CHAPTER 1

Getting Grounded

There are literally thousands of books about project management and how it should be done for all manner of projects, large and small. But, ironically, there are almost no books about project managers, the people who actually organize and lead projects and get the work done. In this book we explore the makeup of a particular subset of project managers: those who lead major complex projects for the sponsors (owners) of the projects.[1] The leaders of large complex projects usually carry the title of project director rather than project manager. We will use that term or simply *project leader* to differentiate them from the managers of simpler projects or of the subprojects that usually accompany a large, complex capital venture.

Management is all about the efficient organization of tasks in a project, making rational assignments to team members and contractors based on their strengths, monitoring performance of individuals and teams, and getting work accomplished. All projects require management or they will fail. But not all projects require leadership.

[1] We will define and discuss complexity at some length in Chapter 3 as it bears the nature of the leader's role. Suffice it to say, complex projects are undertakings with a number of areas of scope, lots of stakeholders, both internal and external, and a degree of organizational complexity. Almost all megaprojects are complex, but many projects below the megaproject threshold of a billion dollars or so are also complex projects and must be treated accordingly to succeed.

Leadership is rather different from management even if exercised by the same person. Leadership is all about *inducing* people to cooperate in pursuing a goal (a vision if you prefer) that the leader has articulated. The notion of leadership implies followership. The notion of followership implies a degree of volition. We contend that smaller, simpler projects can usually be managed without much true leadership, but large complex projects must always be led. We understand, of course, that this is a matter of degree and situation. For example, a small project staffed entirely by volunteers may require leadership as well as management because the staff can walk away if they are unhappy or even bored. Those who sponsor and invest in projects must come to understand which projects require leaders and what characteristics of those leaders help predict which candidate will most likely be successful. Providing that knowledge is the primary goal of this book.

We have known for some time that the fate of difficult projects seems to hinge more on the project leaders than the results of simpler projects.[2] In complex projects, the loss of continuity in project leadership at any point from the start of project execution planning forward results in much worse outcomes with the failure rate more than doubling. The effect is present in simpler projects too, but the effect on outcomes is much larger in complex projects. Our goal in undertaking the research that led to this book was to understand the personalities, prior experience, and habits of mind that make some complex project leaders successful while others fail. The reason that this book is needed is that far too many large complex projects fail. We have become convinced through the course of this research that one of the major reasons why so many

[2] See Edward Merrow, *Industrial Megaprojects* (Hoboken, NJ: Wiley, 2011), 180–182.

complex projects fail is because the leader was miscast in his or her role.

THE SELECTION PROCESS FOR COMPLEX PROJECT LEADERS IS NOT WORKING

We conclude from the analysis described in Chapters 4 and 5 of this book that the process that industrial companies are using to select leaders for their most important projects is broken. Before we dive into what leads us to that conclusion, we describe how the current selection process actually works.

To better understand how leaders are actually selected for complex projects, we surveyed 13 industrial companies, all in the petroleum industry, that have numerous complex megaprojects in their portfolios. All of the companies will typically have multiple multibillion-dollar projects underway at any point so their need for complex project leaders is sustained. We asked representatives of the companies how project leaders are selected, by whom, and at what point in time in the project's evolution. We were fortunate to have multiple responses from most companies because the multiple responses indicated the extent to which the selection process is consistent and understood. At least one representative from each company was a senior manager within the project's organization. Forty-nine people completed the survey, giving us an average of almost four responses per company.

Who Selects the Leaders?

Eight of the 13 companies reported that complex project leaders are selected by senior management within the projects organization, although one of those eight indicated that a

"functional professional development committee" within the project organization made the assignment. In three cases a senior business executive selected the project leader, and in two cases the selection is made jointly by the business and projects. While one might guess that selection by a business executive would be more common in smaller companies where the business professionals are more likely to know the project leaders personally, there is actually no pattern at all. Rather, sole selection by the business appears to reflect weakness in the project's organization. In the cases of joint selection, one company is a very large, nationally owned company and the other a much smaller independent.

What Are the Selection Criteria?

While the selection criteria are not exactly random, there is not much hint of scientific method. Experience – undefined – was the most commonly cited criterion followed by availability, and then by "politics or favoritism."[3] Of our total of 49 respondents, only two claimed that any personality characteristics were included in the selection criteria, although one indicated that language skills and cultural understanding were important. Two respondents indicated that familiarity with the technology to be used on the project was important.

The picture that emerges from our survey is of selection processes that are largely ad hoc. Experience, which we

[3] We must note that experience does not necessarily equate to good experience. We do have cases in which the project leader has presided over a distinctly poor complex project, only to be assigned to another thereafter. We even know of cases in which a project leader has had successive failed megaprojects with no track record of success on such projects. What this suggests, of course, is that finding people who are considered qualified to lead these difficult projects is itself quite difficult.

take to mean prior track record of success, is important but relatively little else. There are several problems with this approach. First, at any point in time, a significant fraction of all complex project leaders will be doing their first complex project. This is because most project managers who graduate to complex project leadership have already spent 20 years in project management and therefore have only one or two megaprojects left in their careers.[4] Only in the most unusual cases do we see more than two or three complex projects in a career. This means that the experience measure that companies are using is often based on performance on less complex projects. Unfortunately, there is no evidence to support the notion that successful experience on less complex projects is a good predictor of success in difficult projects. The great majority of those selected to lead their first complex projects were successful simpler-project managers. Success in one's first complex project is a good predictor of success in a second. But it is not even clear that a long career progression in smaller, less complex projects is of any substantial value to the complex project leader at all. A few of our most successful leaders were assigned – usually out of necessity – to their first complex project at an earlier (inexperienced) point in their careers. A few more of our most successful leaders had never actually managed *any* capital project prior to their first megaproject, although they had been in positions that were closely aligned with projects, such as disciplinary heads of engineering. If an effective selection process were in place to identify effective project leader candidates earlier in their careers, it would significantly increase the supply of these critical human resources.

[4] The average complex project requires four to five years in execution preceded by more than two years (often much more) in front-end planning and development.

When Are Project Directors Usually Installed?

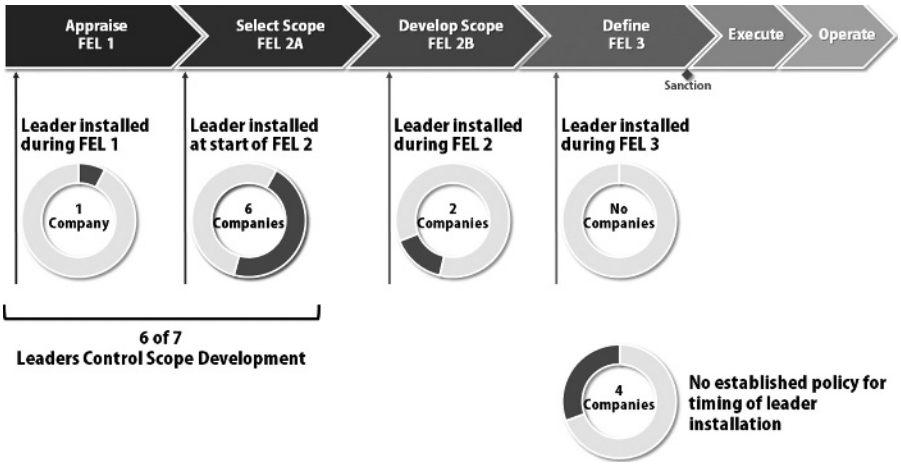
There is an ongoing debate within the industrial megaprojects community about what constitutes the ideal time to appoint and install the leader for projects. The point of contention is whether leaders who are adept at developing the right scope for a project also have the right skills (and perhaps temperament) to execute a project. Those who believe that the temperaments and skillsets are necessarily different argue to bring the project leader on at the beginning of FEL 3[5] or even at the start of detailed engineering rather than earlier in front-end loading. Those who believe that a single project leader can lead the entire process want the project leader involved as early as reasonably practical so that the project leader deeply understands the scope.

We asked our survey respondents when project directors are usually appointed for their projects and in those cases in which they were installed at the start of scope development whether they actually controlled the scope development process or acted more in an observer role. The results are shown in Figure 1.1. One of the 13 companies represented in the survey brings the leader on at the beginning of FEL 1 and makes that leader accountable for scope development.[6] Six companies bring the leader onto the projects at the start of scope development and five of those six make the project leader responsible for scope development. Two companies bring the leader on after the basic scope is developed but still during the FEL 2 (scope development) phase of the project.

[5] FEL stands for "front-end loading," which is the process by which a project is conceptualized, developed, and defined prior to the start of execution. It is a core practice for all projects large and small.

[6] Unfortunately, they also described themselves as not particularly concerned about project leader continuity, which is quite unfortunate in light of overwhelming evidence that continuity is important.

Figure 1.1
When Complex Project Leaders Are Appointed for Their Projects



None of the 13 companies routinely wait until the beginning of FEED[7] (FEL 3) to bring the leader onto the project. Four of the companies, including some of the largest, have no established policy around the timing of project leader installation; they sometimes bring the leader on at the start of FEL 2 and others at FEL 2A and still others at the start of FEED. In no case did any respondent suggest that start of execution was ever intended to be the start of the project director's tenure.

The patterns that we find here represent a substantial shift of philosophy in the petroleum industry over the past 20 years. Twenty years ago, the great majority of companies would have responded that the project leader who will lead execution was not installed until FEED at the earliest and frequently not until the start of formal execution.

This change reflects the industry's migration from functionally based and centered project organizations (weak matrix)

[7] FEED stands for "front-end engineering design," FEED brings the design of a project to the point that full detailed design can commence. FEL 3 also includes execution planning work by the owner and contractor teams.

to strong, team-based (strong matrix) systems.[8] Two of the 13 companies in our survey have made the switch from function-based to strong matrix just in the past three years in an effort to improve their performance in the face of lower oil prices. Of the 13 companies surveyed, only four indicated that it was normal to have a transition of project leaders during front-end loading. Interestingly, three of those four are very large international companies. None of the independents and only one national company continue to view a turnover of project leadership during or just after FEL as a desirable approach. Twenty years ago, most companies would have described such a transition as normal practice.

We have no doubt, based on 30 years of continuous benchmarking of the process industries,[9] that the transition to strong-matrix systems has improved capital project effectiveness overall.[10] However, it has made relatively little difference in the performance of large complex projects, as there is no discernible time trend of improvement in these projects.

[8] In weak-matrix systems, functional managers (e.g., manager for structural engineering, manager for process engineering, manager of estimating, etc.), assign personnel to project teams and maintain a degree of control over those personnel throughout their stint on a project. The functional managers also write the performance reviews for those personnel. This undermines the autonomy and authority of the project directors, which is why this approach is also sometimes called a "weak project manager system." In strong matrix systems, personnel from the needed functions are seconded to the team and then report only to the project manager/director. The functional managers have no control over project management. Hence, these systems are often called "strong project manager systems." Note, however, that some functions are almost always "weak-matrixed" into projects (e.g., legal). Petroleum development projects always involve a degree of "weak-matrixing" because the reservoir (subsurface), drilling, and facilities organizations are never fully integrated.

[9] Included are petroleum production, petroleum refining, mining, metals processing, chemicals, pharmaceuticals, pulp and paper, power and infrastructure, and consumer products industries.

[10] The transition to strong-matrix systems has not been without negatives; the decline in owner-project competencies in areas such as construction management and controls has surely been accelerated by the transition to strong-matrix systems.

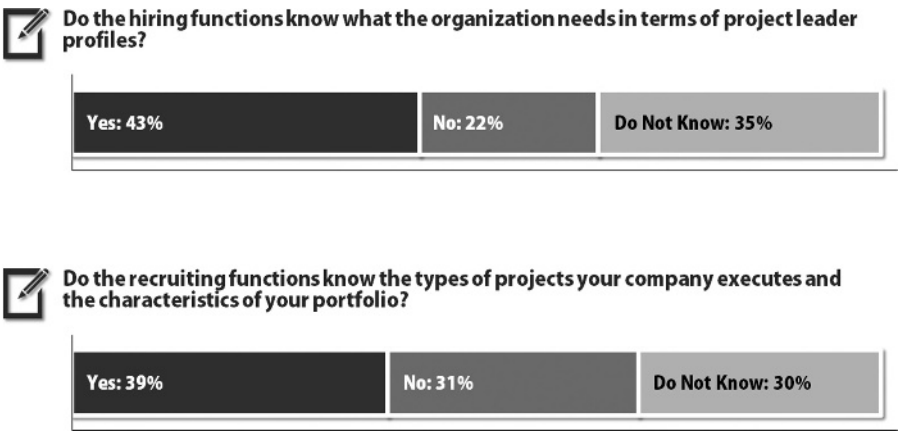
We believe the failure to improve in these projects can be attributed to a basically flawed process of selecting complex project leaders. The flaws in the selection process are clearly reflected in survey responses discussed earlier. Despite ample opportunity to do so, our respondents made little or no reference to the *leadership* qualities essential to complex project success.

We believe that those who advocate separate project leaders for scope development and execution are misunderstanding the role of the complex project leader. During scope development, the project director is not making the technical decisions of this scope versus that. Instead, the project leader is orchestrating the scope development process, making sure that the pieces of the scope are synchronized properly and ensuring that those outside the project team that can influence the scope (e.g., internal and external stakeholders, regulatory authorities, etc.) are informed and in broad agreement with the scope as it evolves. These activities are not fundamentally different than what the project leader will be doing during execution. Only if one thinks of the project leader as the doer of things, rather than orchestrator, would the skillsets be fundamentally different. We believe the concept of the project leader as doer is flawed on complex projects.

Links to Human Resources

The relationship between corporate human resource (HR) organizations and capital projects is often somewhat tenuous. Project professionals are a small fraction of the people recruited and developed by HR. The profiles and interests of those who will be effective project professionals are usually quite different than those who will be successful in operations or the businesses. In our survey of companies, we inquired

Figure 1.2
The Ties Between Human Resources and Complex Project Leaders Could Be Stronger



about the ties between HR and complex project leaders. The results are shown in Figure 1.2.

The results suggest that the ties between the projects and HR organizations could and should be strengthened. Most of the respondents were quite senior in their organizations but either didn't know whether the hiring organization understood the desired profile of complex project leaders or were confident they did not. Nearly a third felt that HR did not understand the types of projects the company executes. It is our hope that this book will help forge stronger links between projects and HR going forward as HR's assistance will probably be essential to hiring those who will later become successful complex project leaders.

The Use of Nonoperated Joint Ventures as a Career Development

In Chapter 4 we will discuss one of the key experiential factors that improved the success chances of complex project leaders:

having been assigned to act as a liaison to what is called a nonoperated venture (NOV) in the oil industry. Most oil industry projects are joint ventures in which one of the partners is designated as the operating partner that will lead the effort while the others are relegated to watching, approving certain decisions, and sometimes critiquing. The nonoperators typically assign a person or two to liaise with the operator. It is this liaison role we are discussing.

We asked our 13 companies whether they routinely assigned project managers to the liaison role as a development opportunity. Nine of the companies (69%) said they had no such policy, two reported they did sometimes, and the final two said they used the NOVs in this fashion. It appears that in most companies one's appointment to the NOV liaison role is, like many appointments to complex project leadership roles, more a matter of availability than conscious career design. The petroleum industry has the worst track record of any industrial sector in its complex projects with just over one project in five being successful.[11] The irony is that the petroleum industry is almost uniquely poised to use NOV experience to help groom complex project leaders, but is largely unaware that the role is in fact such an opportunity.

WHO SHOULD READ THIS BOOK?

First, anyone with an interest in project management should find this book of interest. If project management is one's chosen career, this book may help the reader understand what qualities he or she should have to pursue leadership of complex projects and, to the extent possible, what qualities need to be developed and nurtured. If one lacks some of the key

[11] Merrow, *Industrial Megaprojects*, p. 334.

personality characteristics needed to be a successful complex project leader, a career in project management is not foreclosed. The great majority of project managers are needed on less complex projects. It is important to know realistically where one's talents are best employed.

Second, we hope this book will be read by those who sponsor and are tasked with assigning directors to large complex projects. This book should help guide their decisions of who to put in charge of these critical investments, how a pool of such people should be developed and nurtured, and what critical qualities need to be developed in that group.

Third, we hope those interested in leadership generally find this book of interest. Our research builds on and confirms the work of Daniel Goleman and others about the importance of emotional intelligence to effective leadership. We see no reason that our conclusions about the makeup of successful project leaders should not extrapolate to leaders in all walks of life. When those who have been put into positions of leadership lack certain elements of personality and emotional intelligence, the result is usually disappointment for all involved.

Fourth, those particularly concerned about the leadership of oil and gas production projects should find the book of considerable interest as most of the projects and project leaders that we will discuss are drawn from the petroleum development sector. As those involved in large petroleum projects already know too well, oil and gas projects are particularly prone to failure in the form of large cost overruns, slippage in schedule, and significant shortfalls in production attainment. We believe that many of the failures can and should be understood as failures of leadership. The need for leadership in such projects results from their inherent and unavoidable complexity. The failure to put the right people in place to

lead the projects stems from a lack of understanding of what the requirements really are.

Finally, we hope that those in the academic community who study capital projects and their management will see this book as a useful contribution to the literature. We believe this study addresses two weaknesses in the literature directly: (1) a failure to link observations and theory to the outcomes of real projects in a quantitative and systematic way, and (2) the sparseness of the literature in dealing with the personalities and emotional makeup of project leaders and how personality and emotional makeup help shape success and failure.

ORGANIZATION OF THE BOOK

This book is organized into two parts. Part I consists of Chapters 2 through 5 and focuses on the findings of our quantitative study of complex project leadership. Chapter 2 lays out the methodology we followed in the study, including the elements of the survey instrument we employed and how the sample was developed and the nature of the statistical analyses that we performed. In Chapter 2, we also describe the projects associated with the 56 project leaders surveyed. Much of the power of the analysis flows from connecting project leader traits with the results of real projects, so the links between leadership and results can be demonstrated rather than inferred or treated anecdotally. Chapter 2 will be required reading for academic readers and human resource professionals who need to deeply understand how the analysis was approached and executed. Other readers should feel free to skim the chapter, but with the caution that much of the analysis in Chapters 4 and 5 rests on an understanding of the methodology.

Chapter 3 develops and articulates the size and scope of the complex project leader's job. Chapter 3 describes why leadership is essential for complex projects while simple

projects can usually succeed with good management alone. Chapter 4 lays out the relationships we found between the personalities, habits of mind, and emotional intelligence of project leaders and project success and failure. Successful leaders are distinctly and clearly different from unsuccessful leaders in a number of important respects. Chapter 5 fashions the links between leaders' personalities and emotional intelligence and the various project tasks they consider of highest importance and therefore to which they devote more of their time and energy. It is the translation from personal traits to actual tasks that forms the causal link between personal traits and success. We complete Chapter 5 by discussing how the tasks considered important and done translate into six project practices that drive success in projects generally and in complex projects in particular.

Part II presents the lengthy interview conversations we had with seven highly successful leaders of complex and difficult projects. Most of these extraordinary people have led multiple successful complex megaprojects totaling over $100 billion in capital investment. We discuss how they came to project leadership as a career, who helped them along the way, and their candid views on what is necessary to make a difficult project succeed. Our hope is to bring life and deeper understanding to some of those dry statistics in Part I. These seven project leaders exemplify many of the traits and connections made theoretically and empirically in Part I.

We conclude by outlining what an improved selection and development process might entail for complex project leaders in any sector of the global economy. We will also suggest how one should approach finding the right project leaders for today's projects by knowing what to look for among the candidates available. Every company has a pool from which to select the right people, but most lack a methodology with which to do so accurately.