

Availability-Impact Analysis of Project Management Trends: Perspectives From Allied Disciplines

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ABSTRACT ■

The goal of this research was to analyze current and future trends of the allied management disciplines that influence project management. We asked academicians and practitioners about the availability of knowledge and the potential impact of allied disciplines on project management. We were able to assess where the allied disciplines currently stand in terms of availability and impact as well as make predictions about the future. The thoughts and visions collected from this research provide valuable insights for identifying trends in the allied disciplines and their impact on the future of project management, as well as opportunities, challenges, and obstacles.

KEYWORDS: project management; allied disciplines; trends analysis; survey analysis

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INTRODUCTION ■

Researchers and practitioners have been adapting different academic disciplines to contribute to the body of knowledge in project management. From the management science field, network scheduling techniques, program evaluation and review technique (PERT) applications (Miller, 1962), critical path method (CPM) computations (Crowston & Thompson, 1967), decision-making tools (Kunreuther, 1969), resource allocation problems (Schussel & Price, 1970; Zangwill, 1966), optimization approaches (Charnes & Cooper, 1957), and computer applications (Hoffman, 1982; Maxfield, 1981; Vazsonyi, 1982; Wasil & Assad, 1988) are some of the examples of theory adopted in project management. More recently, risk and uncertainty management (Dillon, Paté-Cornell, & Guikema, 2003; Gustafsson & Salo, 2005; Gutierrez & Paul, 2000) were highlighted. These topics and the application of decision sciences and risk management gained strong interest in the project management community.

Organizational dynamics theories provided insights by discussing the project manager (Gaddis, 1959), research and development (R&D) project applications (Roman, 1964), project organization (Middleton, 1967), project control (Howell, 1968), and project leadership (Hodgetts, 1968). More recently, subjects on the benefits of project-driven organizations have been recognized by presenting papers on virtual teams (Cascio, 2000; Karl, 1999; Malhotra, Majchrzak, & Benson, 2007; Townsend, DeMarie, & Hendrickson, 1998), and team-based organizational performance (Cianni & Wnuck, 1997; Forrester & Drexler, 1999; Scott & Einstein, 2001).

Strategic alignment with project objectives (Bunch, 2003; Gottschalg & Zollo, 2007; Miles, Snow, Mathews, Miles, & Coleman, 1997), project management implementation to new product development projects (Northcraft & Wolf, 1984), and several strategic and practical applications approaches were developed to adopt allied disciplines to project management (Gerwin, 2004; Gerwin & Ferris, 2004; Jassawalla & Sashittal, 2002; Kessler & Bierly, 2001; Leifer, O'Connor, & Rice, 2001; Li, Bingham, & Umphress, 2007). Case studies such as the Sydney Olympics (Pitsis, Clegg, Marosszeky, & Rura-Polley, 2003), research-oriented organizations (O'Connor, Rice, Peters, & Veryzer, 2003), and systems development teams (Kirsch, 1996) aimed to better understand the significance of organizational alignment with project objectives.

Allied disciplines have influenced project management, and in return it influenced them. Therefore, innovative theories, trends, and challenges learned from investigating allied disciplines of project management could have important implications for the future of project management. To clarify

the importance of project management as a theoretical and practical management discipline, we addressed the following questions:

- What future trends in the allied disciplines might significantly impact project management?
- How would the allied disciplines' trends change project management?
- How would project managers have to change their mind-set because of the allied disciplines' trends impact?
- How do we behave proactively to meet challenges of trends in the allied disciplines?

Research Objectives and Methodology

Previous research analyzed trends of various disciplines including operations research and management science (Corbett & Van Wassenhove, 1993; Ormerod & Kiossis, 1997; Reisman & Kirschnick, 1994), production and operations management (Barman, Hanna, & LaForge, 2001; Barman, Tersine, & Buckley, 1991; Goh, Holsapple, Johnson, & Tanner, 1997; Olson, 2005; Prasad & Babbar, 2000; Soteriou, Hadjinicola, & Patsia, 1999; Vokura, 1996), decision analysis (Keefer, Kirkwood, & Corner, 2004), technology management (Liao, 2005; Linton & Thongpapanl, 2004; Merino, Pereira do Carmo, & Alvarez, 2006; Reisman, 1994), and project management (Anbari, Bredillet, & Turner, 2008; Artto, Martinsuo, Gemunden, & Murtoaro, 2009; Artto & Wikström, 2005; Betts & Lansley, 1995; Bredillet, 2002, 2006; Crawford, Pollack, & England, 2006; Kloppenborg & Opfer, 2002; Kwak & Anbari, 2008a, 2008b; Söderlund, 2004; Themistocleous & Wearne, 2000). It is important to note that research publications on project management in top academic management journals as well as in project management-specific journals have been increasing substantially since the 1950s, and it is expected that this strong upward trend will continue in the future (Kwak & Anbari, in press).

We designed and administered a survey to the project management community

to collect data about the availability of knowledge and information regarding the allied disciplines and their impact on project management in the present and the future. We also collected data on thoughts and opinions on the impact, trends, and future of project management. The goal of this research was to analyze current and future trends of the allied disciplines that influence project management. To do so, the following points were addressed and examined.

- *Find and plot the current and future availability-impact relationships of allied disciplines related to project management.* For each allied discipline, we developed a 2×2 matrix: On the horizontal (X) axis, we showed the availability of knowledge and information, and on the vertical (Y) axis, we showed the impact of each allied discipline on project management. The results were plotted for each allied discipline.
- *Identify how the allied disciplines' trends change project management.* Project management practitioners and researchers were surveyed on project management trends.
- *Conduct a structured survey of how the project management community needs to look forward at the allied disciplines' trends, and how that will improve the understanding of what kind of mind-set project managers should have or develop.* Based on extensive analysis of the survey results of the project management community and evaluation of experts' subjective judgment, we identified how the project management community as a whole could respond and meet the opportunities and challenges that lie ahead in the future. The research team incorporated all the reviews and recommendations and compiled proactive response strategies toward these macro trends that are happening now and are expected to happen in the future.

Research Approach

We conducted a survey to collect academicians' and practitioners' perceptions

of the trends, impact, and challenges relevant to project management. We asked the respondents to reflect on their best understanding of the availability and impact of research in the allied disciplines on project management applications at present and in the future (Kwak & Anbari, 2008b).

We reviewed major themes and prior works on project management research and identified eight broad allied disciplines to organize research publications related to the project management field and to gain better understanding of trends in project management-related research in these disciplines (Kwak & Anbari, 2008a, in press). We believe that the following eight categories represent the allied disciplines where one can find project management research:

1. *Operations Research/Decision Sciences/ Operation Management/ Supply-Chain Management (OR/DS/OM/SCM)* refers to the discipline associated with quantitative decision analysis and management principles, including various optimization tools and techniques, network analysis, resource leveling, simulation, and so on.
2. *Organizational Behavior/Human Resource Management (OB/HR)* refers to the discipline associated with organizational structure, organizational dynamics, motivation, leadership, conflict management, and so on.
3. *Information Technology/Information Systems (IT/IS)* refers to the discipline associated with the use of computers and computer systems to process, transmit, store, and retrieve information for better management decisions.
4. *Technology Applications/Innovation/ New Product Development/Research and Development (TECH/INNOV/ NPD/R&D)* refers to the discipline associated with the concepts of making innovative and technological improvements and the research and development of entirely new products, services, and processes.
5. *Engineering and Construction/ Contracts/Legal Aspects/Expert Witness*

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(*EC/CONTRACT/LEGAL*) refers to the discipline associated with the use and application of a broad range of professional expertise to resolve issues related to engineering and construction, contracts, expert witness, and their legal implications.

6. *Strategy/Integration/Portfolio Management/Value of Project Management/Marketing (STRATEGY/PPM)* refers to the concepts of organizing and managing resources to maximize profit, minimize cost, and support the overall strategy of the organization.
7. *Performance Management/Earned Value Management/Project Finance and Accounting (PERFORM/EVM)* refers to the concepts and techniques that measure project progress objectively by combining measurements of technical performance, schedule performance, and cost performance.
8. *Quality Management/Six Sigma/Process Improvement (QM/6SIGMA/PI)* refers to the concepts of improving processes, minimizing defects, and reducing cost by implementing continual improvement principles and specific measures and metrics.

In our survey questionnaire, we described each of the eight allied disciplines just identified and asked respondents to rank the impact on project management and the availability of information/knowledge/research for each discipline on a scale from 1 (*low*) to 7 (*high*) in the past, present, and future. We asked respondents open-ended questions dealing with trends of the allied disciplines and their potential impact on project management, as well as how the project management community should change its mind-set in response to trends of the allied disciplines in the future. These important questions were intended to collect and analyze respondents' views of trends in the allied disciplines and their impact on project management in the past, as well as their predictions for the future of project management. We also asked questions about respondents' demographics

concerning their education, work experience, and occupation (Kwak & Anbari, 2008b).

We narrowed the survey participants to focused groups who are part of the project management community either as practitioners, consultants, scholars, or other professionals working in the project management environment. We were able to collect usable responses to the structured survey questions as well as rich, qualitative information and opinions from participants by asking open-ended questions regarding the trends and future of project management and its allied disciplines.

We also conducted face-to-face and telephone in-depth interviews to collect thoughts from project management scholars and practitioners concerning trends in the allied disciplines and their potential impact on the future of project management. The thoughts collected in the survey of the project management community and the interviews provided valuable insights for identifying trends in the allied disciplines and their impact on the future of project management, as well as the opportunities, challenges, and obstacles that are likely to persist or materialize in the future.

Survey Respondents' Demographics

Overall, we received 82 responses over a period of 5 months. Approximately 98% of the respondents had earned a bachelor's

degree or higher. Bachelor's degree holders were 32%, master's degree holders were 50%, and doctoral degree holders were 16% of the respondents. Table 1 shows the distribution in detail. We asked respondents about the years of their work experience. Almost 90% worked for more than 5 years in the project management field, and among them about 46% worked for more than 20 years. Table 2 summarizes respondents' years of experience. The respondents' occupations were diverse yet focused on the project management field. Twelve percent were academic scholars, 11% were project management graduate students, 44% were project management practitioners, and 16% were project management consultants/trainers. Others included federal government capital planning specialists, engineers, program analysts, and project directors. Table 3 summarizes the distribution of respondents' occupations. To summarize, project management practitioners with a master's degree who have 20 years or more of experience are the ones that best represent the respondents.

Survey Results and Analysis

We asked about the availability of knowledge (articles, literature, and experts) and the potential impact of allied disciplines related to project management. We were able to assess where the allied disciplines currently stand in terms of availability and impact as well as make meaningful predictions about the future. We used a 1

Education	Response %	Response Count
High school degree	1.2	1
Two-year associate's degree	1.2	1
Four-year bachelor's degree	31.7	26
Master's degree	50	41
Doctoral degree	15.9	13
Total	100	82

Table 1: Respondents' education.

Years of Work Experience	Response %	Response Count
Less than 2 years	4.9	4
2 to 5 years	7.3	6
6 to 10 years	11.0	9
11 to 15 years	15.9	13
16 to 20 years	14.6	12
More than 20 years	46.3	38
Total	100	82

Table 2: Respondents' years of work experiences.

Occupation	Response %	Response Count
Academicians (professor or researcher)	12.2	10
Student	11.0	9
PM practitioner	43.9	36
Consultant/Trainer	15.9	13
Other (please specify)	17.1	14
Total	100	82

Table 3: Respondents' occupations.

Low Availability	High Availability
High Impact	High Impact
Low Availability	High Availability
Low Impact	Low Impact

Table 4: Availability-impact matrix.

to 7 Likert scale to capture the respondents' assessment. Then we used a 2×2 matrix to understand where each allied discipline currently stands relative to other disciplines. We summarized the results so that each quadrant has either low or high availability and impact. Table 4 shows the four quadrants we used to portray the results. Based on the responses, we plotted the eight disciplines relative to each other using this availability-impact scheme. Table 5 shows the current trends of allied disciplines as they relate to project management.

OB/HR, TECH/INNOV/NPD/R&D, STRATEGY/PPM, and OR/DS/OM/SCM were the four disciplines that respondents

perceived as low on availability of related knowledge and low on impact related to project management. This could be interpreted as these four disciplines still have potential for more research (availability) and could have potential for greater influence (impact) in the future. There was no discipline in the low-availability, high-impact quadrant. PERFORM/EVM and EC/CONTRACT/LEGAL were the two areas that respondents perceived as high in availability of related knowledge but low on impact related to project management. This could be interpreted as there is

plenty of related information available currently, but the impact on project management is low. QM/6SIGMA/PI and IT/IS were the two areas that were in the high-availability, high-impact quadrant. This could be interpreted as these two areas are the hot fields in project management currently.

We then plotted the eight allied disciplines relative to each other to visualize the future trends of allied disciplines in project management (Table 6). OB/HR, TECH/INNOV/NPD/R&D, and EC/CONTRACT/LEGAL were the three disciplines that respondents predict to be low on availability of related knowledge and low on impact related to project management in the future. There was no discipline that was in the low-availability, high-impact quadrant. OR/DS/OM/SCM was the area that respondents predicted to be high in availability of related knowledge but low on impact related to project management in the future. PERFORM/EVM, QM/6SIGMA/PI, STRATEGY/PPM, and IT/IS were the four areas in the high-availability, high-impact quadrant.

By carefully analyzing Table 6, we observe that the project management community expects that in the future (1) IT/IS and OB/HRM will have substantially more impact than availability of knowledge, (2) TECH/INNOV/NPD/R&D, STRATEGY/PPM, PERFORM/EVM, QM/6SIGMA/PI, and OR/DS/OM/SCM will have somewhat more impact than availability of knowledge, and (3) EC/CONTRACT/LEGAL will have substantially more availability of knowledge than impact on project

Low Availability, High Impact None	High Availability, High Impact QM/6SIGMA/PI IT/IS
Low Availability, Low Impact OB/HR TECH/INNOV/NPD/R&D STRATEGY/PPM OR/DS/OM/SCM	High Availability, Low Impact PERFORM/EVM EC/CONTRACT/LEGAL

Table 5: Current trends of availability-impact matrix.

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Low Availability, High Impact None	High Availability, High Impact PERFORM/EVM QM/6SIGMA/PI STRATEGY/PPM IT/IS
Low Availability, Low Impact OB/HR TECH/INNOV/NPD/R&D EC/CONTRACT/LEGAL	High Availability, Low Impact OR/DS/OM/SCM

Table 6: Future trends of availability-impact matrix.

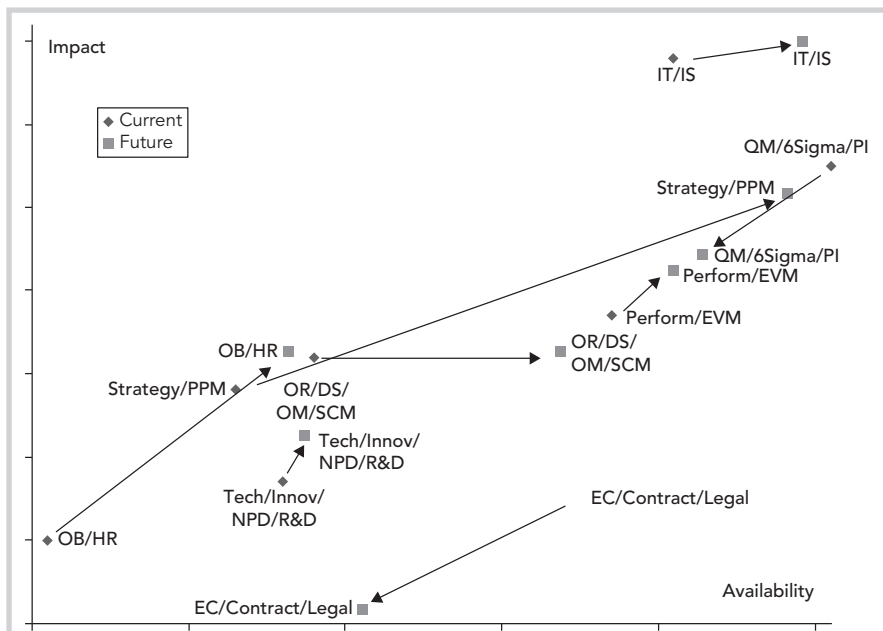


Figure 1: Future opportunities of allied disciplines in project management.

management. These observations indicate that in general, there will be more impact than availability of knowledge, calling for further research and dissemination of knowledge in most of the allied disciplines. The observations also highlight areas that are particularly expected to have more impact than availability of knowledge from the perspective of the project management community.

Analysis of the data clearly shows that all eight disciplines have an upward trend in terms of the availability and impact starting in the 1960s and into the future. However, there are inherent limitations on analyzing and forecasting

the future of the eight disciplines related to project management. Realizing that the values of current and future of the eight disciplines related to project management are simply relative to each other, we normalized the two sets of data (current and future) and overlapped the plots of current and future of the eight disciplines to visualize the trends and opportunities of the eight disciplines in the future, as shown in Figure 1. This analysis provides us with clear and meaningful information to highlight research opportunities and impact of the allied disciplines as shown in Table 7.

The analysis indicates that STRATEGY/PPM, OB/HR, IT/IS, PERFORM/EVM, and TECH/INNOV/NPD/R&D would have more availability in knowledge and information and have greater impact in the future. EC/CONTRACT/LEGAL and QM/6SIGMA/PI would have less availability in knowledge and information and have less impact in the future. OR/DS/OM/SCM would have more availability in knowledge and information, but the impact will remain the same in the future. It is interesting to note that except for OR/DS/OM/SCM, current research availability associates strongly with the impact of allied disciplines on project management in the future. This shows that research being published in various outlets may be setting the trends of impact on project management and its allied disciplines in the future.

Thoughts From Project Management Scholars and Practitioners

We conducted in-depth interviews to collect thoughts from project management scholars and practitioners concerning trends in the allied disciplines and their potential impact on the future of project management. The thoughts collected from interviews provide valuable insights in identifying trends in the allied disciplines and their impact on the future of project management, as well as the opportunities, challenges, and obstacles that are likely to persist or materialize in the future. Some of these thoughts are presented in the sections that follow.

Thoughts From Scholar A

The impact of decision sciences on project management was high until the 1960s. Project management had its genesis in operations research in the 1960s. However, since the 1970s the relative importance, knowledge, and research in this area have been decreasing. Research in HR on project management started in the 1970s and has been growing since then. The EVM impact on project management was low in the

Allied Disciplines	Availability		Impact	
	Current	Future	Current	Future
OR/DS/OM/SCM	Low	High	Low	Low
OB/HR	Low	High	Low	High
IT/IS	Low	High	Low	High
TECH/INNOV/NPD/R&D	Low	High	Low	High
EC/CONTRACT/LEGAL	High	Low	High	Low
STRATEGY/PPM	Low	High	Low	High
PERFORM/EVM	Low	High	Low	High
QM/6SIGMA/PI	High	Low	High	Low

Table 7: Future trends of allied disciplines in project management.

1970s and 1980s but has been growing since then. Innovation within project management was not strong in the 1970s, because project management was basically used as a tool for the measurement of innovation. Innovation and R&D are not hugely impacted by project management. The impact prior to the 1980s was low because project management was associated with construction. IT and innovation/R&D impact on project management started in the early 1960s when IBM used project management in the development of its products. However, an appreciable growth in the impact of innovation/R&D on project management was witnessed from the 1980s. In the late 1980s, the impact of organizational strategy on project management was low but has shown an appreciable increase in the late 1990s and now. Quality was low until the early 1980s and has been growing since then. In the future, project management will be more sophisticated in that it will become less task-focused and more people-focused. Project management needs to be recognized in the management faculty and accorded an equal status with other traditional management science disciplines. To do so, project management professionals and academic communities need to sell themselves better.

Thoughts From Scholar B

If the word gets out about research in project management, then it would not

be long before project management is established as an area in management science, such as happened in stochastic modeling, which emerged as a quite relevant set of topics and areas in the last 10 to 15 years. If researchers become aware of the type of problems that arise in project management, then there will probably be more interest in the academic community. The question is whether researchers in operations management have recognized problems in project management. There is as much potential for developing new theories in project management, as has been seen in other focus areas.

Thoughts From Scholar C

There are very interesting developments in project management by comparison to traditional management. Based on an industrial economy, we traditionally think in terms of managing a big, costly factory with yearly model changes, or managing a hotel, or managing a facility, and so on. However, products are becoming obsolete faster. So, we find that we need to construct a new factory, a new building, satellites, network towers, an enterprise resource planning system, and other change projects. Writing an article is a smaller project. For companies, it is a larger model of management replacing traditional management. Software can be a great aid to project management to help with coordination. It is nice to have technology available. Projects are becoming an electronic era phenomenon.

Thomas Friedman, in *The World Is Flat* (2005), speaks of a platform and discusses globalization of countries (1492–1800), companies (1800–2000), and individuals (2000 and beyond). This involves the Internet, outsourcing, and collaboration beyond the boundaries of the organization. Academic globalization is allowing scholars to collaborate on a variety of projects. The academic world is undergoing interesting changes. IT/IS is a preamble, and we are now starting to utilize it. Once software is developed, people around the world can start using it. More and more people get involved and they create a new world. We are just beginning to use this platform and have not thought through various implications. We need to keep these huge changes in mind. Projects are a new direction from the manufacturing perspective of management. Increasing use of English flattens the world and enhances collaboration among multinational teams in projects. There is an ideological shift dissolving political, government, union, and other differences for greater economic prosperity.

Thoughts From Practitioner A

Project management has always been a product of operations research, and operations research has waned in recent times. Performance measurement and Six Sigma are important tools in project management. Six Sigma is important; however, it is all about getting the right measurement of the process. It has gone somewhat too far, such that government and the private sector have gone measurement-crazy. Portfolio/program management will become more important in the future. The next generation of project managers will have more profound project management experience and probably portfolio management experience. Integrative skill is a very good skill that needs to be developed by all project and portfolio managers. The ability to integrate all the facets of a project or group of projects to ascertain their

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cross-impact is a much-needed skill among project/portfolio managers. Project management is highly strategic because it has always been a means to an end and not an end itself, so the output of a project is the starting point for achieving the outcome of a business and the outcome is basically what is strategic. Once a corporate strategy has been determined, project/program management is the best tool to help organizations gain some kind of discipline in the achievement of its strategic objectives.

For any organization to survive, there must be a value that is represented at all levels of the organization. In the future, there will be more organizations striving to be more ethical. There will be more corporate social responsibility, all of which will have an impact on the nature of projects. As project management becomes more of the transformational way of moving forward, ethics and corporate social responsibility will be integrated in all facets of project management practice.

Thoughts From Practitioner B

It is going to be a project-based world in the future to respond to increasing complexity, requirements for accountability, globalization, and the need for talent and competence. The project management discipline is needed to deal with challenges in a more complex, uncertain world. Project management is the next stage of management and leadership to meet the demands for efficiency and successful outcomes. It is difficult to think of aspects of management that do not need project management. The world is very different, and projects are very different. Knowledge and skills need to be adapted to grow the project management field effectively. Theory and practice need to adapt to provide the next generation of leadership and management. There are complex, multidirectional forces that shape government, industry, and universities. Project management

needs to keep evolving and adapting—not deterred and not locked in.

Future Trends and Implications of Project Management

Trends of Allied Disciplines and Impact on the Future of Project Management

More and more organizations are embracing project management practices and incorporating the allied disciplines into these practices to resolve complex management issues. Allied disciplines are becoming more sophisticated in their theories, tools, and applications and will continue to add value to project management concepts, theories, and applications. More collaboration among allied disciplines and project management will happen due to the proven efficiency and effectiveness of various disciplines. Project management and allied disciplines will continue to make recognizable contributions to the management community. Eventually, project management will be the language of good management practice as accounting is the language of business.

The availability of research in project management and its allied disciplines has exploded over the last 20 years. OB/HR is a critical discipline in the project management world. So much of what organizations do is managing internal and external business and human resources and relationships. Fundamentally, project management today is more about people management than about task orientation. However, this trend of shifting from OR/DS/OM/SCM to OB/HR has possibly reached its peak. IT/IS will continue to provide enhanced tools for project management and will have a high impact in the future. As the IT/IS discipline matures, project management tools and techniques will continue to become available to general users, which makes it easier to implement project management principles.

PERFORM/EVM and related methods for measuring project performance will grow rapidly, particularly due

to governmental regulations requiring systematic cost/schedule evaluation in managing government projects. Relevant metrics in all of the allied disciplines and measurement activities will be critical to the performance of management, which will lead to enhanced probability of project success in the global economy.

STRATEGY/PPM and QM/6SIGMA/PI should have a growing impact on project management, as business strategies are developed and qualities are measured and analyzed to plan and implement effective project management. For many organizations, the biggest gains they see come from adapting and implementing STRATEGY/PPM and QM/6SIGMA/PI.

TECH/INNOV/NPD/R&D and PERFORM/EVM are poised to make major breakthroughs, given the recent organizational interest and institutional determination on achieving project success. OR/DS/OM/SCM, PERFORM/EVM, IT/IS, and TECH/INNOV/NPD/R&D will work together to deliver tools and techniques to allow the “science” of planning, scheduling, and cost control to function in a real project-delivery environment.

In the future, project management as a discipline will be getting closer to the general management and organization theory fields because project management needs the theoretical advances that exist within these fields, and because management and organizational theory need project management, as projects are becoming an integral part of modern management in a number of industries and sectors. The trends of the allied disciplines and their potential impact on project management will depend on the successful integration of organizational strategies. In other words, if organizations embrace the alignment of allied disciplines and project management, then the impact on project management will be fully recognized, and project management should become an integral component of mainstream management thought and

practice. Obviously, the allied disciplines will bring great value to project management as the interdisciplinary concepts and practices become more widely used and understood by practicing project managers and by operational, general, and executive management.

Project Management Community's Mind-Set and the Trends of Allied Disciplines

Project management should strengthen its theoretical and philosophical foundations to include ideas in the sociological, cultural, political, and ethical realms. The project management community should be engaged in adapting new ideas and changes and look at how social networks and collaborative thinking work in project management. The project management community must understand that the allied disciplines are needed and must embrace and apply them as part of project management. To do so, the project management community should be engaged in acquiring knowledge and participating in major activities of the allied disciplines to better understand the emerging and promising practices for future project endeavors. Project management should never forget the human aspects such as trust, teamwork, and pride.

Trends and strategies will continue to evolve as project management becomes the norm. It will be an ever-changing field where highly skilled, multifaceted project managers will be in high demand. To ensure that project management flourishes, there is a need for conducting research, asking questions, and developing intellectual resources. Project management needs to revamp itself. The mind-set should move toward a collaborative attitude rather than being separate from all others. Each of the allied disciplines should be respected for its knowledge, expertise, and wisdom. The role of project management should be viewed as the focal point of information gathering and dissemination to other areas of

related disciplines. The emerging generation of project management researchers has a very open mind-set to the integration of knowledge from allied fields. The project management community should focus on enhancing its capabilities in both the hard and soft disciplines. It should embrace all research that improves the interaction of people to people, people to technology, and technology to technology.

Project management practitioners and researchers need to increase their leadership and presence in industry through continued education and information sharing. They should lead the way in driving the implementation of business strategies with knowledge of STRATEGY/PPM and QM/6Sigma/PI as well as better understanding of behavioral issues and complexity of the project world. An open mind-set is particularly needed. The project management profession is continuously evolving, so the project management community should be receptive to new ideas, and also be sensitive to the yearning of the public and professional community so as to model project management practices to meet their expectations. The best suggestion we can make is to aggressively educate more business professionals on project management as a discipline.

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