

PROJECT CHARACTERISTICS AND PROJECT LEADERSHIP:

Understanding Sources of Uncertainty in Project-Based work

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For much of the twentieth century project management stressed procedural, managerial and operational functions that focus on coordinating and controlling internal and external resources. As a consequence, project managers and teams are typically focused on operational performance by meeting time, budget and technical goals. These activities are essential but in recent years, issues like the rapid rate of technological change and globalization have made today's business environment more dynamic than ever. At the same time, cross-functional project-based work has proliferated. As a result, researchers and practitioners alike have increasingly stressed that the nature of project management must change as well. While efficiency and operational issues remain important, many (such as Aaron Shenhar here at Stevens) argue that organizations can be more successful when they encourage and empower their project managers to function as, "...strategic leaders who take total responsibility for project business results."

This shift in role emphasis brings with it the need to more fully understand the skills and behaviors that contribute to meeting the demands of project leadership. Consider for instance the findings by one member of our research team, Tom Lechler. In a study of 448 projects he found that traditional planning and controlling activities were less predictive for the success of highly innovative projects. On the other hand, interpersonal activities like communication were much more important determinants of successful outcomes. These results highlight the fact that while project based work has always required using interpersonal influence to motivate people towards specific objectives, the importance of project managers demonstrating effective project leadership is growing.

In light of this reality, our research has focused on developing a more complete understanding of how best to describe leader effectiveness in the context of project-based work. Our approach applies one widely accepted model of leadership behaviors, transformational versus transactional leadership, to the project manager's role. At the same time, due to the complex and dynamic nature of projects, we also focus on identifying and describing key contextual factors and distinct project characteristics that more fully explain the relevance and impact of a project manager's leadership behaviors. Our objective is to offer a framework that can serve as a basis for future research while also providing practitioners with guidelines for selecting, staffing and developing the leadership competencies of project managers.

Transactional versus Transformational Leadership

The distinctions between transformational and transactional leadership are found in the component behaviors used to influence others and the effects of the leader on others. In general, transactional leadership behaviors focus on coping with task-related complexities. As a result, transactional leadership helps to establish order and provide consistency in achieving specific goals. Their focus is on process, (e.g. *how* decisions are made, rather than *what* decisions are made, as well as explicit and predetermined decision processes).

This approach might also be characterized as problem-solving because issues (transactions) are dealt with as they arise. In terms of project management, transactional leadership behaviors include behaviors like: planning and controlling (e.g., the definition of a detailed cost plan and schedule was provided by the project manager); information and procedural communication (e.g., the project manager clearly communicated to the project members how to make the project manager aware of problems); goal articulation (e.g., project managers discussed the project goals with the project team).

In contrast, transformational leadership behaviors are about coping with, even inspiring change. Transformational leaders motivate followers by heightening their awareness of task outcomes, encouraging them to transcend self-interests for the good of the team and activating higher order needs (e.g. needs for esteem, personal fulfillment and achievement). Transformational leadership also implies a more positive personal connection between leaders and followers. Followers feel trust, admiration, loyalty and respect toward the leader. As a result transformational leaders broaden and elevate follower's goals, providing them with confidence to go beyond minimally acceptable expectations.

The model of transformational leadership we have been using was largely developed by Bernard Bass. It includes four subcategories of behavior. Idealized influence is behavior that arouses strong follower emotions and identification with the leader. Intellectual stimulation is behavior that increases follower awareness of problems and influences them to develop innovative and/or creative approaches to solving them. Individualized consideration includes providing support, encouragement and coaching to followers. Inspirational motivation includes conveying a clear, engaging vision, using symbols to focus attention and modeling appropriate efforts and behavior.

Transformational Leadership Behaviors and Project Success

It is important to note that transformational and transactional leadership behaviors are not mutually exclusive. Bass argued that transformational leadership builds upon transactional leadership. This is one reason why we believe this model is particularly relevant to project managers. It does not imply that the traditional planning and coordinating tools and behaviors used by project managers are irrelevant. Moreover, many recent thinkers about the distinctions between leadership (transformational approaches) and management (transactional) approaches stress that in today's work place people need to use and develop skills relating to both. The point is however, in today's more dynamic work environment transactional approaches are not always sufficient to ensure project success.

According to Bass, transformational leadership is considered effective across virtually all situations. In fact, numerous studies over the years have demonstrated that transformational leaders provide more favorable motivational effects on group performance in a variety of settings. Moreover, we would expect projects managers who have mastered both transformational and transactional leadership skills to be more effective than those who have not. Consider for instance, the findings described by our colleagues Holahan and Mooney in their accompanying article on conflict management and project teams. They found higher levels of trust increase the chance that conflicts have a positive rather than negative impact on project outcomes. Trust tends to be an important byproduct of transformational leadership. As other researchers in the field of project management (e.g. Pinto) have observed, "When we consider some of the characteristics of transformational leaders, it is easy to see how they apply to successful project management."

Transformational Leadership in Relation to Project Characteristics

At the same time however, universal relevance does not mean that transformational leadership is equally effective in all situations, nor does it necessarily mean that all subcategories of transformational leadership are of equal importance across all situations. Therefore, a second key focus for our work has been on identifying key contextual factors (more specifically, characteristics of project-based work and objectives) that might have implications for how and when transformational leadership behaviors are most likely to be relevant. In general, the impact of a project manager's transformational leadership behavior on project outcomes (performance and success) is moderated by the extent to which the project environment is characterized by uncertainty and the potential for change.

At this point you might be thinking that there are many factors which contribute to uncertainty in work. We would certainly not disagree. In the paragraphs below, however, we will focus on two key characteristics that our research to date suggests are particularly relevant. These are the level of innovation required and the level of urgency associated with completing the project. The findings we're describing are based upon 120 survey responses from members of 30 different project teams. For each project, we collected different data from different individuals. We asked project team members to describe their perceptions of the project manager's leadership behavior. We collected data regarding project characteristics from project managers and senior managers with oversight responsibility for the project. Our measures of success are based upon the perceptions of senior managers.

Project Innovativeness – The extent to which a project team's work would be described as new and non-routine represents one contextual project characteristic that moderates the impact of a project manager's transformational leadership behavior. For instance, one way to describe the level of innovation inherent in a project is in terms of the technical challenges it poses. At one extreme a project could be characterized as routine. This implies that objectives are met by applying technical solutions that previously existed in essentially the same way that they have been applied before. A more technically challenging project could be described as one in which meeting objectives required project team members to apply existing technology in new or different ways. A project with an even greater level of innovation could be described as one which

called for the development of new technology and or knowledge that did not previously exist (see the table below).

Our data suggests that as the technical challenges of a project increase all four dimensions of transformational leadership behavior become increasingly important. Two dimensions, however, stand out as particularly important. They are intellectual stimulation and individualized consideration. For projects characterized as routine (low innovation) the correlation between perceptions of overall success and intellectual stimulation is .31. The correlation with individualized consideration is .43. For those projects characterized as non routine (high innovation), the correlations with success

Describing level of innovativeness: How would you describe your projects in relation to these statements?

1. The work required for this project was new to our organization
2. We had never undertaken work like this before.
3. The work required for this project would be considered new ground for our industry.
4. The technical challenges posed by this project would be considered routine.
5. They could be met by applying technical solutions that previously existed within our organization in essentially the same way they had been applied before.
6. The technical challenges posed by this project required us to apply existing technology in new or different ways.
7. The technical challenges posed by this project required us to develop new knowledge that was inconsistent (contradictory) with available knowledge.

jump to .53 and .59 respectively. Let's consider why. The implications of intellectual stimulation are perhaps more apparent. For instance, by promoting nontraditional thoughts and/or promoting the application of existing information in new or unusual ways a project leader can encourage project members to meet the challenges posed by innovative work. What about individualized consideration? It includes behavior that ultimately help others to feel valued and supported as individuals (e.g. listening to individuals concerns, providing useful development advice, recognizing and responding to individuals needs). Among other things, this kind of support also makes it possible for people to feel com-

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comfortable taking risks in the form of proposing nontraditional ideas, or to take on new challenges that stretch their abilities.

Urgency – Another source of uncertainty is the level of urgency associated with a project. This concept reflects the extent to which the project is operating under significant time constraints and or the extent to which successful completion of the project is likely to have a major impact on overall organizational outcomes. Under these conditions, the galvanizing effects of transformational leadership strongly contribute to successful results.

Our findings suggest that when urgency is low transformational leadership behavior does not play much of a role in relation to project success. However, when urgency is high all four dimensions appear to play a significant role. Leadership behaviors relating to inspirational motivation seem particularly relevant. For instance, inspirational motivation includes actions like articulating a compelling vision, showing determination to accomplish what one sets out to do, setting high standards, providing continuous encouragement, and directing attention toward essential aspects of the proj-

ect. Behaviors relating to idealized influence also have an impact. Examples include providing assurance that obstacles will be overcome, and emphasizing the importance of being committed to beliefs and objectives. Such leadership behaviors potentially help project team members in their efforts to meet both temporal and strategic demands that are often inherent in projects with high levels of urgency.

In addition to urgency and level of innovation there are other factors that contribute to uncertainty and change within projects. Our research is also exploring factors like the frequency of goal changes and or changes in project scope, the extent to which required resources are scarce, and even team composition.

Describing Urgency:

How would you describe your projects in relation to these statements?

1. It was important that the results of the project could be used as soon as possible.
2. The implementation of the project was important for achieving the organization's strategic goals.
3. The implementation of the project was important for the success of the organization.

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Project Managers as Project Leaders

The point is that when it comes to project-based work it helps to take a strategic point of view. Organizations can benefit from system-

atically considering the sources of and types of uncertainty their project teams face. Moreover, for any given project, project managers can benefit from carefully considering such issues at the onset of work. This is important because it can help in both developing and applying the kinds of project leadership skills that will make a difference.

Summary

While traditional planning and coordinating activities will always remain essential to project management, organizations have much to gain by helping their project managers to develop as leaders. When it comes to project leadership, an important aspect of leader effectiveness includes understanding the sources of uncertainty and complexity that any given project poses. Our findings suggest that factors like levels of innovation, and urgency may be particularly important. Understanding your projects in relation to these factors can better help you select, develop and prepare your project managers for the leadership challenges they will face. ■



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