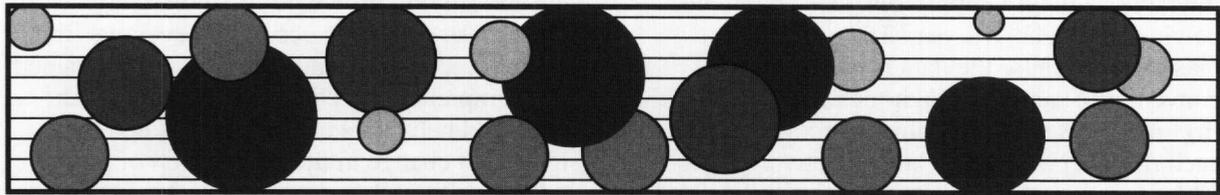


Building Collaborative New Product Processes: Why Instituting Teams is Not Enough

Avan R. Jassawalla, *Jones School of Business, State University of New York at Geneseo*

Hemant C. Sashittal, *Department of Management, St. John Fisher College*



Introduction

A growing segment of managers in high-technology firms seem convinced that cross-functional teams charged with new product development (NPD) can cut costs, increase creativity, and reduce time to market (Brown and Eisenhardt, 1995; Griffin and Hauser, 1996). Teams are expected to help transform linear-sequential new product development initiatives into organic processes by streamlining decision-making and organizing a bulk of the activities concurrently. In part, this conviction reflects the apparent weaknesses of the linear-sequential, assembly line organization of new product activities in which each department performs its task in isolation and throws its output over the wall to the next functional group. A large body of research has highlighted the problems associated with this approach including: (a) high incidence of mistakes because one department often dominates while others perform subordinate tasks and are not involved in key decisions (Griffin and Hauser, 1996; Sheremata, 2000; Zahra and Ellor, 1993), (b) a slow pace of development because each department is concerned more with turf-protection and avoiding blame for mistakes than with sharing information (Donnellon, 1993; Griffin and Hauser, 1996; Zahra and Ellor, 1993), and (c) a higher cost of NPD resulting from the mistakes and need for rework later in the process (Ancona and Caldwell, 1990; Jassawalla and Sashittal, 1999).

Cross-functional teams are widely adopted to manage NPD since, among other things, they promise concurrent organization of decision-making and work flows. As a structural solution, they make practical sense because they

place people with diverse talents in close proximity, increase the frequency of their interactions, and help reduce perceptual barriers that can separate departments (Gupta and Wilemon, 1990; Kessler, Bierly, and Gopalakrishnan, 2001; Zirger and Maidique, 1990). Once assigned to teams, it is assumed that representatives of key departments will work closely, identify and fix problems early, and avoid rework (Ancona and Caldwell, 1990; Clark and Fujimoto, 1991; Griffin and Hauser, 1996). These possibilities make new product teams an attractive, widely adopted option.

What managers often find, however, is that instituting teams does ensure a collaborative process. We find that senior managements in many high-technology firms often fail to appreciate the magnitude of organizational change that may be needed before new product teams can work collaboratively and develop attractive new products faster and cheaper (Donnellon, 1993; Zahra and Ellor, 1993). This includes attitudinal and behavioral changes within and outside the team, and structural and systemic changes in the organization. Problems arise when senior management views the formation of teams as a panacea for their NPD problems and fails to foster the necessary changes (Jassawalla and Sashittal, 1999).

What must senior managers and team leaders do once teams are instituted? This article, based on our study of NPD processes in 10 mid size to large high-technology firms, eight of which used teams, addresses this question. Our findings emerge from in-depth interviews with participants in new product processes (managers from R&D, production, and marketing; division

heads; and team leaders). Based on the study, we report our contrasting findings from two high-innovation firms that fostered collaborative teamwork, and two low-innovation firms that instituted teams but failed to deliver results. We also discuss the specific action steps taken by senior management and team leaders from high-innovation firms.

While our findings can be useful in stimulating managerial thinking about cross-functional interactions in NPD processes, they should not be viewed as a how-to list. The potential for bias exists because the data is based on: (a) a convenience sample of high-technology firms, (b) interviews with only three to six managers in each firm, (c) interviews lasting between 90 to 120 minutes, and (d) interviewees' recollection of events and examples. Considerable and rigorous testing in a large number of settings is necessary before our data-generated ideas can be generalized.

Fostering Collaborative Teamwork

The clearest finding from our study is that the mere institution of teams does not ensure collaborative teamwork nor guarantee the smooth transition from linear-sequential to concurrent-organic new product-related workflows. People representing different departments are rarely predisposed to work together in ways that effec-

tively eliminate misperceptions and miscommunication (Bishop, 1999; Donnellon, 1993).

While teams can create a forum in which departmental representatives contribute their expertise and work closely with others, these opportunities are seldom realized in practice. It is relatively rare to find team members capable of maintaining high levels of enthusiasm and willingness for sharing information, trusting others, creating a social environment of integrity, and solving problems collaboratively. When these outcomes occur, however, we find them preceded and simultaneously accompanied by a comprehensive change in the beliefs, attitudes, and behaviors of participants, and by a significant change in the distribution of power and authority in the organization. In particular, we find that teams deliver high levels of collaborative new product development processes and greatly improved outcomes when senior management undertakes several initiatives that separate them from low-innovation firms, including: (a) constructing a rationale for change based on scrutiny of past failures, (b) recognizing the complexity of change, (c) building commitment to teams and teamwork, and (d) expecting and managing resistance to change (see Table 1 for a brief summary). Each of these steps is discussed next.

Table 1
What Senior Managers and Team Leaders in "high-innovation" Firms Do

Identify and Articulate the Rationale for Change	Scrutinize past failures and identify beliefs, values, and attitudes that caused errors. Recount stories of past mistakes to articulate the need for change. Convey a sense of respect toward team members and other participants by explicitly offering the rationale for the changes to be made. Role model and champion new beliefs and values.
Recognize the Complexity of Change	Institute organization-wide changes in structure, communication and decision-making processes, and reward systems. Find innovative ways to improve communication and decision-making.
Build Commitment to the Team and Teamwork	Early and equal involvement of all departments in NPD discussions and decisions. Give teams autonomy. Carefully select team leader with a strong passion for teams, no affiliation to any department, and a primary goal of facilitating cross-functional collaboration. Create a sense of belongingness, and empower teams to take control. Sponsor off-site team building retreats and training programs.
Expect and Manage Resistance to Change	Coach, educate, and train participants to overcome resistance to change and adopt new ways of thinking and acting. Change current ways of making decisions and allocating resources so that existing power coalitions cannot prevent information and resources from reaching teams. Develop and implement new methods for assessing and rewarding performance based on new values and new goals.

• **Identify and articulate the rationale for change.** The lessons for fostering teamwork emerge when senior management and team leaders carefully examine and analyze past failures and make the connection between old values and attitudes and their adverse consequences. In the high-innovation firms in our sample, this soul-searching has allowed senior management to identify new action alternatives and develop a rationale that supports new values and attitudes. Communicating this rationale through words and deeds seems to influence the extent to which participants accept them as reasons for changing their own thinking and behaviors, and the extent to which they commit to the overall change initiative. Past research urges senior management to carefully consider their rationale for instituting teams and clearly explain this as well as instruct employees on how the teams will benefit each individual (Tudor, Trumble, and Diaz, 1996). Employees need to recognize that “their past experience was no guide for the future” and, therefore, changes in structure, process, and culture are necessary (Donnellon, 1993).

For instance, in one high-innovation firm, the division head referred to his predecessor’s autocratic management style that engendered alienation and low-commitment to the collaborative intents of the team, and recounted his learning about the futility of the command and control mode of new product decision-making. The actions that emerged from this learning are worthy of note. The division head articulated the importance of teamwork by recalling past failures caused by isolated departments and autocratic managers. These stories began to take on lives of their own as they were retold in various places and times in the firm. The division head also took steps to flatten the organization’s hierarchy, decentralize decision-making, and ensure that representatives of all constituencies are involved in the team from the initial stages of decision-making. He also collocated department managers, sponsored teambuilding exercises, and held weekly meetings for department managers to discuss the progress of NPD projects. The ability of team members to link the old values to old results while clearly identifying the new values and rationales guiding the new actions seems instrumental in assuring their commitment to change their thinking and behaviors.

Similarly, the team leader in the other high-

innovation firm frequently told stories about the failures of old ways and the problems created when departments acted according to divergent agendas. The stories communicated the rationale for new values, attitudes, and behaviors reflecting a common vision and cohesive actions. Moreover, he coached team members to actively share their ideas and seek feedback from others within and outside the team. The frequently articulated link between isolated departments and poor new product processes, coupled with senior management initiatives aimed at improved communication fostered significantly higher levels of cooperation among team members, and, to a large extent, explains the improvements in their new product development processes.

These practices contrast sharply with those we find in the low-innovation firms. While senior management has often instituted teams, their motivations and rationale remain unarticulated and unclear to participants. Team members attribute widely varying motivations and rationales to explain senior management’s decisions. Exacerbating this problem, senior management in each firm authorized *one* department to lead the new product team. The resulting micromanagement by the dominant department dissuaded others from forming deeply held beliefs and commitment to change. These firms have teams but no teamwork.

• **Recognize the complexity of change.** Scholars contend that widespread changes must be incorporated before teams can function effectively (Bishop, 1999). New behavior from senior management in terms of financial and political support are essential along with changes in the organization’s structure, systems, processes, and culture (Brown and Eisenhardt 1995; Gupta and Wilemon, 1990; Tudor et al, 1996; Zahra and Ellor, 1993). Previous studies list several changes necessary to support teamwork involving communication systems, interdepartmental interactions, reward systems, decision-making processes, leadership style of department managers and team leaders, as well as accountability (making the whole team accountable for results), and making team members’ roles as important as the team leaders (Bishop, 1999; Ancona and Caldwell 1992; Donnellon, 1993; Recardo and Jolly, 1997). Based on a comprehensive appreciation of the magnitude of change required, senior manage-

ment and team leaders in high-innovation firms in our study begin by adopting new ways of thinking and new ways of taking action. They discard old beliefs about tightly controlling people and centralizing decision-making in favor of trusting and involving others from the initial stages of the NPD process. They value the simultaneous changes necessary in communication and decision-making processes, selection and performance appraisal systems, and in the distribution of power and accountability. They then spend inordinate time and energy (a) articulating the need for changes in beliefs and attitudes to key individuals and groups across the firm, (b) modeling new behaviors by adopting new ways of communicating and new feedback mechanisms, and (c) functioning as coaches until the new behaviors are learned. They persevere in various ways to ensure that employees absorb the changes in beliefs and values and do not expect complex changes to occur overnight.

The division head of one high-innovation firm began by increasing the frequency of communication within the organization and made sure that it occurred at all levels and included all people (from senior managers to machine operators). He ensured that the department heads involved all key constituencies in discussion and debate before making new product decisions. After setting new expectations, the division head empowered his subordinates and teams to make their own decisions and held them accountable for their results.

Similarly, the team leader from the other high-innovation firm continually made team members aware of the links between jointly setting team goals, continually sharing information, and the reduction in errors and time to market. He adopted innovative techniques to increase cross-functional communication during NPD. For instance, he gave team members two-way radios so that they could remain connected in real time regardless of their physical location. In both firms, leadership has emphasized the link between comprehensive organizational change and accomplishing radically different, more desirable market and competitive outcomes.

In contrast, the changes conceptualized by senior management in low-innovation firms were narrow in scope. For the most part, they expected the team to fit within existing communication and decision-making processes and accommodate existing new product workflow. In one low-innovation firm, despite the creation

of teams, R&D continued to make all major new product decisions and regarded communication as the process of seeking information from team members when necessary. In the other low-innovation firm, team members recounted the frustration of not being able to achieve their departmental goals because of the lack of cooperation from other departments. In both instances, the leadership seemed relatively unaware of the changes needed in the organization to facilitate teamwork. Predictably, when the desired objectives were not actualized, senior management showed a strong tendency to blame the team members.

• **Build commitment to the team and teamwork.** Studies report that successful teams begin by gaining employee commitment, and scholars indicate a variety of ways this can be done. Commitment results when the organization prepares employees to work in the new structure through training and continuous teambuilding and also holds frequent team meetings so that all members have opportunities to get their ideas heard (Tudor et al, 1996). Providing teams with the autonomy to set their own goals and make decisions also gives members a sense of ownership toward those goals and decisions (Barczak and Wilemon, 1992; Imai, Ikujiro, and Takeuchi, 1985). Involving all functional groups from the earliest stages of NPD and managing cross-functional interactions in a way that engenders mutual respect and equal involvement from all areas are also viewed as powerful ways to build mutual commitment (Gupta and Wilemon, 1987; Jassawalla and Sashittal 1999; Souder, 1981).

Senior management and team leaders in the high-innovation firms in our study articulated their awareness of the link between the team members' degree of involvement and the extent to which they commit to the team's collaborative intents. They seem aware that people are more apt to commit when they feel they have some control over their own participation in the new product process and have some influence in the way the team makes decisions. Driven by this awareness, senior management and team leaders in the high-innovation firms take a host of actions to create this sense of control and belongingness. For instance, they involve all departmental representatives early in the new product-related decision-making processes and empower them equally. They select leaders who

possess technical as well as interpersonal skills and make sure the leaders do not owe allegiance to any one functional group. They charge team leaders with facilitating cross-functional collaboration and shaping the interpersonal dynamics of participants. Similarly, while the teams are empowered to make decisions that affect their operations, team leaders are responsible for ensuring that the team goals are aligned with those of the organization. Considerable resources are directed toward training programs and team building workshops aimed at transforming department representatives into high caliber team members. For instance, team leader in a high-innovation firm convinced senior management of the importance of holding off-site teambuilding retreats to nudge participants toward adopting beliefs and values that favor collaboration. He built strong working relationships with department heads and convinced them of the importance of teambuilding and of senior management's support, so retreats are not viewed as operationally disruptive. The early involvement, teambuilding activities, and the team leader's emphasis on cross-functional collaboration have strongly reinforced the new values, attitudes, and behaviors learned by team members.

In contrast, the low-innovation firms give overwhelming importance to the traditionally dominant functional group and assign its representative to the position of team leader. In these cases, one department clearly holds more power, and the team leader tends to direct team activities and dictate tasks to others. Team members feel less involved in decisions, powerless to influence the new product initiative, and fail to commit to the team. Much of their time and creative energies are spent second-guessing the power holders, finger pointing, and withholding cooperation.

• **Expect and manage resistance to change.**

Scholars discuss resistance to change as natural when firms move from individual achievement to teamwork and team goals (Bishop, 1999; Donnellon, 1993; Dougherty, 1992; Tudor et al, 1996). They emphasize the importance of proactively managing resistance to change and imply that a transition period is needed during which employees will need to be supported with training in the new skills, with education in the importance of change, and with practice in overcoming interdepartmental differences and

misperceptions.

Senior management in the high-innovation firms in our study acts in ways that suggest their strong belief in the notion that radically new product goals can be achieved when the organization adopts radically new ideas and takes radically new and creative actions. Their efforts reflect an understanding of the problems spelled by formation of teams, i.e.: (a) people who otherwise have learned to function within their departmental micro-cultures will be called to interact with new people and deal with sub-cultural differences, and (b) the existing power coalitions, vested in existing technology and current ways of managing information for decision making and allocating resources, are less likely to act in ways that support teamwork. They seem to know that people will be called to perform new tasks even as they are placed in unfamiliar environments, and will require considerable education, training, and coaching. They also seem to know that the current power coalitions will resist change as destabilizing and will withhold information and resources from the team.

Some of the actions they take based on this understanding are worthy of note. For instance, they alter the power structure within the firm so that political interests favoring status quo cannot stop information and resources from reaching the team. They refuse to allow the dominant department to appoint team leaders, and instead select leaders who owe no particular allegiance to any single power coalition. In one high-innovation firm, senior management has spelled out new performance standards and assessment processes for the entire organization. The emphasis on assessing and rewarding people for working cross-functionally and collaboratively has helped greatly in overcoming the resistance to change.

The principal folly in low-innovation firms is senior management's expectation that the new product team will receive information and resources it needs for effective operations from the existing structure of power, authority, and accountability. Teams expected to function within the constraints of the existing organization seem to rapidly display the traditional divisions and micro-cultures. For instance, despite forming teams, in one low-innovation firm R&D continues to call the shots related to new product development. The resistance to change comes from all team members who feel uninvolved and

resentful of the token structural change made by senior management.

Concluding Thoughts

Managers know that concurrent task-completion, joint decision-making, and effective teamwork can help accelerate their NPD processes. Cross-functional teams, the structural choice *du jour*, are popular because they are relatively easy to institute and create the immediate impression that senior management is aware of the problem and doing something to address it. In practice, the problems have less to do with awareness of teamwork and more to do with the ability to implement the complex changes among participants and within the organization necessary for fostering cross-functional collaboration. Hence, even though teams have much in potential, only a few actually deliver sustained improvements in product innovation processes.

Our findings show that instituting teams without particular attention to needed organizational transformations is a recipe for failure. Worse yet, we find that poorly implemented teams breed high levels of cynicism and foster dysfunctional behaviors among participants. Identifying and clearly articulating the rationale for change, making complex changes in the way decision-making and resource allocation power is distributed in the organization, and taking action to build commitment are important for transforming linear-sequential new product development into an organic, collaborative process that yields high-quality, creative new products faster and cheaper than before.

Dr. Jassawalla has published articles on new product development in various journals including the California Management Review, Academy of Management Executive, and the Journal of Product Innovation Management. Dr. Sashittal's research interests include product innovation and marketing strategy implementation, and he has published in several journals including those listed above.

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