

**A MUDANÇA DO PAPEL DE LIDERANÇA DE EQUIPES EM AMBIENTES EM  
PROJETO MULTINACIONAL**

**THE CHANGING ROLE OF TEAM LEADERSHIP IN MULTINATIONAL PROJECT  
ENVIRONMENTS**

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## A MUDANÇA DO PAPEL DE LIDERANÇA DE EQUIPES EM AMBIENTES EM PROJETO MULTINACIONAL

### RESUMO

As influências do ambiente de negócios e estilo de liderança no desempenho da equipe são examinados em um estudo de campo de 37 projetos de base tecnológica. Os resultados fornecem insights sobre o ambiente de negócios em constante mudança, assim como o estilo de liderança e as condições organizacionais mais propícias para o desempenho do projeto alta em complexos ambientes de projetos multinacionais. Um dos achados mais marcante é o grande número de factores de desempenho associadas com a face humana. Condições organizacionais que satisfaçam as necessidades pessoais e profissionais parecem ter um forte efeito sobre a colaboração, compromisso, gestão de risco, e em última análise, o desempenho da equipe em geral. O documento fornece uma estrutura para avaliar a eficácia da liderança e sugere condições favoráveis para a construção e gestão de equipes de alto desempenho em projetos complexos, globalmente dispersos ambientes de projeto.

**Palavras-chave:** Liderança de Equipe; Trabalho em Equipe; Gestão de Projetos; Tecnologia; Desempenho do Projeto; Multinacional; Equipes Dispersas Geograficamente; Complexidade.

## THE CHANGING ROLE OF TEAM LEADERSHIP IN MULTINATIONAL PROJECT ENVIRONMENTS

### ABSTRACT

The influences of business environment and leadership style on team performance are examined in a field study of 37 technology-based projects. The findings provide insight into the changing business environment, as well as the leadership style and organizational conditions most conducive to high project performance in complex multinational project environments. One of the most striking finding is the large number of performance factors associated with the human side. Organizational conditions that satisfy personal and professional needs seem to have a strong effect on collaboration, commitment, risk management, and ultimately overall team performance. The paper provides a framework for assessing leadership effectiveness and suggests conditions favorable for building and managing high-performance project teams in complex, globally dispersed project environments.

**Keywords:** Team Leadership; Teamwork; Project Management; Technology; Project Performance; Multinational; Geographically Dispersed Teams; Complexity.

## 1 INTRODUCTION

There is no argument, effective teamwork is critical to project success, but it is also difficult to manage. Teams, even in their most basic form, must function dynamically in multidisciplinary environments, interconnecting with people from different resource groups, support organizations, subcontractors, vendors, partners, government agencies, and customer organizations (Keller 2001; Manning, Massini & Lewin 2008; Newell & Rogers 2002; Thamhain 2009a). Yet, changes in the business environment have pushed these challenges to an even higher level. To succeed in our ultra-competitive, globally connected world of business, companies are continuously searching for ways to improve effectiveness. They look for partners that can perform the needed work better, cheaper and faster. This results in intricate project arrangements, involving joint ventures, alliances, multinational sourcing and elaborate vendor relations across the globe, ranging from R&D to manufacturing, and from customer relations to field services. Project complexity has been increasing in virtually every segment of industry and government, including computer, pharmaceutical, automotive, health care, transportation, and financial businesses, just to name a few. New technologies, especially in computers and communications have radically changed the workplace and transformed our global economy, focusing on effectiveness, value and speed. These technologies offer more sophisticated capabilities for cross-functional integration, resource mobility, effectiveness and market responsiveness, but they also require more sophisticated skill sets both technically and socially, dealing effectively with a broad spectrum of contemporary challenges, including managing conflict, change, risks and uncertainty. As a result of this paradigm shift we have seen a change in the dynamics of teamwork and a change in managerial focus from efficiency to effectiveness, and from a focus on traditional performance measures, such as the quadruple constraint, to include a broader spectrum of critical success factors that support process integration effectiveness, organizational collaboration, human factors, overall business process effectiveness and strategic objectives.

Seasoned managers and visionary researchers identified this paradigm shift for some time, stressing the importance of integrating project teamwork with the external enterprise environment, its stakeholders, support groups and even its competitors. Perhaps some of the best known work includes *'The X-Teams'* by Deborah Ancona & Henrik Bresman (2007) and *'The Five Dysfunctions of a Team'* by Richard Hackman (2006). Many other scholars, such as Armstrong (2000), Barkema, Baum and Mannix (2002), Dillon, 2001), Hilton (2008), Hoegl, Ernst & Proserpio (2007), Kearney

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et al (2009), Sawhney (2002), Shim & Lee (2001), Sidle (2009), Thamhain & Wilemon (1999) have studied contemporary project teams extensively, root-causing their successes and failures, and identifying organizational conditions most conducive to effective performance (Ancona, Malone, Orlikowski & Senge 2007; Gibbert & Hoegl 2011, Hackman 2002, 2007; Kruglianskas & Thamhain 2000). As a result we have gained sophisticated knowledge and substantial insight into the effects and organizational dynamics of managing project teams. *Yet, relatively little is known about the effectiveness of team leadership styles and the organizational conditions most conducive to team performance in project environments that are geographically dispersed across national borders, operating in technological complex, culturally-diverse, multi-national environments, an area that is being investigated in this paper with focus on two research questions which provide a framework for this empirical study:*

RQ1: How does project leadership style influence project performance in multinational projects, and why does the influence vary across local project groups?

RQ2: What conditions in the project environment are most conducive to high overall project team performance?

## 2 EVOLUTION OF A NEW MULTINATIONAL FRONTIER

Teamwork is not a new idea. The basic concepts go back to ancient times, and managers have recognized the critical importance of effective teamwork for thousands of years. The first formal concepts evolved with the *human relations movement* that followed Roethlingsberger and Dickinson's (1939) classic Hawthorne studies. Visionaries such as McGregor (Theory Y, 1960), Likert (participating group management, system 4, 1961), Dyer, (cohesion in the workplace 1977), and more recently Tichy and Ulrich (1984), Walton (1985), Dumaine (1991) and Oderwald (1996) have further broadened the understanding of team-based work processes.

***Fast Forward to Today's Complex Project Environment.*** In today's more complex, multinational and technologically intricate environment the traditional work group reemerged as the *project team* that can be defined as

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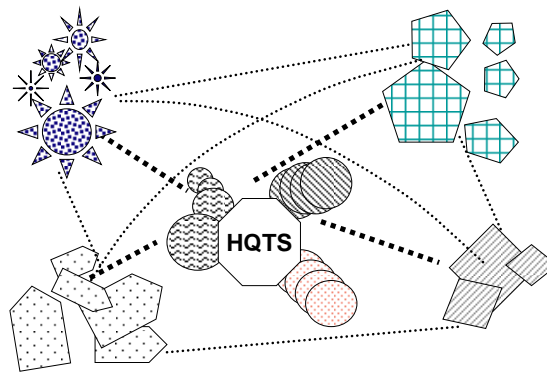
*a collection of individuals, selected for their specific skill sets and qualities. Often the group members have different needs, backgrounds and experiences that must be skillfully focused and managed to transform the workgroup into an integrated, unified team.*

In this transformation, referred to as *teambuilding*, the goals and energies of individual contributors merge and focus on specific objectives and desired results that characterize a high-performance team as summarized in Figure 1.



**Figure 1.** Characteristics of High-Performing Teams

Building such a team requires sophisticated managerial skills. Not too long ago, project leaders *could* successfully execute their projects by focusing on properly defining the work, timing and resources, and by following established procedures for project tracking and control. However, these traditional approaches are no longer sufficient. They have become threshold competencies, critically important, but unlikely to guaranty by themselves project success. In today's complex business environment, many project teams are distributed across the globe (Bhatnager 1999; Brockhoff & Schmaul 1996; Hackman 2006; Ohba 1996; Shenhar 2011, Thamhain 2011). This requires effective networking and cooperation among people from different organizations with different cultures, values and languages, as graphically shown in Figure 2.



**Figure 2.** Multinational Team Environment

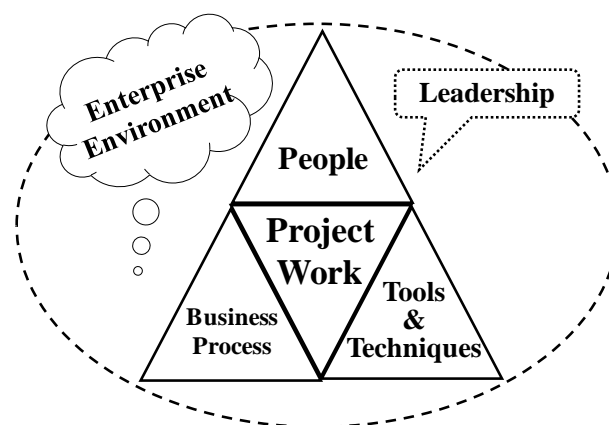
It also requires the ability to deal with uncertainties and risks caused by technological, economic, political, social, and regulatory factors across international borders. These concerns are also reflected in the large number of professional and executive education programs that have emerged in recent years to deal with these issues. Indeed, managing multinational operations is highly complex and difficult. From the senior management side, guidelines and unified direction toward project objectives, technology transfer and project integration must be “synthesized and orchestrated” centrally and translated across borders into the cultures of the local operations (Martinez 1995). Then, linkages among individual work components need to be developed and effectively “managed” across geographic areas and organizational cultures as schematically shown in Figure 2. Thus, multinational project teams need to be integrated not only across the miles, but also be unified among different business processes, management styles, operational support systems, and organizational cultures (Bahrami 1992; DeMaio 1994; Deschamps and Nayak 1995; Gibbert and Hoegl 2011; McFarlin 2008).

**Why do we need multinational project teams?** Given all of these challenges and issues it is not surprising that some voices in the management community question the wisdom of spreading project teams across the globe. Even those who benefit from multinational resource utilization, often find it frustrating to deal with the challenges. Yet, in most cases there are few alternatives for companies that want to compete effectively in today’s business environment. Few companies can accomplish all of their business activities in-house (Dillon 2001; Jaswalla et al 1999; Sherma 2003; Salomond 1996; Thamhain 2009b). Whether Yahoo! creates a new search engine, Sony develops a new laptop computer, or the World Health Organization rolls out a new information system; from medical research to computer systems development, companies try to leverage their budgets and

accelerate their schedules by forming alliances, consortia and partnerships with other firms, universities and government agencies. These collaborations range from simple cooperative agreements to ‘open innovation’, a concept of scouting for new product and service ideas, anywhere in the world. Other companies which operate globally as an enterprise, such as IBM, Boeing or Microsoft, often have their developments dispersed across international borders as part of their global business strategy. In today’s connected world, companies *can* access and take advantage of the best talent and most favorable cost and timing conditions anywhere, regardless of their geographic location. However, organizing and managing these globally dispersed teams towards desired results is an art and a science that involves great challenges, new work processes and business models, defining a new frontier of project management.

### 3 A SIMPLE FRAMEWORK FOR INVESTIGATING TEAM EFFECTIVENESS

Based on our earlier research (Thamhain, 2011) and the work of others (i.e. Ancona 2007; Barkema et al 2002; Deschamps & Nyak 1995; Hoegl, Ernst & Proserpio, 2007), six overlapping and intricately linked organizational subsystems seem to have especially strong influence on the effectiveness of teams in complex project environments as shown in Figure 3.



**Figure 3.** Influences to team performance

While five of these subsystems are to a large extent under the control of the enterprise and its management, the sixth subsystem, the multinational business environment, is not. Yet, its *impact* is controllable to some degree via business strategy and proper strategic alignment of the project

management system (Patanakul and Shenhar 2012; Shenhar et al 2004, 2007, 2011). Although these six subsystems are not necessarily the only factors influencing project team performance in complex, multinational environments, they represent a simple and reasonably robust model to serve as a starting point for this field investigation. Each of the six subsystems is briefly discussed below.

**SUBSYSTEM #1: *Project Work and its Complexities.*** The complexity of the project, its interfaces and technologies create challenges to team management, especially in multinational environments. Large and technologically complex efforts require a broad talent pool, often benefitting from joint-ventures and multinational partnerships. This also leads to more complex and dynamic team structures with intricate managerial interactions. Typical examples are major R&D undertakings, new product developments, multi-national mergers, resort management and foreign assistance programs. When describing these project, managers point to specific complexity indicators of complexity, such as the high degree of technical difficulties (DeSanctis, and Brad M. Jackson 1994), evolving solutions (Bailetti, Callahan, DiPietro 1994, DeMaio 1994), high levels of innovation and creativity, complex decision processes, uncertainty, intricate technology transfer networks (Keller et al 1996, Thamhain 2003), complex support systems (DeMaio 1994, Earl 1996), and highly sophisticated forms of work integration (Manning et al 2008; Solomond 1996).

**SUBSYSTEM #2: *People and Team Culture.*** The people networked across the multinational enterprise provide the backbone of the project organization. These multinational teams behave differently than regional workgroups. For one thing, project integration and performance of these multinational teams relies to a considerable extent on member-generated performance norms and evaluations, rather than on hierarchical guidelines, policies and procedures (Hilton 2008; Sawhney and Pradelli, 2000). As a result, power for decision making and responsibility for achieving specific outcomes are more distributed among team members. This is the characteristics of self-directed teams, a workgroup model that is especially useful and effective for orchestrating and controlling complex projects (Tomkovich and O'Reiley, 2000). As these contemporary work teams replace traditional, hierarchical project teams, effective managerial role performance requires a more sophisticated management style which relies strongly on group interaction, resource and power sharing, individual accountability, commitment, conflict handling, cross-functional linkages and cooperation, technology transfer models, top management involvement, and design/build approaches (Debruyne, et al, 2001). As a result of these shifts, traditional project management tools, such static

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project plans and linear performance measures - designed largely for conventional project management, with clearly defined horizontal and vertical lines of communication, and centralized command and control system - are no longer effective in these contemporary situations. They are often being replaced with more team-based and agile management processes, ranging from stage reviews to spiral processes.

**SUBSYSTEM #3: *Business Process and Work Flow.*** The way the project and its work is structured, flows through the organization and connects with its support systems has considerable influence on the team and its management style. A commercial airplane development results in very different organizational interactions than a pharmaceutical project with multinational R&D partners (Arranz & de Arroyabe, 2008). A matrix-organized microprocessor rollout results in different work processes than a projectized electric car development, just to give a few examples.

**SUBSYSTEM #4: *Management Tools and Techniques.*** The technologies used for supporting the project work, facilitating interdisciplinary communications and integrating its components, affects the team dynamics and management style. Large sets of project management tools and techniques are available, ranging from traditional to contemporary and from basic to highly sophisticated (cf. Milosevic, *Project Manager's Tool Box*, 2003). Appropriate, skillful application of the proper technology can significantly increase team effectiveness and the chances of project success.

**SUBSYSTEM #5: *Managerial Leadership.*** It's easy to lose sight of what really drives project performance in complex project environments. While technical skill sets, management tools and effective work processes are absolutely critical, managerial leadership style that guides the work process, unifies the team and fosters a culture of collaboration and commitment across intricate organizational boundaries connecting support functions, suppliers, customers and partners, is equally important (Thamhain 2011). Team leadership involves a complex set of human factors and people skills that seem to have a strong influence on team performance (Ancona & Bresman 2007; Hoegl et al 2007; Schmidt & Adams 2008; Thamhain 2011; Wade 2009).

**SUBSYSTEM #6: *Multinational Enterprise Environment.*** All five previously discussed enterprise subsystems operate within a socially, politically, and economically complex business environment. Given the complexity of this environment, it is not surprising that multinational projects

are diverse and intricately complex in their organizational culture, structure and management philosophy. Managers have to deal with *differences* in languages, time zones, organizational and personal cultures, policies, regulations, business practices and political climate (Asakawa 1996, Brockhoff and Schmaul 1996, Ohba 1996, Kruglianskas and Thamhain 2000).

These complexities call for specialized work processes, new concepts of technology transfer and more sophisticated management skills and project leadership. They also call for an alignment of project operations with the overall business strategy of the enterprise, a concept that evolved with the *Organizational Project Management Maturity Model, OPM3<sup>®</sup>* (Fahrenkrog et al, 2003), a globally recognized standard developed by the Project Management Institute for assessing capabilities and developing organizations for portfolio management, program management, and project management. The need for *linking project management with business strategy* has gained momentum in recent years and finds increasing support among managers and researchers (Shenhar et al, 2007, Patanakul & Shenhar, 2012).

#### 4 OBJECTIVE, SCOPE AND METHOD

*The Objective of this Paper is* to improve the understanding of the (i) dynamics and interaction of multi-national, culturally diverse project teams, (ii) influences of the team environment, and (iii) influences of managerial leadership on performance. The specific focus is on technology-based, geographically dispersed project environments.

*Scope and Significance.* The research reported here was conducted between 2008 and 2012 as part of my ongoing investigation into project management effectiveness with results regularly reported in the literature (Thamhain 2000, 2003, 2005, 2007, 2009). While my earlier research examined team member needs and the dynamics of work interfaces and interactions, the current research expands the investigation into the effects of leadership style and project environment on overall team performance in multinational project environments. The current field study includes 67 geographically dispersed, multinational new product development teams, working in 34 large enterprises of the “Fortune-500” category. *The significance of this study* is in the area of project management effectiveness. The findings provide an insight into the team leadership style, and the organizational barriers, drivers and

conditions most conducive to high team performance in multinational project environments. The paper offers suggestions for future research and for extending theories in the area of project management.

*Method.* Because of the complexities and multidimensional mosaic of variables that define the project environment and its performance, simple models are less likely to produce significant results. Quantitative hypotheses testing seems to be premature (Eisenhardt 1989; Gephart 2004), but one has to look beyond the obvious aspects of established theory and management practice. Therefore, I chose an exploratory field research format for this investigation. The format involves a combination of *questionnaires* and two qualitative methods: *participant observation* and *in-depth retrospective interviewing*. The focus is on *four interrelated sets of variables*: (i) *project*, (ii) *team*, (iii) *team leader and* (iv) *organizational process/environment*, which were suggested by other researchers as major influences to project success (Anconda & Bresman 2007, Hackman 2006, Thamhain 2009). Specifically, data were captured as part of my management consulting or training assignments with 34 technology-based organizations, conducted between 2008 and 2012. All of these companies can be classified as large multi-national corporations (Fortune 1000 type), headquartered in either the U.S., Brazil or Europe (EU). For each of these organizations, the research was conducted in *three stages*. During the *first stage*, conducted in 2008, interviews with project leaders and project team personnel together with hands-on participant observations helped to (1) understand the specific nature and challenges of the project work undertaken, (2) gain insight into the multinational nature and strategic linkages of their projects with the enterprise, (3) prepare for the design of the questionnaire and its proper introduction, and (4) design follow-up interviews. *During the second stage*, data were collected between 2009 and 2011 as part of a management consulting or training assignment, using questionnaires, observations, and expert panels. *The third stage*, conducted primarily in 2012 relied mostly on *in-depth retrospective interviewing*, providing perspective and additional information for clarifying and leveraging the data captured in stage one and two. As part of the action research, the data collection included other relevant source material, such as project review meetings, management discussions, project progress reports, company reports, design review memos, committee action reports, financial statements and information from the public media. These sources were especially helpful in designing questionnaires, interviews and validating observations.

*The questionnaire* was designed to measure (1) work environment characteristics, (2) leadership style and (3) project performance. To minimize potential biases from the use of social science jargon, specific statements were developed for describing each of the work environment and team-performance variables shown in the correlation table. For example, to determine the *clarity*

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and quality of the project plan, team members were asked to agree or disagree with several statements such as: “the project plan was clear and specific in all aspects of work, timing, resources and organizational interfaces,” – “as team members, we provided considerable input to the project plan,” -- “there was a strong agreement within our work group that our part of the project plan is realistic and doable within the given constraints,” -- “the project plan required fine-tuning and alignment with our work process after it was issued to us,” -- “many of the changes to requirements and schedule might have been avoided by better front-end planning.”

The type of variables used in the questionnaire to measure influences on team and project performance were determined during the exploratory phase of this field study. They were identified during interviews and discussions with over 100 managers by asking them “what factors and conditions do you perceive as important to high team performance and ultimately high project performance.” These discussions resulted in over 500 factors, variables and conditions, all seen as “very important” to high team performance. Using content analysis of these 500 factor or conditions, 20 categorical factors were developed. In addition to the correlation analysis (shown in tables 2), the 20 factors were “tested” with 75 managers and project leaders. Each person was asked to rank the criticality of each of the 20 factors to project team performance. The chosen Likert-type scale was: (1) highly important, (2) important, (3) somewhat important, (4) little important and (5) not important. Averaged over all factors and all judges, 86% of the factors in Table 2 were rated as “important” or higher based on managerial perception.

The same 5-point Likert scale was used later in the field study to measure actual performance and enterprise conditions for each specific project organization. The specific judgments were solicited from [T] team members, [PM] project managers/team leaders, or [SM] senior management, respectively, depending on “relevancy.” Specifically, inputs were collected from the individuals who could most appropriately judge the variable under investigation. For example, team members were asked to assess the quality of the work environment, such as communication effectiveness and leadership, while senior management was asked to judge the level of team performance and project success. Key performance indicators (KPI) included measures such as overall team performance, the ability of dealing with risk, effort and commitment toward agreed-on objectives.

The purpose of this combined data collection method was to leverage the information-gathering process for identifying the drivers and barriers to team performance, and for gaining insight into its management process. This *combined method* is particularly useful for new and exploratory

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investigations, such as the study reported here, which is considerably outside the framework of established theories and constructs (Eisenhardt 1989, Glaser & Strauss 1967). The *format* and *process* of the specific *questionnaires* and in-depth semi-structured *interviews* used in this study, was developed and tested in some of my previous field studies, similar in context to the current investigation (Kruglianskas & Thamhain 2000, Thamhain 2005, 2006, 2007, 2008, 2009ab).

**Table 1-** Field sample characteristics.

PARAMETER	TOTAL	AVGE	SIGMA
<b>Sample Characteristics (overall):</b>			
Multinational host companies (Fortune-1000)	15		
Programs/projects	37		
Program/project managers	37		
Cross-national sub-teams or workgroups	205		
Major contractors and partners	215		
Sub-teams or workgroups (total)	310		
Total team population (all programs/projects)	2,240		
<b>Program/Project Characteristics (each):</b>			
Workgroups or sub-teams		8	4.5
Workgroup size		12	3.2
Major contractors and partners		13	4.1
Multinational locations		4	1.5
Geographically separated locations		5	2.2
Budget		\$1.6M	\$.8M
Duration		2.3 yrs	.35 yrs
Type of work (primary)			
New product or process development		42%	
Service development		20%	
Mixture		38%	
Type of deliverables			
Electronic equipment		32%	
IT & software		18%	
Aerospace		8%	
Aircraft		3%	
Automotive		4%	
Pharmaceutical		15%	
Other		20%	
<b>Team Characteristics (each member):</b>			
Work experience		12 yrs	4.5 yrs
College educated		87%	
Advanced degrees		42%	
Engineering/science background		76%	
Worked in this team before		22%	

**Data.** The unit of analysis used in this study is the project. The field study, conducted between 2009 and 2012, covered 37 project/program teams with a total population of over 2,240 professionals such as engineers, scientists, and technicians, plus their project and resource managers as summarized in Table 1. The project versus program distinction is by-and-large semantics, as chosen by the company for a specific activity, such as a new product development. Typically, within the same enterprise, programs are larger in scope and lifecycle than projects, but this distinction does not necessarily hold when comparing projects among enterprises. The specific data collection from questionnaires, interviews and observations included 37 project/program managers, 87 sub-project/subsystem team leaders (from the total population of 310 sub-teams), 10 resource managers, 7 product managers, 4 directors of R&D, 3 directors of marketing, and 5 general management executives at the vice presidential level. Together, the data covered 37 programs/projects in 15 multinational companies, of the FORTUNE-1000 category.

The projects involved high-technology product and/or service developments, such as information system, computer and pharmaceutical products, and financial services. Project budgets averaged \$1.6M and a lifecycle of 2.3 years, with a large sigma on either side of the average. Data were obtained from three sources, *questionnaires*, *participant observation* and *in-depth retrospective interviewing*, as discussed in the previous section. Content Analysis and other standard statistical methods, especially Kendall's Tau rank-order correlation, were used to summarize the survey data, as shown in the correlation table of this paper. The agreement among the various populations was tested using Kruskal-Wallis analysis of variance by ranks, a test for deciding whether k independent samples are from different populations.

Because the organizational and behavioral variables studied do not necessarily follow normal distribution, I selected distribution-free, non-parametric methods to ensure the most robust and appropriate statistical testing. The issues and limitations of methodological choice (i.e. extracting less information with non-parametric methods in exchange for more flexibility) have been extensively discussed in the literature (Anderson 1961).

## 5 RESULTS

The field data summarized in Table 2 show the associations between the project environment and team performance. While all variables selected for this study were perceived by managers and project leaders as having major impact on project team performance the statistical tests reveal a wide spectrum of correlation strength and significance. Ultimately these variables were grouped into 20 sets shown in Table 2. After discussing the *influences of team environment on project performance* gleaned from the correlation analysis, the *managerial implications* are discussed together with *specific recommendations* for effective team leadership with focus on multinational project environments.

### ***Influences of Team Environment on Project Performance.***

Tables 2 summarize the Kendall's Tau rank-order correlation of organizational and performance variables, listed in order of importance to overall team performance. The presence and strength of these organizational variables was measured on a five-point scale as a perception of project team members, while project performance was measured as a perception of senior management as discussed in the method section of this paper. Correlations of  $p = .01$  or stronger shown in bold italics. As indicated by the two strongest correlations, factors that fulfill professional esteem needs seem to have a particularly favorable influence on project team performance. The five most significant associations are: (1) professionally stimulating and challenging work environments [ $\tau=.45$ ], (2) opportunity for accomplishments and recognition [ $\tau=.38$ ], (3) the ability to resolve conflict and problems [ $\tau=.37$ ], (4) clearly defined organizational objectives relevant to the project [ $\tau=.36$ ], and (5) job skills and expertise of the team members appropriate for the project work [ $\tau=.36$ ]. These influences appear to deal effectively with the integration of goals and needs between the team member and the organization. In this context, the more subtle factors seem to become catalysts for cross-functional communication, information sharing, and ultimate integration of the project team with focus on desired results. The other favorable factors in Table 1 relate to overall directions and team leadership [ $\tau=.35$ ], trust, respect and credibility among team members and their leaders [ $\tau=.30$ ], and business process, as reflected by cross-functional cooperation and support [ $\tau=.27$ ], communications [ $\tau=.27$ ], clear project plans [ $\tau=.25$ ], clearly defined authority relations, and sufficient autonomy and freedom of actions in line with the managerial expectations and

accountabilities [ $\tau=.23$ ]. To a lesser degree, opportunities for career development and advancement [ $\tau=.12$ ], as well as job security [ $\tau=.12$ ], seem to have a positive influence.

It is interesting to note from the correlation statistics that the same conditions, which are conducive to overall team performance, also lead to (1) a higher ability of dealing with risks and uncertainties and (2) a stronger personal effort and commitment to established objectives and to their team members. Moreover, the field data confirm the expectation that project teams who are perceived as effective by their management, are also seen as creative problem solvers who can effectively utilize time and resources. In fact, a high degree of cross-correlation exists among the set of four of variables, as measured via Kruskal-Wallis analysis of variance by rank. The test shows that managers agree on the ranking of team performance factors in Table 2 at a confidence level of 98%. That is, managers perceive in essence the same parameters in judging team performance, if they rate team performance high in one category, they are likely to give high ratings also to the other three performance categories.

In addition to the thirteen most significant factors reported in Table 2, it is interesting to note that many other characteristics of the work environmental, that were perceived by managers as important to effective team performance, *did not correlate significantly* as measured by a p-level threshold of .10. Among the *factors of lesser influence* to project team performance are: (1) salary, (2) time-off, (3) project visibility and popularity, (4) maturity of the project team, measured in terms of time worked together as a team, (5) project duration, (6) stable project requirements with minimum changes, (7) stable organizational structures and business processes which result in minimal organizational changes, such as caused by mergers, acquisitions and reorganization, (8) minimum technological interdependencies, such as caused by the dependency on multiple technologies, technological disciplines and processes, (9) project size and duration, arguing that project scope, size and implementation challenges, by themselves do not necessarily translate into lower team or project performance.





It is further interesting to see that several of the weaker influences actually seem to have opposite effects to the perceptions popularly held by managers. For example, it appears that the more stable the project requirements the less overall team performance is to be expected. While these correlations are clearly non-significant from a statistical point of view, they shed some additional light on the subtle and intricate nature of project team performance in technology-intensive environments. They also provide thought for future research. From a different perspective, it is interesting to observe that influences supporting *intrinsic professional needs* show the *most favorable* performance correlation, while “*extrinsic influences*” (or motivators), such as salary increases, bonuses, time-off, and project metrics-related factors, such as team tenure, project duration and changes, give only *weak* support to potential benefits. This is in spite the fact that most managers in this study perceived all the influences in Tables 2 as critically important to team performance. This finding suggests that managers are more accurate in their perception of team members’ intrinsic, rather than extrinsic needs. It also seems to be more difficult to assess the impact of project parameters, such as size, duration or complexity, than the impact of human needs on project work performance. Yet, in spite of cultural differences among organizations, a general agreement exist among managers and project leaders on the type of factors that are critical to effectively building and managing high-performing project teams which was confirmed via Kruskal-Wallis analysis of variance by rank.

## 6 DISCUSSION AND MANAGERIAL IMPLICATIONS

One of the consistent and most striking findings from the field study is the need for increasing involvement and collective decision-making of all project stakeholders throughout the organization and its external partners. Project managers in my study point consistently at the reality that for today's complex and technology-based undertakings, success is no longer the result of a few expert contributors and skilled project leaders. Rather, project success depends on effective multidisciplinary efforts, involving teams of people and support organizations interacting in a highly complex, intricate, and sometimes even chaotic way. The process requires experiential learning, trial and error, risk taking, as well as the cross-functional coordination and integration of technical knowledge, information and components. Most managers see their projects evolving through a fuzzy transformation process which cannot always be described objectively or planned perfectly, nor

can their results be predicted with certainty. Furthermore, project performance itself is difficult to define and measure. Yet, in spite of all of these challenges, many project teams work highly effective, producing great results within agreed-on budget and schedule constraints. This suggests that even *complex multinational and technology-based projects can be managed toward agreed-on results, given the right team environment*. Thus the field study provides some answers to the two research questions posted earlier regarding the influence of team leadership and organizational environment on project performance, and suggests specific drivers and barriers that connect these variables.

### ***Lessons for Effective Team Leadership.***

The empirical results presented in this paper show that specific conditions in the team environment appear most favorable to project team work. These conditions serve as bridging mechanisms, helpful in enhancing project performance, especially in complex project environments that involve technology and multinational settings. An important lesson follows from the analysis of these field observations. Managers must foster a work environment supportive to their team members. As shown by the statistical correlation, factors that satisfy personal and professional needs seem to have the strongest effect on the project team performance. The most significant drivers are *derived from the work itself, including personal interest, pride and satisfaction with the work, professional work challenge, accomplishments and recognition*. Other important influences include effective communications among team members and support units across organizational lines, good team spirit, mutual trust and respect, low interpersonal conflict, plus opportunities for career development and, to some degree, job security. All of these factors help in building a unified project team that can leverage the organizational strengths and competencies effectively, and produce integrated results that support the organization's mission objective. Creating such a climate and culture conducive to quality teamwork involves multifaceted management challenges which increase with the complexities of the project and its organizational environment. No longer will technical expertise or good leadership alone be sufficient, but excellence across a broad range of skills and sophisticated organizational support is required to manage project teams effectively. Hence, it is critically important for project leaders to understand, identify and minimize the potential barriers to team development. Leading such self-directed teams can rarely be done “top-down,” but requires a great deal of interactive team management skills and senior management support at the “local level”

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of the multinational team. Tools such as the *Project Maturity Model* and the Six Sigma Project Management Process can serve as a framework for analyzing and fine-tuning the team development and management process.

### ***Managing Team Formation and Development.***

No work group comes fully integrated and unified in their values and skill sets, but needs to be carefully nurtured and developed. Managers must realize the organizational dynamics involved during the various phases of the team development process. They must understand the professional interests, anxieties, communication needs, and challenges of their team members and anticipate them as the team goes through the various stages of its development. Many of the problems that occur during the formation of the new project team or during its life cycle are normal and often predictable. However, they present barriers to effective team performance. The problems must be quickly identified and dealt with. That is, team leaders must recognize what works best at each stage, and what is most conducive to the team development process. Tools such as *focus groups*, *interface charts* and the *Four-Stage Model of Team Development* (originally developed by Hersey and Blanchard, 1996), can help in identifying the leadership style and organizational support needed in facilitating effective and expedient team developments.

### ***Unify Management Process.***

Successful management of culturally diverse project teams requires a unified managerial process. Unless these processes are integrated throughout the enterprise and aligned with the overall business strategy, technology transfer and integration will not be effective. This does not mean rigid “top-down management” or “centralized operation,” but rather a skillfully designed management system with enough flexibility and adaptability to local leadership while functioning consistently within established organizational norms and cultures. This is a big challenge for multinational companies. In part, it requires the ability to *adapt project management tools, techniques and leadership to the local culture*. That is, project success depends not only on the effective use of managerial tools and leadership style in *one* particular organizational environment, but equally important, on the effective use of these techniques across different geographic regions. Yet, it is important to adopt management tools, techniques and leadership style to local cultures and

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organizational values without losing consistency, purpose, and managerial integrity. This is a great challenge that is not being easily solved with a “virtual team” template or procedural document, but requires effective working relationships among resource managers, project leaders, and senior management across the whole project organization, and the skillful guidance and nurturing of local management in coordination with overall project leadership. Focus groups, organizational studies, internal and external consultants, process action teams, professional training and teambuilding sessions, all are powerful tools for unifying and optimizing the work flow and managing process.

### ***Share Managerial Power and Influence.***

Given the political nature of organizations, we should expect organizational diversity and cultural differences in regional management style. This requires power sharing among managers of local organizations and project integrators at the headquarters organization. Yet, a unified management process must exist with clear boundaries of authority, jurisdiction, responsibilities and decision making, as discussed in the previous paragraph. If these boundaries are not clear, a power vacuum can develop in some areas, providing opportunities for managers to enlarge their sphere of influence. While such shifts in organizational power and influence are natural and predictable, they are often counterproductive to cooperation and commitment. They often lead to power struggle, organizational tension, mistrust and conflict, and are warning signs that the managerial process is changing and requires fine-tuning. These observations also explain in part the difficulties managers experience in trying to establish a unified project management process, align management tools and support functions across the organization. Tools such as focus groups, organizational studies, internal and external consultants, process action teams, professional training and teambuilding sessions, similar to those discussed under the topic of “*Unify the Management Process*,” can be useful in creating awareness of the issues and challenges, and in allocating resources for organizational development toward establishing a unified framework for direction and leadership across the multinational enterprise.

### ***Aligning Enterprise Support Functions with the Project Management Process.***

Many enterprise support functions influence project team performance. These functions include a wide spectrum of enterprise sub-systems and activities, such as estimating, forecasting, progress measurements, purchasing, bid proposals, technology transfers, cross-functional

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communications and general managerial controls which often have their locus outside the project organization, controlled by senior management or administrative groups at headquarters. They affect the project environment with regard to resource availability, management involvement and support, personal rewards, and organizational stability, including goals, objectives and priorities. Effective project leaders understand the various organizational processes and the conditions that either help or hinder team performance. They can work with senior management to fine-tune these processes to best align with the project execution and to be most supportive to the team effort and overall project mission. Most importantly, effective team leaders at the top create a sense of community across the whole enterprise which is critical for unifying the team effort, especially in geographically dispersed multinational environments.

***Foster a Culture of Continuous Support and Improvement.***

Culturally diverse teams are intrinsically complex, highly dynamic and continuously changing. By updating and fine-tuning established project management processes to changing conditions, team members feel empowered and unified by the relevant organizational environment. Management can establish “*listening posts*,” such as discussion groups, action teams, and suggestion systems, that enable them to capture the voice of the customer as well as the lessons learned from past projects. This is the basis for continuous organizational improvements. Tools such as the *project maturity model* and the Six Sigma project management process can provide a useful framework for analyzing, developing and unifying project teams and their management processes on a continuing basis.

## **7 CONCLUSION**

In our hyper-competitive, fast moving global environment, project management is an organizational system for executing multidisciplinary business operations “better, cheaper and faster.” When integrated with a team of people with the right linkages and internal chemistry, this system can transform resources, information and other inputs into tangible results. It can deal effectively with contemporary challenges, such as geographically dispersed workgroups, complex work integration, risks and non-linearity. However, success is neither automatic nor random! By

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examining the six subsystems or influence spheres to team performance - project work, people, business process, leadership and overall enterprise environment - we find that *human factors* connect with many of these areas and have the strongest impact on team effectiveness and overall project success. Most significant are those influences that derive from the work itself. They serve as bridging mechanisms, helpful for enhancing project performance, especially in complex, technology-based organizations. Specifically, organizational conditions that satisfy personal and professional needs of team members seem to have the strongest effect on commitment, the ability to deal with risk and contingencies, and overall team performance. Interestingly, people who find their assignments professionally challenging, leading to accomplishments, recognition and professional growth, also seem to function more effectively in a complex and technology-intensive team environment. Such a professionally stimulating ambience also lowers communication barriers, increases the tolerance for conflict and risk taking, and enhances the desire to succeed. Other influences to project team performance are derived from organizational processes, which have their locus outside the project organization, and are controlled by senior management. These processes affect the team in terms of organizational stability, availability of resources, management involvement and support, personal rewards, stability of organizational goals, objectives and priorities. Although many of the drivers and barriers to effective teamwork exist in strictly local, less distributed project organizations (cf. Thamhain, 2007), the performance impact is magnified with the intensity of cultural, geographic and multinational diversity of the team. Managers in our multinational study point out that success is no longer the result of a few geniuses, experts and skilled leaders. Rather, project success depends on effective multidisciplinary efforts, involving teams of people and support organizations interacting in a highly complex, intricate, and sometimes even chaotic way. Especially for complex, technology-intensive efforts, the process requires experiential learning, trial and error, risk taking, as well as the cross-functional coordination and integration of technical knowledge, information, and components. Most project managers in these complex environments see their role as leading a team of professionals through a fuzzy process that cannot always be described linearly or planned perfectly, nor can results be predicted with certainty. Therefore, a certain degree of managerial flexibility and agility, from planning to project execution, is needed to adapt to the dynamics and changes inevitable in such a business environment.

Yet, in spite of all these challenges, we observed many highly effective project teams, producing innovative results, on time and budget. This suggests that even complex multinational projects can be managed, given the right team environment and leadership. This observation is

further supported by the statistical analysis of the field data summarized in Table 2. Succeeding in today's ultra-competitive world of business is not an easy feat. No single set of broad guidelines guarantees success. However, project success is not random! A better understanding of the criteria and organizational dynamics that drive project team performance can help managers in effectively integrating project teams with the enterprise. Effective team leaders are social architects who understand the interaction of organizational and behavioral variables and can foster a climate of active participation, accountability and result-orientation throughout the enterprise and its external partners. This requires an in-depth understanding of the business environment dynamics and its cultures, plus sophisticated project management and leadership skills.

## REFERENCES

- Anconda D, and Bresman, H. (2007). *X-teams: How to Build Teams That Lead, Innovate and Succeed*. Boston, MA: Harvard Business School Publishing Company.
- Anconda D, Malone T, Orlikowski W & Senge P (2007). "In praise of the incomplete leader," *Research Technology Management*, Vol. 19, No.3 (May-June), pp.92-100.
- Anconda D, Malone T, Orlikowski W & Senge P (2007). "It's time to end the myth of the incomplete leader," *Harvard Business Review*, Vol. 85, No.xx, pp.92-100.
- Armstrong, David (2000), "Building teams across borders," *Executive Excellence* Vol.17, No.3, p.10-11.
- Arranz N, de Arroyabe J (2008). "Joint R&D projects as complex systems," *IEEE Transactions on Engineering Management* 2008; 55 (4): 552-566.
- Asakawa, K. (1996) "External-Internal Linkages and Overseas Autonomy Control Tension," *IEEE Transactions on Engineering Management*, Vol. 43, No. 1 (February), pp. 24-32.
- Asgary, Nader and Thamhain, Hans (2007). "Managing multinational project teams," (Proceedings, Annual Meeting of the Association for Global Business, Washington, DC, November 15-18, 2007).



- Bahrami, H. (1992) "The Emerging Flexible Organization: Perspectives from Silicon Valley," *California Management Review*, Vol. 34, No.4 (Summer), pp 33-52.
- Bailetti, A., Callahan, J. and DiPietro, P. (1994) "A Coordination Structure Approach to the Management of Projects," *IEEE Transactions on Engineering Management*, Vol: 41, No. 4 (November), pp. 394-403.
- Barkema H, Baum J and Mannix E (2002), "Management challenges in a new time," *Academy of Management Journal*, 45(5), 916-930.
- Barner, R. (1997), "The new millennium workplace," *Engineering Management Review (IEEE)*, vol. 25, no. 3, Fall 1997, pp.114-119.
- Belassi, W. and Tukel, O. (1996), "A new framework for determining critical success/failure factors in projects," *International Journal of Project Management*, Vol. 14, No. 3, pp. 141-151.
- Bhatnager, Anil (1999), "Great teams," *The Academy of Management Executive*, Vol. 13, No. 3 (August), pp. 50-63.
- Brockhoff, K. and Schmaul, B. (1996) "Organization, Autonomy, and Success of Internationally Dispersed R&D Facilities," *IEEE Transactions on Engineering Management*, Vol. 43, No. 1 (February), pp. 33-40.
- Cleland, D. and Ireland, L. (2007), *Project Management: Strategic Design and Implementation*. New York: McGraw-Hill.
- Cohen, Don (2009). "Interview with Alexander Laufer," *Academy of Sharing Knowledge, ASK*, Issue 35 (Summer 2009), pp. 23-28.
- Cutler G & Smith R (2007). "Mike leads his first virtual team," *Research Technology Management*, Vol. 50, No.1; p. 66-69.
- Debruyne, M., Moenaert, R., Griffin, A. and Hart, S. (2002) *The Journal of Product Innovation Management*, March, Vol. 19, No. 2, pp.159–169.
- DeMaio, A., et al (1994) "A Multi-Project Management Framework for New Product Development," *European Journal of Operational Management*, Vol. 78, No. 2 (October), pp. 178-191.

- Deschamps J, Nayak R (1995) "Implementing World-Class Process," Ch-5, Product Juggernauts, Cambridge: Harvard Press.
- Dillon, P (2001). A global challenge. Forbes Magazine; Vol. 168 (Sep. 10, 2001): 73+.
- Dvir D, Lipovetsky S, Shenhar A, and Tishler A (1998). "In Search of Project Classification: A Non-Universal Approach to Project Success Factors", Research Policy, Vol. 27, pp. 915-935.
- Dyer, W.G. (1977), Team Building: Issues and Alternatives. Reading, MA: Addison-Wesley.
- Eisenhardt, K. Building theories from case study research. Academy of Management Review 1989; 14(4): 532-550.
- Eisenhardt, K.M. (1989) "Building theories from case study research," Academy of Management Review, 14, 4, pp. 532-550.
- Fahrenkrog S, Abrams F, Haeck W and Whelbourne D (2003). "Project Management Institute's Organizational Project Management Maturity Model OPM3<sup>TM</sup>," Proceedings of PMI North American Congress, Baltimore, MD
- Ferrante C, Green S & Forster W (2006). "Getting more out of team projects: Incentivizing leadership to enhance performance." Journal of Management Education. Vol. 30, No. 6; pp. 788798.
- Fisher K (1993). Leading Self-Directed Work Teams. New York: McGraw-Hill.
- Gephart, R. P. (2004). "Qualitative research and the Academy of Management." Academy of Management Journal, Vol. 47, No. 2, pp 454-462.
- Gibbert, M. & Hoegl, M (2011). "In praise of dissimilarity," Sloan Management Review, Vol. 52, No. 4, pp. 20-22.
- Glaser, B.G. and Strauss, A.L. (1967), The Discovery of Grounded Theory: Strategies for Qualitative Research, Chicago,IL: Aldine.
- Graen G, Hiu C & Taylor E (2006). "Experience-based learning about lmx leadership and fairness in project teams: a dyadic directional approach," Academy of Management Learning & Education, Vol. 5, No. 4; p.448-456.

- Gray, Clifford and Larson, Erik (2000), Project Management, New York: Irwin McGraw-Hill, 2000.
- Groysberg B & Abrahams R (2006). “Lift outs: How to acquire a high-functioning team,” Harvard Business Review, Vol. 84, No.12; p. 133-143
- Hackman, J (2002). Leading Teams: Setting the Stage for Great Performance – The 5 Keys to Successful Teams. Boston: Harvard Business School Press.
- Hackman, J (2006). “The five dysfunctions of a team: A leadership fable,” Academy of Management Perspectives, Vol. 20, pp.122-125.
- Hartman, F and Ashrafi, R. (2002), Project management in the information systems and technologies industries,” Project Management Journal, Vol.33, No.3, pp.5-15.
- Hersey P, Blanchard K. Management of organizational behavior. Englewood Cliffs, NJ: Prentice Hall, 1996.
- Hilton, Margaret (2008). “Skills for work in the 21<sup>st</sup> Century,” Academy of Management Perspectives, Vol. 22, No. 4, pp. 63-78.
- Hoegl, M. and Parboteeah, P (2006). “Team reflexivity in innovative projects,” R&D Management, Vol. 36, No. 2, pp. 113 – 125.
- Hoegl, M. & Parboteeah, K. P. (2006). “Team goal commitment in innovative projects.” International Journal of Innovation Management, Vol. 10, No. 3, pp. 299-324.
- Hoegl, M. & Parboteeah, K. P. (2007). “Creativity in innovative projects: How teamwork matters.” Journal of Engineering and Technology Management, Vol. 24, pp. 148-166.
- Hoegl, M., Ernst, H. & Proserpio, L. (2007). “How teamwork matters more as team member dispersion increases.” Journal of Product Innovation Management, Vol. 24, No. 2, pp. 156–165.
- Janz B and Prasarnphanich P (2009). “Freedom to cooperate: Gaining clarity into knowledge integration in information systems development teams,” IEEE Transactions on Engineering Management 2009; 56 (4): 621-635.
- Jarvenpaa, S.L. and Leidner, D.E. (1999). “Communication and Trust in Global Virtual Teams.” Organization Science, Vol. 10, No. 6, pp. 791-815
-

- Jassawalla, Avan R. and Sashittal, Hemant C (1999), "Building collaborate cross-functional new product teams," *The Academy of Management Executive*, Vol. 13, No. 3), pp. 50-63.
- Jasswalla, A.R., and Sashittal, H.C. (1998), "An examination of collaboration in high-technology new product development processes," *Journal of New Product Innovation Management*, 15, 3, pp.237-254.
- Karlsen, J. and Gottschalk, P. (2004), "Factors affecting knowledge transfer in IT projects", *Engineering Management Journal* , 16, 1, pp. 30-38.
- Kearney, E., Gebert, D. and Voelpel, S. (2009). "When and how diversity benefits teams." *Academy of Management Journal*, Vol. 52, No. 3, pp. 350-372.
- Keller, R. (2001). "Cross-functional project groups in research and new product development." *Academy of Management Journal*, 44 (3), 547-556.
- Kruglianskas, Isak and Thamhain, Hans (2000) "Managing technology-based projects in multinational environments, *IEEE Transactions on Engineering Management*, 47(1), pp 55-64.
- Laufer, Alexander (2009). *Breaking the Code of Project Management*. New York: Palgrave Macmillan.
- Levardy V and Browning T (2009). "An adaptive process model to support product development project management," *IEEE Transactions on Engineering Management* 2009; 56 (4): 600-620.
- Manning, S., Massini, S. and Lewin, A. (2008). "A dynamic perspective on next-generation offshoring: The global sourcing of science and engineering talents," *Academy of Management Perspectives*, Vol. 22, No. 3, pp. 35-54.
- Martinez, Erwin V. (1995), "Successful Reengineering demands IS/Business Partnerships," *Sloan Management Review*, Vol. 36, No. 4 (Summer 1995), pp 51-60.
- McFarlin, Dean (2008). "Life satisfaction around the globe: What role does income play?" *Academy of Management Perspectives*, Vol. 22, No. 4, pp. 79-80.
- Milosevic D, ed (2003). *Project Manager's Tool Box*, New York: Wiley & Sons.

- Nellore, R. and Balachandra, R. (2001) "Factors Influencing Success In Integrated Product Development (IPD) Projects," IEEE Transactions on Engineering Management, 48, 2, pp. 164-173
- Newell, F and Rogers, M (2002), *loyalty.com: Relationship Management in the Era of Internet Marketing*, McGraw-Hill.
- Nurick, Aaron and Thamhain, Hans J. (2006). "Team leadership in global project environments," Chapter 38 in *Global Project Management Handbook* (David I. Cleland Editor), New York: McGraw-Hill.
- Ohba, S. (1996) "Critical Issues Related to International R&D Programs," IEEE Transactions on Engineering Management, Vol. 43, No. 1 (February), pp. 78-87.
- Patanakul P. and Shenhar A. (2012). "What is Really Project Strategy: The Fundamental Building Block in Strategic Project Management." *Project Management Journal*, Vol. 43, No.1 (Feb), pp. 4-20.
- Polzer J, Crisp C, Jarvenpaa S, Kim J (2006). "Extending the faultline model to geographically dispersed teams," *Academy of Management Journal*, Vol 49, No. 4, pp. 679-692.
- Roethlisberger F., and Dickerson W (1939), *Management and the Worker* (Cambridge, MA: Harvard University Press.
- Sawhney, M. (2002) 'Don't just relate – collaborate', *MIT Sloan Management Review*, Vol. 43, No. 3, pp.96–107.
- Schmid B, Adams J (2008). "Motivation in project management: A project manager's perspective," *Project Management Journal*, Vol. 39, No. 2, pp. 60-71.
- Schulze, A. & Hoegl, M. (2006). "Knowledge creation in new product development projects," *Journal of Management*, 32(2): 210-236.
- Senge, P. and Carstedt, G. (2001) "Innovating Our Way to the Next Industrial Revolution," *Sloan Management Review*, 42, 2, pp.24-38.
- Senge, Peter (1994), *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York: Doubleday/Currency.

- Sharma, B. (2003) 'R&D strategy and Australian manufacturing industry: an empirical investigation of emphasis and effectiveness', *Technovation*, December, Vol. 23, No. 12, pp.929–937.
- Shenhar A (2004). "Strategic Project Leadership: Toward a Strategic Approach to Project Management." *R&D Management*, Vol. 34 (November), pp. 569-578.
- Shenhar, A (2011). "What Great Projects Have in Common," *MIT Sloan Management Review*, Vol. 52, No. 3 (Spring), pp. 19-21.
- Shenhar, A., Dvir, D., Milosevic, D., and Thamhain, H. (2007). *Linking Project Management to Business Strategy*. Newtown, PA: Project Management Institute (PMI) Press.
- Shim, D. and Lee, M. (2001), "Upward Influence Styles of R&D Project Leaders," *IEEE Transactions on Engineering Management*, 48, 4, pp. 394-413.
- Sidle, Stuart (2009). "Building a committed workforce: Does what employers want depend on culture?" *Academy of Management Perspectives*, Vol. 23, No. 1, pp. 79-80.
- Solomond, J. (1996) 'International high technology cooperation: lessons learned', *IEEE Transactions on Engineering Management*, Vol. 43, No. 1 (Feb), pp.69–78.
- Standish Group International (2007). Various report citations and research reference on causes of product failure, <http://www.standishgroup.com/>.
- Standish Group International. 2002. *Sun mainframe rehosting: Save more than a few cents (special report)*. West Yarmouth, MA: The Standish Group International.
- Stringer, R. (2000) "How to manage radical innovation," *California Management Review*, Vol. 42, No. 4, pp. 55-68.
- Thamhain H and Wilemon D (1996). "Building high performing engineering project teams." Chapter 12. *The human side of managing technological innovation* (R.Katz, ed.). Oxford University Press.
- Thamhain, H.J. and Wilemon D.L. (1999), "Building effective teams in complex project environments," *Technology Management*, Volume 5, Number 2 (May).

- Thamhain, H. (2002) "Criteria for Effective Leadership in Technology-Oriented Project Teams," Chapter 16 in *The Frontiers of Project Management Research* (Slevin, Cleland & Pinto, eds.), Newton
- Thamhain H (2003), "Managing innovative R&D teams," *R&D Management*, Vol. 33, No. 3 (June), pp. 297-312.
- Thamhain, Hans, J. (2004). "Leading technology teams," *Project Management Journal*, Vol. 35, No. 4, pp. 35-47.
- Thamhain, Hans J. (2005). "Team leadership effectiveness in technology-based project environments," *IEEE Engineering Management Review*, Vol. 33, No. 2, pp. 11-25.
- Thamhain, Hans, J. (2008). "Team leadership effectiveness in technology-based project environments, *IEEE Engineering Management Review*, Vol. 36, No. 1, pp. 165-180.
- Thamhain, Hans (2009). "Leadership lessons from managing technology-intensive teams." *International Journal of Innovation and Technology Management*, Vol. 6, No. 2, pp.117-133.
- Thamhain, Hans J. (2009). "The Future of Project Team Leadership," Chapter 11, *Project Management Circa 2025* (professional reference book; B. Bidanda & D. Cleland, eds). Philadelphia: PMI Press.
- Thamhain, H (2011). "Critical success factors for managing technology-intensive teams the global enterprise." *Engineering Management Journal*, Vol. 23, No. 3 (Sep), pp.30-36.
- Thamhain, H. and Asgary, N. (2008). "Effective Leadership of Culturally Diverse Technology Projects," *Proceedings, Portland International Conference on Management of Engineering and Technology (PICMET)*, Cape Town, South Africa, July 26-30, 2008
- Thamhain, Hans, J. (2009). "Managing globally dispersed R&D teams." *International Journal of Information Technology and Management (IJITM)*, Vol. 8, No. 1, pp. 107-126.
- Thamhain, H (2011). "Critical success factors for managing technology-intensive teams the global enterprise." *Engineering Management Journal*, Vol. 23, No. 3 (Sep), pp.30-36.
- Valikangas, L., Hoegl, M. & Gibbert, M. (2009). "Why learning from failure isn't easy (and what to do about it): Innovation trauma at Sun Microsystems." *European Management Journal*, 27(4): 225-233.

Wade HS, editor (2008). Special Issue on “Leading small groups,” IEEE Engineering Management Review, Vol. 36, No.1, pp.3-183. Wade HS, editor (2009). Special Issue on “Leading engineers,” IEEE Engineering Management Review, Vol. 37, No.3, pp.3-86.

Whitten, N. (1995), *Managing Software Development Projects* (2<sup>nd</sup> Edition), New York: John Wiley & Sons.

Zanoni, R. and Audy, J. (2004), "Project management model for physically distributed software development environment", *Engineering Management Journal* , 16, 1.

Zhang P, Keil M, Rai A and Mann J (2003), “Predicting information technology project escalation, *Journal of Operations Research*, Vol. 146, No.1, pp.115-129.

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ILLUSTRATIONS

The Changing Role of Team Leadership in Multinational Project Environments



Figure 1. Characteristics of High-Performing Teams.

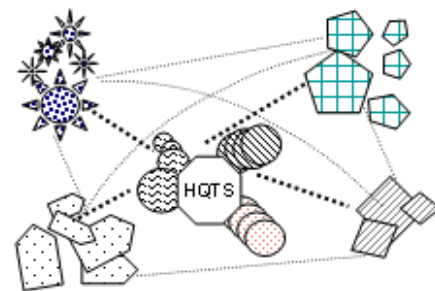


Figure 2. Multinational Team Environment

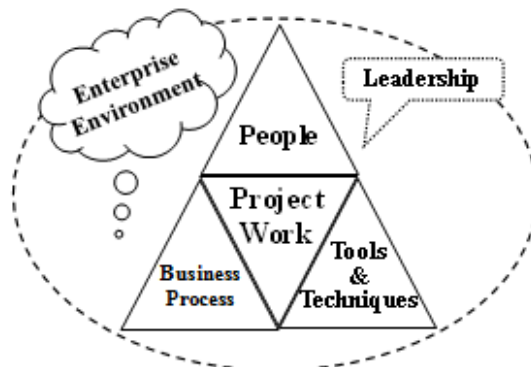


Figure 3. Influences to team performance

**Table 1- Field sample characteristics.**

PARAMETER	TOTAL	AVGE	SIGMA
<b>Sample Characteristics (overall):</b>			
Multinational host companies (Fortune-1000)	15		
Programs/projects	37		
Program/project managers	37		
Cross-national sub-teams or workgroups	205		
Major contractors and partners	215		
Sub-teams or workgroups (total)	310		
Total team population (all programs/projects)	2,240		
<b>Program/Project Characteristics (each):</b>			
Workgroups or sub-teams		8	4.5
Workgroup size		12	3.2
Major contractors and partners		13	4.1
Multinational locations		4	1.5
Geographically separated locations		5	2.2
Budget		\$1.6M	\$.8M
Duration		2.3 yrs	.35 yrs
<b>Type of work (primary)</b>			
New product or process development		42%	
Service development		20%	
Mixture		38%	
<b>Type of deliverables</b>			
Electronic equipment		32%	
IT & software		18%	
Aerospace		8%	
Aircraft		3%	
Automotive		4%	
Pharmaceutical		15%	
Other		20%	
<b>Team Characteristics (each member):</b>			
Work experience		12 yrs	4.5 yrs
College educated		87%	
Advanced degrees		42%	
Engineering/science background		76%	
Worked in this team before		22%	

**Table 2 - Strongest Drivers Toward Project Team Performance (Kendall's Tau Rank-Order Correlation)**

Variables Team Environment and Performance	Mean Sigma	Team Environment											Team Performance								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
<b>Project Team Environment *</b>																					
1 Interesting, Stimulating Work	3.9 <sub>.7</sub>	1.0																			
2 Accomplishment & Recognition	3.4 <sub>.9</sub>	.38	1.0																		
3 Low Org Conflict, Anxiety	2.8 <sub>.1.1</sub>	.27	.43	1.0																	
4 Clear Organizational Objectives	3.1 <sub>.1.3</sub>	.17	.32	.38	1.0																
5 Job Skills & Expertise	3.6 <sub>.1.3</sub>	.09	.39	.33	.32	1.0															
6 Direction & Leadership	3.3 <sub>.1.1</sub>	.29	.37	.27	.40	.17	1.0														
7 Trust, Respect, Credibility	4.1 <sub>.1.1</sub>	.29	.39	.43	.19	.09	.16	1.0													
8 Cross-Funct'l Coop & Support	3.5 <sub>.1.3</sub>	.20	.31	.38	.02	0	.22	.37	1.0												
9 Effective Communications	4.2 <sub>.9</sub>	.34	.23	.36	.22	.11	.13	.38	.47	1.0											
10 Clear Project Plan & Support	3.1 <sub>.1.7</sub>	.38	.25	.36	.19	.08	.15	.17	.37	.29	1.0										
11 Autonomy & Freedom	3.1 <sub>.8</sub>	.43	.18	.15	.12	.22	.20	.33	.11	.23	.05	1.0									
12 Career Development/Advancement	3.3 <sub>.1.2</sub>	.10	.19	.09	0	.38	.20	.16	.03	0	.09	.22	1.0								
13 Job Security	2.2 <sub>.1.1</sub>	.16	.16	.26	.10	.1	0	.27	.15	.12	0	.15	.30	1.0							
<b>Project Team Performance *</b>																					
14 Meeting Project Objectives	3.5 <sub>.1.2</sub>	.37	.38	.20	.40	.38	.38	.28	.37	.38	.37	.26	.18	.31	1.0						
15 Dealing with Risk and Changes	2.7 <sub>.1.6</sub>	.39	.27	.33	.21	.32	.27	.08	.37	.34	.36	.34	.10	.30	.4	1.0					
16 Resolving Issues & Conflicts	2.7 <sub>.1.7</sub>	.41	.36	.43	.17	.33	.41	.48	.28	.40	.33	.32	.11	.38	.3	.48	1.0				
17 Lessons Captured & Applied	2.7 <sub>.1.5</sub>	.17	.38	.40	.22	.35	.33	.39	.32	.17	.20	.18	.11	.36	.2	.36	.36	1.0			
18 Effort + Commitment to Results	3.9 <sub>.1.0</sub>	.43	.35	.30	.28	.15	.22	.40	.28	.27	.36	.36	.07	.12	.2	.28	.40	.27	1.0		
19 Stakeholder Satisfaction	2.8 <sub>.2.2</sub>	.39	.37	.29	.37	.42	.40	.33	.38	.38	.29	.22	.17	.33	.4	.39	.31	.30	.43	1.0	
20 Overall Team Performance	4.0 <sub>.7</sub>	.45	.38	.37	.36	.36	.35	.30	.27	.27	.25	.23	.12	.12	.4	.47	.45	.30	.47	.48	1.0

All variables were measured with descriptive statements on a 5-point Likert scale: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, (5) strongly agree.

Statements were judged by team members [\*] and senior management [#], as indicated.

Statistical Significance: p=.10 (≥.20), p=.05 (≥.31), p=.01 (≥.36); correlation of p=.01 or stronger are marked in bold italics.