1 THE CHANGING LANDSCAPE OF PROJECT MANAGEMENT

CHAPTER OVERVIEW

The way project managers managed projects in the past will not suffice for many of the projects being managed now or for the projects of the future. The complexity of these projects will place pressure on organizations to better understand how to identify, select, measure, and report project metrics, especially metrics showing value creation. The future of project management may very well be metric-driven project management. In addition, new approaches to project management, such as those with agile and Scrum, have brought with them new sets of metrics.

CHAPTER OBJECTIVES

- To understand how project management has changed
- To understand the need for project management metrics
- To understand the need for better, more complex project management metrics

KEY WORDS

- Certification boards
- Complex projects
- Engagement project management
- Frameworks
- Governance
- Project management methodologies
- Project success

1.0 INTRODUCTION

For more than 50 years, project management has been in use but perhaps not on a worldwide basis. What differentiated companies in the early years was whether they used project management or not, not how well they used it. Today, almost every company uses project management, and the differentiation is whether they are simply good at project management or whether they truly excel at project management. The difference between using project management and being good at it is relatively small, and most companies can become good at project management in a relatively short time,

Project Management Metrics, KPIs, and Dashboards: A Guide to Measuring and Monitoring Project Performance, Fourth Edition. Harold Kerzner.

Companion Website: www.wiley.com/go/kerznermetrics4e

especially if they have executive-level support. A well-organized project management office (PMO) can also accelerate the maturation process. The difference, however, between being good and excelling at project management is quite large. One of the critical differences is that excellence in project management on a continuous basis requires more metrics than just time and cost. The success of a project cannot be determined just from the time and cost metrics, yet many companies persist in the belief that this is possible.

The growth of project management applications to nontraditional projects such as those involving strategic issues, innovation, and long-term business investment opportunities have forced companies to rethink how project management can be better utilized. Companies have come to the realization that they must excel at project management rather than just being good at it. This requires the use of flexible methodologies rather than the one-size-fits-all approach, new tools, specialized metrics, creation of information warehouses, new data visualization programs, and packaging all of this into business intelligence systems.

Companies such as IBM, Microsoft, Siemens, Hewlett-Packard (HP), and Deloitte, to name just a few, have come to the realization that they must excel at project management. Doing this requires additional tools and metrics to support project management. IBM has more than 300,000 employees, more than 70 percent of whom are outside of the United States. This includes some 30,000 project managers. HP has more than 8000 project managers and 3500 PMP® credential holders. HP's goal is 8000 project managers and 8000 PMP® credential holders. These numbers are now much larger with HP's acquisition of Electronic Data Systems (EDS).

1.1 EXECUTIVE VIEW OF PROJECT MANAGEMENT

Companies today perform strategic planning for project management and are focusing heavily on the future. Several of the things that these companies are doing will be discussed in this chapter, beginning with senior management's vision of the future. Years ago, senior management paid lip service to project management, reluctantly supporting it to placate the customers. Today, senior management appears to have recognized the value in using project management effectively and maintains a different view of project management, as shown in Table 1.1.

Project management is no longer regarded as a part-time occupation or even a career path position. It is now viewed as a strategic competency needed for the survival of the firm. Superior project management capability can make the difference between winning and losing a contract.

For more than 30 years, becoming a PMP® credential holder was seen as the light at the end of the tunnel. Today, that has changed. Becoming a PMP® credential holder is the light at the *entryway* to the tunnel. The light at the end of the tunnel may require multiple

TABLE 1.1 Executive View of Project Management

OLD VIEW	NEW VIEW
Project management is a career path.	Project management is a strategic or core competency necessary for the growth and survival of the company.
We need our people to receive Project Management Professional certifications.	We need our people to undergo multiple certifications and, at a minimum, to be certified in both project management and corporate business processes.
Project managers will be used for project execution only.	Project managers will participate in strategic planning, the portfolio selection of projects, and capacity-planning activities.
Business strategy and project execution are separate activities.	Part of the project manager's job is to bridge strategy and execution.
Project managers just make project-based decisions.	Project managers make both project and business decisions.

certifications. As an example, after becoming a PMP® credential holder, a project manager may desire to become certified in

- Business Analyst Skills or Business Management
- Program Management
- Business Processes
- Managing Complex Projects
- Six Sigma
- Risk Management
- Agile Project Management

Some companies have certification boards that meet frequently and discuss what certification programs would be of value for their project managers. Certification programs that require specific knowledge of company processes or company intellectual property may be internally developed and taught by the company's own employees.

Executives have come to realize that there is a return on investment in project management education. Therefore, executives are now investing heavily in customized project management training, especially in behavioral courses. As an example, one executive commented that he felt that presentation skills training was the highest priority for his project managers. If a project manager makes a highly polished presentation before a client, the client believes that the project is being managed the same way. If the project manager makes a poor presentation, then the client might believe the project is managed the same way. Other training programs that executives feel would be beneficial for the future include:

- Establishing metrics and key performance indicators (KPIs)
- Dashboard design
- Managing complex projects
- How to perform feasibility studies and cost–benefit analyses

- Business analysis
- Business case development
- How to validate and revalidate project assumptions
- How to establish effective project governance
- How to manage multiple stakeholders many of whom may be multinational
- How to design and implement "fluid" or adaptive enterprise project management (EPM) methodologies
- How to develop coping skills and stress management skills

Project managers are now being brought on board projects at the beginning of the initiation phase rather than at its end. To understand the reason for this, consider the following situation:

SITUATION: A project team is assembled at the end of the initiation phase of a project to develop a new product for the company. The project manager is given the business case for the project together with a listing of the assumptions and constraints. Eventually the project is completed, somewhat late and significantly over budget. When asked by marketing and sales why the project costs were so large, the project manager responds, "According to my team's interpretation of the requirements and the business case, we had to add in more features than we originally thought."

Marketing then replies, "The added functionality is more than what our customers actually need. The manufacturing costs for what you developed will be significantly higher than anticipated, and that will force us to raise the selling price. We may no longer be competitive in the market segment we were targeting."

"That's not our problem," responds the project manager. "Our definition of project success is the eventual commercialization of the product. Finding customers is your problem, not our problem."

Needless to say, we could argue about what the real issues were in this project that created the problems. For the purpose of this book, three issues stand out. First and foremost, project managers today are paid to make business decisions as well as project decisions. Making merely project-type decisions could result in the development of a product that is either too costly to build or overpriced for the market at hand. Second, the traditional metrics used by project managers over the past several decades were designed for project rather than business decision making. Project managers must recognize that, with the added responsibilities of making business decisions, a new set of metrics may need to be included as part of their responsibilities. Likewise, we could argue that marketing was remiss in not establishing and tracking business-related metrics throughout the project and simply waited until the project was completed to see the results. Third, with the growth in the number of projects that companies must work on, executives do not have the time to act as heavily involved sponsors on all the projects without sacrificing some of their required day-to-day responsibilities. Data visualization systems and dashboards will ease

some of the pain in knowing when a project requires immediate executive attention. The growth in metric measurement techniques and dashboard designs will allow executives to have customized metrics accompanied by real time updates so that decisions can be made based upon facts and evidence rather than guesses.

1.2 COMPLEX PROJECTS

TIP Today's project managers see themselves as managing part of a business rather than simply managing a project. Therefore, they may require additional metrics for informed decision making.

For four decades, project management has been used to support traditional projects. Traditional projects are heavily based on linear thinking; there exist well-structured life cycle phases and templates, forms, guidelines, and checklists for each phase. As long as the scope is reasonably well defined, traditional project management works well.

Unfortunately, only a small percentage of all of the projects in a company fall into this category. Most nontraditional or complex projects use seat-of-the-pants management because they are largely based on business scenarios where the outcome or expectations can change from day to day. Project management techniques were neither required nor used on these complex projects that were more business oriented and aligned to 5-year or 10-year strategic plans that were constantly updated.

Project managers have finally realized that project management can be used on these complex projects, but the traditional processes may be inappropriate or must be modified. This includes looking at project management metrics and KPIs in a different light. The leadership style for complex projects may not be the same as that for traditional projects. Risk management is significantly more difficult on complex projects, and the involvement of more participants and stakeholders is necessary.

Now that companies have become good at traditional projects, we are focusing our attention on the nontraditional or complex projects. Unfortunately, there is no clear-cut definition of a complex project. Some of the major differences between traditional and nontraditional or complex projects, in the author's opinion, are shown in Table 1.2.

Comparing Traditional and Nontraditional Projects

The traditional project that most people manage usually lasts less than 18 months. In some companies, the traditional project might last six months or less. The length of the project usually depends on the industry. In the auto industry, for example, a traditional project lasts three years.

Section 1.2 is adapted from Harold Kerzner and Carl Belack, *Managing Complex Projects* (Hoboken, NJ: John Wiley & Sons, 2010), Chapter 1.

TABLE 1.2 Traditional versus Nontraditional Projects

TRADITIONAL PROJECTS	NONTRADITIONAL PROJECTS
Time duration is 6–18 months.	Time duration can be several years.
Assumptions are not expected to change over the project's duration.	Assumptions can and will change over the project's duration.
Technology is known and will not change over the project's duration.	Technology will most certainly change.
People who started on the project will remain through to completion (the team and the project sponsor).	People who approved the project and are part of the governance may not be there at the project's conclusion.
Statement of work is reasonably well defined.	Statement of work is ill defined and subject to numerous scope changes.
Target is stationary.	Target may be moving.
There are few stakeholders.	There are multiple stakeholders.
There are few metrics and KPIs.	There can be numerous metrics and KPIs.

With projects that last 18 months or less, it is assumed that technology is known with some degree of assurance and technology may undergo little change over the life of the project. The same holds true for the assumptions. Project managers tend to believe that the assumptions made at the beginning of the project will remain intact for the duration of the project unless a crisis occurs.

People who are assigned to the project will most likely stay on board the project from beginning to end. The people may be full time or part time. This includes the project sponsor as well as the team members.

Because the project lasts 18 months or less, the statement of work is usually reasonably well defined, and the project plan is based on reasonably well-understood and proven estimates. Cost overruns and schedule slippages can occur, but not to the degree that they will happen on complex projects. The objectives of the project, as well as critical milestone or deliverable dates, are reasonably stationary and not expected to change unless a crisis occurs.

In the past, the complexities of nontraditional projects seem to have been driven by time and cost. Some people believe that these are the only two metrics that need to be tracked on a continuous basis. Complex projects may run as long as 10 years or even longer. Because of the long duration, the assumptions made at the initiation of the project will most likely not be valid at the end of the project. The assumptions will have to be revalidated throughout the project. There can be numerous metrics, and the metrics can change over the duration of the project. Likewise, technology can be expected to change throughout the project. Changes in technology can create significant and costly scope changes to the point where the final deliverable does not resemble the initially planned deliverable.

People on the governance committee and in decision-making roles most likely are senior people and may be close to retirement. Based on the actual length of the project, the governance structure can be expected to change throughout the project if the project's duration is 10 years or longer.

Because of scope changes, the statement of work may undergo several revisions over the life cycle of the project. New governance groups and new stakeholders can have their own hidden agendas and demand that the scope be changed; they might even cancel their financial support for the project. Finally, whenever there is a long-term complex project where continuous scope changes are expected, the final target may move. In other words, the project plan must be constructed to hit a moving target.

SITUATION: A project manager was brought on board a project and provided with a project charter that included all of the assumptions made in the selection and authorization of the project. Partway through the project, some of the business assumptions changed. The project manager assumed that the project sponsor would be monitoring the enterprise environmental factors for changes in the business assumptions. That did not happen. The project was eventually completed, but there was no real market for the product.

Given the premise that project managers are now more actively involved in the business side of projects, the business assumptions must be tracked the same way that budgets and schedules are tracked. If the assumptions are wrong or no longer valid, then either the statement of work may need to be changed or the project may need to be canceled. The expected value at the end of the project also must be tracked because unacceptable changes in the final value may be another reason for project cancellation.

Examples of assumptions that are likely to change over the duration of a project, especially on a long-term project, include these:

- The cost of borrowing money and financing the project will remain fixed.
- Procurement costs will not increase.
- Breakthroughs in technology will take place as scheduled.
- The resources with the necessary skills will be available when needed.
- The marketplace will readily accept the product.
- The customer base is loyal to the company.
- Competitors will not catch up to the company.
- The risks are low and can be easily mitigated.
- The political environment in the host country will not change.

The problem with having faulty assumptions is that they can lead to bad results and unhappy customers. The best defense against poor assumptions is good preparation at project initiation, including the development of risk mitigation strategies and tracking metrics for critical assumptions. However, it may not be possible to establish metrics for the tracking of all assumptions.

Most companies either have or are in the process of developing an enterprise project management (EPM) methodology. EPM systems usually are rigid processes designed around policies and procedures, and they work efficiently when the statement of work is well defined. With the new type of projects currently being used when techniques such as Agile Project Management are applicable, these rigid and inflexible processes may be more of a hindrance and costly to use on small projects.

EPM systems must become more flexible in order to satisfy business needs. The criteria for good systems will lean toward forms, guidelines, templates, and checklists rather than policies and procedures. Project managers will be given more flexibility in order to make the decisions necessary to satisfy the project's business needs. The situation is further complicated because all active stakeholders may wish to use their own methodology, and having multiple methodologies on the same project is never a good idea. Some host countries may be quite knowledgeable in project management, whereas other may have just cursory knowledge.

TIP Metrics and KPIs must be established for those critical activities that can have a direct impact on project success or failure. This includes the tracking of assumptions and the creation of business value.

Over the next decade, having a fervent belief that the original plan is correct may be a poor assumption. As the project's business needs change, the need to change the plan will be evident. Also, decision making based entirely on the triple constraints, with little regard for the project's final value, may result in a poor decision. Simply stated, today's view of project management is quite different from the views in the past, and this is partially because the benefits of project management have been recognized more over the past two decades.

TIP The more flexibility the methodology contains, the greater the need for additional metrics and KPIs.

Some of the differences between managing traditional and complex projects are summarized in Table 1.3. Perhaps the primary difference is whom the project manager must interface with on a daily basis. With traditional projects, the project manager interfaces with the sponsor and the client, both of whom may provide the only governance on the project. With complex projects, governance is by committee and there can be multiple stakeholders whose concerns need to be addressed.

Defining Complexity

Complex projects can differ from traditional projects for a multitude of reasons, including:

- Size
- Dollar value
- Uncertain requirements

TABLE 1.3 Summarized Differences between Traditional and Nontraditional Projects

MANAGING TRADITIONAL PROJECTS	MANAGING NONTRADITIONAL PROJECTS
Single-person sponsorship	Governance by committee
Possibly a single stakeholder	Multiple stakeholders
Project decision making	Both project and business decision making
An inflexible project management methodology management methodology	Flexible or "fluid" project
Periodic status reporting	Real-time reporting
Success defined by the triple constraints	Success defined by competing constraints, value, and other factors
Metrics and KPIs derived from the earned value measurement system	Metrics and KPIs may be unique to the particular project and even to a particular stakeholder

- Uncertain scope
- Uncertain deliverables
- Complex interactions
- Uncertain credentials of the labor pool
- Geographical separation across multiple time zones
- Use of large virtual teams
- Other differences

There are numerous definitions of a "complex" project, based on the interactions of two or more of the preceding elements. Even a small, two-month infrastructure project can be considered complex according to the definition. Project complexity can create havoc when selecting and using metrics. The projects that project managers manage within their own companies can be regarded as complex projects if the scope is large and the statement of work is only partially complete. Some people believe that research and development (R&D) projects are always complex because, if a plan for R&D can be laid out, then there probably is not R&D. R&D is when the project manager is not 100% sure where the company is heading, does not know what it will cost, and does not know if and when the company will get there.

Complexity can be defined according to the number of interactions that must take place for the work to be executed. The greater the number of functional units that must interact, the harder it is to perform the integration. The situation becomes more difficult if the functional units are dispersed across the globe and if cultural differences makes integration difficult. Complexity can also be defined according to size and length. The larger the project is in scope and cost and the greater the time frame, the more likely it is that scope changes will occur, significantly affecting the budget and schedule. Large, complex projects tend to have large cost overruns and schedule slippages. Good examples of this are Denver International Airport, the Channel Tunnel between England and France, and the "Big Dig" in Boston.

Trade-Offs

Project management is an attempt to improve efficiency and effectiveness in the use of resources by getting work to flow multidirectionally through an organization, whether traditional or complex projects. Initially, this flow might seem easy to accomplish, but typically a number of constraints are imposed on projects. The most common constraints are time, cost, and performance (also referred to as scope or quality), which are known as the *triple constraints*.

Historically, from an executive-level perspective, the goal of project management was to meet the triple constraints of time, cost, and performance while maintaining good customer relations. Unfortunately, because most projects have some unique characteristics, highly accurate time and cost estimates were not always possible, and trade-offs between the triple constraints were necessary. As will be discussed later, today we focus on competing constraints and there may be significantly more than three constraints on a project, and metrics may have to be established to track each constraint. There may be as many as 10 or more competing constraints. Metrics provide the basis for informed trade-off decision making. Executive management, functional management, and key stakeholders must be involved in almost all trade-off discussions to ensure that the final decision is made in the best interests of the project, the company, and the stakeholders. If multiple stakeholders are involved, as occurs on complex projects, then agreement from all of the stakeholders may be necessary. Project managers may possess sufficient knowledge for some technical decision making but may not have sufficient business or technical knowledge to adequately determine the best course of action to address the interests of the parent company as well as the individual project stakeholders.

TIP Because of the complex interactions of the elements of work, a few simple metrics may not provide a clear picture of project status. The combination of several metrics may be necessary in order to make informed decisions based on evidence and facts.

Skill Set

All project managers have skills, but not all project managers may have the right skills for the given job. For projects internal to a company, it may be possible to develop a company-specific skill set or company-specific body of knowledge. Specific training courses can be established to support company-based knowledge requirements.

For complex projects with a multitude of stakeholders, all from different countries with different cultures, finding the perfect project manager may be an impossible task. Today the understanding of complex projects and the accompanying metrics is in its infancy, and it is still difficult to determine the ideal skill set for managing complex projects. Remember that project management existed for several decades before the first Project Management Body of Knowledge

(*PMBOK® Guide*[*]) was created, and even now with the seventh edition, it is still referred to as a "guide."

We can, however, conclude that there are certain skills required to manage complex projects. Some of those skills are:

- Knowing how to manage virtual teams
- Understanding cultural differences
- The ability to manage multiple stakeholders, each of whom may have a different agenda
- Understanding the impact of politics on project management
- How to select and measure project metrics

Governance

Cradle-to-grave user involvement in complex projects is essential. Unfortunately, user involvement can change because of politics and project length. It is not always possible to have the same user community attached to the project from beginning to end. Promotions, changes in power and authority positions because of elections, and retirements can cause shifts in user involvement.

Governance is the process of decision making. On large complex projects, governance will be in the hands of the many rather than the few. Each stakeholder may either expect or demand to be part of all critical decisions on the project. Governance must be supported by proper metrics that provide meaningful information. The channels for governance must be clearly defined at the beginning of the project, possibly before the project manager is assigned. Changes in governance, which are increasingly expected the longer the project takes, can have a serious impact on the way the project is managed as well as on the metrics used.

Decision Making

Complex projects have complex problems. All problems generally have solutions, but not all solutions may be good or even practical. Good metrics can make decision making easier. Also, some solutions to problems can be more costly than other solutions. Identifying a problem is usually easy. Identifying alternative solutions may require the involvement of many stakeholders, and each stakeholder may have a different view of the actual problem and the possible alternatives. To complicate matters, some host countries have very long decision-making cycles for problem identification and for the selection of the best alternative. Each stakeholder may select an alternative that is in the best interests of that particular stakeholder rather than in the best interests of the project.

Obtaining approval also can take a long time, especially if the solution requires that additional capital be raised and if politics play

[*] PMBOK is a registered mark of the Project Management Institute, Inc.

an active role. In some emerging countries, every complex project may require the signature of a majority of the ministers and senior government leaders. Decisions may be based on politics and religion as well.

Fluid Methodologies

With complex projects, the project manager needs a fluid or flexible project management methodology capable of interfacing with multiple stakeholders. The methodology may need to be aligned more with business processes than with project management processes, since the project manager may need to make business decisions as well as project decisions. Complex projects seem to be dictated more by business decisions than by pure project decisions.

TIP Completing a project within the triple constraints is not necessarily success if perceived stakeholder value is not there at project completion.

TIP The more complex the project, the more time is needed to select metrics, perform measurements, and report on the proper mix of metrics.

TIP The longer the project, the greater the flexibility needed to allow for different metrics to be used over the life of the project.

Complex projects are driven more by the project's end business value than by the triple or competing constraints. Complex projects tend to take longer than anticipated and cost more than originally budgeted because of the need to guarantee that the final result will have the business value desired by customers and stakeholders. Simply stated, complex projects tend to be value-driven rather than driven by the triple or competing constraints.

Given the fact that project complexity will continue to increase in the future, we can now identify the impact on project metrics:

- Significantly more metrics will be required on complex projects compared to traditional projects
- Business, strategic, and intangible metrics will be essential
- The metrics can change in each life cycle phase or from changes in the enterprise environmental factors
- Dashboards must be customized possibly for each viewer

1.3 GLOBAL PROJECT MANAGEMENT

Every company in the world has complex projects that it would have liked to undertake but was unable to because of limitations, such as:

- No project portfolio management function to evaluate projects
- A poor understanding of capacity planning
- A poor understanding of project prioritization
- A lack of tools for determining the project's business value
- A lack of project management tools and software

TABLE 1.4 Nonglobal versus Global Company Competencies

FACTOR	NONGLOBAL	GLOBAL
Core business	Sell products and services	Sell business solutions
Project management satisfaction level	Must be good at project management	Must excel at project management
P management methodology	Rigid	Flexible and fluid
Metrics/KPIs	Minimal	Extensive
Supporting tools	Minimal	Extensive
Continuous improvement	Follow the leader	Capture best practices and lessons learned
Business knowledge	Know your company's business	Understand the client's business model as well as your company's business model
Type of team	Colocated	Virtual

- A lack of sufficient resources
- A lack of qualified resources
- A lack of support for project management education
- A lack of a project management methodology
- A lack of knowledge in dealing with complexity
- A fear of failure
- A lack of understanding of metrics needed to track the project

Because not every company has the capability to manage complex projects, companies must look outside for suppliers of project management services. Companies that provide these services on a global basis consider themselves to be business solution providers and differentiate themselves from localized companies according to the elements in Table 1.4.

Those companies that have taken the time and effort to develop flexible project management methodologies and become solution providers are companies that are competing in the global marketplace. Although these companies may have as part of their core business the providing of products and services, they may view their future as being a global solution provider for the management of complex projects.

TIP Competing globally requires a different mind-set from competing locally. An effective project management information system based on possibly project-specific metrics may be essential.

For these companies, being good at project management is not enough; they must *excel* at project management. They must be innovative in their processes to the point that all processes and methodologies are highly fluid and easily adaptable to a particular client. They have an extensive library of tools to support the project management processes. Most of the tools were created internally with ideas discovered through captured lessons learned and best practices.

1.4 PROJECT MANAGEMENT METHODOLOGIES AND FRAMEWORKS

Most companies today seem to recognize the need for one or more project management methodologies but either create the wrong methodologies or misuse the methodologies that have been created. Many times companies rush into the development or purchasing of a methodology without any understanding of the need for one other than the fact that their competitors have a methodology. As Jason Charvat states:

> Using project management methodologies is a business strategy allowing companies to maximize the project's value to the organization. The methodologies must evolve and be "tweaked" to accommodate a company's changing focus or direction. It is almost a mind-set, a way that reshapes entire organizational processes: sales and marketing, product design, planning, deployment, recruitment, finance, and operations support. It presents a radical cultural shift for many organizations. As industries and companies change, so must their methodologies. If not, they're losing the point.[1]

There are significant advantages to the design and implementation of a good, flexible methodology:

- Shorter project schedules
- Better control of costs
- Fewer or no unwanted scope changes
- Can plan for better execution
- Results can be predicted more accurately
- Improves customer relations during project execution
- The project can be adjusted during execution to fit changing customer requirements
- Better visibility of status for senior management
- Execution is standardized
- Best practices can be captured

Rather than using policies and procedures, some methodologies are constructed as a set of forms, guidelines, templates, and checklists that can and must be applied to a specific project or situation. It may not be possible to create a single enterprise-wide methodology that can be applied to each and every project. Some companies have been successful doing this, but many companies successfully maintain more than one methodology. Unless project managers are capable of tailoring the EPM methodology to their needs, more than one methodology may be necessary.

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1 Jason Charvat, *Project Management Methodologies* (Hoboken, NJ: John Wiley & Sons, 2003), p. 2.

There are several reasons why good intentions often go astray. At the executive levels, methodologies can fail if the executives have a poor understanding of what a methodology is and believe that a methodology is:

- A quick fix
- A silver bullet
- A temporary solution
- A cookbook approach for project success[2]

At the working levels, methodologies can also fail if they:

- Are abstract and high level
- Contain insufficient narratives to support these methodologies
- Are not functional or do not address crucial areas…
- Ignore the industry standards and best practices
- Look impressive but lack real integration into the business
- Use nonstandard project conventions and terminology
- Compete for similar resources without addressing this problem
- Do not have any performance metrics
- Take too long to complete because of bureaucracy and administration[3]

Methodologies also can fail because the methodology:

- Must be followed exactly even if the assumptions and environmental input factors have changed
- Focuses on linear thinking
- Does not allow for out-of-the-box thinking
- Does not allow for value-added changes that are not part of the original requirements
- Does not fit the type of project
- Is too abstract (rushing to design it)
- Development team neglects to consider bottlenecks and the concerns of the user community
- Is too detailed
- Takes too long to use
- Is too complex for the market, clients, and stakeholders to understand
- Does not have sufficient or correct metrics

Deciding on what type of methodology is not an easy task. There are many factors to consider, such as:[4]

- The overall company strategy—how competitive are we as a company?
- The size of the project team and/or scope to be managed

2 Ibid., p. 4.
3 Ibid., p. 5.
4 Ibid., p. 66.

- The priority of the project
- How critical the project is to the company
- How flexible the methodology and its components are

Numerous other factors can influence the design of a methodology. Some of these factors include:

- Corporate strategy
- Complexity and size of the projects in the portfolio
- Management's faith in project management
- Development budget
- Number of life cycle phases
- Technology requirements
- Customer requirements
- Training requirements and costs
- Supporting tools and software costs

Project management methodologies are created around the project management maturity level of the company and the corporate culture. If the company is reasonably mature in project management and has a culture that fosters cooperation, effective communication, teamwork, and trust, then a highly flexible methodology can be created based on guidelines, forms, checklists, and templates. As stated previously, the more flexibility that is added into the methodology, the greater the need for a family of metrics and KPIs. Project managers can pick and choose the parts of the methodology and metrics that are appropriate for a particular client. Organizations that do not possess either of these two characteristics rely heavily on methodologies constructed with rigid policies and procedures, thus creating significant paperwork requirements with accompanying cost increases and removing the flexibility that the project manager needs to adapt the methodology to the needs of a specific client. These rigid methodologies usually rely on time and cost as the only metrics and can make it nearly impossible to determine the real status of the project.

Charvat describes these two types as light methodologies and heavy methodologies.[5]

Light Methodologies

Ever-increasing technological complexities, project delays, and changing client requirements brought about a small revolution in the world of development methodologies. A totally new breed of methodology—which is agile, is adaptive, and involves the client every part of the way—is starting to emerge. Many of the heavyweight

5 The next two subsections are taken from Charvat, *Project Management Methodologies*, pp. 102–104.

methodologists were resistant to the introduction of these "lightweight" or "agile" methodologies.[6] These methodologies use an informal communication style. Unlike heavyweight methodologies, lightweight projects have only a few rules, practices, and documents. Projects are designed and built on face-to-face discussions, meetings, and the flow of information to the clients. The immediate difference of using light methodologies is that they are much less documentation-oriented, usually emphasizing a smaller amount of documentation for the project.

Heavy Methodologies

The traditional project management methodologies (i.e., the systems development life cycle [SDLC] approach) are considered bureaucratic or "predictive" in nature and have resulted in many unsuccessful projects. These heavy methodologies are becoming less popular. These methodologies are so laborious that the whole pace of design, development, and deployment slows down—and nothing gets done. Project managers tend to predict every milestone because they want to foresee every technical detail (i.e., software code or engineering detail). This leads managers to start demanding many types of specifications, plans, reports, checkpoints, and schedules. Heavy methodologies attempt to plan a large part of a project in great detail over a long span of time. This works well until things start changing, and the project managers inherently try to resist change.

Frameworks

More and more companies today, especially those that wish to compete in the global marketplace as business solution providers, are using frameworks rather than methodologies.

- **Framework**: The individual segments, principles, pieces, or components of the processes needed to complete a project. This can include forms, guidelines, checklists, and templates.
- **Methodology**: The orderly structuring or grouping of the segments or framework elements. This can appear as policies, procedures, or guidelines.

Frameworks focus on a series of processes that must be done on all projects. Each process is supported by a series of forms, guidelines, templates, checklists, and metrics that can be applied to a particular client's business needs. The metrics will be determined jointly by the project manager, the client, and the various stakeholders.

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6 Martin Fowler, *The New Methodology, Thought Works*, 2001. Available at www.martinfowler.com/articles.

As stated previously, a methodology is a series of processes, activities, and tools that are part of a specific discipline, such as project management, and are designed to accomplish a specific objective. When the products, services, or customers have similar requirements and do not require significant customization, companies develop methodologies to provide some degree of consistency in the way that projects are managed. With these methodologies, the metrics, once established, usually remain the same for every project.

As companies become reasonably mature in project management, the policies and procedures are replaced by forms, guidelines, templates, and checklists. These tools provide more flexibility for the project manager in how to apply the methodology to satisfy a specific customer's requirements. This flexibility leads to a more informal application of the project management methodology, and significantly more metrics are now required.

Today, this informal project management approach has been somewhat modified and is referred to as a framework. A framework is a basic conceptual structure that is used to address an issue, such as a project. It includes a set of assumptions, project-specific metrics, concepts, values, and processes that provide the project manager with a means for viewing what is needed to satisfy a customer's requirements. A framework is a skeletal support structure for building the project's deliverables. Agile and Scrum are heavy users of frameworks.

Frameworks work well as long as the project's requirements do not impose severe pressure on the project manager. Unfortunately, in today's chaotic environment, this pressure appears to be increasing because:

- Customers are demanding low-volume, high-quality products with some degree of customization.
- Project life cycles and new product development times are being compressed.
- Enterprise environmental factors are having a greater impact on project execution.
- Customers and stakeholders want to be more actively involved in the execution of projects.
- Companies are developing strategic partnerships with suppliers, and each supplier can be at a different level of project management maturity.
- Global competition has forced companies to accept projects from customers that are all at a different level of project management maturity.

These pressures tend to slow down the decision-making processes at a time when stakeholders want the processes to be accelerated. This slowdown is the result of:

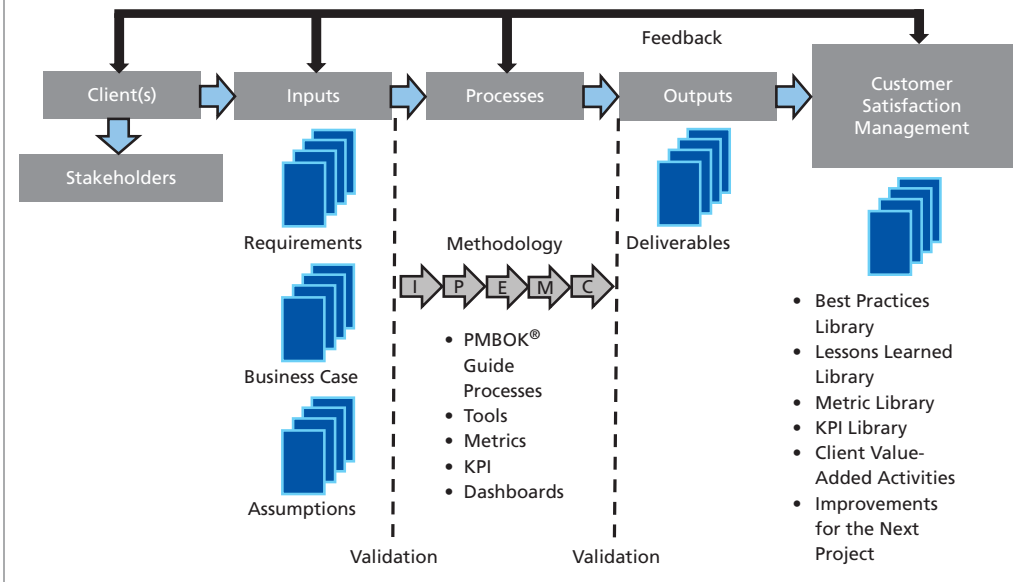
- Project managers being expected to make decisions in areas where they have limited knowledge.
- Project managers hesitating to accept full accountability and ownership for the projects.

- Excessive layers of management being superimposed on the project management organization.
- Risk management being pushed up to higher levels in the organizational hierarchy.
- Project managers demonstrating questionable leadership ability.

Both methodologies and frameworks are mechanisms by which we can obtain best practices and lessons learned in the use of metrics and KPIs. Figure 1.1 illustrates the generic use of a methodology or framework. Once the clients and stakeholders are identified, then the requirements, business case, and accompanying assumptions can be input. The methodology serves as a guide through the *PMBOK® Guide* process groups of initiation (I), planning (P), execution (E), monitoring and controlling (M), and closure (C). The methodology also provides us with guidance in the identification of metrics, KPIs, and dashboard reporting techniques for a particular client.

Some people believe that, once the deliverables are provided to the client and project closure takes place, the project is completed. This is not the case. More companies today are adding, at the end of the life cycle phases of the methodology, another life cycle phase, entitled "Customer Satisfaction Management." The purpose of this phase is to meet with the client and the stakeholders and discuss what was learned on the project regarding best practices, lessons learned, metrics, and KPIs. The intent is to see what can be done better for that client on future projects. Today, companies maintain metric and KPI libraries the same way that they maintain libraries for best practices and lessons learned.

Figure 1.1 Generic Methodology



1.5 THE NEED FOR EFFECTIVE GOVERNANCE

The problems just described can be resolved by using effective project governance. Project governance is actually a framework by which decisions are made. Governance relates to decisions that define expectations, accountability, responsibility, the granting of power, or the verifying of performance. Governance also relates to consistent management, cohesive policies, processes, and decision-making rights for a given area of responsibility, and enables efficient and effective decision making.

Every project can have different governance, even if each project uses the same EPM methodology. The governance function can operate as a separate process or as part of project management leadership. Governance is not designed to replace project decision making but to prevent undesirable decisions from being made. Effective governance requires information and data. For decades, we focused on the use of a project management information system (PMIS) that contained almost exclusively information from the earned value measurement system (EVMS). Unfortunately, the EVMS did not contain all the necessary information for effective problem analysis and decision making. Today, governance personnel rely upon data visualization and business intelligence systems that can be customized for each member of a governance committee.

Historically, governance was provided by a single person acting as the project sponsor. Today, governance is provided by a committee. Committee membership can change from project to project and industry to industry. Membership may also vary according to the number of stakeholders and whether the project is for an internal or an external client.

1.6 ENGAGEMENT PROJECT MANAGEMENT

With project management now viewed as a strategic competency, it is natural for companies that wish to compete in a global marketplace to be strong believers in engagement project management or engagement selling. Years ago, the sales force would sell a product or services to a client and then move on to find another client. Today, the emphasis is on staying with clients and looking for additional work from the same clients.

In a marital context, an engagement can be viewed as the beginning of a lifelong partnership. The same holds true with engagement project management. Companies like IBM and HP no longer view themselves as selling products or services. Instead, they see themselves as business solution providers for their clients, and a business solution provider cannot remain in business without having superior project management capability.

As part of engagement project management, companies must convince clients that they have the project management capability to

provide solutions to their business needs on a repetitive basis. In exchange for this, companies want clients to treat them as strategic partners rather than as just another contractor. This is shown in Figure 1.2.

Previously, it was stated that those companies that wish to compete in a global environment must have superior project management capability. This capability must appear in the contractor's response to a request for proposal issued by the client. Clients today are demanding that companies provide the following in proposals:

- The number of PMP® credential holders in the company and which ones will manage the contract if a company wins through competitive bidding.
- An EPM methodology or framework with a history of providing repeated successes.
- A willingness to customize the framework or methodology to fit the client's environment.
- The maturity level of project management in the company and which project management maturity model was used to perform the assessment.
- A best practices library for project management and a willingness to share this knowledge with the client, as well as the best practices discovered during the project.

Decades ago, the sales force (and marketing) had very little knowledge about project management. The role of the sales force was to win contracts, regardless of the concessions that had to be made. The project manager then "inherited" a project with an underfunded budget and an impossible schedule. Today, sales and marketing must understand project management and be able to sell it to clients as part of engagement selling. The sales force must sell the company's project management methodology or framework and the accompanying best practices. Sales and marketing are now involved in project management.

Engagement project management benefits both the buyer and the seller, as shown in Table 1.5.

Figure 1.2 "Engagement" Project Management *Source: Moodboard/Adobe Stock*

TABLE 1.5 Before and After Engagement Project Management

BEFORE ENGAGEMENT PROJECT MANAGEMENT	AFTER ENGAGEMENT PROJECT MANAGEMENT
Continuous competitive bidding	Sole-source or single-source contracting (fewer suppliers to deal with)
Focus on the near-term value of the deliverable	Focus on the lifetime value of the deliverable
Contractor provides minimal lifetime support for client's customers	Contractor provides lifetime support for customer value analyses and customer value measurement
Utilize one inflexible system	Access to contractor's many systems
Limited metrics	Use of the contractor's metrics library

The benefits of engagement project management are clear:

- Both the buyer and the seller save on significant procurement costs by dealing with single-source or sole-source contracts without having to go through a formal bidding process for each project.
- Because of the potential long-term strategic partnership, the seller is interested in the lifetime value of the business solution rather than just the value at the end of the project.
- Companies can provide lifelong support to clients as the latter try to develop value-driven relationships with their own clients.
- The buyer will get access to many of the project management tools used by the seller. The corollary is also true.

There is a risk in hiring consultants to manage projects if they bring their own methodology and accompanying metrics that are not compatible to the needs of the business or the person who hires them. Business solution providers must demonstrate that:

- Their approach is designed for the client's business model and strategy.
- The metrics they bring with them fit the client's business model and strategy.
- The client understands the metrics they are proposing.
- If necessary, they are willing to create additional metrics that fit the client's needs.

1.7 CUSTOMER RELATIONS MANAGEMENT

Engagement project management is forcing project managers to become active participants in customer relations management (CRM) activities. CRM activities focus on:

- Identifying the right customers
- Developing the right relationship with the customers
- Maintaining customer retention

TABLE 1.6 Engagement Manager versus Project Manager

CUSTOMER VALUE MANAGEMENT	ENGAGEMENT MANAGER	PROJECT MANAGER
Phase 1: Identifying the right customers	• Strategic marketing • Proposal preparation • Engagement selling	• Assist in proposal preparation • May report to engagement manager
Phase 2: Developing the right relationship	• Defining acceptance criteria (metrics/KPIs) • Risk mitigation planning • Client briefings • Client invoicing • Soliciting satisfaction feedback and CRM	• Supporting CRM • Establishing performance metrics • Measuring customer value and satisfaction • Improving customer satisfaction management
Phase 3: Maintaining retention	• Conducting customer satisfaction management meeting • Updating client metrics and KPIs	• Attending customer satisfaction management meetings • Looking for future areas of improvement

CRM activities cannot be done entirely by the project manager. Some companies have both engagement managers and project managers. These two individuals must work together to maintain customer satisfaction. Table 1.6 shows the partial responsibilities of each.

1.8 OTHER DEVELOPMENTS IN PROJECT MANAGEMENT

For companies to be successful at managing complex projects on a repetitive basis and to function as solution providers, the project management methodology and accompanying tools must be fluid or adaptive. This means that companies may need to develop a different project management approach when interfacing with each stakeholder, given the fact that each stakeholder may have different requirements and expectations and the fact that most complex projects have long time spans. Figure 1.3 illustrates some of the new developments in project management, which apply to both traditional and nontraditional projects.

The five items in the figure fit together when done properly.

1. **New success criteria**: At the initiation of the project, the project manager will meet with the client and the stakeholders to come to stakeholder agreements on what constitutes success on the project. Initially, many of the stakeholders may have their own definition of success, but the project manager must forge an agreement, if possible.

Figure 1.3 New Developments in Project Management

2. **Key performance indicators**: Once the success criteria are agreed upon, the project manager and the project team will work with the stakeholders to define the metrics and KPIs that each stakeholder wishes to track. It is possible that each stakeholder will have different KPI requirements.
3. **Measurement**: Before the metrics and KPIs are agreed to and placed on the dashboards, the project manager must be sure all team members know how to perform the measurements. This is the hardest part because not all team members or strategic partners may have the capability or skills to measure all of the KPIs.
4. **Dashboard design**: Once the KPIs are identified and measurement techniques are identified, the project manager, along with the appropriate project team members, will design a dashboard for each stakeholder. Some of the KPIs in the dashboards will be updated periodically, whereas others may be updated on a real-time basis.
5. **Governance**: Once the measurements are made, critical decisions may have to be supervised by the governance board. The governance board can include key stakeholders as well as stakeholders who are functioning just as observers.

1.9 A NEW LOOK AT DEFINING PROJECT SUCCESS

The ultimate purpose of project management is to create a continuous stream of project successes. This can happen provided that a good definition of "success" is available on each project.

SITUATION: Many years ago, as a young project manager, I asked a vice president in my company, "What is the definition of success on my project?" He responded, "The only definition in this company is meeting the target profit margin in the contract." I then asked him, "Does our customer have the same definition of success?" That ended our conversation.

For years, customers and contractors each worked toward different definitions for success. The contractor focused on profits as the only success factor, whereas the customer was more concerned with the quality of the deliverables. As project management evolved, all of that began to change.

Success Is Measured by the Triple Constraints

The triple constraints can be defined as a triangle with the three sides representing time, cost, and performance (which may include quality, scope, and technical performance). This was the basis for defining success during the birth of project management. This definition was provided by the customer, where cost was intended to mean "within the contracted cost." The contractor's interpretation of cost was profit.

Historically, only the triple constraints were used to define project success. Unfortunately, even if all of the deliverables are completed on time and within cost, the project may still be a failure if:

- There is no market demand for the product or services created.
- The products and services did not satisfy the customer's needs.
- The product and services appeared to satisfy the customer's needs but the customer was unhappy with the performance of the deliverables.
- The benefits defined in the business case were not achieved.
- The resulting financial value expected from the benefits was significantly less than anticipated.

It became apparent that metrics other than those used to track the triple constraints were needed to define project success.

Customer Satisfaction Must Be Considered as Well

Managing a project within the triple constraints is always a good idea, but the customer must be satisfied with the end result. A contractor can complete a project within the triple constraints and still find that the customer is unhappy with the end result. So, we have now placed a circle around the triple constraints, entitled "customer satisfaction." The president of an aerospace company stated, "The only definition of success in our business is customer satisfaction." That brought the customer and the contractor a little closer together. In the early years of using project management techniques, aerospace and defense contractors were incurring large cost overruns, and it was almost impossible to define success according to the triple

constraints. Numerous scope changes were initiated by both customers and contractors. Because of the numerous scope changes, the only two metrics used on projects were related to time and cost. Success, however, was measured by follow-on business, which was an output of customer satisfaction.

Other (or Secondary) Factors Must Be Considered as Well

SITUATION: Several years ago, I met a contractor that had underbid a job for a client by almost 40 percent. When I asked why the company was willing to lose money on the contract, the person responded, "Our definition of success on this project is being able to use the client's name as a reference in our sales brochures."

There can be secondary success factors that, based on the project, are more important than the primary factors. These secondary factors include using the customer's name as a reference, corporate reputation, and image, compliance with government regulations, strategic alignment, technical superiority, ethical conduct, and other such factors. The secondary factors may end up being more important than the primary factors of the triple constraints.

Success Must Include a Business Component

By the turn of the twenty-first century, companies were establishing PMOs. One of the PMO's primary activities was to make sure that each project was aligned to strategic business objectives. The definition of success, thus, included a business component as well as a technical component. As an example, consider the following components included in the definition of success provided by a spokesperson from Orange Switzerland:

- The delivery of the product within the scope of time, cost, and quality characteristics
- The successful management of changes during the project life cycle
- The management of the project team
- The success of the product against criteria and target during the project initiation phase (e.g., adoption rates and ROI[7])

As another example, consider the following provided by Colin Spence, project manager/partner at Convergent Computing (CCO). General guidelines for a successful project are as follows:

- Meeting the technology and business goals of the client on time, on budget, and on scope.

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7 Quoted in H. Kerzner, *Project Management Best Practices: Achieving Global Excellence* (Hoboken, NJ: John Wiley & Sons, 2006), pp. 22–23. 8 Quoted in ibid., p. 23.

- Setting the resource or team up for success, so that all participants have the best chance to succeed and have positive experiences in the process.
- Exceeding the client's expectations in terms of abilities, teamwork, and professionalism and generating the highest level of customer satisfaction.
- Winning additional business from the client, and being able to use them as a reference account and/or agree to a case study.
- Creating or fine-tuning processes, documentation, and deliverables that can be shared with the organization and leveraged in other engagements.[8]

The definition of the role of the project manager also changed. Project managers were managing part of a business rather than merely a project, and they were expected to make sound business decisions as well as project decisions. There must be a business purpose for each project. Each project is expected to make a contribution of business value to the company when the project is completed.

Prioritization of Success Constraints May Be Necessary

Not all project constraints are equal. The prioritization of constraints is performed on a project-by-project basis. Sponsors' involvement in this process is essential. Secondary factors are also considered to be constraints and may be more important than the primary constraints. For example, years ago, at Disneyland and Disney World, the project managers designing and building the attractions at the theme parks had six constraints:

1. Time
2. Cost
3. Scope
4. Safety
5. Aesthetic value
6. Quality

At Disney, the last three constraints, those of safety, aesthetic value, and quality, were considered locked-in constraints that could not be altered during trade-offs. All trade-offs were made on time, cost, and scope.

The importance of the components of success can change over the life of the project. For example, in the initiation phase of a project, scope may be the critical factor for success, and all trade-offs are made on the basis of time and cost. During the execution phase of the project, time and cost may become more important, and then trade-offs will be made on the basis of scope.

8 Quoted in ibid., p. 23.

SITUATION: The importance of the components of success at a point in time can also determine how decisions are made. As an example, a project sponsor asked a project manager when the project's baseline schedules would be prepared. The project manager responded, "As soon as you tell me what is most important to you, time, cost, or risk, I'll prepare the schedules. I can create a schedule based on least time, least cost, or least risk. I can give you only one of those three in the preparation of the schedule." The project sponsor was somewhat irate because he wanted all three. The project manager knew better, however, and held his ground. He told the sponsor that he would prepare one and only one schedule, not three schedules. The project sponsor finally said, rather reluctantly, "Lay out the schedule based on least time."

As previously stated, the definition of project success has a business component. That is true for both the customer and contractor's definition of success. Also, each project can have a different definition of success. There must be up-front agreement between the customer and the contractor at project initiation or even at the first meeting between them on what constitutes success at the end of or during the project. In other words, there must be a common agreement on the definition of success, especially the business reason for working on the project.

The Definition of Success Must Include a "Value" Component

Previously it was stated that there must be a business purpose for working on a project. Now, however, it is understood that, for real success to occur, there must be value achieved at the completion of the project. Completing a project within the constraints of time and cost does not guarantee that business value will be there at the end of the project. In the words of Warren Buffett, one of the world's most successful investors and chairman and chief executive of Berkshire Hathaway, "Price is what you pay. Value is what you get."

One of the reasons why it has taken so long to include a value component in the definition of success is that it is only in the last several years we have been able to develop models for measuring the metrics to determine the value on a project. These same models are now being used by PMOs in selecting a project portfolio that maximizes the value the company will receive. Also, as part of performance reporting, we are now reporting metrics on time at completion, cost at completion, value at completion, and time to achieve value.

TIP The definition of success must be agreed upon between the customer and the contractor.

Determining the value component of success at the completion of the project can be difficult, especially if the true value of the project cannot be determined until well after the project is completed. Some criteria on how long to wait to assess the true value may need to be established.

Multiple Components for Success

Today, project managers have come to the realization that there are multiple constraints on a project. More complex projects, where the traditional triple constraints success factors are constantly changing, are being worked on. For example, in Figure 1.4, for traditional projects, time, cost, and scope may be a higher priority than the constraints within the triangle. However, for more complex projects, the constraints within the triangle may be more important.

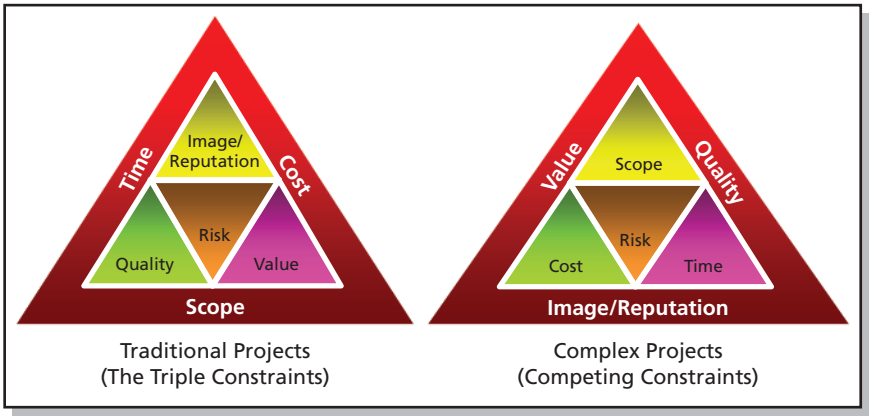
Beginning with the fourth edition of the *PMBOK® Guide* the term "triple constraints" was no longer used. Because there can be more than three constraints, the term "competing constraints" is now used, in recognition of the fact that the exact number of success constraints and their relative importance can change from project to project. What is important is that metrics must be established for each constraint on a project. However, not all of the metrics on the constraints will be treated as KPIs.

The Future

So, what does the future look like? The following list is representative of some of the changes that are now taking place:

- The project manager will meet with the client at the very beginning of the project, and they will come to an agreement on what constitutes project success.
- The project manager will meet with other project stakeholders and get their definition of success. There can and will be multiple definitions of success for each project.
- The project manager, the client, and the stakeholders will come to an agreement on what metrics they wish to track to verify that success will be achieved. Some metrics will be treated as KPIs.

Figure 1.4 From Triple to Competing Constraints



- The project manager, assisted by the PMO, will prepare dashboards for each stakeholder. The dashboards will track each of the requested success metrics in real time rather than relying on periodic reporting.
- At project completion, the PMO will maintain a library of project success metrics that can be used on future projects.

In the future, the PMO can be expected to become the guardian of all project management intellectual property. The PMO will create templates to assist project managers in defining success and establishing success metrics.

1.10 THE GROWTH OF PAPERLESS PROJECT MANAGEMENT

Making informed decisions requires information. In its early years, project management relied heavily on legacy systems for the information needed. Over the past several decades, other information systems have emerged, as seen in Figure 1.5. PMIS evolved to provide information solely for the project at hand. Later, enterprise resource planning (ERP) systems and CRM systems appeared that provided project management with sufficient information such that they could now make business- as well as project-based decisions. Today, the amount of information that a company can generate is overwhelming, and all of this information will be stored in data or information warehouses. With pure legacy systems that tracked business metrics, the

Figure 1.5 Growth of Information Systems to Support Project Management

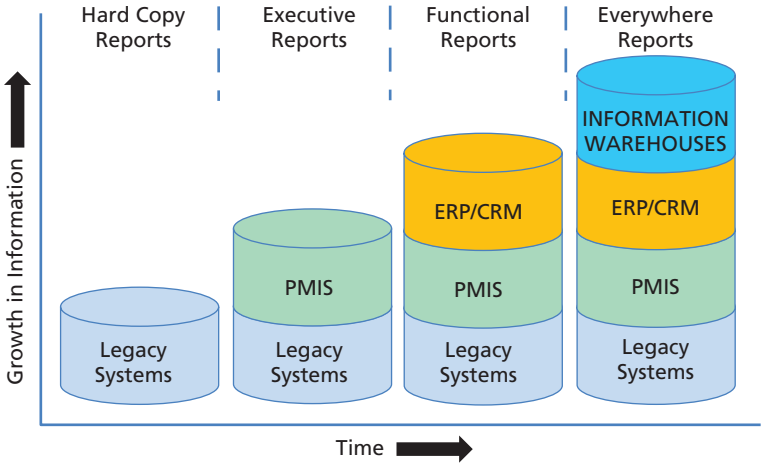
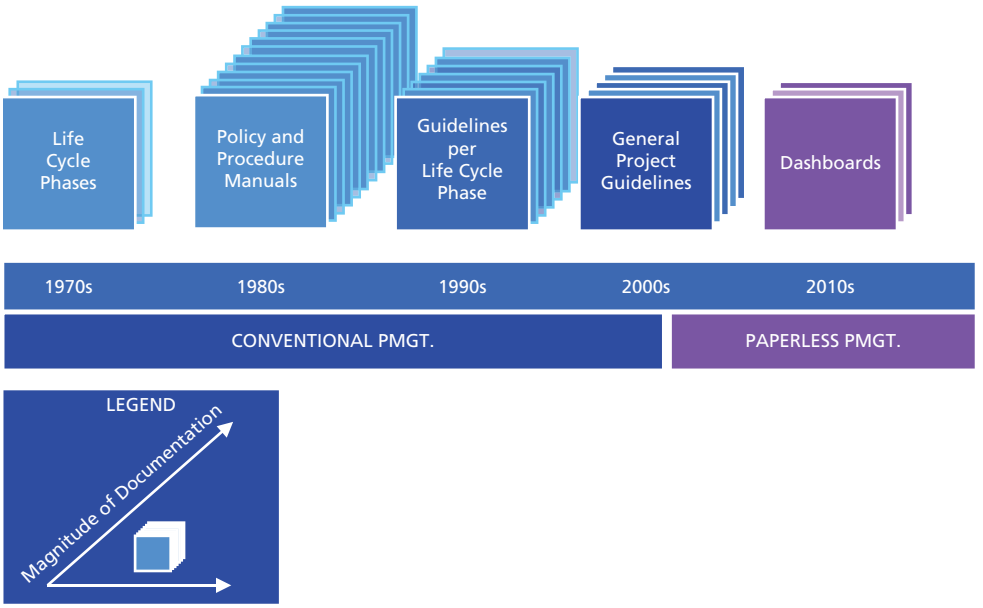


Figure 1.6 Growth of Information Systems to Support Project Management



information was reported mainly vertically up the organizational hierarchy. Today, project-based information can be reported everywhere including to organizations external to the company.

Having more information comes with a price: more costly reporting and larger and more frequent reports. This is shown in Figure 1.6. As the cost of paperwork grew, companies began looking at the possibility of paperless project management. This would necessitate identification of just the critical information and presenting the information using dashboards.

Initially, reporting was done at the end of each life cycle phase. Unfortunately, this meant that some customers would not see project status until the end-of-phase gate review meetings. To solve this problem, policy and procedure manuals were created that dictated how and when reporting should take place. Unfortunately, this system placed restriction on the project managers, and eventually the policies and procedures were replaced with guidelines. Today, the focus is on dashboards.

1.11 PROJECT MANAGEMENT MATURITY AND METRICS

All companies desire maturity and excellence in project management. Unfortunately, not all companies recognize that the time frame can be shortened by performing strategic planning for project management maturity and excellence. The simple use of project management, even

for an extended period of time, does not lead to excellence. Instead, it can result in repeated mistakes and, what's worse, learning from your own mistakes rather than the mistakes of others.

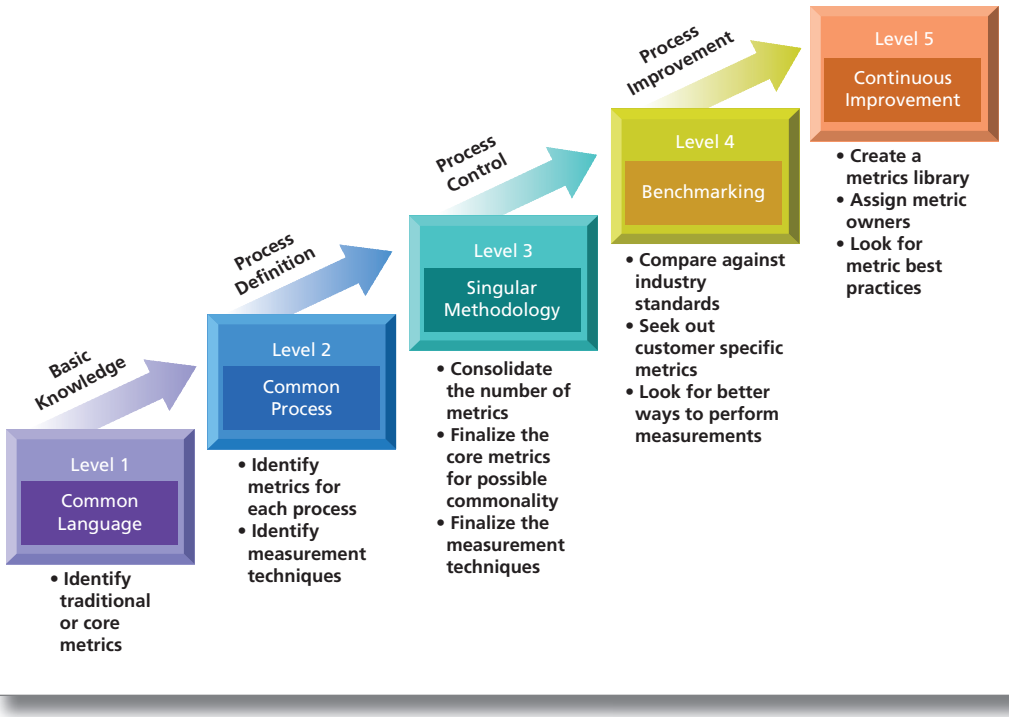
Strategic planning for project management is unlike other forms of strategic planning in that it is most often performed at the middle and lower levels of management. Executive management is still involved, mostly in a supporting role, and provides funding together with employee release time for the effort.

There are models that can be used to assist in achieving excellence. One such model is the Project Management Maturity Model, shown in Figure 1.7. Each of the five levels represents a different degree of maturity in project management.

Level 1—Common Language: In this level, the organization recognizes the importance of project management and the need for a good understanding of the basic knowledge on project management, along with the accompanying language and terminology.

Level 2—Common Process: In this level, the organization recognizes that common processes need to be defined and developed such that the successes on one project can be repeated on other projects. Also included in this level is the recognition that project management can be applied to and support other methodologies employed by the company.

Figure 1.7 Project Management Maturity and Metrics



Level 3—Singular Methodology: In this level, the organization recognizes the synergistic effect of combining all corporate methodologies and processes into a singular methodology, the center of which is project management. The synergistic effects also make process control easier with a single methodology than with multiple methodologies. However, as companies evolve into the advanced stages of growth and maturity, the singular methodology is replaced by more than one flexible methodology that can be customized to the needs of each project.

Level 4—Benchmarking: This level contains the recognition that process improvement is necessary to maintain a competitive advantage. Benchmarking should be performed on a continuous basis. The company must decide whom to benchmark against and what to benchmark.

Level 5—Continuous Improvement: In this level, the organization evaluates the information obtained through benchmarking and must then decide whether this information will enhance the singular methodology or not.

Although these five levels normally are accomplished with forms, guidelines, templates, and checklists, the growth in metrics management has allowed further enhancement of the model by including in each level the necessity for metrics, as shown in Figure 1.7. Metrics can serve as a sign of organizational maturity. The need for paperless project management will require that more emphasis be placed on metrics management as part of the project management maturity process.

Maturity in project management allows companies to recognize that project management is a strategic competency, as shown in Figure 1.8. For companies that promote their project management capabilities to external clients, competency in project management is viewed as a sustained competitive advantage. However, ineffective metrics management can increase the risks in maintaining a sustained competitive advantage, as shown in Figure 1.9. These risks are covered in detail in later chapters.

Figure 1.8 shows that excellence in project management is achieved when project management is seen as a strategic competency and the company recognizes that its project management capability has become a competitive advantage. Unfortunately, competitive advantages are not always sustainable, as can be seen in Figure 1.10. As a company exploits its competitive advantage, competitors counterattack to reduce or eliminate that advantage. Therefore, as illustrated in Figure 1.11, a company must have continuous improvement for the competitive advantage to grow into a sustained competitive advantage.

Having a sustained competitive advantage in project management does not come just from being on time and on budget at the end of each project. Rather, offering clients something that competitors cannot do may help. But in project management, a true competitive advantage occurs when efforts are directly linked to the customers' perception of

Figure 1.8 Project Management Competitiveness

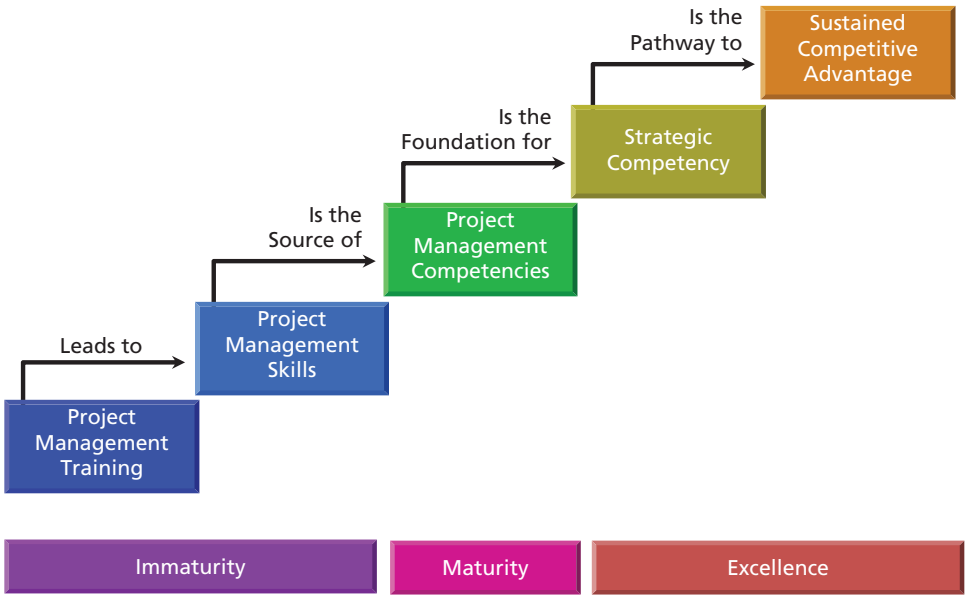
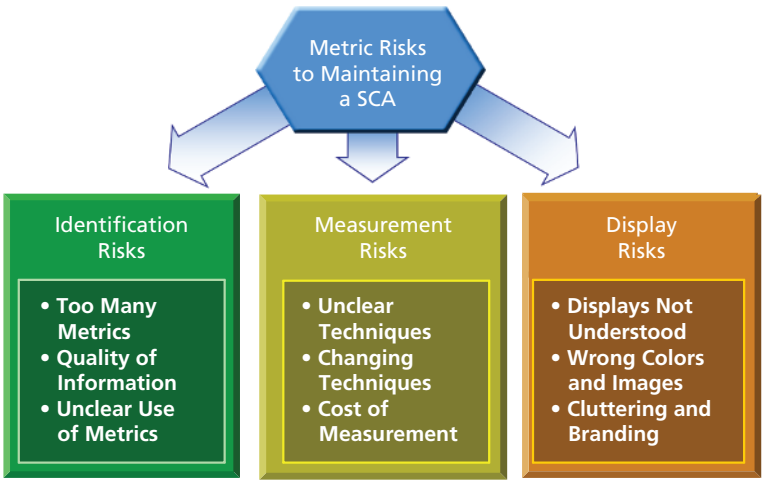


Figure 1.9 Metric risks to Maintain a Sustained Competitive Advantage



value. Whatever means the company uses to show this, such as through the use of value-reflective metrics, gives it a sustainable competitive advantage. Value-reflective metrics, which are discussed in Chapter 5, show how to create value. If these metrics undergo continuous improvement, then users may be adding value for the customers.

Figure 1.10 Nonsustainable Competitive Advantages

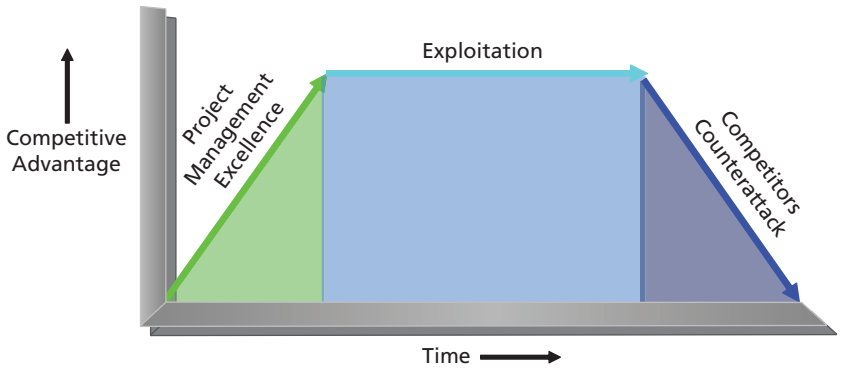
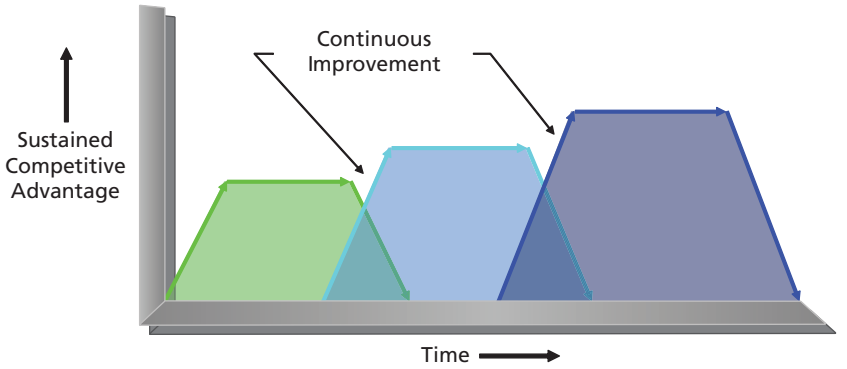


Figure 1.11 Sustainable Competitive Advantages



There is no point in wasting resources on value metrics unless the client understands the metrics and perceives the value that is being created. Therefore, client input into the selection of the attributes for the value metrics is essential. Table 1.7 shows some typical value-reflective metrics and the accompanying strategic competitive advantage.

1.12 PROJECT MANAGEMENT BENCHMARKING AND METRICS

One of the fastest ways to reach maturity and excellence in project management is through the use of benchmarking. A benchmark is a measurement or standard against which comparisons can be made.

TABLE 1.7 Competitive Advantages from Value-Reflective Metrics

METRICS WITH VALUE ATTRIBUTES	POSSIBLE COMPETITIVE ADVANTAGE
Deliverables produced	Efficiency
Product functionality	Innovation
Product functionality	Product differentiation
Support response time	Service differentiation
Staffing and employee pay grades	People differentiation
Quality	Quality differentiation
Action items in the system and how long	Speed of problem resolution and decisions
Cycle time	Speed to market
Failure rates	Quality differentiation and innovation

Benchmarking is the process of comparing business processes and performance metrics to industry bests or best practices from other industries. Dimensions typically measured are quality, time, and cost. In the process of benchmarking, management identifies the best firms in its industry, or in another industry where similar processes exist, and compares the results and processes of those studied (the "targets") to its own company's results and processes. In this way, management learns how well the targets perform and, more important, the business processes that explain why these firms are successful.

Best Practice versus Proven Practice

In project management, the terms "best practice benchmarking" or "process benchmarking" are used, referring to how organizations evaluate various aspects of their processes in relation to the practices of best practice companies, usually within a peer group defined for the purposes of comparison. This evaluation process allows organizations to develop plans on how to make improvements or adapt specific best practices, usually with the aim of increasing some aspect of project management performance. Benchmarking often is treated as a continuous process in which organizations continually seek to improve their practices.

For more than a decade, companies have been fascinated with the term "best practices." Best practices are generally those practices that have been proven to produce superior results. But now, after a decade or more of use, the term is being scrutinized and it is recognized that perhaps better expressions exist. When a company says that it has a best practice, it really means that there is a technique, process, metric, method, or activity that can be more effective at delivering an outcome than any other approach and that it provides the company with the desired outcome with fewer problems and

unforeseen complications. As a result, the company ends up with the most efficient and effective way of accomplishing a task based on a repeatable process that has been proven over time for a large number of people and/or projects.

There are several arguments why the words "best practice" should not be used. First is the argument that the identification of a best practice may lead some to believe that they were performing some activities incorrectly in the past, and that may not be the case. What was known as a best practice may simply be a more efficient and effective way of achieving a deliverable. Another argument is that some people believe that best practices imply that there is one and only one way of accomplishing a task. This also may be a faulty interpretation. Third, and perhaps most important, is the argument that a best practice is the "best" way of performing an activity and, since it is the best, no further opportunities for improvement are possible.

Once a best practice has been identified and proven to be effective, normally it is integrated into project management processes so that it becomes a standard way of doing business. Therefore, after acceptance and proven use of the idea, the better expression possibly should be "proven practice" rather than best practice. This leaves the door open for further improvements.

These are just some arguments why "best practices" may be just a buzzword and should be replaced. Perhaps this will happen in the future. However, for the remainder of this text, the term "best practices" is used, with the caveat that other terms may be more appropriate.

Benchmarking Methodologies

No single benchmarking process has been universally adopted. The wide appeal and acceptance of benchmarking has led to the emergence of a variety of benchmarking methodologies. However, with regard to project management, benchmarking activities usually are easier to implement and accept because of the existence of the *PMBOK® Guide* and a PMO. The *PMBOK® Guide* helps to identify areas where benchmarking would be beneficial, and people understand that the PMO is responsible for continuous improvements in project management.

The following is an example of a typical benchmarking methodology.

- **Identify problem areas**: Because benchmarking can be applied to any business process or function, a range of research techniques may be required. They include informal conversations with customers, employees, or suppliers; exploratory research techniques such as focus groups; and in-depth marketing research, quantitative research, surveys, questionnaires, reengineering analysis, process mapping, quality control variance reports, financial ratio analysis, or simply reviewing cycle times or other performance indicators.

- **Identify others that have similar processes**: Because project management exists in virtually every industry, benchmarking personnel should not make the mistake of looking only at their own industry.
- **Identify organizations that are leaders in these areas**: Look for the very best in any industry and in any country. Consult customers, suppliers, financial analysts, trade associations, and magazines to determine which companies are worthy of study. Symposiums and conferences sponsored by the Project Management Institute provide excellent opportunities to hear presentations from companies that are doing things exceptionally well. Even companies that are in financial distress may be outstanding in some areas of project management.
- **Visit the "best practice" companies to identify leading-edge practices**: Companies typically agree to mutually exchange information beneficial to all parties in a benchmarking group and share the results within the group.
- **Implement new and improved business practices**: Take the leading-edge practices and develop implementation plans that include identification of specific opportunities, funding the project, and selling the ideas to the organization for the purpose of gaining demonstrated value from the improvements.

Benchmarking Costs

The three main types of costs in benchmarking are:

1. **Visitation costs**: This includes hotel rooms, travel costs, meals, token gifts, and lost labor time.
2. **Time costs**: Members of the benchmarking team will be investing time in researching problems, finding exceptional companies to study, visits, and implementation. This will take them away from their regular tasks for part of each day so additional staff might be required.
3. **Benchmarking database costs**: Organizations that institutionalize benchmarking into their daily procedures find it is useful to create and maintain a database or library of best practices.

The cost of benchmarking can be reduced substantially by utilizing internet resources. These resources aim to capture benchmarks and best practices from organizations, business sectors, and countries to make the benchmarking process much quicker and cheaper.

Types of Benchmarking

There are several types of benchmarking studies:

- **Process benchmarking**: The initiating firm focuses its observation and investigation of project management and business processes with a goal of identifying and observing the best practices from

one or more benchmark firms. Activity analysis will be required where the objective is to benchmark cost and efficiency in executing the processes that are part of a project management methodology. This is the most common form of benchmarking in project management. Process benchmarking cannot be successful if users do not fully understand their own processes.

- **Metric benchmarking**: The process of comparing the different metrics that organizations are using for continuous improvements. Time, cost, and quality are just three of the metrics that are being used. Additional metrics are being created to measure what is needed, not what is the easiest to measure. The intent is to identify the core metrics needed for project management. One of the biggest challenges for metric benchmarking is the variety of metric definitions used among companies or divisions. Definitions may change over time within the same organization due to changes in leadership and priorities. The most useful comparisons can be made when metrics definitions are common between compared units and do not change so improvements can be verified.
- **Financial benchmarking**: Performing a financial analysis and comparing the results in an effort to assess your overall competitiveness and productivity.
- **Benchmarking from an investor perspective**: Extending the benchmarking universe to also compare to peer companies that can be considered alternative investment opportunities from the perspective of an investor.
- **Performance benchmarking**: Allows the initiator firm to assess its competitive position by comparing products and services with those of target firms.
- **Product benchmarking**: The process of designing new products or upgrades to current ones. This process sometimes can involve reverse engineering, which involves taking apart competitors' products to find strengths and weaknesses.
- **Strategic benchmarking**: This involves observing how others compete. This type of benchmarking usually is not industry specific, meaning it is best to look at other industries.
- **Functional benchmarking**: A company focuses its benchmarking on a single function to improve the operation of that particular function. Complex functions such as human resources, finance and accounting, and information and communication technology are unlikely to be directly comparable in cost and efficiency terms and may need to be disaggregated into processes to make valid comparison.
- **Best-in-class benchmarking:** This involves studying the leading competitor or the company that carries out a specific function best.
- **Internal benchmarking:** A comparison of a business process to a similar process inside the organization. This is a quest for internal best practices.

- **Competitive benchmarking:** This is a direct competitor-to-competitor comparison of a product, service, process, or method.
- **Generic benchmarking:** This approach broadly conceptualizes unrelated business processes or functions that can be practiced in the same or similar ways regardless of industry.

Benchmarking Code of Conduct

Numerous problems can occur during benchmarking. Some problems result from misunderstandings, whereas other problems could involve legal issues. The Code of Conduct of the International Benchmarking Clearinghouse is an excellent starting point.

- **Legality:** Avoid any discussions that could be interpreted as illegal for you or your benchmarking partners.
- **Exchange:** Be prepared to answer the same questions you are asking. Letting partners review the questions in advance is helpful.
- **Confidentiality:** All information should be treated as proprietary information. You may wish to consider having everyone sign a nondisclosure agreement.
- **Use of Information:** There must be an agreement, preferably in writing, on how the information will be used.
- **Contact:** Follow your partners' protocols and customs on whom you are allowed to interface with.
- **Preparation:** Be fully prepared for partner interfacing and exchanges of information.
- **Completion:** Avoid making promises or commitments that cannot be kept.

Benchmarking Mistakes

Benchmarking mistakes can lead to benchmarking failures. Some of these mistakes include:

- Limiting benchmarking activities to just the company's own industry.
- Benchmarking only industry leaders; industry followers can provide just as much information as industry leaders.
- Failing to recognize that not all results are applicable, especially where organizational and cultural differences exist.
- Failing to have a benchmarking plan and not knowing what to look for.

Points to Remember

Some critical points must be remembered when performing benchmarking:

- It is necessary to understand the culture and circumstances behind the numbers to fully understand their meaning and use. The "how" is just as important as the "how much?"

- In project management, changes can occur quickly. It is important to set frequencies for the benchmarking studies, and each process studied may require different frequencies.
- The more rigorous the benchmarking process, the better the results.
- Regardless of how good a company thinks its project management systems are, there is always room for improvement.
- Those who do not believe in continuous improvement soon become industry followers rather than leaders.
- Executives who are not familiar with or supportive of benchmarking will always adopt the "not invented here" argument or "this is the way we have always done it."
- Successful benchmarking is "doing," not "knowing."
- Benchmarking allows users to learn from the mistakes of others rather than from their own mistakes.
- Because of the rate of change that takes place in project management, it is highly unlikely that the targets that are benchmarked with will be leaders in all areas of project management.
- Benchmarking can prevent surprises.
- People must recognize the need for change. This must be accomplished with benchmarking evidence rather than just claims or opinions.
- Change occurs quickly when the people who are needed to change or to make the change are involved in the benchmarking studies.
- Implementing change requires a champion. Having a PMO is almost always the right idea.

1.13 CONCLUSIONS

The future of project management may very well rest in the hands of the solution providers. These providers will custom-design project management frameworks and methodologies for each client and possibly for each stakeholder. They must be able to develop metrics that go well beyond the current *PMBOK® Guide* and demonstrate a willingness to make business decisions as well as project decisions. The future of project management looks quite good, but it will be a challenge.