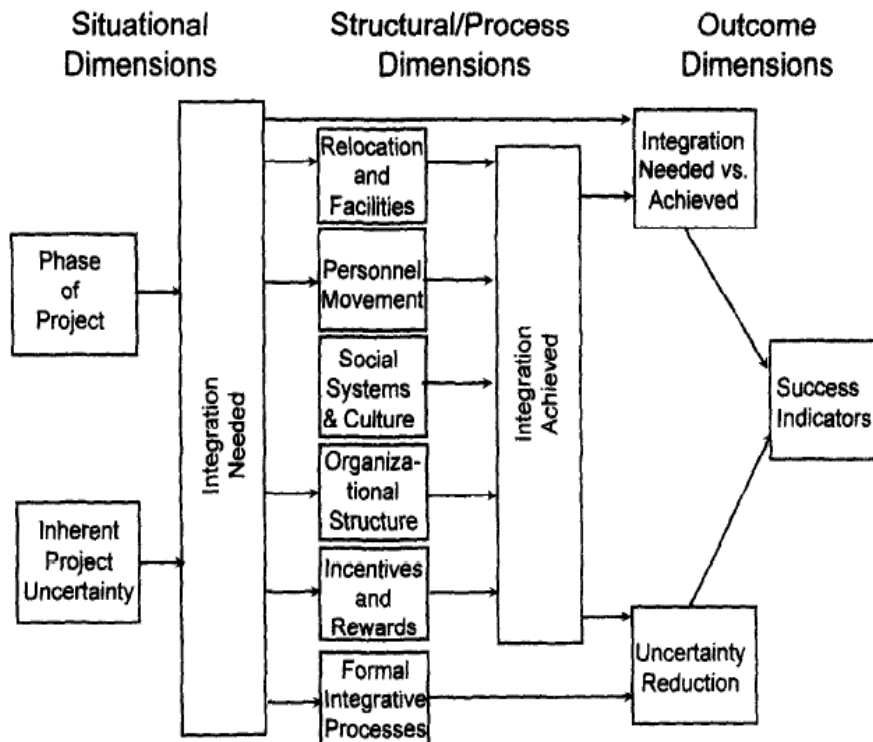
- analyzing customer needs,
- generating and screening new ideas,
- developing new products according to the market's needs,
- analyzing customer requirements, and
- reviewing test market results.

Furthermore, Shaw et al. (2004) developed a model for improving engineering-marketing interface. (See Figure 2) Teamwork, education and training, mutual understanding, co-ordination, good communications and good management are seen as the main determinants for possessing better engineering-marketing integration.



**Figure 2.4 :** A Model for Improving Engineering-Marketing Interface. (Shaw et al., 2004)

In addition previous models, Griffin and Hauser (1996) developed a causal map for studying the project-level marketing/R&D interface by developing Ruekert and Walker's (1987) model of the marketing/R&D Interface (See Figure 3).



**Figure 2.5 :** Causal map for studying the project-level marketing/R&D interface (Griffin and Hauser, 1996)

The situational dimensions suggest the needed integration of marketing and R&D departments for the firm. It recognizes that since R&D projects vary, the right amount and the type of integration will vary as well. The amount (and kind) of integration needed in a project depends upon specific situations such as the phase of the project and the inherent project uncertainty. For example, earlier product development phases (target market identification, need identification, idea generation, concept development and selection, and specification development) require the highest level of integration between marketing and R&D. Close integration between these two functions is less critical to success later in the process, although R&D may need to become closer to other functions, such as manufacturing, at that time. Higher project uncertainties also lead to a greater need for marketing/R&D integration. For projects with lower uncertainties, for example an incremental change to a current product which does not change the target market or add new benefits, there is less need to achieve higher levels of integration to obtain success (Griffin and Hauser, 1996).

The structural/process dimensions suggest actions the firm can take to achieve integration. These actions will depend on the situation the firm faces. Six types of actions are stated for the firms to achieve integration. It is shown as relocation and facilities, personnel movement, informal social systems, organizational structure, incentives and rewards, and formal integrative management processes (Griffin and Hauser, 1996).

The outcome dimensions measure the impact of integration on both final outcomes and intermediate process outcomes. The primary outcome measure is defined as success which means commercializing a successful and profitable product in a timely fashion (Griffin and Hauser, 1996).

In addition to these models, there exist a broad range of scientific evidence that demonstrates better integration within marketing and R&D, is essential for new product success of the company. (e.g. Cooper, 1979, 1984a, 1984b; Griffin and Hauser, 1996; Gupta et al., 1985b; John and Smelson, 1990; Madique and Zirger, 1984; Moenaert and Souder, 1990; Shaw et al., 2004; Souder, 1988). The evidence is strong, consistent, common across a variety of methodologies, and seemingly applicable in both services and products and in both consumer and industrial markets (Griffin and Hauser, 1996). Furthermore, Li (1999) evidenced that R&D-marketing interface is important in NPD also for foreign markets.

The empirical research in marketing and R&D integration has also supported a strong relationship between collaboration and performance (Lawrence and Lorsch, 1967, 1986; Souder, 1977, 1987). Souder (1977, 1987) found that in the cases of



severe disharmony between departments (low levels of collaboration) resulted in dramatic failures, whereas harmony between departments (higher levels of collaboration) resulted in significantly more successful projects. It is reported that collaboration between departments promoted the winning of contracts, greater satisfaction, improved productivity, improved morale, and confidence in departmental members (Kahn, 1996). Various studies (e.g. Carlsson, 1991; Griffin and Hauser, 1992; Urban and Hauser, 1993; Maltz and Kohli, 1996) also support a positive relationship between interaction and product development success. Specifically, Dougherty's (1987) study which focused on two project types (i.e. film cover and battery development) found that greater levels of communication across departments promoted project success in the case of a film cover project, whereas low levels of communication across departments was a reason for failure of a battery product project. Moreover, Kahn (1996) and Kahn and Mentzer (1998) considered the specific construct of integration between marketing and other units and made a distinction between interdepartmental interaction which is related to information dissemination and interdepartmental collaboration which is defined as mutual understanding between departments having a common vision and shared resources to achieve common goals. They found that interdepartmental collaboration showed stronger performance implications than the cross-functional interaction.

To conclude, different models (e.g. Griffin and Hauser, 1996; Gupta et al., 1985b) propose different components for integration and various researches (e.g. Johnes and Smelson, 1990; Madique and Zirger, 1984; Moenaert and Souder, 1990) support the positive effect of integration on new product success. It is important to comprehend these components in order to decide the necessary level of integration and anticipate the results of some certain actions on the integration. Specifically, second model focuses on the factors that can increase integration however it fails to link integration with success. Both first and third model focuses on the importance of the gap between needed and achieved integration, in new product success. They both concentrate on the factors that can increase the achieved integration level. Although having similar approaches for integration, third model seem to cover the first model in terms of details included to explain integration. However, there is a lack of explanation in all models; about in which way the factors proposed to increase integration achieves that. They also fail in demonstrating in which way integration increase new product success.

As Chang et al. (2007) points out identifying effective mechanisms for stimulating knowledge sharing among NPD members across different functional areas have largely remained an untapped source of competitive edge. Thus, it is important to understand how any mechanism affects integration, through which mechanisms they

do it. We think investigating relational aspects of integration will provide us to comprehend what is happening in the backstage of integration. With a deductive approach, we investigate, in our model, how relational aspect is affected by other factors also. Similarly it is important to comprehend what happens between integration and new product success and how integration stimulates new product success. To point out that, we investigate the role joint learning in the process.

#### **2.4.2 Role of Organizational Learning**

Steensma (1996) has postulated that organizational learning is a mediating process between the method of collaboration and core competency development. He also argued that while collaborative interaction provides the vehicle for differing levels of media richness, it is the organizational learning process that converts this richness into technical competencies.

There exist broad range of scientific studies that relates organizational learning to the factors that provides success to the company. Studies have shown that organizational learning positively affects competitive advantage (Argote and Ingram, 2000; Jashapara 2003), financial and non-financial performance (Bontis et al., 2002; Dimovski and Skerlavaj 2005; Jimenez-Jimenez and Cegarra-Navarro 2006), tangible and intangible collaborative benefits in strategic alliances (Simonin 1997), the unit cost of production (Darr et al. 1995), and innovation (Cohen and Levinthal 1990; Montes 2005).

More specifically, Pisano et al. (2001) examined learning curves in the health-care setting and determined that organizations achieve performance improvements (improve work processes – reduce procedure times, hence increase efficiency) based on cumulative experience at different rates. Cohen and Levinthal (1990) argued that a firm's ability to recognize the value of new, external information, assimilate it, and apply it to commercial ends (called absorptive capacity) is critical to its innovative capabilities. Darr et al. (1995) examined the acquisition, depreciation and transfer of knowledge acquired through learning by doing in a service organization and found evidence of learning: as organizations gain experience in production the unit cost of production declines significantly. Furthermore, Inkpen (2000) suggested that the knowledge generated supports companies in understanding the consequences of past actions, respond to new environmental stimuli and establish new mental models to override existing ones. Thus effective organizational learning results in an enhancement of an organization's capabilities. It is also argued that organizational learning capabilities are mechanisms that enable for organizations to deal with ambiguities, change, and fragmentation as well as to adapt to changing environments (Dodgson, 1993).

Similar with intraorganizational context learning is expected to engender changes for the organizations in interorganizational context. The change in behaviors as a result of this learning is quantified by considering: The reduction in number of employees/unit, the reduction in work hour/unit, the reduction in defect rate/worker, the reduction in cost per unit, the reduction in raw materials used/product, the reduction in ee-work/product and the increase in the quantity of production, the increase in the quality of production, the increase in number of multi-skilled personnel, the increase in frequency of preferred supplier interactions (Swierczek & Dhakal, 2004). Prior studies also show the impact of JVs information on firms' performance (Koh and Venkataraman, 1991; McConnell and Nantell, 1985; Woolridge and Snow, 1990; Swierczek and Dhakal, 2004). Specifically, Swierczek and Dhakal (2004) found that for joint ventures in developing countries like Thailand and Nepal, learning to make efficient use of man-hours, machines and materials enhances performance and joint ventures in both of these developing countries were found to implement learning strategies to improve their performances.

### 3. CONCEPTUAL FRAMEWORK

Managing the interface between marketing and R&D within a company has become critical in the 1980s and has continued to be important in a firm's success since then (Griffin & Hauser, 1996). The literature on integration and new product success highlights many components affecting integration, such as barriers to the integration, approaches for overcoming the barriers, relational context, components of integration (collaboration and interaction) and influence attempts of the departments.

Another likely antecedent for higher integration is considered as accountability which is evidenced both in academic and business journals (e.g. Matthews, 2002; Moorman & Rust, 1999). Businesses are increasingly concerned about accountability, particularly in the area of marketing. However, since many organizations' marketing departments do not tend to focus on demonstrating their accountability, it has rather been perceived in terms of cost (Moorman & Rust, 1999; Stockley, 2005).

The poor accountability presentation may cause less recognition and trust for marketing department from other departments. The basic premise here is that increased marketing accountability can help to have higher integration between departments by increasing recognition and trust (Atuahene-Gima & Evangelista, 2000; Baker & Holt, 2004; Workman, 1993). This argument triggers a new approach to identify relational context between marketing and R&D departments.

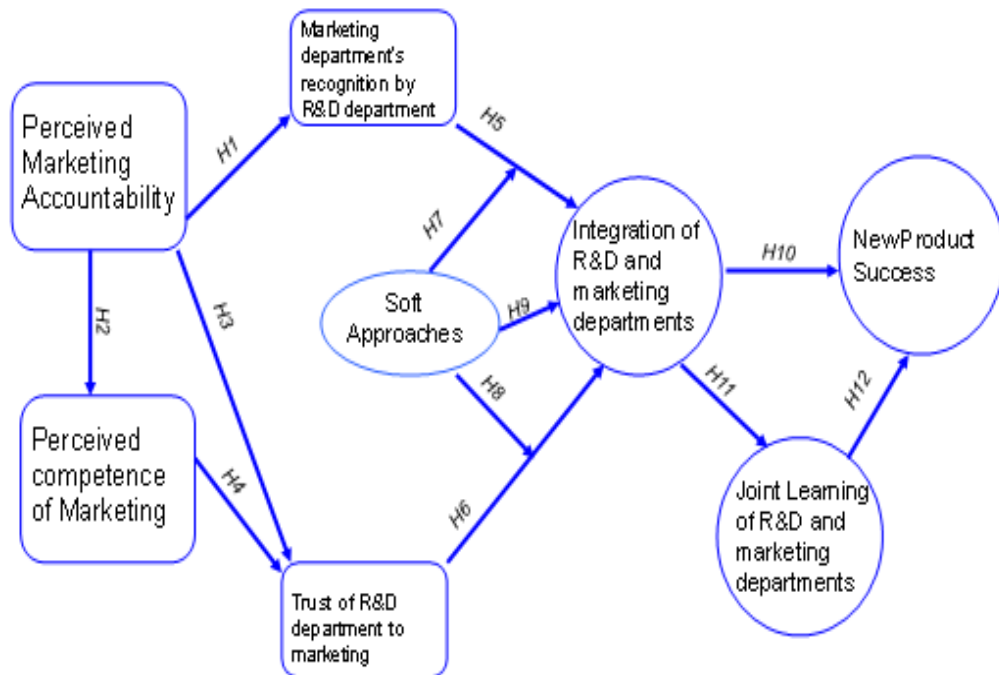
The investigation on the relational context has led us to define competence as a mediator between marketing accountability and trust. Competence has been one of the most important component of the trust in previous literature (e.g. Sirdeshmukh, Singh, & Sabol, 2002; Canen & Canen, 2004). It can be argued that when marketing department openly share information about their activities, members of R&D department may develop positive ideas about the abilities and skills of their marketing peers. This favorable perception towards marketing department's competences may trigger higher trust towards marketing department.

Furthermore, the studies which focus on a department's ability to influence other sections of an organization show that, power is distributed between departments in an unbalanced way. Therefore, any investigation looking at the interfaces between

departments should also examine the impact of soft approaches on the issue of integration. This view is supported by Workman (1993) and Atuahene-Gima and Evangelista (2000) who assert that soft approaches are very important means to influence R&D people in high-tech companies.

Moreover, we are inspired by organizational learning studies which relate organizational learning and joint ventures to the factors that bring success to a company (e.g. Cohen & Levinthal 1990; Crossan, Lane, White, & Lisa, 1995; Skerlavaj & Dimovski, 2005; Swierczek & Dhakal, 2004). On the basis of knowledge management field, we claim that collaboration and interaction between departments can create an environment in which the dissemination and sharing of information and knowledge is encouraged (Kahn, 1996). Accordingly, as suggested by Steensma (1996), joint learning between departments in terms of commercialisation and technical aspects of products can mediate the relationship between integration of marketing and R&D departments and NPS.

Lastly, Granovetter's (1983) approach which highlights the importance of weak ties in bridging different departments in order to avoid fragmentation and distrust is brought into our conceptual model. Relying on his work, we argue that different backgrounds, understandings and perspectives of departments can be considered as the characteristics of weak ties which may affect the level of integration between them.



**Figure 3.1 :** Model of marketing's accountability's effect on marketing-R&D integration and new product success

Based on the arguments above we developed a conceptual framework which aims to set a research agenda (See Figure 1). The originality of our model comes firstly from the demonstration of marketing accountability and new product success mechanism which has not been investigated yet Secondly, by bridging knowledge management, accountability and integration literatures, it defines possible moderator (soft approaches) and mediator (joint learning) and also components (competence, recognition, trust, integration) which may affect the relationship between marketing accountability and new product success. The relationships and the related hypotheses are presented in the following section.

### **3.1 Definitions of Components**

#### **3.1.1 Marketing Accountability**

Ammeter et al. (2004) defined accountability as a perception based on shared expectations about a potential need to explain one's actions or beliefs regarding an organizational issue to a constituency for reasons such as social desirability considerations. We adapt that definition for the situation of marketing department in the organization and define marketing accountability as the observable behaviors to demonstrate systematically the effectiveness of marketing activities and their contribution to the success of the company. The definition is adapted depending on the reality that there is a confusion and lack of trust about the effectiveness and contribution of marketing in the current business environment which weakens marketing department within the organization (Schultz and Gronstedt, 1997, Baker and Holt, 2004, Workman, 1993 and Atuahene-Gima and Evangelista, 2000). In the model marketing accountability connotes the perceived accountability of marketing department by R&D department.

#### **3.1.2 Marketing's competence**

Competence is defined as combination of knowledge, skills and behaviors that drive performance (Cummings and Worley, 2005). Based on that definition, we define marketing's competence as a combination of knowledge, skills and behavior utilized to properly perform the marketing tasks and reach high success levels. In the model marketing's competence connotes the perceived competence of marketing department by R&D department.

#### **3.1.3 Recognition and Trust**

Recognition connotes both to accept that something is legal, true or important (Cambridge-Recognition). By adapting this definition to marketing and R&D

relational context, we define marketing's recognition as the degree of comprehension about marketing department's importance within the company. In the model it connotes R&D department's recognition of the importance of marketing as a business function. Trust is defined as the dimension of a business relationship that determines the level to which each party feels they can rely on the integrity of the promise offered by the other party (Callaghan et al., 1995). In the model trust component connotes trust of R&D department's to marketing department.

### **3.1.4 Soft approaches**

The influence approaches are the behaviors tailored to relationship within the departments and expected to be beneficial in managing relationship within them when appropriately used (Ammeter et al., 2004). The influence approaches are categorized as soft and hard, is based on the degree of coercive intensity inherent in the approaches (Atuahene-Gima and Li, 2000). Coercive intensity refers to the extent to which a target feels that not complying with wishes of the source will lead to adverse consequences for him or her (Venkatesh et al., 1995). Soft approaches refer to the ways of influencing others in none coercive and none threatening way (Atuahene-Gima and Li, 2000). In the model soft approaches connotes the approaches from marketing department to R&D department.

### **3.1.5 Integration, Joint Learning and New Product Success**

Integration in the model is the process consisting of a unified effort by marketing and R&D departments to accomplish company tasks and the demands of the competitive environment which includes both interaction and collaboration processes (Kahn, 1996). Interdepartmental interaction is characterized as the information exchange element of integration, comprising activities like committee meetings, teleconferencing, memos, exchange of standard documentation, and conference calls. Interdepartmental collaboration is characterized as the affective and mutual/shared element of integration, corresponding to a willingness to work together (Kahn and Mentzer, 1998). In the model integration connotes the level of integration between marketing and R&D departments. Learning means, getting knowledge or skill in a new subject or activity (Cambridge-Learning). Joint learning (JL) refers to learn through collective activities and experiences. In the model JL connotes the degree of the knowledge and skill gathered by both R&D and marketing departments through collective activities and experiences. Finally, new product success (NPS) connotes the outcomes of the new product process for the company.

## 3.2 Hypothesis

### 3.2.1 Marketing Accountability

We expect marketing accountability to affect marketing's recognition, marketing's competence and trust. Lack of recognition, mutual appreciation and comprehension and undervaluation, for people of the marketing department by R&D colleagues, are stated in many studies (Atuahene-Gima & Evangelista, 2000; Baker & Holt, 2004; Workman, 1993). Specifically, Workman (1993) researched marketing's limited influence in a high-tech company. He observed that the role of marketing was defined as "developing marketing plans and sales strategies for the products engineering turns out". Moreover, he found that there was lack of recognition for people of the marketing department by R&D colleagues. Furthermore, Atuahene-Gima and Evangelista (2000) mentioned the lack of mutual appreciation and undervaluation within marketing and R&D departments. Additionally, Baker and Holt (2004) found that one of the main problems for the senior managers from other departments is understanding what marketing actually does.

The researches clearly demonstrate that there is a misunderstanding about the importance of marketing department which probably damages the relationship within the dyad. Obviously, if a marketing department demonstrates the effectiveness of its activities and contribution to the organization's success (i.e. marketing accountability), the perceived importance of marketing will be comprehended better by other actors within the firm. For instance, if marketing department demonstrates the effectiveness and contribution of marketing research for a new product, R&D department will understand the importance of the marketing research better. When we broaden it to other activities of marketing function there will be increased recognition by R&D department for the marketing department. Moreover, using hard evidence to support the fact that marketing activities effect and facilitate the acceptance of products in target markets will be most convincing, particularly to R&D people who are used to work with hard evidence and scientific explanations (Griffin & Hauser, 1996; Shaw et al., 2004). Thus, marketing accountability can facilitate the recognition of marketing by R&D department and it is the only driver of it. So that, we propose the following hypothesis:

*H1: Increased perceived marketing accountability by R&D department will provide higher recognition for marketing department by R&D department*

We propose marketing accountability also has a positive effect on the level of marketing's competence. This effect plays a very important role in the perception issue of marketing competences. Marketing departments' competences can only be



perceived if they are communicated within the organization properly. As we stated in the definition of marketing accountability, it aims to demonstrate the effectiveness of marketing activities and the contribution of marketing department to success of the company. So that, obviously, marketing accountability can be considered as the one of the main ways of showing how competent is marketing department by demonstrating the effectiveness and contribution. In other words, marketing accountability doesn't increase the competences of marketing department however it increases the perception about the competences pertaining to marketing department. So that we propose:

*H2: Increased perceived marketing accountability by R&D department will provide higher perceived marketing's competence about marketing by R&D department*

There exist different kinds of research findings about the mechanism within accountability and trust in the literature. On the one hand, Fard and Rostamy (2007) suggest that one of the most important factors creating distrust is "lack of accountability. Their research shows that public accountability influences the public trust by improving citizens' satisfaction. However, despite of the differences between the relationship with public and relationship of two departments, we think their findings are inspiring for our study. On the other hand, Ammeter et al. (2004) suggests that both accountability and trust are central to the social interactions that occur within organizations. They add that absence of either of these components would result in chaos in organizations as behaviors ran undirected and unchecked. Interestingly they suggest increased trust might serve as a substitute for accountability, and vice versa. Although it seems quite different than what we suggest in the model, we think it is not. Our main determinants for the integration are marketing's recognition and trust. What Ammeter et al. (2004) suggests as the main determinants for better relationship are accountability and trust. As the only stimulating component for the recognition in our model is accountability, we can think that we suggest the same components for better integration although we take it further and one more component to explain the accountability and better integration relationship more detailed. Since the main components that constitute integration are trust and recognition, we can suggest that decrease in recognition level can be compensated with an increase in trust level and vice versa. On the light of different views about trust-recognition mechanism, we expect accountability to affect trust positively although not being so strong. It may achieve it by providing more transparency for marketing department, as they demonstrate how effective and beneficial the marketing activities in the organization are. So that:

*H3: Increased perceived marketing accountability by R&D department will provide higher trust of R&D department to marketing department*

### **3.2.2 Marketing's competence**

We expect marketing competence to be main driver of trust. Vorhies (1998) states the importance and necessity of investigating how various marketing competences contribute individually to organizational success. Sirdeshmukh et al. (2002) identify competence as one of the dimensions that can affect trust in a relationship. In addition to that, Plaats (2001) segmented trust in different components; which includes competence trust as one of the components and mentions that competence can constitute trust. Also, Canen and Canen (2004) mentions that managerial competence creates trust within the organization. Workman (1993) highlighted the existing skepticism of R&D people about the capability of marketing people, which might engender distrust between these departments. We expect that demonstrating skills, knowledge and capabilities of marketing department will decrease this skepticism, hence will increase the trust of R&D department to marketing department. Obviously, R&D department will intend to rely on more to the integrity of the promise offered by marketing department if they feel clear about competences possessed by marketing department. So that, we propose:

*H4: Increased perceived marketing competence by R&D department will provide the higher trust of R&D department to marketing department*

### **3.2.3 Recognition and Trust**

We defined relational context within departments, through two determinants: marketing recognition and trust. These constructs are different than the constructs which used to define relational context, in the previous researches (e.g., Callaghan et al., 1995, Nahapiet & Ghoshal, 1998; Ruyter and Wetzels, 2000). We expect both marketing's recognition and trust to effect integration positively.

As stated before, lack of recognition about marketing by R&D department is stated in various researches (Workman, 1993, Atuahene-Gima and Evangelista, 2000 and Baker and Holt, 2004). Since members of R&D department tend to believe that good innovations sell themselves, they are skeptic about marketing's contribution to innovations which in turn cause the intention to give less recognition to marketing (Workman, 1993). This perspective is limited in the sense that even excellent innovations may be more successful in the marketplace when supported by a sound marketing program.

We think, if R&D department know the importance of marketing better, namely has more recognition, they will understand the reason of interacting and collaborating with them in some certain processes; so that they will intend to interact and collaborate more. Moreover, they will have fewer doubts in communicating, participating and sharing during the joint process. By knowing the importance of marketing department, they will understand the logic behind the demand for an information, communication or participation and also the potential affect of the information, communication or participation so that probably will be more eager to interact and cooperate. For example, in case of NPD, since they will understand the important role of marketing in the process, they will be more open to share about technical aspects of the new product. Moreover, R&D department will tend to demand more information about marketplace in NPD process since they will comprehend the importance of market information and marketing research in NPD which will end up with more interaction and collaboration. To conclude, thanks to higher recognition, R&D department will understand the necessity and the potential effect of communication and collaboration with marketing better and therefore they probably will be more eager to interact and cooperate with each other. Thus, it is proposed that;

*H5: Increased recognition by R&D department about marketing department will provide better integration within R&D and marketing departments.*

Secondly, it is reported that trust in turn will improve communications in terms of amount and frequency and degree of informality, increase mutual commitment and eventually more cooperation and less conflict will result (Allen and Meyer, 1990). Moreover, Souder (1980) identified distrust as the one of the main barriers of integration of R&D and marketing departments. Obviously, if both partners are sure about the integrity of the all promises from the other partner they will more intend to work together with the partner. That may eliminate the effect of skepticism about marketing people by R&D department which will in turn provide a good level of integration. Thus, it is claimed that;

*H6: Increased trust towards marketing department by R&D department will provide higher integration between R&D and marketing departments.*

### **3.2.4 Soft Approaches**

We applied the components Atuahene-Gima and Li (2000) that constitutes soft approaches. As they state, coalition formation, information exchange, recommendation and requests cover a wide variety of soft influence tactics relevant to marketing effectiveness influencing other team members in the NPD process.

These subcomponents also cover majority of the tactics that are stated in the research of Workman (1993) which are categorized as strategic coalition formation and informal networks. Workman (1993) and Athuahene-Gima and Evangelista (2000) mentions that due to the nature of context in high-tech companies' marketing department need to influence R&D department in order to be yet enough involved in NPD process since R&D department undervalue the role of marketing. They both suggest soft approaches as very important ways to influence R&D people in high-tech companies.

We expect soft approaches to have a moderation effect on the relationship of marketing's recognition and integration and also on the relationship of trust and integration. Moreover it is expected to affect the communication and collaboration components of integration so that the integration of R&D and marketing departments.

The main role of the soft approaches in the model is moderating the relationship of marketing's recognition and integration and also moderating the relationship of trust and integration. As R&D department is automatically involved to NPD process in high-tech companies due to the nature of their work, they tend to have more influence in NPD process. Although having high level of trust and recognition, marketing department may need to increase their influence unilaterally in order to be equally involved in NPD process (Atuahene-Gima and Evangelista, 2000). So that, the desired level of integration may not be achieved even high level of trust and recognition constituted, without soft approaches. In spite of having sound relational backgrounds, a need for stimulation for interaction and collaboration can appear within the dyad and soft approaches provide that. Also, in any step of the relationship there may exist some inertias and misunderstandings due to barriers of integration such as difference in cultural and educational backgrounds, limited technical knowledge, physical barriers or organizational responsibilities (Griffin and Hauser, 1996 and Gupta et al., 1985a, 1986a). Soft approaches can be the solution to overcome the inertias and misunderstandings and can be the stimulator by creating the opportunity to communicate and share more about the problematic issues. As a result, we think soft approaches has a moderation effect between integration-trust and integration-marketing's recognition mechanisms.

We also expect soft approaches to have an effect on the integration of R&D and marketing departments since it requires sound and mutual relational backgrounds which are stated as trust and recognition in our model. However, as it is impossible to influence a department without communication it is supposed to influence the integration by affecting communication. Moreover, Atuahene-Gima and Li (2000)

stated that soft approaches is expected to create interpersonal liking and building a sense of reciprocity which can reduce the skepticism on integration and so that help to have a better integration.

While used in a competent way soft approaches can start, fasten or the overcome some challenges in the integration. So that we propose the following hypotheses:

*H7: The more soft approaches from marketing department to R&D department will enhance the marketing's recognition and integration mechanism.*

*H8: The more soft approaches from marketing department to R&D department will enhance the trust and integration mechanism.*

*H9: The more soft approaches from marketing department to R&D department will enhance the level of integration between R&D and marketing departments.*

### **3.2.5 Integration, Joint Learning and New Product Success**

We expect integration to affect both JL and NPS positively. Moreover, we think JL has mediating effect on the NPS.

As stated in the previous chapter, the current integration literature doesn't have a consensus about the components and definition of integration. Simply viewing integration as "interaction" prescribes that more meetings and greater information flows should be employed to improve product development success, which is not necessarily the answer to improve product development success. Also, collaboration without some form of communication is not be feasible. Additionally, considering integration as a single dimension- interaction or collaboration- allows only two situations to exist-high or low integration (Kahn and McDonough, 1997). For these reasons, we applied the literature that associates information-sharing and involvement with interdepartmental integration. It suggests a composite view of integration, where integration subsumes interactive and collaborative processes (Gupta et al., 1986; Kahn & McDonough, 1997; Kahn & Mentzer, 1998; Song & Parry, 1993; Souder, 1977). So that when we mention integration it should be understood as the combination of interaction and collaboration. In the model it is shown as integration only, without including sub components, since we expect the trust, recognition soft approaches components to affect the collaboration and interaction same way so that it will be useless to involve them to the model individually. Earlier studies (e.g. Griffin & Hauser, 1996; Gupta et al., 1985; Moenaert & Souder, 1994; Souder, 1988; Shaw et al., 2004) demonstrated that higher integration between marketing and R&D departments is essential for new product success. Thus, we propose:

*H10: Increased integration within R&D and marketing departments will provide higher new product success in the marketplace*

We added a new mediator, joint learning, within integration and new product success. We have been inspired from the organizational learning researches in knowledge management literature. We think organizational learning process also has similarities with joint learning of two departments since it can be thought as a subset of whole organization. Moreover, for interorganizational context, we think that we can broaden the relationship between two companies to departmental relationships such as in joint venture context. The main basis for the argument is that organizational learning is matter of transforming individual learning to a collective state which is the main point of joint learning as well. Additionally, as R&D and marketing departments put complementary information during the NPD process (Griffin and Hauser, 1996), the joint learning between them is more feasible and very important.

There exists broad range of scientific studies that relate organizational learning to the factors that provide success to the company (e.g. Cohen & Levinthal 1990; Crossan, Lane, White, & Lisa, 1995; Skerlavaj & Dimovski, 2005). Moreover, there are some specific studies that connects joint venture with the success of company (e.g. Swierczek and Dhakal, 2004). Finally, Steensma (1996) has postulated that organizational learning is a mediating process between collaboration and core competency development. Obviously, through integration departments will increase the likelihood of joint learning because of working closely. The objective of the integration between marketing and R&D in an innovation project should result in joint learning on how to better integrate technical and commercial issues in their project management. Based on the arguments above it is suggested that:

*H11: Increased integration within R&D and marketing departments will provide higher joint learning for the departments.*

*H12: Increased joint learning within R&D and marketing departments will provide higher new product success in the marketplace*



## **4. RESEARCH DESIGN**

This chapter outlines the methodological foundations and the research design of the study in terms of data collection and scale purification methods and procedures.

### **4.1 Justification of the Research Design**

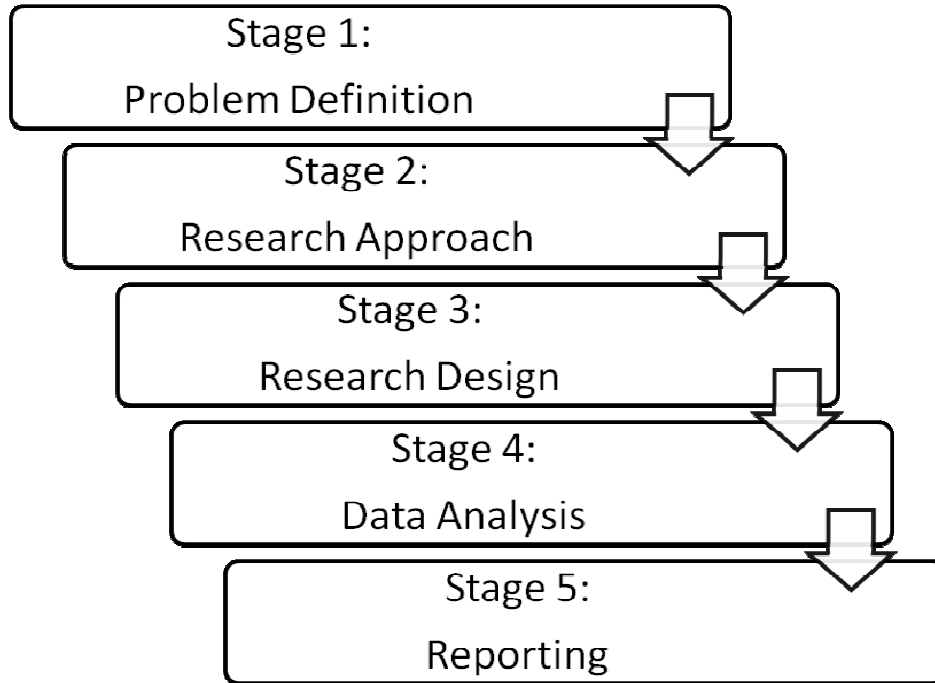
The approach of Malhotra and Birks (2003) for marketing research process has been applied for our research process (See Figure 1). There is one less stage than Malhotra and Birks' (2003) research process, since we separated "Data Preparation and Analysis" stage into two stages as "Scale Validity and Reliability" and "Data Analysis" and we investigated "Sample and Data Collection" and "Scale Validity and Reliability" stages as a part of research design. Thus, our research process is consist of five broad stages; problem definition, research approach, research design, analysis and reporting the research. The first two stage will be discussed briefly, as they are applied in the previous parts of the research and explained in detail. The last stage covers reporting entire research which means, this written part of thesis, so that will be discussed briefly. The other stages will be discussed in detail in following sections.

In the first stage we defined, as a logical starting point, which research question will be investigated (Malhotra and Birks, 2003). The research question is mainly developed after discussions with academics, collection and analysis related published information. Next, the research question is precisely defined as: Can increased marketing accountability provide a better integration of marketing and R&D departments and also learning and NPS. If so how?

In the next stage, we developed an approach to solve the research question. The key element in the stage is selecting, adapting and developing the appropriate theoretical framework. Sound theoretical framework helped us to decide "what should be measured or understood", "how best to encapsulate and communicate the measurements or understandings" and "how to interrelate the founded components" (Malhotra and Birks, 2003).



In the following sections the components of Research Design, Questionnaire Design, Sampling and Data Collection and Scale Validity and Reliability stages, will be explained considerably in detail. The Data Analysis stage will be in the same name as a separate chapter.



**Figure 4.1 :** The process of the research (Malhotra and Birks, 2003).

The last stage of the process connotes the documentation of entire project which is what we do in this research. Our report addresses the specific research questions identified, describes our approach, research design, data collection and analysis procedures adopted and presents results and major findings (Malhotra and Birks, 2003).

#### **4.2 Questionnaire Design**

In order to analyze the effect of marketing accountability on marketing-R&D department's integration and NPS, a questionnaire developed. The first step in questionnaire development is specifying the domain of the construct. In this stage, the researcher must thoroughly draw the borders of the constructs under investigation. The robustness of the conceptual framework relies on a good quality literature review covering all related areas (Melewar, 2001).

The focus of this study is the role of marketing accountability in marketing-R&D integration and NPS. Therefore, the literature review comprises of studies in marketing accountability, integration, NPS and knowledge management. On the

basis of theoretical information obtained, academic discussions and analysis of potential linkages, the conceptual model was developed. Marketing accountability, marketing's competence, marketing's recognition, soft approaches, integration, joint learning and new product success are defined as the main components of our research.

The second step is generating the items that capture the domain of the construct. Most of the items representing the constructs and their sub-components were generated for the initial item pool from the existing literature. Multi-item scales were used for each component. Some of the scales were based primarily on items demonstrating high reliability and validity in previous studies while the rest of the scales were created by the researcher. Table 1 demonstrate the items for measuring each item. A seven point likert scale is used for all items.

Perceived marketing competence component, in which self developed items are developed based on the definition of Cummings and Worley (2005) and the research of Griffin and Hauser (1996), uses a similar approach with perceived marketing accountability component. As the perceived marketing accountability component, the items aim to capture the marketing activities that R&D department directly faces in organization (setting new product goals, identifying opportunities for the next generation of product improvement, resolving engineering design and customer-need tradeoffs, and understanding customer needs) (Griffin and Hauser, 1996) and the broader activities that R&D will face since it is a part of the organization.

Relational context within departments are defined through two determinants: marketing recognition and trust. Trust component is broadly used as a determinant of relational context in the previous literature (e.g., Ruyter and Wetzels, 2000; Kostova and Roth, 2002; Tsai and Ghoshal, 1998). The items to measure trust are adapted from the research of Kostova and Roth (2002) since it seems convenient for our context. Marketing recognition component is a new component to determine relational context which is developed based on the researches of Workman (1993) and Atuahene-Gima and Evangelista (2000). It is measured by self developed items which are mainly created based on the researches stated above and the definition which built up by the definiton (Cambridge-recognition).

Another new component, soft approaches, for explaining marketing accountability and R&D-marketing integration is measured by self developed items which are based on the scale of Atuahene-Gima and Li (2000).

The integration within marketing and R&D departments component measured by the scales which are directly adapted from "R&D-marketing interaction" scale of Atuahene-Gima and Deluca (2008). Additionally, some more items are also added to

measure it more properly which are taken from the researches of Kahn (1996) and Kahn and Mentzer (1998).

The items to measure Joint Learning are adapted from "NPD team comprehension" scale of Atuahene-Gima and Deluca (2008) as it has convenient items for our context. The title of adopted scale seem to be different than our component however, as the NPD team comprehension connotes the understanding of NPD about the factors that are likely to affect NPS team, it has the similar aim to measure with what we want to measure in JL

NPS component measured by the items, which are directly taken from Afonso et Al (2008) since it, seems convenient for our context. One additional item used in the scale as it was appropriate with the aim of our measurement. Both in JL and NPS, respondents' attention is directed to the recent new product processes by instructing them to focus on the most recent new product which has been launched between six to twelve months. This provided us to prevent respondents from simply choosing successful new products. (Atuahene-Gima and Deluca, 2008)

Moreover, in order to control for potential confounds, we controlled R&D involvement of company by proposing four different types of involvement to respondents. It was logical as the different types of R&D involvement level is expected to affect the R&D power and influence which will in turn may have engender different relationships within our components. Workman (1993) stated that engineering focus of company is likely to give more power to R&D department more ignorance about marketing department's significance in the company. The focus of company is also controlled by proposing 5 different types of focus.

This process resulted in the generation of seven items for perceived marketing accountability component; seven for perceived marketing competence; five for marketing recognition; five for trust; thirteen for soft approaches; five for integration; seven for JL and NPS.

**Table 4.1:** Items for measuring components

<b>Perceived Marketing Accountability</b> (Self developed scale based on the definition of Ammeter et al.(2004))	<b>Perceived Marketing Competence</b> (Self developed scale based on the definition of Cummings and Worley ( 2005))
Marketing always evaluates the effectiveness of the marketing plan used to launch a new product.	Marketing has people who are very skilled in developing strategies and tactics for launching highly new products
Marketing always demonstrates the contribution of the marketing activities to the success of the company.	Marketing staff is competent in executing the communications and actions for launch of modified product
Marketing always fails to provide evidence for the positive effect of marketing activities on new product success.	Marketing does not have competent staff
Marketing systematically measures the results of the marketing activities performed to launch a new product	Marketing has sound understanding of marketplace
Marketing does often not adequately show the contribution of their commercial activities to new product's success	Marketing has sound understanding of customer needs for new products
Marketing always aims to demonstrate the contribution of the marketing activities to the success of a new product.	Marketing staff is not competent in executing the communications and actions for launch of modified product
Marketing systematically shares the evaluation of the quality of market research for a new product with us	Marketing staff is experienced and knowledgeable in their field
<b>Marketing Recognition</b> (Self developed items based on the researches of Workman (1993) and Atuahene-Gima and Evangelista (2000))	<b>Trust</b> (Adapted from Atuahene-Gima and Li, 2000)
Marketing is an overrated function	Marketing people will keep their word
Marketing is an important function	Marketing department people do not meet its agreed upon obligations to us
Marketing is a department that we appreciate	Marketing people discusses joint expectations fairly
Marketing is a function that we cannot do without.	Marketing people will not tell the truth when we deal with them
Marketing research is a very helpful tool	We can share information openly with marketing people because they do not take advantage of this by acting against our interests.
<b>Soft Approaches</b> (Adapted from Atuahene-Gima and Li, 2000)	<b>Integration</b> (Adapted from Atuahene-Gima and Deluca, 2008, Kahn, 1996 and Kahn and Mentzer, 1998)
Marketing staff focuses on general market information for making our team-work more effective	We meet frequently with marketing and other departments to discuss market trends and developments
Marketing staff discusses the issues without making specific statements about what they would like us to do	We frequently get together with marketing function to plan a response to changes taking place in the business environment.
Marketing staff emphasizes critical market information that could lead the team making effective decisions	We periodically review product development efforts with marketing department to ensure that they are in line with what customers want.
Marketing staff attempts to influence the committee by presenting marketing information related to various options	We collectively achieve new product goals with marketing department
Marketing staff attempts to change our perspective by looking at how our decisions are affected by the market environment	We have have a good mutual understanding with marketing department

**Table 4.1:** Items for measuring components (contd.)

Marketing staff requests our compliance in their own name	<b>Joint Learning</b> (Adapted from "NPD team comprehension" scale of Atuahene-Gima and Deluca,2008) (During the development of the new product, which has launched within 6-12 months, to what extent did you have joint learning about the following things?)
Marketing staff discusses with us privately and requested acceptance	All kind of factors that might interfere the output quality of the team
Marketing staff requests our cooperation, utilizing their personal relations	Who the key customers of the new product were
Marketing staff makes it clear that by following their recommendations, our team will benefit	Customer needs to be satisfied by the new product
Marketing staff makes it explicit, when making a suggestion, that it was intended for the good of our operation	Factors that influence customer adoption process for a new product
Marketing staff indicates that a better decision would be made by following their suggestions	Competition that the new product would have to face
Marketing staff obtains the support of co-workers to back-up their request	Costs and risks involved in developing the new product
Marketing staff obtains support of members from other departments to back up their request	Risks to the customer in buying and using the new product
<b>NP Success</b> (Adapted from Afonso et al, 2008) (Comparing with the results of your competitors how would you rate the success of your new products, which has launched within 6-12 months?)	<b>R&amp;D Involvement to NPD process</b> (Self developed items) (Which of the situations regarding the R&D departments' involvement in new product process fit best for you)
The percentage of successful new products	R&D department is the main driver of new product processes
The percentage of sales obtained from products launched within last 6-12 months	R&D and marketing departments are equally influent in NPP
The frequency of new products launch in the market	R&D department transfers the developments found in the global headquarters of the company
The level of clients' satisfaction with new products	R&D department implements what marketing department desires for a new product
The market share of new products	<b>Focus of Company</b> (Self developed items inspired by Workman, 1993) (Please choose the most convenient statement to define your company)
The quality of new products	Completely engineering driven
The unit cost of products	Engineering driven
	Neither engineering nor marketing driven
	Marketing driven
	Completely marketing driven

### **4.3 Scale Validity and Reliability**

After questionnaire built up it has been reviewed in many times in order to be satisfied about the performance of it in terms of completeness and interviewing quality of it as Malhotra and Birks (2003) suggest.

Comprehensive literature review and academic discussions performed before the measure constructs built. Opinions of ten experienced academics and ten engineers were taken into consideration while the measurement items created. Moreover, care was taken to ensure the appropriateness and adequacy of the measures for use in Turkey. The instrument was translated into Turkish by two bilingual academics and then translated back into English independently by another bilingual academic to verify consistency. Following it was pre-tested with ten strongly engineering backgrounded professionals which led to several improvements in the items.

We conducted eight separate factor analyses involving the most similar constructs to maintain an acceptable ratio of observations to variables (Fisher et al., 1997). This is a class of procedures primarily used for data reduction and summarization (Malhotra and Birks, 2003). This method identifies the latent factors that account for co-variation among the variables and it summarizes and reduces a larger set of observed variables to a smaller number of factors (Tabachnick and Fidell, 2000; Hair et al., 1998). The principal component approach was used since the aim of the researcher was to identify a minimum set of variables which accounted for the maximum variance in the data (Hair et al., 1998). The number of factors was defined on the basis of the latent root criterion (Eigen value >1.00). The use of this method was to ensure that “any individual factor should account for the variance of at least a single variable” (Hair et al., 1998, p. 103). In order to achieve the best possible interpretation of the factors, the varimax rotation method was used. This is an orthogonal rotation technique which is suitable for reducing the number of variables to smaller subsets. Additionally, the communalities which indicate the amount of variance each variable shares with the rest of the variables in the analysis were examined (Hair et al., 1998). The variables with communalities less than 0.60 was deemed as not contributing to the variance explained and were therefore dropped from the analysis (De Vaus, 2002). Additionally, the significance of the factor loadings which determines the correlation between the variable and the underlying

factor was assessed. The factor loadings above  $\pm 0.50$  were considered practically significant (Hair et al., 1998). Moreover, Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is investigated which examines the appropriateness of factor analysis. High values (0,5-1) indicate that factor analysis is appropriate (Malhotra and Birks, 2003).

Table 4.2 demonstrates the results of factor analysis. As seen in the Table 4.2 the process of factor analysis ended up with omitting four items; one item from marketing recognition component, one item from joint learning component and two items from new product success component. The first items to measure marketing recognition and joint learning and the last two items to measure new product success are omitted (See Table 4.1). Moreover, as in the table below soft approach component branched into two factors. It is decipherable as soft approaches include four different methods inside. The factors decompose as information exchange and recommendation as factor 1 and request and coalition formation as the factor 2. That decomposition makes sense as the approaches in factor 1 mainly concentrates on information and reasonability while the approaches in factor 2 concentrates on more relational methods when convincing the partner (Atuahene-Gima and Li, 2000). As we expect all the methods in soft approaches to impact integration same way and as it is an independent variable, this decomposition do not cause any inconvenience for our analysis.

**Table 4.2:** Factor Analysis Results

Constructs/ Items	Variance Explained	Factor Loadings	Constructs/ Items	Variance Explained	Factor Loadings
<b>Marketing Accountability</b>			<b>Marketing Competence</b>		
Item 1	0,85	0,92	Item 1	0,85	0,92
Item 2	0,81	0,90	Item 2	0,66	0,81
Item 3	0,73	0,86	Item 3	0,77	0,88
Item 4	0,83	0,91	Item 4	0,78	0,88
Item 5	0,81	0,90	Item 5	0,76	0,87
Item 6	0,78	0,89	Explained Variance (%):76,3 EigenValue:3,818		
Item 7	0,74	0,86	<b>Soft Approaches</b>		Factor 1    Factor 2
Explained Variance (%):79,3 EigenValue:5,557			Item 1	0,70	0,78    -0,30
<b>Trust</b>		<b>Comp 1</b>	Item 2	0,64	0,76    -0,25
Item 1	0,76	0,87	Item 3	0,86	0,89    -0,28
Item 2	0,70	0,84	Item 4	0,78	0,88
Item 3	0,80	0,89	Item 5	0,68	0,82
Item 4	0,83	0,91	Item 6	0,83	0,38    0,83
Item 5	0,75	0,87	Item 7	0,84	0,38    0,83
Explained Variance (%):76,7 EigenValue:3,836			Item 8	0,65	0,14    0,79
<b>Recognition</b>			Item 9	0,72	0,81    -0,25
Item 1	0,25	0,50	Item 10	0,83	0,87    -0,28
Item 2	0,85	0,92	Item 11	0,72	0,83    -0,19
Item 3	0,86	0,93	Item 12	0,79	0,45    0,76
Item 4	0,87	0,93	Item 13	0,64	0,21    0,77
Item 5	0,74	0,86	Explained Variance (%):46,9(F1)/27,7(F2) EigenValue: 6,093 (F1) / 3,592(F2)		
Explained Variance (%):71,1 EigenValue:3,556 Item 1 is deleted based on the results.			<b>Joint Learning</b>		
<b>Integration</b>			Item 1	0,35	0,59
Item 1	0,64	0,80	Item 2	0,76	0,87
Item 2	0,85	0,92	Item 3	0,80	0,89
Item 3	0,89	0,94	Item 4	0,80	0,90
Item 4	0,67	0,82	Item 5	0,82	0,90
Item 5	0,66	0,82	Item 6	0,75	0,87
Explained Variance (%):74,1 Eigen Value:3,708			Item 7	0,74	0,86
<b>New Product Success</b>			Explained Variance (%):71,8 EigenValue:5,023 Item 1 deleted based on the results.		
Item 1	0,78	0,88			
Item 2	0,67	0,82			
Item 3	0,64	0,80			
Item 4	0,74	0,86			
Item 5	0,71	0,84			
Item 6	0,49	0,70			
Item 7	0,22	-0,47			
Explained Variance (%):60,7 EigenValue:4,252 Item 6 and 7 deleted based on the results					

Note: All Bartlett test of sphericity values for all factor analyses were significant ( $p < 0.05$ ). KMO values of the analyses were in between 0,784 and 0,922. Namely we had appropriate sample size for the factor analysis.



For the factors derived from the exploratory factor analysis, Cronbach alpha was computed in order to test whether each subset of items were internally consistent (Litwin, 1995). The values equal to or above 0.70 were considered to be of an acceptable level of reliability (De Vaus, 1996). All components are found highly reliable based the cronbach alpha test that explained (See Table 4.3)

**Table 4.3:** Cronbach’s Alpha Test Results

	<b>Cronbach's Alpha</b>
Marketing Accountability	0,955
Marketing Competence	0,921
Trust	0,923
Marketing Recognition	0,933
Soft Approaches	0,892
Integration	0,909
Joint Learning	0,946
New Product Success	0,908

#### **4.4 Sample and Data Collection**

Mail survey methodology was used to examine the role of marketing accountability at marketing-R&D integration and new product success in Turkish companies. Survey method is often used because it is time and cost efficient and it permits statistical analysis. The replication of the questions is possible, allowing results and patterns to be compared and analyzed. Multiple questions were used to enhance construct validity (Afonso et al., 2008). Churchill (1991) states that survey research is presumed to have high external validity; that is, the results can be generalized to a population. The structured-undisguised survey, where a formal questionnaire is prepared, is the most popular data collection method because of the simplicity and flexibility of the research technique (Churchill, 1991; Van Riel et al., 1998).

Prior to the implementation of the survey, it was necessary (i) to design the structure of the questionnaire, including the electronic version, (ii) to collect contacts and (iii) to test the web gathering data system (Afonso et al., 2008).

The questionnaire recipients were R&D department’s managers. We wanted to contact to R&D people as we want to measure the effect of marketing accountability at R&D-Marketing integration. Obviously marketing accountability aims to change other department’s/people’s perceptions rather than their own. So that measuring the perceptions of R&D people instead of marketing is more appropriate for our context.

Moreover we wanted to measure the perceptions of managers, which relied heavily upon the assumption that managers represented the sentiments of their departments (Philips, 1981). Because each manager oversees the functioning of their respective departments and deals directly with other department managers, it was presumed that each manager would be most involved with interaction and collaborative activities, and thus, most able to reflect appropriate characterizations of interdepartmental situations (Kahn, 1996). The questionnaire is applied in Turkey. Garten (1997) states that Turkey is one of the emerging markets which may influence the world trade substantially.

Contacts were obtained mainly through our personal network and some associations, as there weren't an existing database that includes the contact of R&D managers. The existing databases were no more than general contacts of the companies which will be almost useless to reach R&D managers as response rate is extremely low for general contacts. Usage of our personal network and associations helped us to reach the exact contact of the R&D managers and provided us a reference in our contacts which was expected to increase the participation of R&D managers. Moreover, associations broaden our sample to a great extent, since they have many member organizations and they shared our questionnaire with them.

An email was sent to the R&D managers or to the mediators (associations and personal network) containing a short message that explained briefly the purpose of the project and its relevancy. A link to the electronic questionnaire was also attached. One and 2 weeks after the initial contact, a first and a second reminder were sent by email. All responses gathered were stored in a website.



## 5. ANALYSIS AND RESULTS

### 5.1 Descriptive Analysis

Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data. In other words, they are used to present quantitative descriptions in a manageable form (Trochim, 2006). As we are dealing with many data, we use descriptive statistics to reduce lots of data into a simpler summary.

#### 5.1.1 Frequency Distribution

Frequency distribution is used to show basic characteristics of the sample. It is mathematical distribution whose objective is to obtain a count of the number of responses associated with different values of the variable and to express these counts in percentage terms. A frequency table is easy to read and provides basic information (Malhotra and Birks, 2003). In the tables below frequency distribution based on main demographics of our sample are demonstrated.

**Table 5.1:** Frequency distribution of respondent companies according to their revenue

Revenue	Frequency	Percent	Cumulative Percent
Not responded	23	43,4	43,4
1.000.000-10.000.000	8	15,1	58,5
1.000.000.000+	4	7,5	66,0
10.000.000-99.999.999	9	17,0	83,0
100.000-500.000	3	5,7	88,7
100.000.000-1.000.000.000	6	11,3	100,0
Total	53	100,0	

**Table 5.2:** Frequency distribution of respondent companies according to their industry

<b>Industry</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Not responded	2	3,8	3,8
Automotive and Other Transportation Vehicles	5	9,4	13,2
Chemicals and Chemical Products	3	5,7	18,9
Computer, Eletronics and Optical Products	3	5,7	24,5
Finance	1	1,9	26,4
Food, Beverage and Tobacco	3	5,7	32,1
Industries Related to Soil and Stone	1	1,9	34,0
Machinery	18	34,0	67,9
Metallurgical Industry	5	9,4	77,4
Other	4	7,5	84,9
Other Manufacturing Industries	1	1,9	86,8
Paper, Paper Products and Printing	1	1,9	88,7
Pharmaceutical	1	1,9	90,6
Rubber and Plastics	2	3,8	94,3
Telecommunication	3	5,7	100,0

**Table 5.3:** Frequency distribution of respondent companies according to amount of full-time workers they have

<b>Amount of Full-time Workers</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Not responded	6	11,3	11,3
0-9	1	1,9	13,2
10-49	6	11,3	24,5
100-499	17	32,1	56,6
50-99	7	13,2	69,8
500+	16	30,2	100,0

**Table 5.4:** Frequency distribution of respondent companies according to amount of years spent in the industry

<b>Amount of years in the Industry</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Not responded	4	7,5	7,5
0-5	3	5,7	13,2
15-50	33	62,3	75,5
5-15	6	11,3	86,8
50-100	7	13,2	100,0

**Table 5.5:** Frequency distribution of respondents according to department they work

<b>Department</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Not responded	3	5,7	5,7
Business	1	1,9	7,5
Business Development	1	1,9	9,4
Engineering	6	11,3	20,8
Internal Audit	1	1,9	22,6
IT	1	1,9	24,5
Marketing	3	5,7	30,2
New Product Development	3	5,7	35,8
Product Development	1	1,9	37,7
Production/General	1	1,9	39,6
Project Management	1	1,9	41,5
QHSE	1	1,9	43,4
Quality	2	3,8	47,2
R&D	24	45,3	92,5
R&D and Quality	2	3,8	96,2
Strategic Planning	1	1,9	98,1
Technology and Product Development	1	1,9	100,0

**Table 5.6:** Frequency distribution of respondents according to their title

<b>Title</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Not responded	5	9,4	9,4
Deputy General Manager	1	1,9	11,3
Deputy Manager	1	1,9	13,2
Designer	1	1,9	15,1
Director	9	17,0	32,1
Engineer	2	3,8	35,8
Expert	4	7,5	43,4
Manager	30	56,6	100,0

### 5.1.2 Descriptives

The most commonly used statistics associated with frequencies are measures of location (mean, mode, median), measures of variability (range, variance, standart deviation) and measures of shape (skewness and kurtosis).

Measures of location connote the measures of central tendency because they tend to describe the centre of distribution. As we apply interval scale and there are no

outliers in our data we think “mean” is the most convenient measure for central tendency in our context. Moreover, we used variance and standard deviation, which is square root of variance, to measure variability. These statistics demonstrates how the dispersion of the distribution (Malhotra and Birks, 2003)

Moreover, in order to better comprehend the nature of distribution measures of shape are important. Skewness is a measure of whether the peak is centered in the middle of the distribution. A positive value means that the peak is off to the left, and a negative value suggests that it is off to the right. Kurtosis is a measure of the extent to which data are concentrated in the peak versus the tail. A positive value indicates that data are concentrated in the peak; a negative value indicates that data are concentrated in the tail (Descriptive Statistics). A normal distribution has 0 for both skewness and kurtosis.

**Table 5.7:** Descriptives for components

	N	Mean	Std. Deviation	Variance	Skewness	Kurtosis
MA	53	4,0108	1,42633	2,034	-,201	-1,138
MC	53	4,7811	1,29630	1,680	-1,074	,733
TR	53	4,9509	1,32660	1,760	-,784	,652
MR	53	5,0991	1,52333	2,321	-,503	-,799
SA	53	4,4871	0,98219	0,965	-1,128	2,492
INT	53	4,4679	1,36548	1,865	-,327	-,290
JL	53	4,5377	1,28129	1,642	-,430	-,201
NPS	53	4,8491	1,11900	1,252	-,547	-,110

Table 5.7 demonstrates the measures above for each component of our model. Accordingly, mean, standard deviation, variance, skewness and kurtosis values presented for marketing accountability (MA), marketing’s competence (MC), trust (TR), marketing’s recognition (MR); soft approaches (SA), integration (INT); joint learning (JL) and NPS components. The table demonstrates marketing accountability’s mean 4,01 which connotes to an average level in a 7 point scale. Integration has a better level (4,47 over 7) than marketing accountability. The other components have slight difference in terms of mean values. As the skewness values are negative we can suggest that peak is located on the right off the middle of distribution. Although being different levels, all components differ from normal

distribution to some extent. The kurtosis values differ between the components however whether the data is concentrated in the peak or tail they commonly notify that distribution of the data of components differ from normal distribution to some extent.

## **5.2 The Tests for Control Variables**

The effect of demographics and control variables on marketing accountability and integration level of companies were also investigated with Analysis of Variance (ANOVA) method. It is commonly used statistical technique for examining the differences among means for two or more populations. The null hypothesis is that all means are equal (Malhotra and Birks, 2003). Thus, significance values lower than the stated significance level represents that the groups of predictor variable are significantly different. After the ANOVA, Scheffe multiple comparison test applied in order to comprehend the source of difference. If significance values of Scheffe comparisons are lower than the decided significance level, it implies that the groups are significantly different.

Firstly, R&D Involvement control variable, which connotes the level of involvement of R&D department in NPD process, is analyzed. Based on the ANOVA for marketing accountability and integration level of the subgroups of R&D Involvement (R&D Dominated, Equally Influential, Marketing Dominated, Transferred) are statistically different at 0,05 significance level. “R&D Dominated”, connotes the situation that R&D department is the main driver of new product processes while “Marketing Dominated”, connotes the situation that R&D department implements what marketing department desires for a new product in the new product processes. Accordingly, “Equally Influential” situation is that R&D and marketing departments are equally influential in the new product processes. Moreover, “Transferred” implies that R&D department transfers the developments achieved in the global headquarters of the company.



**Table 5.8:** ANOVA for the Groups Based on R&D Involvement

Dependent Variable	F	Significance
MA	3,022	,039
INT	8,006	,000

**Table 5.9:** Scheffe test for R&D Involvement Groups

Dependent Variable	(I) RD Involvement	(J) RD Involvement	Mean Difference (I-J)	Sig.
MA	R&D Dominated	Equally Influent	-0,81429	,351
		Marketing Dominated	-1,60204	,070
		Transferred	-0,92857	,745
	Equally Influent	R&D Dominated	0,81429	,351
		Marketing Dominated	-0,78776	,667
		Transferred	-0,11429	,999
	Marketing Dominated	R&D Dominated	1,60204	,070
		Equally Influent	0,78776	,667
		Transferred	0,67347	,917
	Transferred	R&D Dominated	0,92857	,745
		Equally Influent	0,11429	,999
		Marketing Dominated	-0,67347	,917
INT	R&D Dominated	Equally Influent	-1,75795	,000
		Marketing Dominated	-1,15604	,145
		Transferred	-0,38462	,959
	Equally Influent	R&D Dominated	1,75795	,000
		Marketing Dominated	0,6019	,724
		Transferred	1,37333	,318
	Marketing Dominated	R&D Dominated	1,15604	,145
		Equally Influent	-0,6019	,724
		Transferred	0,77143	,811
	Transferred	R&D Dominated	0,38462	,959
		Equally Influent	-1,37333	,318
		Marketing Dominated	-0,77143	,811

Table 5.9 demonstrates the sources of differences. In marketing accountability component, source of the difference is the difference between R&D Dominated and Marketing Dominated groups ( $p < 0,1$ ). Marketing Dominated companies has significantly higher levels of marketing accountability than R&D Dominated companies. Although not being significant, it also has higher levels than Equally Influent and Transferred companies (the difference of the means is 0,79 for Equally Influent and 0,67 for Transferred on a 7 point likert scale). The result is more understandable when it is interpreted in the reverse way: Marketing accountability level increase the dominance of marketing department in NPD process. Moreover, in

integration component R&D Dominated and Equally Influenced groups are significantly different at 0,1 significance level. Equally Influenced companies have significantly higher integration level than R&D Dominated companies. Although not being significant, it also has higher integration level than Marketing Dominated and Transferred companies (the difference of the means is 0,6 for Marketing Dominated and 1,37 for Transferred on a 7 point likert scale). Obviously, as equal influence of departments during the NPD process will create a better atmosphere for interaction and collaboration which in turn will provide better integration level.

The other control variable, Focus of Company which aims to find out whether company is “Engineering Driven”, “Marketing Driven” or in between them. Based on the ANOVA the groups are significantly different (at 0,05 significance level) for both marketing accountability and integration components (See Table 5.10)

**Table 5.10:** ANOVA for the Groups Based on Focus of Company

Dependent Variable	F	Significance
MA	5,284	,008
INT	6,096	,004

Based on the Table 5.11 engineering and marketing driven companies are significantly different for marketing accountability component at 0,05 significance level. Marketing Driven companies have significantly higher marketing accountability levels than Engineering Driven companies. Although not being significant Marketing Driven companies have higher marketing accountability levels than Neither Engineering nor Marketing Driven companies (the difference in between the means is 0,875 on a 7 point scale). Similar with interpretation in R&D Involvement variable, it may be annotated as marketing accountability has a positive impact in directing the focus of company to marketing. One more explanation for that can be Marketing Driven companies can have more resource to invest on marketing accountability as they can have more dedicated sources than non Marketing Driven companies. Additionally, especially in Engineering Driven companies, marketing department has many basic struggles, such as being recognized in company (Atuahene-Gima and Li, 2000; Workman, 1993) or getting adequate resources, which will make it difficult to focus on accountability.

Similarly, Engineering Driven companies has significantly lower level of integration than Marketing Driven companies at 0,05 significance level. Moreover, Engineering Driven companies has significantly lower level of integration than Neither Engineering nor Marketing Driven companies at 0,1 significance level. It is consistent with Workman (1993) who stated that R&D department in engineering driven companies tend to avoid the strategic role of marketing and thus integration becomes harder. Additionally, as R&D department is directly involved to NPD process due to nature of their work (Workman, 1993), integration in Marketing Driven and Neither Engineering nor Marketing Driven companies is understandably higher than Engineering Driven companies.

**Table 5.11:** Scheffe Test for Focus of Company

Dependent Variable	(I) FocusofCompany	(J) FocusofCompany	Mean Difference (I-J)	Sig.
MA	Engineering Driven	Neither Engineering nor Marketing Driven	-,72214	,253
		Marketing Driven	-1,59714	,010
	Neither Engineering nor Marketing Driven	Engineering Driven	,72214	,253
		Marketing Driven	-,87500	,279
	Marketing Driven	Engineering Driven	1,59714	,010
		Neither Engineering nor Marketing Driven	,87500	,279
INT	Engineering Driven	Neither Engineering nor Marketing Driven	-,93450	,073
		Marketing Driven	-1,49200	,009
	Neither Engineering nor Marketing Driven	Engineering Driven	,93450	,073
		Marketing Driven	-,55750	,541
	Marketing Driven	Engineering Driven	1,49200	,009
		Neither Engineering nor Marketing Driven	,55750	,541

We also analyzed the relationship between age, industry and revenue demographics of companies and marketing accountability and integration components. Firstly, there is no significant difference between the Age of Company groups and marketing accountability and integration components ( $p < 0,1$ ). Table 5.12 demonstrate related statistics for our statement.

**Table 5.12:** ANOVA for the Groups Based on Age of Company

Dependent Variable	F	Significance
MA	,746	,531
INT	,513	,676

Second, revenue groups of companies and both marketing accountability and integration components do not present a significant difference ( $p < 0,1$ ). Table 5.13 demonstrate related statistics for our statement.

**Table 5.13:** ANOVA for the Groups Based on Revenue

Dependent Variable	F	Significance
MA	,984	,436
INT	,926	,466

Lastly, no significant difference between the industries and both marketing accountability and integration components is found. Table 5.14 demonstrate related statistics for our statement. This finding is surprising for us as it was expected high-tech companies to be more Engineering Driven thus to have lower marketing accountability and integration levels consistent with previous findings in this section. It can be interpreted as there exist other basic factors, other than technology level of company, in determining the relationship of marketing and R&D departments and also level of marketing accountability.

**Table 5.14:** ANOVA for the Groups Based on Industry

Dependent Variable	F	Significance
MA	,098	,907
INT	2,089	,135

### **5.3 Relationships between Integration and Other Determinants**

We applied regression analysis to test our hypothesis. Regression analysis is a powerful and flexible procedure for analyzing associative relationship between a metric dependent and one or more independent variables. It could be used for understanding whether a relationship exists between independent variables and dependent variables and also for understanding the strength of the relationship. For multiple regression analysis we applied stepwise regression procedure and backward

elimination method. In stepwise regression procedure predictor variables enter or leave the regression equation one at a time. Backward elimination method initially includes all predictor variables and then removes them, one at a time, based on the F ratio of variables (Malhotra and Birks, 2003). The results of the regression analysis are demonstrated at Table 5.15.

**Table 5.15:** Regression Analysis of Antecedents and Outcomes of R&D and Marketing Integration

Predictor Variables	Dependent Variables											
	MR		MC		TR		INT		JL		NPS	
	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.
MA	,647	,000	,683	,000	,01	,927						
MC					,838	,000						
TR							,500	,087				
MR							,497	,280				
SA							,752	,071				
SAxTR							-,068	,878				
SAxMR							-,526	,415				
INT									,803	,000	,185	,264
JL											,567	,001
<b>p Value</b>	,000		,000		,000		,000		,000		,000	
<b>R Square</b>	,419		,466		,714		,673		,641		,525	

Firstly we analyze the relationship between marketing accountability and marketing recognition. The results of regression analysis are shown above. As coefficient of marketing accountability is positive and statistically significant at 0,001 significance level, *H1* is supported. We can interpret the results in ANOVA table as the model significantly improves our ability to predict the outcome variable. R Square value in the Table 5.15 connotes that we can explain 42% of the variance in marketing recognition with marketing accountability.

Secondly, we investigate the *H2* so that the regression between marketing accountability predictor variable and marketing competence dependent variable. As coefficient of marketing accountability is positive and statistically significant at 0,001 significance level, *H2* is supported. Significance level in ANOVA table connotes that our model significantly increase our capability of predicting outcome marketing competence. Lastly model summary table shows that 46,5% variance of marketing competence is accounted by marketing accountability.

*H3* and *H4* is analyzed with a multiple regression analysis. According to results of analysis, marketing competence has a significant positive impact on trust at 0,001 significance level. However, it is found that there is not a significant positive impact of marketing accountability on trust. Thus *H4* is supported while *H3* is rejected. The interpretation of the result can be that marketing accountability has an impact on trust through affecting marketing competence rather than having a direct effect on trust. Results also demonstrate that our model significantly develop our prediction capability about trust and 71,4% of variance in trust is accounted by marketing competence component.

We investigated *H5*, *H6*, *H7*, *H8* and *H9* with a multiple regression analysis (See Table). SAxMR and SAxTR variables are developed in order to measure the moderation effect of soft approaches component on integration level. Accordingly, SAxMR connotes the moderation effect of soft approaches between marketing recognition and integration components. Similarly, SAxTR connotes the moderation effect of soft approaches between trust and integration components. Based on the significance level of coefficient of predictor variables, Model 4 consist of all significant predictor variables. According to the results, trust and soft approaches have significant positive impact on integration variable at 0,001 significance level. Thus, *H6* and *H9* is supported while *H5*, *H7* and *H8* is rejected. Although not being statistically significant the positive effect of marketing recognition on integration can be observed. We can also state that our model significantly develop our prediction capability about integration and 64,1% of variance in integration is accounted by soft approaches and trust components. Additionally, the variance inflation factors (VIF) value (1,514) of the final model is well below the cutoff 10, recommended by literature which means there is not a problem of multicollinearity in the final model (Atuahene-Gima and Deluca, 2008).

Next, we investigate the relationship between integration predictor variable and joint learning dependent variable. We can interpret the results below as the model significantly improves our ability to predict the outcome variable. As coefficient of integration is positive and statistically significant at 0,001 significance level, *H11* is supported. Results also demonstrate that our model significantly develop our prediction capability about joint learning and 64,6% of variance in joint learning is accounted by integration component.

Finally, the effect of integration and joint learning on NPS analyzed. According to results of analysis, joint learning has a significant positive impact on NPS at 0,001 significance level. However, it is found that there is not a significant positive impact of integration on new product success. Thus *H12* is supported while *H10* is rejected. The interpretation of the result can be that integration has an impact on NPS through affecting joint learning rather than having a direct effect on NPS. We can also state that our model significantly develop our prediction capability about NPS and 51,2% of variance in NPS is accounted by integration predictor variable.

## **6. DISCUSSION and CONCLUSION**

### **6.1 Antecedents and Outcomes of R&D and Marketing Integration**

This study examines several antecedents and outcomes of R&D and marketing integration. It proposes major contributions both for theory and practice.

First of all, we found that increased perceived marketing accountability by R&D department will provide higher recognition for marketing department by R&D department. This finding is an important contribution to existing literature as it offers a solution to lack of marketing recognition which is experienced in many companies (Atuahene-Gima & Evangelista, 2000; Baker & Holt, 2004; Workman, 1993).

The positive impact of increased marketing accountability on perceived marketing competence is also found. This finding supports our proposal that marketing accountability can be considered as one of the main ways of showing how competent marketing department is, by demonstrating the effectiveness of its activities and contribution to firm's success. In other words, it also suggests that marketing staff may not be perceived competent, even they are so, in case of low perceived marketing accountability level.

It is supported that increased perceived marketing competence by R&D department will provide higher trust from R&D department to marketing department. It is consistent with the previous researches that suggest competence as one of the main drivers of trust (e.g. Black, 2007; Canen and Canen, 2004; Sirdeshmukh et. al, 2002). Interestingly, no relation between marketing accountability and trust found in our study. It contradicts with the findings of Fard and Rostamy (2007) suggesting that one of the most important factors creating distrust is lack of accountability. One reason for that may be that their suggestion is built up for public relations context which may be different than the link between two departments. One more potential reason for that may be our additional component, marketing's perceived competence by R&D department, between marketing accountability and trust. That suggests marketing accountability has an impact on trust but it does that through marketing



competence rather than having a direct effect. That connotes a different perspective for understanding the relation between marketing accountability and trust.

We found that increased trust towards marketing department by R&D department will provide higher integration between R&D and marketing departments as it is stated in the previous researches (Allen & Meyer, 1990; Souder, 1980). However, the positive effect of other component of relational context between marketing and R&D departments, marketing's recognition, on integration is not supported significantly. This finding is surprising for us as we were expecting that, R&D department will have fewer doubts in communicating, participating and sharing information during joint processes if they comprehend the importance of the marketing department. Therefore, while analyzing the effect of marketing accountability on integration of R&D and marketing departments, it may be more coherent to focus on perceived competence of marketing instead of marketing's recognition.

The effect of soft influence approaches are partially supported in our study. It is found that soft approaches from marketing department to R&D department have a direct impact on the level of integration between R&D and marketing departments. Atuahene-Gima & Li (2000) assert that soft approaches such as coalition formation, information exchange, recommendation and requests can influence other team members in the new product development process. Our finding takes it further and suggests that soft approaches not only affect the influence of the source but also provides a better integration between the source and target of the approaches. However, expected moderation impacts of soft approaches are not supported. Namely, soft approaches from marketing department to R&D department do not enhance the relationship between marketing's recognition and integration, and trust and integration mechanisms. As marketing recognition's expected positive effect on integration is not supported, not finding a moderation effect of soft approaches on marketing recognition-integration relationship makes sense. However, it is still surprising for us since it contradicts with our expectation that, although having sound relational backgrounds (i.e. trust), inertias and misunderstandings may appear in the relationship, soft approaches can be the solution to overcome them and also can be the stimulator by creating the opportunity to communicate and share more about the problematic issues.

As expected, increased integration within R&D and marketing departments provide higher joint learning for the departments. Steensma (1996) found organizational learning as a mediating process between collaboration and core competency development. In other words, he found that collaboration within the organization increases the organizational learning. Basically, our finding has similarities with his finding but also has important differences. First, we used integration which covers collaboration but also includes interaction. Second, we used joint learning of two departments, which can be interpreted as a subset of organizational learning, instead of the learning of whole organization. This finding is important as it is also found that joint learning has a significant positive effect on new product success. It is consistent with previous organizational learning studies that relate organizational learning to the factors that provide success to the company (e.g. Cohen & Levinthal 1990; Crossan, Lane, White, & Lisa, 1995; Skerlavaj & Dimovski, 2005). However, as said above, our finding extends previous findings in organizational learning since it applies joint learning instead organizational learning. Surprisingly, direct and positive effect of integration on NPS is not supported in our study. It seems to contradict with the broad range of studies that demonstrate higher integration between the partners is essential for new product success. However, we interpret it as integration still has an impact on NPS, but rather than having a direct effect on NPS it rather impact it through joint learning. In other words, the relationship between integration and NPS is fully mediated by joint learning.

We found that there is a long way to go in terms of marketing accountability for the companies in Turkey. The findings show that marketing accountability attributed to marketing department by R&D personnel is at the average level. That is consistent with the previous researches which highlight lack of accountability in the companies (e.g. Rust et al, 2004; Schultz and Gronstedt, 1997; Sheth and Sisodia, 2002; Zinkhan and Verbrugge, 2000). Integration level is a little higher than marketing accountability level according to our results but it is not satisfactory. It is also consistent with empirical evidence that suggests there is a higher possibility of conflict between marketing and engineering personnel (Shaw et al., 2004). The other components have similar values with integration level of companies which is an expected result as we think they are correlated to each other in the design of the model. Despite of the slight difference, the highest value appeared in marketing

recognition level that led us to be optimistic for the future of the relationship between marketing department and other departments.

One major factor affecting the marketing accountability and integration level of companies is found as the involvement degree of the departments to the new product development process. The companies in which marketing department dominates the NPD process and orients R&D department to apply their desires for new product, has better marketing accountability levels than the companies whose NPD process dominated by R&D departments. We believe it is the increase in marketing accountability that provides higher domination levels for marketing department in the NPD process. Moreover, it is found that, although not being significant for all of them, the companies in which R&D and marketing departments are equally influent in the new product processes has higher integration level than others. We think, equal influence of departments during the NPD process will create a better atmosphere for interaction and collaboration which in turn will provide better integration level. It is consistent with the findings of Ruyter and Wetzels (2000) for the integration of marketing and finance departments stating that when power levels of the marketing and finance departments are balanced, cooperation is easier to achieve and communication frequency and quality improves. Our findings suggest that this proposition is valid for marketing and R&D integration as well.

One other factor impacting marketing accountability and integration level is the focus of company, determines to what extent the company is marketing or engineering driven. Marketing oriented companies has better marketing accountability levels according to our findings. The finding is understandable since marketing driven companies can have more sources allocated than the non-marketing driven ones, thus they can have more resource to invest on marketing accountability. Additionally, especially in engineering driven companies, marketing department has many basic struggles, such as being recognized in company (Atuahene-Gima and Li, 2000; Workman, 1993) or getting adequate resources, which obviously will jeopardize to focus on accountability. That also can be interpreted as marketing accountability help companies to show their contribution and thus can increase the comprehension about the importance of it. This may lead companies to be more marketing oriented. Additionally, being marketing driven positively influences the level of integration between marketing and R&D departments. We found that they

have significantly higher levels of integration than engineering driven companies. The low level of integration in engineering driven companies can be explained with the findings of Workman (1993) and Athuahene-Gima and Evangelista (2000), stating that R&D department undervalue the role of marketing in engineering driven companies which will certainly harm integration. The explanation of high level of integration in marketing driven companies is that R&D department is automatically involved in NPD process due to nature of their work (Workman, 1993).

Surprisingly, there is not any significant difference in marketing accountability and integration level of companies based on their industry, years spent in the industry or revenue. These findings lead us to think that there exist other basic factors, such as involvement of departments in NPD process or focus of the company, influencing the marketing accountability and integration level of companies rather than basic demographics of them.

## **6.2 Contribution to Theory**

We make four principal contributions to the theory. First, we bridge marketing-R&D integration and marketing accountability literatures. Yet no certain study ascertains this linkage and the effect of marketing accountability at marketing-R&D integration and hence new product success.

Second, we specifically include soft approaches in our model which received little attention (Workman, 1993). We extended the findings that link soft approaches with the influence level of source, and demonstrate it also impact the integration between influence source and target.

Third, we delineate the relational context between marketing and R&D departments differently by addressing the research that demonstrates distrust and lack of recognition about marketing by R&D department (Athuahene-Gima & Evangelista, 2000; Baker & Holt, 2004; Workman, 1993). We defined relational context within departments, through two determinants, i.e. marketing recognition and trust, which was usually defined by other components, such as bonding, reciprocity, in previous studies (e.g., Kostova & Roth, 2002; Ruyter & Wetzels, 2000; Tsai & Ghoshal, 1998).

Finally, we introduced a new concept, joint learning, as a mediator between integration of marketing-R&D departments and new product success, by being inspired of organizational learning literature.

### **6.3 Managerial Implications**

Our study proposes several implications for the managers. First of all, integration between marketing and R&D department leads to joint learning of the dyad which in turn provides new product success to company. It implies managers that creating an organizational structure to stimulate integration between marketing and R&D departments is crucial for the overall success of the company.

Second, soft approaches and trust are found as the main determinants to impact the integration. This implication is very important for managers as soft approaches are totally controllable and easy to plan. Relatively weak part of the relationships can plan the convenient soft approaches and increase its involvement level in the process which will in turn lead to a better integration. Namely, managers can plan the best set of soft approaches, such as information exchange and coalition formation, in order to be more integrated with other departments. Additionally, managers have to comprehend the antecedents and make their best effort to build up trustworthy atmosphere to have better integration.

Third, perceived competence of marketing spurs trust between marketing and R&D departments. Managers should pay attention on not only recruiting highly competent marketing staff but also understanding the factors affecting the perception of competence.

Lastly, it is found that marketing accountability positively impact the perceived competence of marketing department. This finding implies that although having very competent marketing staff, they may not be perceived as competent, in case of lack of accountability.

Importantly, we expect these findings to lead managers to think all relations stated above as a chain. It implies that increased marketing accountability enhances perceived marketing competence which will provide more trust in between marketing and R&D departments. That will lead to a better integration of marketing and R&D departments which at the end increase new product success by increasing

joint learning. Therefore, managers must put more effort and resources on increasing marketing accountability which will finally increase the NPS and thus financial situation of the company.

#### **6.4 Limitations of the Study and Future Research Efforts**

Despite the contributions to the literature this study has some certain limitations that should be addressed in future research. First given the explorative nature of this study, we strongly suggest future research to test the antecedents and outcomes of integration here in different countries and cultures.

Second, our sample size appear to be small, which raises concerns about power and generalizability. Thus we encourage future research to test our model in bigger sample sizes.

Third, respondents of our research were mainly R&D managers. It is also relevant to extend the responses to other members within R&D department and also to marketing department in future research.

Fourth, our findings exclusively pertain to the marketing and R&D interface. Future research will have to reveal whether the results are generalizable to other interfaces that marketing has within firm

Next, all concepts measured at one point in time, thus essentially from a static perspective. It may be worthwhile to study marketing interfaces over time in order to be able to take into account of intraorganizational relationships

Last but not the least, the role of Joint Learning in the model is defined as a mediator between integration and NPS. It might have two-way relationship both with integration and NPS. This topic also deserves attention.

In conclusion, our research is the first major research bridging marketing accountability and integration literatures. We hope it will serve as a foundation that will stimulate additional interest on this area.



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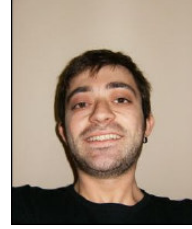


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