The Perceived Importance of Technical Competence to Project Managers in the Defense Acquisition Community

Kevin P. Grant, Charles R. Baumgardner, and Guy S. Shane

Abstract—Numerous studies have identified attributes which are associated with effective project managers. One of the more frequently cited attributes is technical competence. This study surveyed 228 project managers from the government sector of the defense aerospace community to determine the importance of technical competence to project managers. More importantly, this study examined the influence of several personal and situational factors on the perceived importance of technical competence. The factors included: the experience level of the project manager, the amount of technical education completed by the project manager, the level of technology employed in the project, the phase of the project, and the caliber of the project team. This study determined the perceived importance of technical competence did not vary by level of experience, though project managers who possessed more technical education perceived technical competence to be more important. With regard to the situational factors, the level of technology did not influence the perceived importance of technical competence. However, technical competence was perceived to be more important during earlier phases of the acquisition process. Further, technical competence was perceived to be more important for managers of extremely good teams and mediocre teams than it was to managers of reasonably good teams.

I. INTRODUCTION

Recent trends such as the drive for global competitiveness and the associated demands for high quality products and services, reduced project life cycles, and rapid technology development have fueled an increased reliance on project management. With the importance placed on the successful accomplishments of many projects, stakeholders and customers have looked to project managers for leadership. The importance of project leadership has thus generated considerable interest in the appropriate skills and attributes required of project managers. Consequently, many studies have been conducted to determine the characteristics or skills associated with competent, effective project managers [1]–[10].

Much of the debate has centered on whether the project manager should be a generalist manager who integrates the efforts of technical specialists, or if the project manager should personally possess a degree of technical competence. This question lies at the heart of this research. Specifically, this study investigated the perceived importance of technical competence to the project manager. Further, this research explored whether personal or situational factors influenced the perceived importance of technical competence.

Although there have been numerous efforts to study characteristics or skills which influence effective project management, most of these studies address a broad array of skills, traits, and competencies. This study focuses exclusively on a single attribute: technical competence. It also examines the extent to which individual factors such as education and experience or situational factors such as the program phase, the caliber of project team, and the maturity of technology, influenced perceptions regarding the importance of technical competence.

II. IMPORTANCE OF TECHNICAL COMPETENCE TO PROJECT MANAGERS

For several decades, researchers have observed that successful project managers possess personal attributes or skills which directly influence their effectiveness. The specific skills or attributes cited are varied, but frequently include attributes such as interpersonal skills, leadership skills, and communication skills. One of the attributes most frequently reported as important to the successful project manager is technical competence [4], [5], [10]–[19].

Technical competence in the project management arena has been operationally defined as an understanding of the technology involved, the engineering tools and techniques employed, product applications, technological trends and evolutions, and the relationship among supporting technologies [10], [20], [21]. The importance of technical competence has been reported since the early days of scientific management. During the post-World War II era, the specialized training and education of engineers enabled them to solve design, engineering, and production problems to rapidly and efficiently move products from the drawing board to the consumer [22]. More recently, several researchers have discussed the advantages which technical competence provides in a project management environment. Thamhain and Wilemon indicate that an understanding of the technology is essential for project managers to participate effectively in the search for technological innovations and integrated solutions [10]. Moreover, an understanding of the technology enables a project manager...
to evaluate technical concepts and solutions, to assess risks and make trade-off decisions and to effectively communicate with the project team in technical terms [10]. Cleland and King assert that without an understanding of the technology base, project managers are unable to foresee future developments and relationships to other technologies. Further, they are unable to effectively participate in the integration of the project technology with others to yield system solutions [12]. Bloom affirms that an understanding of the technical issues is necessary for project managers to discuss and decide on technical issues [14]. Niwa and Sasaki report that technical skills contribute to a multidisciplinary know-how, which is important to the effective project manager [15]. Further, specialized technical education or training enhances the credibility of project managers [23]. In a similar fashion, Archibald suggests that specialized technical education contributes to expert power as defined by Wilemon and Gemmill [24].

While the literature strongly supports the importance of technical competence to effective project management in general, there are several situational factors which influence the importance of technical competence for the manager of a specific project. These factors include the level of the project manager in an organization, the level of technology involved with a project, the phase of the project and the technical caliber of the project team.

A. Level in Organization

Katz conducted research in 1955 to investigate the skills associated with effective administration. He concluded that in a general management environment, technical skill is indispensable. But, as a manager advances in the organization, away from the actual physical operation, the importance of technical skill declines as the manager relies more extensively on human and conceptual skills [11]. Katz, writing nearly 20 years later, refined his premise to suggest that it is the exceptional case that technical skill ever becomes unimportant, regardless of the level of management [25]. Similarly, studies have indicated that the balance between technical and managerial skills shifts as a function of the size of the project and the number of people assigned to the project. A small project which involves only a single technical discipline may require more technical education; however, when a manager progresses to responsibility for large multidisciplinary projects, there will need to be a shift in focus to management activities and the manager will need to delegate responsibilities for the technical aspects to specialists of the project team [4].

B. Level of Technology

While many authors have recognized that technical competence is an important attribute for project managers, in most cases it has been presumed that the project manager was generally capable. In high-technology projects however, research suggests the project manager must have a commanding knowledge of the technology [26]. Indeed, many authors suggest the rapid pace of technological advances has precipitated a trend for engineers to progress into managerial positions [22], [27]–[29]. In fact, Eveld argues that technical expertise may be the predominant qualification for some highly technical projects [30].

C. Phase of Project

Several studies indicate technical problems are more prevalent, and hence technical competence more important during certain phases of the project life cycle [7], [31]–[35]. Slevin and Pinto characterized the phases of the project life cycle to include: conceptualization, planning, execution, and termination. In a study involving more than 400 project managers they found technical competence as well as leadership, interpersonal competence, and administrative competence were most consequential to project success during the execution phase of the project. Smythe and McMullen drew comparable conclusions based on a study of Air Force project managers. This study characterized the phases of a project to include the conceptual phase, the validation phase, the development phase, the production phase, and the operation phase. Smythe and McMullen concluded that Air Force program managers needed an engineering background to perform effectively during the conceptual and validation phases of the acquisition project life cycle. Spitz also found scientific/technical expertise to be the most important skill during the earlier project phases. In this study the phases were defined to be: exploratory, trial, product development, and commercial. Spitz revealed that in-depth technical knowledge was the most important element of project leadership during the exploratory and trial phases of the project.

D. Caliber of Team

The literature appears to be divided regarding the relationship between the technical competence and the caliber of the project team. Several studies have suggested that the importance of technical competence decreases as the caliber of the project team improves. These studies rely on the premise that qualified project team members can and do bear the responsibility for solution of technical issues [32], [36]. Carter concluded that project managers could afford to be less knowledgeable about the technology involved in a project if the members of the project team could be relied upon to fill any personal void in technical expertise. This point is also reinforced by Stallworthy and Kharbanda who assert that successful project managers are primarily generalists, capable of dealing with many disciplines which may be involved on a project, but who rely on the support of technically qualified subordinates to handle the technical project issues [37].

On the other hand, the results of several studies imply the importance of technical competence increases as the technical caliber of the project team improves. To the extent that technical competence is important to facilitate communication with project team members in technical terms [10], it follows that as the technical expertise of the team becomes more specialized, the project manager must also develop a more specialized expertise. Additionally, it was previously noted that technical competence contributes to credibility and expert power [23], [24]. In Gemmill and Thamhain’s study involving 136 project personnel, expert power was ranked the number
one factor motivating subordinates to support the project managers [38]. It seems reasonable to conclude that the burden of establishing expert power will increase as the expertise of the project team increases. This point is reinforced by the results of a study conducted by Hodgetts in which 52% of the project managers in aerospace ranked technical competence as the most important method of establishing authority [39].

E. Current Importance in Defense Acquisition Management

The importance of technical competence in the defense acquisition community has recently been fueled by efforts to improve the acquisition workforce and the defense acquisition process. In 1991, the U.S. Congress passed the Defense Acquisition Workforce Improvement Act, which in part requires the Department of Defense (DoD) to manage the career development of program managers to ensure they receive the education, training, and experience required to perform effectively as program managers [40]. More recently, acquisition reform initiatives have been set in motion which hold the potential to reengineer the manner in which the defense acquisition community accomplishes its mission. Colleen Preston, the Deputy Under Secretary of Defense (Acquisition Reform) recently emphasized the challenges facing defense acquisition managers [41]:

...In order to meet the national security requirements of the post-Cold War world and comply with national domestic policy, we must be able to procure state-of-the-art technology and products, rapidly, from reliable suppliers who utilize the latest manufacturing and management techniques ...

Additionally, she suggests defense acquisition managers will need to aid in the transfer of military technology to the commercial sector [41]. These challenges underscore the importance of technical competence to program managers in the defense acquisition arena in post-Cold War America.

III. METHOD

A. Sample

Because a principal focus of this study was to determine the importance of technical competence to management of technical acquisition projects, the population surveyed in this study consisted of managers of technical acquisition projects, specifically, acquisition managers in the U.S. Air Force Aeronautical Systems Center. The Aeronautical Systems Center has been responsible for the development, production and delivery of almost every aircraft in the current inventory of the U.S. Air Force. The preponderance of this work is accomplished through contracts with defense contractors. Due to the mission of this organization, and as a result of the large variety of programs managed under the auspices of this organization, this sample includes project managers with varying degrees of education and experience who work in programs with various levels of technology, at various stages of the acquisition cycle and with a variety of project teams.

A proportionate stratified sample of the 800 acquisition project managers at the Aeronautical Systems Center was used for this study. The level of acquisition management responsibility was used as the basis for stratification. Specifically, 15 of the 800 officers available occupied senior acquisition manager positions, 315 filled intermediate-level positions, and 470 were assigned to junior-level acquisition management positions. Surveys were mailed to all 15 senior managers, and randomly to 132 of the intermediate level acquisition managers, and 197 of the junior officers. The managers satisfactorily completed and returned 228 surveys, yielding a 66% response rate.

B. Survey Instrument

An initial survey instrument was drafted based on the objectives of this study, the literature review and a brainstorming session conducted with four acquisition managers who were cognizant of the research objectives. This instrument was used in a pretest conducted with 23 graduate students who possessed prior experience as acquisition project managers. The pretest revealed several weaknesses in the survey instrument. First, the completion time was excessive. Second, some of the respondents experienced difficulty answering some of the questions. As a result, the survey was shortened and respondent feedback was used to reduce any perceived ambiguity in the survey questions. Additionally, the instructions were modified and sample responses were added to illustrate the desired response format. A follow-up pretest was administered to a subset of the initial pretest group. The results of this follow-up showed satisfactory improvement. Excerpts from the survey instrument are provided in Appendix A.

C. Research Questions

1) How important is technical competence to the acquisition project manager? Each respondent was asked to characterize the importance of technical competence to him or her as an acquisition manager (see Appendix A, question six). In an effort to achieve a common understanding of “technical competence” this construct was explicitly defined at the beginning of the survey instrument. Specifically, the term “technical competence” in this study denotes “the ability and capacity to understand and use technical information in managing projects and programs, particularly in regard to properly evaluating technical project issues, concepts, and solutions, and the consequences of related project/program actions and decisions.” This research question was answered using descriptive statistics (see Table I).

2) Does the perceived importance of technical competence vary as a function of the amount of experience possessed by each respondent? The survey responses regarding the importance of technical competence (described above) provided the response variable for this research question. The respondents were then partitioned into three groups based on the number of years of experience which they possessed in the conduct of DoD acquisition management. The number of years of experience used to define each group is derived from the professional development standards which were used by the Aeronautical Systems Center to distinguish between junior-, intermediate-, and senior-level managers (see Appendix A, question one; and Table I).
3) Does the perceived importance of technical competence vary as a function of the amount of technical education accomplished by each respondent? Again, the survey responses from question 1) provided the response variable for this research question. The respondents were partitioned into five groups based on the number of college credit hours which they believed contributed to their technical competence (see Appendix A, question three, and Table I).

4) Does the perceived importance of technical competence vary as a function of the maturity of technology associated with the project? As before, the survey responses to question 1) provided the response variable for this research question. The respondents were partitioned into three groups based on the maturity of the technology associated with their primary project or program (see Appendix A, question two; and Table I).

5) Does the perceived importance of technical competence vary as a function of the technical caliber of the project team? Once again, the survey responses obtained from question 1) provided the response variable for this research question. The respondents were partitioned into four groups according to each respondent’s characterization of the technical competence displayed by the project team members responsible for the technical aspects of the program (see Appendix A, question five; and Table I).

6) Does the perceived importance of technical competence vary as a function of the phase of the systems acquisition process? Each of the respondents was asked to rank-order the five phases of the acquisition process to indicate the relative importance of technical competence. The five phases of the acquisition life cycle were defined as: concept exploration and definition, demonstration and validation, engineering and manufacturing development, production and deployment, and operations and support (see Appendix A, question four). A summary of each research question to include the statistical tests employed, the hypotheses tested, and the conclusions drawn are provided in Table I.

C. Reliability and Validity of Survey Instrument

In this study, several actions were taken to ensure the reliability and validity of the survey instrument. The pretest supported efforts to provide concise, clearly defined and well-constructed questions. Every effort was made to include neutral words consistent with the shared vocabulary of the sample. A sponsor letter was included with the survey to underscore the importance of the research. The response structures were designed to provide an adequate and distinguishable set of response alternatives. Finally, every effort was made to ensure the instructions were clear and complete.

Additionally, two strategies were used to measure the internal consistency of the survey instrument. First, a test-retest was conducted with the pretest respondents to measure the stability of the instrument. Of the 23 initial pretest respondents, 19 participated in the retest. Two questions required the respondents to rank-order items on a list. The ranks provided by each respondent were compared and resulted in correlation coefficients of 0.81 and 0.86. Second, an alternative form of the survey instrument was developed which reversed the response scale for selected questions. One half of the sample completed the first version of the survey instrument. The second half of the sample completed the second version of the instrument. The distributions of responses to the selected questions for each version of the survey were nearly identical.

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**TABLE I**

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Statistical Test</th>
<th>Hypothesis</th>
<th>Groups</th>
<th>Conclusion</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>How important is the technical competence of the project manager to achieving project success?</td>
<td>None. Descriptive results only.</td>
<td>N/A</td>
<td>N/A</td>
<td>62% Rated TC absolutely essential or extremely important</td>
<td>N/A</td>
</tr>
<tr>
<td>Does the perceived importance of technical competence vary as a function of the experience level of the project managers surveyed?</td>
<td>Kruskal–Wallis test</td>
<td>All three samples are from identical populations</td>
<td>GP1 (&lt; 3 yr) N = 48 GP2 (3–8 yr) N = 91 GP3 (&gt; 8 yr) N = 88</td>
<td>Fail to reject. No difference between experience levels</td>
<td>0.2488</td>
</tr>
<tr>
<td>Does the perceived importance of technical competence vary as a function of the amount of technical education completed by the project managers surveyed?</td>
<td>Kruskal–Wallis test</td>
<td>All five samples are from identical populations</td>
<td>GP1 (&lt; 26 h) N = 32 GP2 (26–49 h) N = 36 GP3 (50–90 h) N = 59 GP4 (91–119 h) N = 39 GP5 (&gt; 120 h) N = 62</td>
<td>Reject null. Amount of technical education influences perceived importance</td>
<td>0.0115</td>
</tr>
<tr>
<td>Does the perceived importance of technical competence vary as a function of the level of technology associated with the project?</td>
<td>Kruskal–Wallis test</td>
<td>All three samples are from identical populations</td>
<td>GP1 (Exper.) N = 37 GP2 (State of Art) N = 149 GP3 (State of Prac.) N = 41</td>
<td>Fail to reject. No difference between levels of technology</td>
<td>0.1569</td>
</tr>
<tr>
<td>Does the perceived importance of technical competence vary as a function of the caliber of the project team?</td>
<td>Kruskal–Wallis test</td>
<td>All four samples are from identical populations</td>
<td>GP1 (Very Good) N = 67 GP2 (Pretty Good) N = 139 GP3 (So-So) N = 22 GP4 (Poor) N = 0</td>
<td>Reject null. Caliber of team influences perceived importance</td>
<td>0.0012</td>
</tr>
<tr>
<td>Does the perceived importance of technical competence vary as a function of the phase of the acquisition program?</td>
<td>Friedman test</td>
<td>There is no difference in ranks between phases</td>
<td>Phase 1: Concept def. Phase 2: Dem./Val. Phase 3: Engr. Dev. Phase 4: Production Phase 5: Operation</td>
<td>Reject null. Program phase influences perceived importance</td>
<td>0.0001</td>
</tr>
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IV. RESULTS

A. Perceived Importance of Technical Competence

As indicated in Fig. 1, a majority of the 228 acquisition managers who responded to the survey perceive technical competence to be a very important attribute of an effective acquisition project manager. Indeed 100 (43.86%) of the respondents indicated technical competence was extremely important. An additional 41 respondents (17.98%) indicated that technical competence was absolutely essential. These results clearly indicate that this sample of acquisition project managers regards technical competence to be important.

B. Influence of Experience

The percent of respondents in each of the three experience groups who indicated that technical competence was either extremely important or absolutely essential is shown in Fig. 2. The statistical tests confirm there was no difference in the perceived importance of technical competence between groups of project managers who possess different levels of experience ($\alpha = 0.05$). This result is noteworthy because it is frequently assumed that as managers progress to higher levels in the organization, general managerial skills become more important and technical competence becomes less important. While this study does not compare the relative importance of managerial and technical competencies, this study does indicate that the perceived importance of technical competence does not appear to diminish as managers gain experience.

C. Influence of Education of Project Manager

Generally, those respondents who obtained more technical education perceived technical competence to be more important than those who completed fewer college credit hours which contribute to technical competence ($p = 0.0115$).

The descriptive results presented in Fig. 3 illustrate this point. Of those respondents with 120 or more credit hours which contributed to their technical competence ($n = 62$), over 70% indicated that technical competence was extremely important or absolutely essential, whereas only 50% of the respondents with less than 25 credit hours of technical courses ($n = 32$) indicated that technical competence was extremely important or absolutely essential.

D. Influence of Maturity of Technology

The results of this study indicate that there is not a statistically significant difference in the perceived importance of technical competence between groups of acquisition managers involved with experimental technology programs, state-of-the-art technology programs, or state-of-the-practice technology programs ($\alpha = 0.05$). We must therefore conclude that technical competence remains important regardless of the level of technology associated with a given program. These results are illustrated in Fig. 4.
E. Influence of Caliber of Project Team

There is a statistically significant difference in the perceived importance of technical competence based on the caliber of the project team ($p = 0.0012$). Technical competence was perceived to be more important to managers with teams which possessed high (extremely good) technical competence, and also to managers with teams which possessed low (so-so) technical competence. These results are illustrated in Fig. 5.

Note that over 70% of those project managers with both extremely competent teams and so-so teams indicated that technical competence was extremely important or absolutely essential, whereas only 54% of the respondents with reasonably good project teams rated technical competence as extremely important or absolutely essential. The literature has suggested that one of the reasons technical competence is important to managers is to establish credibility with the technical members of the project team. This study seems to support this premise. With respect to the mediocre teams, technical competence may be important because in these situations it is incumbent upon the project manager to compensate for team weaknesses. If a project manager is highly competent in technical matters, he or she may be able to effectively and successfully influence project outcomes despite the technical limitations of the project team.

F. Influence of Program Phase

This study determined there is a statistically significant difference in the perceived importance of technical competence between phases of the acquisition cycle ($p = 0.0001$). In fact, subsequent pairwise comparisons indicated there were statistically significant differences ($\alpha = 0.05$) between each phase.

The mean ranks associated with each phase of the acquisition process are presented in Fig. 6. This figure indicates the survey respondents perceived technical competence to be most important during the demonstration and validation phase. During this phase, the focus of most programs is to demonstrate that the emerging technology can be feasibly integrated into a system and that significant technical risks can be identified and mitigated. It is reasonable to conclude that technical competence would be most important during this phase. As a program progresses during the remaining phases of the program, management attention frequently shifts from the issues of technical feasibility and risk to issues related to production, deployment, and eventually the support of operations. Additionally, it should also be noted that the first phase, concept exploration frequently culminates in system concepts as reported through analyses and studies. Perhaps the nature of the product of these efforts explains why the respondents indicated that technical competence was more important during demonstration and validation.

V. CONCLUSION

The implications of this study primarily impact project manager selection, assignment, and training. A majority of respondents in the sample, regardless of personal or situational factors indicated technical competence is extremely important or absolutely essential. This result suggests that individuals selected to serve as project managers in the defense acquisition management environment should possess technical competence. If the individuals selected to manage projects in this environment lack technical competence, the organization should provide some vehicle to develop the technical competence of the project managers. This finding offers modest validation of recent legislation which aims to ensure the professional development of key individuals in the defense acquisition community through training, education, and experience.

Perhaps the most important contribution of this study stems from the analysis of the role which situational factors play in shaping program manager perceptions regarding the importance of technical competence. While technical importance was widely perceived to be extremely important, the perceived importance varies for two of the situational factors studied: phase of program and caliber of project team. These results suggest that acquisition organizations should consider the phase of the program and the caliber of the project team when assigning a project manager to a project. Those project managers with the strongest technical backgrounds should be assigned to projects which are demonstrating and validating technology. Likewise, the project managers with the strongest technical backgrounds should be assigned to the project teams with particularly competent or weak technical specialists. It is also noteworthy that the perceived importance
of technical competence did not vary between senior program managers and junior program managers. While previous studies have suggested that senior program managers should be "generalists" rather than "specialists" this study indicates the preponderance of senior program managers reported that technical competence was extremely important to them as acquisition managers. As the program managers in the defense acquisition arena embrace the technological challenges of the post-Cold War era, the selection, assignment, and development of technically competent program managers will remain a critical issue.

Despite these findings, this study has only taken preliminary steps in an important stream of research. This study has descriptively addressed the perceived importance of technical competence, and the manner in which situational and personal factors influence this perceived importance. This study has determined that program managers in the defense acquisition environment indeed perceive technical competence to be extremely important. Upon this foundation, future research should next pursue prescriptive studies which develop and validate methods to directly measure technical competence. Additionally, future efforts should be conducted to directly determine the relationship between technical competence and project success. Since the findings of this research also suggest that situational factors such as program phase and the caliber of the project team may influence the importance of technical competence, these future studies should address these situational factors in models which relate technical competence to project success. Also, future efforts should examine methods to develop the technical competence of project managers to determine which methods are most effective and economical. Finally, this study should be repeated in alternative industrial settings to determine if the results apply across the broad spectrum of project management domains, or if the alternative settings influence the perceived importance of technical competence.

APPENDIX A

EXCERPT FROM A SURVEY INSTRUMENT

1) Indicate the number of years of experience you have in DoD acquisition.
   a) Three years or less.
   b) More than three to less than eight years.
   c) Eight years or more.

2) Select the response most indicative of the technology involved in your project(s).
   a) Experimental—evolutionary ... at the frontier of scientific knowledge ... aspects, tools, and techniques have been demonstrated in lab environments or only simulated.
   b) State-of-the-art—used, demonstrated, supported, and available, but only through a limited number of sources (i.e., industries).
   c) State-of-the-practice technology—in general use, well understood and characterized by a long record of use in industry.

3) Select the response which best reflects the number of credit hours (undergraduate and graduate) you have in subjects which directly contributed to your technical competence.
   a) 25 credit hours or less.
   b) > 25 but < 50 credit hours.
   c) 50–90 credit hours.
   d) > 90 but < 120 credit hours.
   e) 120 or more credit hours.

4) Recall the phases in the acquisition process as outlined in DoD Directive 5000.1. Based upon your experience, RANK the acquisition phases below in the order which indicates when technical competence is most important. Use a 1–5 scale (1—technical competence is MOST important during this phase, 5—technical competence is LEAST important during this phase) and use each rank only ONCE.
   a) Concept exploration and definition.
   b) Demonstration and validation.
   c) Engineering and manufacturing development.
   d) Production and deployment.
   e) Operations and support.

5) Select the description most indicative of the technical competence displayed by project team members you work with who are responsible for technical aspects of the project.
   a) Extremely good—they completely understand the technologies involved in the project, always deal effectively with the technical problems, and keep me on top of the technical issues.
   b) Reasonably good—they usually understand the technologies involved in the project, generally deal effectively with technical problems, and usually keep me out of trouble on technical issues.
   c) So-so—with some luck the team can grasp the basics of the technology involved, and can get the project through some technical problems with effort, but overall they do not demonstrate a level of expertise which makes me comfortable with their decisions.
   d) Poor—clueless most of the time ... they lack the needed technical competence and for all the help they provide, I might as well be the project team.
   e) Of no importance, can manage effectively without it.

6) Based on your cumulative experience, indicate how important technical competence is to you as an acquisition manager.
   a) Absolutely essential, cannot effectively manage without it.
   b) Extremely important, frequently makes the difference in my ability to manage.
   c) Useful, occasionally significant to my ability to manage.
   d) Not very important, rarely consequential to my ability to manage.
   e) Of no importance, can manage effectively without it.
REFERENCES


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