

# Identifying and prioritizing critical success factors for conflict management in collaborative new product development

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## Abstract

Conflict management is crucial to the success of client–supplier collaborative new product development (NPD). This paper examines the critical success factors of conflict management in collaborative NPD. Using the Analytic Hierarchy Process (AHP), the importance of 4 categories of success factors, namely relationship management, conflict handling system, new product development process management and communication, totally 13 factors, are prioritized. The results show that communication management, trust and commitment to the collaboration are the most important factors. Based on the factors identified, a hierarchy model of conflict management is proposed, with which clients and suppliers can formulate action plans for better conflict management.

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*Keywords:* Conflict management; New product development; Client–supplier collaboration; Analytic hierarchy process

## 1. Introduction

Recent literature has widely addressed the importance of client–supplier collaborative new product development (NPD) and extensive efforts have been devoted to study the management of the collaboration (Araujo, Dubois, & Gadde, 1999; Atuahene-Gima, 1995; Cooper, 1998; Hartley, Zirger, & Kamath, 1997; Primo & Admundson, 2002; Wynstra & Pierick, 2000). Client–supplier collaboration is rather a complicated and difficult issue. Clients (some authors call it buyers) and suppliers are facing a number of problems in managing collaborative NPD (Wognum, Fisscher, & Weenink, 2002).

Researchers, in different fields, have recognized conflict as an important issue that affects organizational performance (Chan, 1989; Deutsch, 1973; Duarte & Davies, 2003; Dyer & Song, 1998; Gobeli, Koenig, & Bechinger, 1998; Rahim, 2001; Thomas, 1992; Weinrauch & Anderson, 1982).

Deutsch (1973) stated that conflict exists whenever incompatible activities occur. When social entities work together to achieve their objectives, their relationships may become incompatible and conflict would inevitably be induced (Rahim, 2001). In collaborative NPD, the relationship between clients and suppliers is incompatible as they always differ in such aspects as role, objective, culture and belief. Conflict is thus a natural phenomenon in collaborative NPD (Lam & Chin, 2003). In a study about conflict in client–supplier collaborative NPD, conflict intensity and conflict handling styles were found to have significant relationships with NPD performance (Lam & Chin, *accepted for publication*). The study also showed that conflict occurs intensively throughout NPD processes which include concept development, engineering design and production. Resolutions of conflict necessitate substantial efforts and time, which have an adverse impact on development costs and time. In addition, the outcomes of conflict resolutions affect the quality of products as well as the collaborative relationship. Despite conflict management is crucial to the success of collaborative NPD, literature review reveals that very few researchers have studied conflict management in the collaboration. This paper reports the main findings of the

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research which is aimed at identifying and prioritizing the critical success factors of conflict management in collaborative NPD.

## 2. Conflict management in collaborative NPD

NPD is a key to corporate prosperity (Cooper, 1998; Craig & Hart, 1992). In response to the rigorous global competition, rapid technological change and shortened product life cycle, many manufacturing firms pursue client–supplier collaboration as an imperative strategy to achieve NPD success (Krause, Handfield, & Scannell, 1998). Despite a vast amount of researches studying the management of collaborative NPD, conflict management has received only few attentions. NPD is a complex problem-solving process of developing products based on customers' requirements which are generally ambiguous (Rodgers, Caldwell, Huxor, & Clarkson, 1999). It is dynamic in nature because of the never-ending changes of technologies, customer requirements and macroeconomic environment (Ulrich & Eppinger, 2000). Moreover, NPD involves multidisciplinary members who are interdependent to complete NPD activities (Xie, Song, & Stringfellow, 1998). Since the members may differ in many aspects such as language, objective and belief, the communication and coordination among them could be problematic. The above nature of NPD, coupled with the strict development cost and time constrains, inevitably lead to conflict and make the conflict management very difficult.

Conflict has been a hot topic studied by researchers in the discipline of psychology, sociology and business (Rahim, 2001). In NPD, a number of researches have studied conflict (Chan, 1989; Dyer & Song, 1998; Gobeli et al., 1998; Pelled & Adler, 1994), and they have argued that conflict affects NPD performance. However, most of the conflict researches studied conflict within an organization. The growing importance of client–supplier collaboration urges a need to study conflict and conflict management in collaborative NPD.

Lam and Chin (accepted for publication) conducted a survey to explore conflict in client–supplier collaborative NPD. Two findings of the survey have significant implications for conflict management. First, there is a negative relationship between conflict intensity and NPD performance in terms of product quality, and meeting of target development costs and delivery schedule. A high level of conflict is generally unsustainable, which is often associated with distorted information flows, low-quality decisions and tensions (Brown, 1983). The finding indicates that conflict is a critical issue in collaborative NPD that needs to be managed. Second, the survey revealed that cooperative conflict handling styles are more effective, which are positively associated with NPD performance. Based on the two survey findings, we propose that conflict management in collaborative NPD aims to maintain a sustainable level of

conflict, and facilitate effective resolutions mainly through cooperative conflict handling.

Researches on conflict management in NPD and even other disciplines have focused on studying the sources or factors leading to conflict and identifying the relationships of conflict intensity and conflict handling styles to performance (Chan, 1989; Gobeli et al., 1998; Kezsbom, 1992; Lam & Chin, 2004a; Xie et al., 1998). However, very few researches have comprehensively studied the critical elements for practicing successful conflict management. Hence, organizations, which recognize the importance of conflict, may find it difficult to establish their conflict management systems. Identifying the success factors could provide organizations with directions and targets for establishing and improving their conflict management practices.

This paper tries to empirically identify and prioritize the critical factors for practicing conflict management—i.e. maintain a sustainable level of conflict, and facilitate effective resolutions chiefly through cooperative conflict handling. The first aim of conflict management is to maintain a sustainable level of conflict. The finding that a negative relationship exists between conflict intensity and NPD performance, however, does not imply all conflicts are detrimental. Rahim (2001) asserted that conflict has both functional and dysfunctional outcomes. Functional outcomes include stimulating innovation and creativity, and better decision making, whereas dissatisfaction, mistrust, damaged commitment and relationship are the common dysfunctional outcomes. It has been well accepted that conflict is functional when it is task-oriented and focused on judgmental differences about the best way to achieve objectives (Amason, 1996; Cosier & Rose, 1977; Jehn, 1997; Priem & Price, 1991; Putnam, 1992; Schwenk, 1990; Sessa, 1996; Tjosvold, 1985; Torrance, 1957). This type of conflict, often called cognitive conflict, contributes to good decision making as a result of the effective use of evidence and information from diverse perspectives as the synthesis of the diverse perspectives is superior to the individual perspectives themselves (Amason, 1996). Moreover, differences in judgment and opinion also promote creative solutions by providing a variety of directions of thinking (Hoffman, Harburg, & Maier, 1962).

Lam and Chin (accepted for publication) identified a list of sources leading to conflict in collaborative NPD. It was found that the difference in technical belief is the main source of conflict, which brings about cognitive conflict and leads to better decision making. However, they also identified other sources of conflict such as ambiguous roles, incorrect or incomplete information exchange, mistrust and unclear product specifications. These sources lead to non-cognitive conflict which necessitates abundant efforts and time for conflict resolutions, thereby impeding NPD performance and collaborative relationship. In product development liter-

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