Critical success factors across the project life cycle

definitions and measurement techniques

How to cite this article:

Introduction

Attempts to understand the process of project management, involving the successful implementation of projects in organizations, represent a problem of continual concern and interest to both researchers and project managers. Much has been written to assist project managers in their efforts to more effectively manage and guide a variety of organizational projects. Both empirical and conceptual approaches have been applied to the study of the project implementation process. As a result, a wide range of critical factors or project dynamics have been uncovered which have been found to significantly contribute to project success (e.g., sufficient available resources or top management support). While these findings have had an important impact on project managers, helping them to better manage their projects to completion, few researchers have attempted to determine how the “importance” of these critical factors may fluctuate as a result of changes in the life cycle of the project. In other words, it may be likely that some “critical” factors become more or less critical to project success depending upon the phase in its life cycle the project currently occupies.

The purpose of this article is to report on the results of a recent study that was conducted in an effort to test the importance of those factors that have long been believed to be critical to project success. Over 600 questionnaires were mailed to project managers and members of the Project Management Institute (PMI). The response rate and interest level generated from this study have been quite strong; over 400 questionnaires were returned, indicating a response rate in excess of 71%.

Specifically, this study resulted in two important findings:

1) The validation of a set of factors previously discovered as critical to project implementation success [1].

2) The determination that these factors are not of equal and stable importance over the life of the project. Rather, different sets of these factors become more critical to project success at different phases in the project life cycle.
The results of this study have important implications for project managers and researchers in the project management field. First, a set of ten critical success factors were determined that improve the prediction of project implementation success. Second, this study demonstrates that it is insufficient to simply ask the question, “Which factors are most important to project success?” It will be shown, using project life cycles, that the relative importance of various critical factors are subject to dramatic changes at different phases in the project implementation process. Finally, this research offers support for use of the Project Implementation Profile (PIP) [1] as an instrument to assess project performance and predict project success based on responses across the ten critical factors.

**Project Critical Success Factors**

Research in the area of critical success factors in project management and implementation has been conducted for several years. Many examples exist of both empirical studies aimed at determining critical success factors [2] [3] as well as conceptual research approaches [4] [5] [6] which have developed theoretical frameworks or models listing several of those factors seen as critical to project success. As a result of the wide range of work on project critical success factors, it appears that consensus is beginning to develop on identifying those areas or dynamics critical for project implementation success.

Recent work by Slevin and Pinto [1] [7] has led to both the development of a ten factor model of the project implementation process and an instrument which may be used to empirically monitor the current state of each of the ten critical factors throughout a project’s life. These ten characteristics represent those characteristics found to be critical to project implementation success. (For a more in-depth discussion of how these factors were developed and some of the important considerations included within each of the factors, see [1]). The ten critical success factors can be briefly defined:

1. **Project mission** – Initial clarity of goals and general directions.
2. **Top management support** – Willingness of top management to provide the necessary resources and authority/power for project success.
3. **Project schedule/plans** – A detailed specification of the individual action steps required for project implementation.
4. **Client consultation** – Communication, consultation, and active listening to all impacted parties.
5. **Personnel** – Recruitment, selection, and training of the necessary personnel for the project team.
6. **Technical tasks** – Availability of the required technology and expertise to accomplish the specific technical action steps.
7. **Client acceptance** – The act of “selling” the final project to its ultimate intended users.
8. **Monitoring and feedback** – Timely provision of comprehensive control information at each phase in the implementation process.
9. **Communication** – The provision of an appropriate network and necessary data to all key factors in the project implementation.
10. **Trouble-shooting** – Ability to handle unexpected crises and deviations from plan.

In addition to these ten critical success factors, all of which to some degree are within the control of the project team, four additional factors were included in this study. Both research and interviews with a variety of project managers have suggested the importance of these factors for project success. These factors represent critical areas or issues that are often considered beyond the control of the project team, but which nevertheless are felt to have an important impact on project success. The four factors are labeled as external to the project implementation process and can be defined as:

1. **Characteristics of the project team leader** – Competence of the project leader (administratively, interpersonally, and technically) and the amount of authority available to perform his/her duties.
2. **Power and politics** – The degree of political activity within the organization and perception of the project as furthering an organization member’s self interests.
3. **Environmental events** – The likelihood of external organizational or environmental factors impacting on the operations of the project team, either positively or negatively.
4. **Urgency** – The perception of the importance of the project or the need to implement the project as soon as possible.

**The Project Life Cycle**

The use of life cycles in project management is not a new concept to most project managers. Much has been written on the use of life cycle analysis and its impact on project management [8] [9]. Life cycles have been used to explain the impact of a variety of behavioral issues on the project organization. For example, studies have examined propensity toward conflict and effective conflict management styles at different phases in the life cycle [10]. Other research has argued that leadership styles of the project manager must change at different phases in the project life cycle [8]. These and other authors have presented a strong case for the inclusion of the project life cycle phase into investigations of the dynamics of the project implementation process.

In this study, a four-phase life cycle has been employed (see Figure 1). The initial phase, **Conceptualization**, refers to the point at which a strategic need has been recognized by top management. Typically, preliminary goals and alternatives for the project are established at this point, along with exploring the availability of the means (resources) to accomplish these goals. Conceptualization often involves an initial feasibility decision requiring that management answer questions such as:

- What is the problem?
- Will the development of a project solve that problem?
- What are the specific goals of the project?
- Do we have the resources to create and support the project?

The second phase in the project life cycle is referred to as the Planning phase. In this phase, once top management has given the “Go ahead” to launch the project, a more formalized set of plans to accomplish the initially developed goals are established. Some of the well-known planning functions are determining the availability of needed resources, budgeting, and the allocation of specific tasks.

The third phase is labeled Execution. It is during the execution phase that the actual “work” of the project is performed. Sufficient materials and resources are procured and transformed into the intended project result. During this phase, performance capabilities are continually tested to ensure that the project performs as intended.

The fourth and final phase in the project life cycle is called the Termination phase. Once the project has been completed, the project team is often disbanded and personnel are reassigned to other duties, resources that were secured for the project are now released back to the parent organization, and the project is transferred to its intended users.

![Figure 1. Phases in the Project Life Cycle](image)

(Adams & Barndt, 1978; King & Cleland, 1983)

As Figure 1 shows, in addition to demonstrating the four distinct phases in the project life cycle, the model also specifies the level of organizational effort (resources, man-hours, and so forth) necessary to adequately perform the tasks associated with each project phase. As one would expect, during the early Conceptualization and Planning phases, resource and effort requirement are often minimal, increasing rapidly during late Planning and Execution, before diminishing again in the project’s Termination. As a result, the concept of project life cycles is useful for project managers, not only through distinguishing among distinct phases in the project’s life, but also through indicating likely resource requirements associated with each project phase.

This study was conducted to show the added impact that project life cycles can have on critical success factors. It was argued that different sets of these factors should be found to be more or less critical to project success depending upon the current phase in the project life cycle. The focus of our research was to test this idea.

### The Study

#### The Data Sample

Questionnaires were mailed to over 600 members of the Project Management Institute (PMI)—a national organization of project managers. Due to terminations, retirements, and other reasons, a total of 586 project managers were capable of responding to the questionnaire of which 418 were usable, resulting in a response rate exceeding 71%. This response rate was 3 to 5 times the national norm for mail surveys, indicating the considerable interest of this topic to project managers.

Three types of questionnaires were randomly mailed to the sample. One questionnaire asked the respondent to think of a successful project in which they were currently involved or had recently completed. The second questionnaire type asked the subject to consider an unsuccessful project with which they had experience. The third type of questionnaire did not specify the type of project for them to consider. Three types of questionnaires were used to ensure a wide sample of projects, both in terms of phase of project completion and final outcome (successes and failures).

Table 1 shows the distribution of projects in the sample. While there was a wide cross-section of projects represented, construction projects made up 44% of the sample. The industries represented in the sample were from the manufacturing as well as service sectors and included a mixture from the public and private domains. Projects included in the sample ranged from a $5,000 test study conducted in a small firm to a $2 billion dollar government funded research project.

<table>
<thead>
<tr>
<th>Type</th>
<th>Absolute Frequency</th>
<th>Relative Frequency</th>
<th>Cumulative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>256</td>
<td>0.44</td>
<td>0.44</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>120</td>
<td>0.20</td>
<td>0.64</td>
</tr>
<tr>
<td>Service</td>
<td>92</td>
<td>0.15</td>
<td>0.79</td>
</tr>
<tr>
<td>Public</td>
<td>60</td>
<td>0.10</td>
<td>0.88</td>
</tr>
<tr>
<td>Private</td>
<td>60</td>
<td>0.10</td>
<td>0.98</td>
</tr>
<tr>
<td>Total</td>
<td>418</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>
Table 2 shows the breakdown of respondents to the questionnaire by the position they occupy. Not surprisingly, the majority (50.2%) of those responding to the questionnaire were project managers. However, a significant percentage of responses came from other members of the project team, including administrators, technical personnel, and others. This diversity of respondents indicates that the data sample represented a wide range of perspectives.

Before completing the questionnaire, each respondent was asked to think of a project in which they were involved that was currently under way or recently completed. This project was to be their frame of reference while completing the questionnaire. The four phase project life cycle model discussed earlier was included in the questionnaire and was used to identify the current phase of each project.

Table 2

<table>
<thead>
<tr>
<th>Role</th>
<th>Absolute Frequency</th>
<th>Relative Frequency</th>
<th>Cumulative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project manager</td>
<td>210</td>
<td>50.2%</td>
<td>50.2%</td>
</tr>
<tr>
<td>Manager on Project Team</td>
<td>55</td>
<td>13.2%</td>
<td>63.4%</td>
</tr>
<tr>
<td>Project Team Member — Technical</td>
<td>25</td>
<td>5.9%</td>
<td>69.3%</td>
</tr>
<tr>
<td>Project Team Member — Administrative</td>
<td>57</td>
<td>13.6%</td>
<td>82.9%</td>
</tr>
<tr>
<td>Member of Business Unit Affected by the Project</td>
<td>11</td>
<td>2.6%</td>
<td>85.5%</td>
</tr>
<tr>
<td>Other</td>
<td>60</td>
<td>14.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>418</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 shows the breakdown of responses by project phase. As can be seen, 36 (8.6%) of the responses were based on projects in the Conceptual phase. 73 (17.5%) of the projects reported on were in the Planning phase, 202 (48.3%) of the projects were in the Execution phase and 107 (25.6%) of the projects were undergoing project Termination.

**Questionnaire**

The Project Implementation Profile (PIP) was used to identify critical success factors and subsequent factor scores over the project life cycle. The PIP requires participants to indicate their level of agreement on a 7-point scale to a series of 72 questions covering the 10 critical factors and the 4 additional external factors felt to be related to project implementation success. The 7-point scale required responses ranging from Strongly Agree to Strongly Disagree for each item.

**Project Success**

The PIP’s measure of project success is an average of 13 items comprising assessments of adherence to budget and schedule, project performance capabilities, technical validity, organizational validity, and organizational effectiveness. The measure of success was specifically constructed to be multidimensional in an effort to include, as nearly as possible, all aspects associated with project implementation success.

Traditionally, there has been general agreement that any assessment of project success must include measures of budgetary and schedule adherence, as well as the confirmation of performance capabilities. In addition, it has been suggested that in order for the project to be considered successful, it must be technically valid. In other words, the project must work and it must be a technically correct solution to the problem for which the project was initiated [11]. Further, the project must be organizationally valid. In other words, the project to be
implemented must “fit” the organization or clients for whom it is intended, and they must make use of it. Finally, the project to be implemented should result in some form of improved level of organizational effectiveness or decision making [12]. The client’s organization should be assessed as being more “effective” as a result of the implemented project. To summarize, project success was measured based on the following characteristics:

- Adherence to Budget
- Adherence to Schedule
- Level of Performance Achieved
- Technical Validity
- Organizational Validity
- Organizational Effectiveness

Results

As previously stated, the first objective of this study was to provide empirical evidence that the set of ten critical success factors were significantly related to project success. In addition to the ten critical factors, the four external factors (Characteristics of the Project Team Leader, Power and Politics, etc.) were also evaluated to determine if they had any ability to predict project success.

Table 3

<table>
<thead>
<tr>
<th>Phase</th>
<th>Absolute Frequency</th>
<th>Relative Frequency</th>
<th>Cumulative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual</td>
<td>36</td>
<td>8.6%</td>
<td>8.6%</td>
</tr>
<tr>
<td>Planning</td>
<td>73</td>
<td>17.5%</td>
<td>26.1%</td>
</tr>
<tr>
<td>Execution</td>
<td>202</td>
<td>48.3%</td>
<td>74.4%</td>
</tr>
<tr>
<td>Termination</td>
<td>107</td>
<td>25.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>418</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>T</th>
<th>Sig.T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Mission</td>
<td>.72</td>
<td>19.9</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Top Management Support</td>
<td>.32</td>
<td>10.6</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Schedule/plans</td>
<td>.32</td>
<td>10.92</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Client Consultation</td>
<td>.39</td>
<td>11.86</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Personnel</td>
<td>.31</td>
<td>10.54</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Technical Tasks</td>
<td>.43</td>
<td>11.25</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Client Acceptance</td>
<td>.39</td>
<td>11.46</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Monitoring and Feedback</td>
<td>.29</td>
<td>10.89</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Communication</td>
<td>.32</td>
<td>10.38</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Trouble-shooting</td>
<td>.35</td>
<td>11.15</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Leadership</td>
<td>.43</td>
<td>12.44</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Power and Politics</td>
<td>.11</td>
<td>3.71</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Environmental Effects</td>
<td>.15</td>
<td>4.52</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Urgency</td>
<td>.32</td>
<td>7.18</td>
<td>p&lt;.01</td>
</tr>
</tbody>
</table>
The ability of each critical factor in predicting project implementation success is shown in Table 4. Each of the critical factors was tested independently against project success. As can be seen from Table 4, all 14 of the critical factors which were used in the study were shown to be significantly related to project success. Both the Beta value and the T-statistic represent the strength of the relationship which exists between each critical factor and project success. As a result, one of the first conclusions from this study is that the 10 critical success factors and the 4 external factors were shown to each be predictive of project success. Further, the table indicates that the most significant relationships (most important individual factors) among the variables were between Success and Project Mission, Characteristics of the Project Team Leader, Technical Tasks, Client Consultation, and Client Acceptance.

Table 5

<table>
<thead>
<tr>
<th>Stage of Project Life Cycle</th>
<th>Number of Projects</th>
<th>Factors</th>
<th>Adjusted $\Delta R^2$</th>
<th>Adjusted $R^2$</th>
<th>Sig. $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual</td>
<td>.36</td>
<td>Mission</td>
<td>.57</td>
<td>.57</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Client Consultation</td>
<td>.07</td>
<td>.64</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Planning</td>
<td>73</td>
<td>Mission</td>
<td>.55</td>
<td>.55</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Top Mgmt. Support</td>
<td>.06</td>
<td>.61</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Client Acceptance</td>
<td>.02</td>
<td>.63</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Urgency</td>
<td>.02</td>
<td>.65</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Execution</td>
<td>202</td>
<td>Mission</td>
<td>.50</td>
<td>.50</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leadership</td>
<td>.06</td>
<td>.56</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trouble-shooting</td>
<td>.05</td>
<td>.61</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schedule/Plans</td>
<td>.02</td>
<td>.63</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technical Tasks</td>
<td>.01</td>
<td>.65</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Client Consultation</td>
<td>.01</td>
<td>.66</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td>Termination</td>
<td>107</td>
<td>Technical Tasks</td>
<td>.45</td>
<td>.45</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mission</td>
<td>.12</td>
<td>.57</td>
<td>p&lt;.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Client Consultation</td>
<td>.03</td>
<td>.60</td>
<td>p&lt;.01</td>
</tr>
</tbody>
</table>

Because a second key purpose of this research was to test the relative stability of the critical factors across the project life cycle, a second analysis was performed. In this test, the 14 factors were not examined individually. Rather, all 14 variables were tested simultaneously at each of the four project life cycle phases to determine which of the set were most important at each project phase. For each project phase, a stepwise regression technique tested all 14 variables and initially selected the single variable that was most important in predicting project success. At the next “step” the computer selected the second-most important variable. This process continued until all variables were included, in order of importance, or until only those factors which were significant were included.

Table 5 shows the results of the stepwise regression across the four project life cycle phases. In the Conceptual phase the Project Mission and Client Consultation were the two key factors related to project success, with an adjusted r-square value of .64. In other words, at the Conceptual phase in a project, two factors (Project Mission and Client Consultation) are capable of predicting 64% of the causes of project success. In the Planning Phase, Project Mission, Top Management Support, Client Acceptance, and Urgency were the key factors explaining 65% of the reason for project success. For the Execution phase, Project Mission, Characteristics of the Project Team Leader, Trouble-shooting, Project Schedule/Plans, Technical Tasks, and Client Consultation together accounted for 66% of the causes of project success. Finally, at the phase of project Termination, Technical Tasks, Project Mission, and Client Consultation had an r-square value of .60.

Phase 1: Conceptualization

- Project Mission
- Client Consultation

Action Implications for the Project Manager:

1. Insist on a clearly specified and on-target project mission.
2. Consult with your important clients at the very outset of the project life cycle.
Phase 2: Planning

- Project Mission
- Top Management Support
- Client Acceptance
- Urgency

**Action Implications for the Project Manager:**

1. Continue to refine and specify the project mission—stay on target.
2. Insist on top management support in terms of resources and authority.
3. Go beyond client consultation and address the important issue of client acceptance. What actions can we take to help sell our ideas to the clients?
4. Create a perceived sense of urgency for the project in the parent organization and among the project team.

Phase 3: Execution

- Project Mission
- Characteristics of the Project Team Leader
- Trouble-shooting
- Project Schedule/Plans
- Technical Tasks
- Client Consultation

**Action Implications for the Project Manager:**

1. Continue to look back to the Project Mission for direction. Make sure you and your project team are staying on target.
2. Use good management skills as the Project Leader. Although these characteristics may seem to be somewhat inherent and unchangeable, the use of effective management training and appropriate management tools can enhance the characteristics and skills of any project manager.
3. Start the trouble-shooting process at this phase. Now that you have actually started the project execution, you must have procedures for detecting and correcting the errors that crop up.
4. Develop and adhere to a comprehensive schedule and/or set of plans for the implementation. You might even consider the use of project management software at this phase to keep all of the items in control.
5. Initiate the execution of the technical tasks. Make sure that you have quality technical experts and adequate technology to support the project.
6. Don't forget the client. Maintain an effective two-way communication flow with the user.

Phase 4: Termination

- Technical Tasks
- Project Mission
- Client Consultation

**Action Implications for the Project Manager:**

1. As you terminate the project, make sure that the technical system is fine-tuned and working at maximum effectiveness.
2. Even at this phase, don't forget the project mission (why this project was developed). Are there any changes that you could make in this final phase to make sure that the project stays on target?
3. Stay close to the client and try to make sure that you have a satisfied project user before you leave for good.

Implications for Project Managers

As one can see, a general pattern emerges from these research results that would be useful for the project manager over a broad range of projects.

1. Don't forget the project mission – The first finding relates to the importance of the factor Project Mission across all four stages in the project life cycle. Intuitively, it is not surprising that the mission should have an important impact on project success, particularly early in the project's life. What is surprising, however, is that a focus on the Project Mission continues to remain of great importance throughout the implementation of the project. This result suggests the need to keep the goals and purposes of the project being implemented always in the forefront. Further, the purpose of and goals for the project need to be made apparent not only to a few select members of the project team, but to all project team members. A large proportion of those responding to this study were not project managers, but team members of varying levels. These respondents also indicated the importance of Project Mission at all life cycle phases. An effective
some cases accounting for up to 66% of the causes of successful project implementation. Critical factors at each of the four project life cycle phases. These factors were shown to have a powerful impact on project success, in the project resides. As a result, project managers are presented with empirical evidence suggesting that attention be paid to specific sets of factors. The question, “What factors are most important to project success?” The answer was shown to depend on the nature of the project and its environment.

Not be intuitively surprising to many project managers. However, it was proven through this analysis that it is insufficient to simply ask the question, “What factors are most important to project success?” as the results point out, the perception of a project as important or unique can have strong impact on its likelihood for success. This finding is particularly true during the Planning phase of the project life cycle. An implication for project managers would be to attempt to instill within the project team a feeling that what they are engaged in has importance for them as individuals.

As was implied previously, these results suggest that it would be a mistake for the project team to initially talk to clients and subsequently sever this connection to go off and develop the project on their own. As stated above, it is important to keep the channels open.

As the strategic plan for the project is implemented, it is essential that the effective project manager put together a schedule and/or set of plans for the project and use it on a regular basis. The schedule represents a highly important and necessary element to successful project execution. During the actual work of the project, the schedule often functions as the sole feedback mechanism to many project members in assessing how the project is proceeding. As a result, proper attention to schedules represents an important consideration for both project leaders and team members, not only in terms of actual time frame to completion, but also as a periodic check-list for feedback on project performance.

Another result of this study is the determination that Technical Tasks are important for project success during the Execution and Termination phases of the project. Technical Tasks argues for adequate technology and competent personnel to assist in the technical action steps of the implementation. This result, along with the finding that Troubleshooting and Schedule/Plans were critical during the Execution phase suggests that tactical issues become more important to project success as the project progresses through its life cycle. “Tactics” implies those operational activities that are performed in support of strategic plans. While this result appears to be obvious, it needs to be considered in light of the fact that Project Mission, a strategy/planning activity, is critical throughout the project’s life. Project strategy and tactics must work hand-in-hand, particularly during Execution and Termination, in order to ensure greater likelihood of success.

Much has been written about the important positive effects a competent leader can have on his/her project team and the resulting success of the project. While the findings support these conclusions, they further suggest that project leadership becomes most important during the actual “work,” or execution of the project. At this point, the various competencies of the project team leader (technical, administrative, and interpersonal) are most crucial for project success. While the project team leader will assume various roles throughout the project development (motivator, conflict resolver, “visionary,” etc.), project team leadership can make its presence felt most during the project’s Execution.

A last finding from the study was the positive impact of perceived urgency or importance on project success, particularly during the Planning phase. In one sense, it seems obvious to tell project managers that “important” or urgent projects have a better chance for success, but the point bears emphasizing. Not all projects run through an organization are seen as urgent, or even necessary. In spite of the pronouncements of project managers or top management, in many instances project team members perceive their project as routine, dull, or pointless. As the results point out, the perception of a project as important or unique can have strong impact on its likelihood for success. This finding is particularly true during the Planning phase of the project life cycle. An implication for project managers would be to attempt to instill within the project team a feeling that what they are engaged in has importance for them as a project team, for the parent organization, and for the clients for whom the project is intended.

The purpose of this article has been to report on some of the important findings resulting from a large-scale study investigating the role of specific critical factors in project implementation success. The results support much of the theoretical and empirical work that have been done to date on the role these factors play in project success. The importance of several of these critical factors to project success should not be intuitively surprising to many project managers. However, it was proven through this analysis that it is insufficient to simply ask the question, “What factors are most important to project success?” The answer was shown to depend on the phase of the life cycle in which the project resides. As a result, project managers are presented with empirical evidence suggesting that attention be paid to specific sets of critical factors at each of the four project life cycle phases. These factors were shown to have a powerful impact on project success, in some cases accounting for up to 66% of the causes of successful project implementation.

2. Client consultation: Keep the channels open—A second interesting finding is the importance of interaction with the project’s clients throughout the life of the project. Client consultation—a communicating, listening, and feedback activity—was very important at three of the four life cycle stages: Conceptualization, Execution, and Termination. Client Acceptance—a “selling” function—was of prime importance during the Planning phase. A possible conclusion drawn from these results would be that the project team must first listen and ask questions, then sell their ideas, project capabilities, and time frame to completion, then engage in continuous two-way communication throughout the life of the project. As was implied previously, these results suggest that it would be a mistake for the project team to initially talk to clients and subsequently sever this connection to go off and develop the project on their own. As stated above, it is important to keep the channels open.

3. Be meticulous about schedules—As the strategic plan for the project is implemented, it is essential that the effective project manager put together a schedule and/or set of plans for the project and use it on a regular basis. The schedule represents a highly important and necessary element to successful project execution. During the actual work of the project, the schedule often functions as the sole feedback mechanism to many project members in assessing how the project is proceeding. As a result, proper attention to schedules represents an important consideration for both project leaders and team members, not only in terms of actual time frame to completion, but also as a periodic check-list for feedback on project performance.

4. Make sure we have the technical means to succeed—Another result of this study is the determination that Technical Tasks are important for project success during the Execution and Termination phases of the project. Technical Tasks argues for adequate technology and competent personnel to assist in the technical action steps of the implementation. This result, along with the finding that Troubleshooting and Schedule/Plans were critical during the Execution phase suggests that tactical issues become more important to project success as the project progresses through its life cycle. “Tactics” implies those operational activities that are performed in support of strategic plans. While this result appears to be obvious, it needs to be considered in light of the fact that Project Mission, a strategy/planning activity, is critical throughout the project’s life. Project strategy and tactics must work hand-in-hand, particularly during Execution and Termination, in order to ensure greater likelihood of success.

5. Project leadership: It CAN make a difference—Much has been written about the important positive effects a competent leader can have on his/her project team and the resulting success of the project. While the findings support these conclusions, they further suggest that project leadership becomes most important during the actual “work,” or execution of the project. At this point, the various competencies of the project team leader (technical, administrative, and interpersonal) are most crucial for project success. While the project team leader will assume various roles throughout the project development (motivator, conflict resolver, “visionary,” etc.), project team leadership can make its presence felt most during the project’s Execution.

6. Make the project important—A last finding from the study was the positive impact of perceived urgency or importance on project success, particularly during the Planning phase. In one sense, it seems obvious to tell project managers that “important” or urgent projects have a better chance for success, but the point bears emphasizing. Not all projects run through an organization are seen as urgent, or even necessary. In spite of the pronouncements of project managers or top management, in many instances project team members perceive their project as routine, dull, or pointless. As the results point out, the perception of a project as important or unique can have strong impact on its likelihood for success. This finding is particularly true during the Planning phase of the project life cycle. An implication for project managers would be to attempt to instill within the project team a feeling that what they are engaged in has importance for them as a project team, for the parent organization, and for the clients for whom the project is intended.

The purpose of this article has been to report on some of the important findings resulting from a large-scale study investigating the role of specific critical factors in project implementation success. The results support much of the theoretical and empirical work that have been done to date on the role these factors play in project success. The importance of several of these critical factors to project success should not be intuitively surprising to many project managers. However, it was proven through this analysis that it is insufficient to simply ask the question, “What factors are most important to project success?” The answer was shown to depend on the phase of the life cycle in which the project resides. As a result, project managers are presented with empirical evidence suggesting that attention be paid to specific sets of critical factors at each of the four project life cycle phases. These factors were shown to have a powerful impact on project success, in some cases accounting for up to 66% of the causes of successful project implementation.
Successful project implementation can be a difficult, complex task. The project manager is continually bombarded with a wide variety of input and information from project team members, the parent organization, and clients. The practical benefit of the research that has been reported in this article has been to help in clarifying not only the roles that a successful project manager must undertake, but also those duties which have been shown to contribute to successful project implementation. It is hoped that through focusing attention on these roles and critical factors, the project manager will be in a better position to actively monitor and steer his/her future projects toward a successful conclusion.

References

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is full of surprises. It's a place where dragons, bocce ball players, sidewalk stringed quartets, kite flyers and calligraphy street signs are part of the everyday landscape... where you can scale homegrown alps in antique cable cars, walk across the Pacific (on the Golden Gate Bridge), serpentine down a street that looks like a slalom run and island-hop by ferry. It's a city for all seasons with mild winters, springlike summers, views that rival Rio's and stores on a par with Paris'.

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Project Management Success Criteria and Critical Success Factors. Success factors are components of the project that have to be put in place to ensure the completion of the project. In simple terms, they create an enabling environment for the project to exist in the first place. In this case, we are looking at the metrics for measuring the success of the project at the end of its lifecycle. John F. Rockart, in 1979 defines critical success factors as: "key areas in which satisfactory results would ensure the successful competitive performance for the organization." He also defined CSFs as "...ke