# BRIDGING THE PM COMPETENCY GAP

A Dynamic Approach to Improving Capability and Project Success

Loredana Abramo, PMP Rich Maltzman, PMP



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# Preface

This book is about establishing a continuous, sustainable learning environment in your organization so that project management (PM) maturity and competency evolve in step with your business needs:

"By 2020, 11 million PM roles will be added in 11 countries, increasing their gross domestic product (GDP) by \$6.61 trillion across project-intensive industries (Project Management Institute Industry Growth Forecast 2010–2020)."

"Organizations that are good at knowledge transfer are 20% better in meeting scope, 32% better at meeting schedule, and 27% better at meeting budget goals than organizations that are not effective at knowledge transfer. [...] When essential knowledge is captured and shared, organizations see improved results across the range of project metrics, including cost savings, time-on-task, error rates, and innovative solutions (*PMI Pulse of the Profession*®, March 2015)."

"Eighty percent of global executives believe having project management as a core competency within their companies has helped them remain competitive (from *Closing the Gap: The Link between Project Management Excellence and Long-term Success*, Economist Intelligence Unit briefing paper, sponsored by Oracle, 2009)."

In any organization, project managers and their ability to lead projects are an essential element to successful delivery of business outcomes, and so is the competency of these project managers. However, the project managers' level of competency are often not equal to the challenges they encounter in their profession as the project environments in which they work (including tools, processes, and teams) are moving and evolving targets.

This book will provide approaches to establish a continuous learning environment, to foster project manager competency not only on a proven methodology and techniques, but also in emerging tools, cultural and leadership aspects of the profession, as well as business acumen.

Beyond classroom training and *lunch-and-learn* sessions, the book will describe tactical options for implementing competency development as part of organizational culture, leveraging internal and industry-based expertise, as well as tools to be used for virtual, collaborative knowledge sharing.

Next, focus will move on to delivery planning for the continuous learning environment selected and metrics to track effectiveness of the competency development techniques, from peer reviews and jury boards, to project key performance indicators and dashboards. The final part of the book will discuss methods to ensure that there is an established way to evolve the strategic approach as the project managers' maturity level and skill set in the organization change over time.

The book will:

- 1. Define the problem and explore the compelling reasons behind the need to fill this competency gap;
- 2. Help you assess your project managers' competency gaps to identify the most appropriate strategic approaches;
- 3. Aid in the analysis of your PM community and its specific traits;
- 4. Support your selection of the most suitable improvement options for your goals and audience, including implementation options, planning possibilities, and execution alternatives; and
- 5. Suggest ways to monitor progress and to continuously find opportunities to move beyond your current competency levels.

Leveraging over 65 years of combined experience in the industry, the authors will describe strategic approaches on how project managers' competency can be developed and sustained, with practical suggestions, real-life examples, and templates.

# Foreword

I have been managing projects/programs for nearly 50 years, beginning with relatively simple sounding rocket and high-altitude experiments, and finally with some of the most complex space activities. These include the Compton Gamma Ray Observatory, the Hubble Space Telescope, and the Chandra X-ray Observatory. My deepest and most surprising learning experience came from losing a payload during the Space Shuttle Challenger explosion, and then launching the Hubble Space Telescope with a flawed mirror. The failure boards for both the Challenger and the Hubble identified flawed *social contexts* as the root causes of the failures. These findings motivated me to understand this phenomenon and develop a system, the *4-D System*, to measure and manage these social fields. Over 1,000 NASA teams and people in 75 countries have used this system to measure the social context of projects, and to enhance performance and reduce risk.

This book, which complements my work in the area of project management competency, investigates how to provide practical ways to improve project management—and in particular, project success rates. With the dynamic changes we face in the world of projects, this book is important and timely.

I hope you take advantage of the background, tools, and references that this book provides. The authors have taken an analytical approach to the development of project management competencies by starting with a problem statement (identifying the gap in competency), sharing best practice methods to bridge that gap, and more important, to sustain that bridge. As a scientist and project leader, I study and now convey—to project leaders around the world—the critical importance of the human element of projects.

This book gives you a unique opportunity to improve that element. You, your projects, and your enterprise will be better off when you enhance your project management competency!

Dr. Charlie Pellerin Former Director, Astrophysics, NASA

# Prologue

Establishing a continuous learning environment for the project manager is the main theme of this book and is developed right on target. It is good that Abramo and Maltzman are sharing their thoughts on a critically important topic. They are the right people to be doing that. That effort certainly requires senior management recognition and commitment but the project manager is the person who will actually make it happen. In most organizations, this will happen if and only if the project managers shift their thinking from a passive to an active participant in the learning process. For most project managers, that will be a challenge and will require a significant behavioral change. Let's dig into that behavioral change.

First of all, I am honored to have this opportunity to comment as it strikes close to home for a topic that has occupied me for several years. There are lots of reasons for this, but most reduce to the inability of our thought leaders to make inroads into reducing the historically unacceptable project failure rates. My fundamental premise is that the complex project is unique and that its best-fit project management approach will therefore also be unique. That uniqueness follows from the characteristics of the project; the internal organizational environment and culture; and the prevailing market conditions. All of these are continually changing and so the best-fit project management approach will also be subject to revision throughout the project life span. That may be seen as heretical to many thought leaders, but it is the reality one faces in the complex project landscape.

One further observation that should be mentioned is the role of the executive in establishing a continuous learning environment. It is a critical

success factor. That is, to vest as much decision-making authority as possible in the project manager. In my experience, organizations that take this approach have shown increases in morale and have instilled ownership and commitment in the project manager and the team members as well. This increase of project manager authority will motivate him or her and the team to strive for maximal performance—hence, continuous learning.

As for the project management approach, it must be flexible and draw upon the project manager's creativity and problem-solving competencies for maximal benefit. As discussed before, the complex project landscape is dynamic, which requires a flexible approach that allows for the continual and adaptive best-fit alignment of the project management approach to what is an ever-changing situation.

Robert K. Wysocki President EII Publications

# **Acknowledgements**

We would like to thank some of the individuals that have made this book possible, by providing encouragement, inspiration, and support all throughout the life cycle of this project.

We wanted to make this book as close as possible to real life, rooted in every day project management, rather than in theoretical statements. So we would like to start by thanking the 250+ respondents to our peer survey for their time and input on project management (PM) competency.

In particular, we would like to thank three colleagues who have contributed directly to our efforts. Helen Bull has shared with us her experience at Philips, and has agreed to share with our readers the approach used there in our Case Study. Charles Pellerin authored our Foreword and has inspired us with his focus on leadership competencies for project managers based on his experience at NASA. When we approached Robert Wysocki with some of the questions we had in our chapter called *Leveraging Expert Judgment*, he responded enthusiastically and wrote our Prologue.

Our sincere thanks to the many PM *thought leaders* who have responded (some instantaneously!) to our request to answer questions on PM competency. Their insights have provided confirmation—almost reassurance—that our focus on a dynamic and flexible approach to developing PM competencies beyond the standard triple constraint was valid.

We thank Diana Zarazua and Morse Shankman for their guidance and encouragement at our workplace.

Sarah Shah and John Alleman have helped us tremendously with style and consistency checks, and historical context for our Introduction, respectively. Many thanks to both!

We jointly dedicate this book to our spouses, Ellen Maltzman and John Alleman, and to our children, Sarah Shah, Daniel Maltzman, and Matteo Alleman.

# About the Authors



Loredana Abramo, PMP, has over 25 years of experience in deploying telecommunication networks for international projects, with roles such as lead engineer, technical deputy, business operations manager, and project management competency development leader for emerging technologies.

On one of her more recent customer-facing assignments, she was the Deputy Director of the project management office (PMO) for a major telecom project in Australia. Loredana has

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Ms. Abramo has a Master's in Electrical Engineering and is board certified as a Professional Engineer in Italy, as well as a certified Project Management Professional (PMP)<sup>®</sup>. Loredana has a Convergence Technologies Professional accreditation from the Telecommunications Industry Association, and a Certificate in Advanced Project Management from De

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**Rich Maltzman**, PMP, has been an engineer and PMO leader for almost 40 years. His international project work has been diverse, including the integration of two large PMOs of merging multinational corporations. As a second but intertwined career, Rich has also focused on consulting and teaching at several universities in the U.S. and China.

Rich has also professionally developed PMP<sup>®</sup> exam prep courseware and has presented at international PMI and IPMA conferences in South Africa, the

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He has published numerous articles and coauthored three books— Green Project Management, winner of PMI's David I. Cleland Project Management Literature Award; Project Workflow Management; and Driving Sustainability Success in Projects, Programs, and Portfolios.

Rich is an active speaker at various professional conferences and an active blogger on projectmanagement.com.



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- Self-Assessment Radar: Self-Management and Leading Others
- FACE Model Assessment of your Organization
- Success Predictor Radar: Vision, Skills, Motivation, Resources, and PM Discipline
- Competency Logger, using the ABCD-5E Model
- Roundtable Events Checklist
- Continuous Learning Opportunities Template
- High-level Planning Elements Template
- Phase Planning Template
- Audience Analysis for Communication Plan Template
- Planning for PM Symposium Template
- Agenda for PM Symposium Template
- FACE Model Elements Template

# Introduction

Although the Project Management Institute's *Project Manager Competency Development Framework* was only first released in 2002, project management (PM) competency development has been a recurrent practical concern throughout history, specifically in the successful execution of large-scale military and civic projects—of course, not phrased in precisely these terms.

Concepts such as *project* and *management* have only emerged over the last 300 years, while the current articulated disciplines have evolved within the context of the Industrial Revolution and the emergence of scientific management principles in the 19th and early 20th centuries.

The use of the word *competency*, which roughly means *sufficient qualification for a task*, was first recorded in 1794 and did not emerge in its current human resources usage until appearing in an article by R. W. White published in 1959.

*Competency* as applied to PM really means possessing the practical and theoretical knowledge of technology, processes, and systems; interpersonal and social skills; and creative, tenacious problem-solving skills sufficient to manage projects of varying scope within a specific technology context. We will provide our definition of PM competency in Chapter 1. Interestingly, *competence* shares the same Latin root—*competere*—with *compete*. So, you might consider PM competency as the necessary and sufficient qualifications/skills to successfully compete in a specific PM environment. The concept of PM competency may seem an artifact of the modern postindustrial world, but fundamentally, current practitioners are "*nanos gigantum humeris insidentes*" ("dwarfs standing on the shoulders of giants" as attributed to 12th century monk Bernard of Chartres). It is the accumulated experience of master builders, skilled tradesmen, military planners—or in other words, all of our predecessors who, in the process of putting teams of people together to attack the extraordinary tasks of engineering and organization, developed and refined the skills, processes, and tricks of the trades from which all of our *modern* PM practices can be understood to have emerged. Looking back at a few of such *projects*, as passed down to us through historical records, to understand the challenges faced and the methods of acquiring the needed expertise to successfully complete them, can give a context to the competency development challenges faced by our contemporary PM community.

#### A BRIEF HISTORY OF PM COMPETENCY

In 246 BC, outside of what is now Xi'an, Shan-xi, China, work began on a necropolis that was to be the burial site for the then young King Qin Shi Huang. The emperor-to-be was 13 when he ascended to the throne, and he was to become the first emperor of a united China before being buried in the necropolis in 210 BC. The tomb complex was scoped to be the largest ever built in China, in effect a full-scale city-sized habitat worthy of the first emperor. Modern radar soundings estimate the complex covers 98 square kilometers (38 square miles). Based on Chinese histories, at least partially confirmed through modern scientific tests and analysis, the necropolis of Qin Shi Huang contained everything needed to support the emperor in the afterlife, in even greater splendor than he enjoyed in his physical life.

There was, of course, the *Terracotta Army*, which was the first part of the project excavated in 1974, a small part of which now visits museums around the world. This army, buried in caverns with Emperor Qin, included roughly 8,000 foot and cavalry soldiers, with chariots in the hundreds and over 600 horses, both to pull the chariots and for cavalry soldiers to ride (see Figure I.1). There were also court officials to assist the emperor in running the necropolis, and entertainers (acrobats, musicians, etc.) for the needed diversions. Per the contemporary accounts, there were



Figure I.1 Terracotta Army

also over a hundred simulated rivers of shimmering mercury, all fitted into a complex of tunnels and caverns.

This was a public works project of extraordinary scope and complexity which eventually employed on the order of 700,000 workers. To produce the many life-sized figures, craftsmen built the arms, legs, torsos, and heads separately. There were at least 10 different face molds. The different parts could then be assembled, mixing and matching to maximize variety. After assembly, each was individually painted. To manage the end-toend process of producing the 8,000 soldiers, something like a large-scale assembly line was likely used.

Technically, the work involved civil engineering (excavation and construction of caverns/rooms and connecting tunnels, simulated rivers, etc.), military engineering (functional weapons, including loaded and primed crossbows, were built for the army), arts/crafts (statues and related artifacts, kilns, paints, brushes, tools, etc.), and industrial engineering (mass production of the figures populating the necropolis). Organizationally, the master builder would have created a large, 700,000-person manufacturing facility in sustained operation for over a decade. Food, water, waste management, health care, supply chain management—all aspects of city management and PM—were required on a massive scale.

While the uncovered artifacts are works of great artistic merit individually, the real wonder of the Mausoleum of the First Qin Emperor is the extraordinary PM skill sets that must have been applied to create such a huge and diversified set of figures and the environment into which they were placed; as a single sustained project involving at its peak 700,000 workers, carried out over a less than 30-year period—and all without the benefit of *A Guide to the Project Management Body of Knowledge (PM-BOK*<sup>®</sup> *Guide)*. It was and is a wonder, but also part of what makes it a wonder is the fact that it was never repeated. The competencies developed on various skilled jobs over generations came fortuitously together in one place, for one generation, under inspired leadership to produce a single object of wonder.

The Hagia Sophia (*holy wisdom*) (Figure I.2) is a cathedral built in the sixth century AD on the other side of the world from Xi'an, in Constantinople (present day Istanbul, Turkey). Another public works project by another emperor, Hagia Sophia was built at the instruction of the Byzantine Emperor Justinian I—in part to reestablish imperial grandeur after the Nika riots that nearly toppled him; in part as an expression of his true Christian piety; and in part to establish the primacy of Constantinople, that is, reestablish the scope and dominance of the Roman Empire now ruled from Byzantium. The project had a short, sponsor-imposed end date constraint since the desired stabilizing effects on Justinian's imperial power were needed sooner rather than later. Therefore, the cathedral needed to be an engineering wonder.

Anthemius of Tralles and Isadore the Elder were selected to lead the building of the cathedral in roles that encompassed the modern ideas of lead architect, lead engineer, general contractor, lead designer, and lead project manager. Anthemius and Isadore put together a workforce of 10,000 men, divided into two teams of 5,000 each under 50 master builders. The cathedral was to be built on the footprint of the original Hagia Sophia, which was destroyed in the Nika riots, so they worked in a confined environment surrounded by preexisting structures that were susceptible to earthquakes.

Sixth century AD Constantinople was a different work environment than third century BC China. The project was run under a hierarchy of worker guilds on whose skilled laborers the project delivery schedule



Figure I.2 Hagia Sophia

depended. Another difference from the mausoleum of Emperor Qin was that the cathedral was primarily meant to be an object of public splendor and beauty dedicated to God, not the emperor—the accomplishment of which would also require an object of extraordinary engineering.

The project was completed in five years, compared, for example, to nearly a century required to build Notre Dame Cathedral in Paris (construction of which began in 1163 AD). The floor plan runs 82 meters (270 feet) in length and 73 meters (240 feet) in width, with a domed roof of 33 meters (108 feet) in diameter and a crown that rises 55 meters (180 feet). It was an extraordinary engineering accomplishment for a dome built without steel; however, it should be noted that the aggressive time constraints led to problems with the dome, which collapsed 20 years after completion. The domed roof was then rebuilt by Isadore the Younger. This dome, without further repair, has lasted until the present day (nearly 1,400 years).

Looking only at the PM aspects, it seems clear that the competencies required to complete such a grand project on such an aggressive, inflexible schedule were impressive. In this case, compared to Emperor Qin's mausoleum, the engineering tasks were formidable, requiring serious technical PM skills in addition to the scheduling, coordination, supply chain management, and resource management skills that would have been somewhat like the mausoleum project. In addition, the project managers would have been required to understand and work within the regulations defined by the various labor guilds. In summary, the work force was large, the regulatory environment complex, the sponsor very demanding, the stakeholders numerous, the schedule aggressive, and the technical aspects challenging. Sound *familiar*?

With the mausoleum of Emperor Qin, we highlighted the huge human resource and logistical challenges that the project managers would have dealt with when building a vast necropolis over a period of a few decades. With the Hagia Sophia, the project managers encountered a more complex regulatory environment, more aggressive time constraints, and more central engineering challenges, as well as significant human resource and logistical challenges. The final preindustrial-age example we will detail confronted the significant architectural and PM challenges of a multicultural, multilingual cathedral building project from the 12th century AD.

The third of the Norman kings of Sicily, William II, ascended to the throne of Sicily in 1172 at 18 years of age. He had inherited a kingdom only just wrested from the Arabs by his great grandfather, Roger I, 70 years earlier.

The island of Sicily had been populated by a multicultural, polyglot mixture of peoples for centuries, if not millennia. At the time of the Norman conquest of Sicily (1068 AD) by Roger d'Hauteville, the island's Byzantine Greek, Roman, Apulian, Venetian, Jewish, and Pisan inhabitants had been ruled by Muslim Arab chieftains for 200 years, to that mixture was now added the Norman French.

The Normans had, from the start, been inclusive leaders who fully integrated the various genius of the different peoples to build a society greater than the sum of its parts. As such, William II unified elements of Norman, Byzantine, Latin, and Islamic cultures in the architectural design of his cathedral at Monreale, located outside of Palermo in north central Sicily. The vast trade routes established by the Arab traders who preceded the Normans were reutilized to acquire the building materials, and



Figure I.3 Monreale, interior

through the associated contacts, he could acquire various artists, craftsmen, builders, and laborers from throughout the Mediterranean region. He utilized the d'Hauteville fortune to finance the project.

Construction started in 1172 AD on the main building of what was to become the monastery complex of Monreale. The work on this building was completed in four years. The cathedral is 102 meters (334 feet) long and 40 meters (131 feet) wide. The exterior is a mix of Norman and Islamic elements. The interior structurally merges Roman basilica and Byzantine cathedral elements, but most spectacularly contains 6,500 square meters (65,000 square feet) of exquisite wall-to-ceiling Byzantine glass mosaic work (see Figure I.3). The resulting complex is still intact, but sadly very little has come down to us regarding the master builder (unknown) or the details of the staff or their organization.

However, we can infer from the perspective of the project manager that there was an aggressive time constraint imposed in this case by the new king, establishing himself in a tricky political relationship with the pope and the local aristocracy—a complicated supply chain, a series of multicultural technology dependencies, and challenging communications constraints. The stone construction materials were probably locally quarried, but gold, glass, and precious stones would have all been imported. Local tradesmen may well have been utilized for the stone work, but there may have been French-speaking Norman and Arabic-speaking Muslim artists/craftsmen imported to decorate the mixed motif exterior, while Greek-speaking Byzantine artists created the interior mosaics, and Arabic-speaking Muslim boat builders constructed the interior wooden ceiling in the form of an inverted ship's hull.

Different from Emperor Qin's mausoleum and Justinian's Byzantine cathedral, the lead designer at Monreale needed a *broad* enough understanding of the diverse artistic/architectural styles, reflective of the 12th century Sicilian reality and the cultural/religious foundations of these styles, to merge them into a harmonious architectural whole. William II's project manager and architect needed a broad *enough* understanding of the technological and cultural/religious foundations of the diverse build-ing practices, material sourcing, and labor pool to merge them all into an effective project team and supply chain. It comes remarkably close to the diverse workforce and technology that typify the modern global project environment.

From these three examples, it is clear that there have been extraordinary practitioners implementing PM principles around the world throughout the history of organized human activity. It must be so, or nothing on the grand scale we so admire would ever have been accomplished. However, there is also something critical missing from the historic PM accomplishments that we have reviewed in this introduction: instructions passed on to others to share the lessons learned and the tools and techniques that worked as a foundation to train the new project managers needed to manage subsequent projects. If we are to gain the benefit of two or three thousand years of effective (and ineffective) application of PM principles, we must dig relentlessly through historical records in search of some scattered, accidental reference as to how things were organized to work in each case—since no one bothered to prepare, systematically, in writing, for the next project.

This is why we see the great accomplishments of PM in the past (the past, in this case, probably not starting to change until just 40 years ago) as *inspired acts of genius combined with generational skills*, rather than

Attributes	Year 0 through 1970 AD	Post PMBOK <sup>®</sup> Guide
Skill conveyance	On-the-job	Formal training and knowledge transfer
Project duration	Decades to centuries	Months
Recognition of PM	None	Formalized
Talent provided by	Serendipity	Competency development

Table I.1 Through the years

exemplary testaments to good training and discipline (see Table I.1). Try to imagine the disasters that might have been avoided and the extraordinary projects that might have been undertaken and completed by welltrained but ordinary people if someone had just passed on the quality control, supply chain management, multilingual communication, and cross-cultural resource management insights that these inspired geniuses learned while building the Great Pyramid of Giza or Emperor Qin's mausoleum or the cathedral at Monreale or—well you get the point.

### FAST FORWARD TO THIS MILLENNIUM

In a very nice article in the September 1, 2008, issue of APPEL magazine on PM development at NASA, Dr. Edward Hoffman noted that prior to the 1986 Challenger disaster, all PM professional development at NASA was achieved through on-the-job training (OJT)—there was no formal PM training program. The Challenger accident was a stimulus to set up the NASA Program and Project Management Institute that became the Academy of Program/Project and Engineering Leadership (APPEL), which was tasked specifically with providing structured training programs to transfer basic knowledge and competence to the PM and engineering communities at NASA.

NASA was thus one of the canaries in the global coal mine that warned us that the pace and scope of technological growth, along with the fierceness of competition, could no longer be managed through intuition, OJT, and individual, inspirational genius. It was time to put disciplined PM competency development programs in place to prepare the army of talented, well-trained-but-ordinary project managers that could navigate the projects' seas safely in the rapidly evolving, global, high-tech world.

## PM ACHIEVES UNANIMOUS CONSENSUS IN THE U.S. SENATE

As this book was being written, the U.S. Senate unanimously passed S.1550—a bipartisan bill sponsored by Senator Joni Ernst of Iowa and Senator Heidi Heitkamp of North Dakota. A statement from Senator Heitkamp's office said:

"Making sure federal programs are well managed is key to creating effective and helpful relationships among federal agencies, communities, and businesses, whether it's in energy, agriculture, or any other field. This bipartisan bill aims to give federal agencies a framework for better managing their programs—helping us reduce waste and promote effective management practices."

The Program Management Improvement Accountability Act establishes additional requirements of the Deputy Director for Management of the Office of Management and Budget to:

- Adopt and oversee implementation of government-wide standards, policies, and guidelines for program and project management for executive agencies;
- Chair the Program Management Policy Council (established by this Act);
- Establish standards and policies for executive agencies consistent with widely accepted standards for program and project management planning and delivery;
- Engage with the private sector to identify best practices in program and project management that would improve federal program and project management;
- Conduct portfolio reviews to address programs identified as high risk by the Government Accountability Office;
- Conduct portfolio reviews of agency programs at least annually to assess the quality and effectiveness of program management; and
- Establish a five-year strategic plan for program and project management.

• The Office of Personnel Management must issue regulations that: (1) identify key skills and competencies needed for an agency program and project manager, (2) establish a new job series or update and improve an existing job series for program and project management within an agency, and (3) establish a new career path for program and project managers.

So, it is now law in the U.S. that key PM skills and competencies must be identified, and that this be codified in terms of a *series* of jobs (meaning job descriptions) and an accompanying career path. This helps underline the importance of the opinions, findings, and guidance provided in this book. We can't say that it's illegal not to read this book, but we can say with confidence that there is legal encouragement for you to do so.

# NOTES

- 1. Figure I.1—Terracotta Army https://en.wikipedia.org/wiki/Terracotta\_Army#/media/ File:Terracotta\_Army,\_View\_of\_Pit\_1.jpg
- Figure I.2—Hagia Sophia https://en.wikipedia.org/wiki/Hagia\_Sophia#/media/ File:HagiaSophia\_DomeVerticalPano\_(pixinn.net).jpg
- Figure I.3—Monreale, interior https://en.wikipedia.org/wiki/Monreale#/media/ File:MonrealeCathedral-pjt1.jpg



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# Problem Statement: In Other Words, *The Gap*

Project managers are accountable for the delivery of business objectives. Rapidly evolving technologies, a set of ever-changing customer requirements, and increasing global business interdependencies all demand that project management (PM) competencies are adequately improved to enable delivery of successful project outcomes. At the same time, the PM discipline as well as related tools, credentials, methodologies, and processes is undergoing some substantial transformations.

Let's approach this issue as we would approach a project. The first and most important step in a project is identifying and expressing the need for the project in the form of a project charter. The charter provides a brief business case, which describes the need for investment—the need for change in the first place. It is a source of authority for the project manager and, equally important, it lets all stakeholders know what the project *is all about* and what success looks like, so that the project team will know what it means to be *done*. Remember: a project exists *only because some sort of change is being made*. A project exists only because the status quo is just not good enough. In effect, *every project is about a gap*. More accurately, every project is about *filling* that gap and achieving an important outcome. As to the gap, it could literally be filling a gap, for example, building a bridge over a ravine, or, more likely, it could be more sublime; for example, a new app to match adoptive *pet parents* with pets who need adoption, which is bridging a very different sort of gap, in that case—an emotional one. Here we apply the very same foundational idea of gapfilling to the initiative to improve PM competency and the resulting success of projects. To do so, we need to describe the current situation and the shortfalls we see as longtime proponents of PM excellence and continuous improvement. So, what is this PM competency gap? We express this gap as a problem statement:

*A project manager's level of competency is often not equal to the new and dynamic challenges encountered in his/her profession.* 

As a result, we see ineffective use of tools and technology, and insufficient communication and engagement in project teams, which leads to subop-timal delivery of business objectives.

Considering how fast the landscape of platforms, methodologies, and team dynamics is changing around us, it is not surprising that PM courses attended just a few years ago are now obsolete, and that even the *soft skills* learned during the last training courses are no longer working for us. If we try to maintain our PM competencies by using the traditional approach of courses and tests, we find ourselves and our project managers unable to keep up with this rapidly changing environment. The project managers' ability to deliver business outcomes is thus severely impacted, and that is a major threat to any organization.

The answers we will explore in the next chapters are centered around the concept of *establishing a continuous learning environment*, self-propelled and adaptable, therefore able to evolve with our projects and profession. To leverage an eminent, state-of-the-art approach to this improvement methodology and solid PM best practices, we recommend following these steps:

- 1. Define the problem: we start with a problem statement and we will continue to explore the compelling reasons behind the need to fill this gap in Chapter 1.
- 2. Assess your project manager's competency and identify your PM competency gaps: you need to be able to baseline the current status as well as measure progress. We will discuss this phase and the related strategic approaches you can plan in Chapter 2.

- **3.** Study your PM community and its specific traits: whatever competency development bridges you decide to build, they must be based on who will be using them. There is no *one-size-fits-all* approach that will work for any group of project managers. We will discuss this aspect in Chapter 3.
- 4. Choose and implement the most suitable improvement options for your goals and audience: we will share what we and other respected colleagues have learned that have worked for many years in this field. We will describe possible implementation choices, planning possibilities, and execution alternatives in Chapters 4, 5, and 6.
- 5. Monitor progress and continue to improve while implementing your plans and assessing progress which has a beginning and an end with specific deliverables and timelines: you need to consider how to continuously find opportunities to move beyond your current competency levels. We will address these last (but not least!) aspects in Chapters 7 and 8.

#### THE VALUE OF PM AS A DISCIPLINE

A prerequisite to building competence in your PM staff is the recognition that PM is indeed a discipline of its own. As a testament to this concept, observe the growth of PM in the academic world.

According to a database maintained by the Project Management Institute (PMI)<sup>®</sup> Academic Programs Group, the number of PM-related degrees has grown from two Bachelor's degrees and nine Master's degrees in 1995—which frankly does not seem that long ago—to 206 Bachelor's degrees and 710 Master's degrees in 2015. There are now 100 times more Bachelor's degrees and 80 times more Master's degrees in the past 20 years, as illustrated in Figures 1.1a–d.

Before you go writing off these statistics as being *just an academic exercise*, remember that colleges and universities are also businesses, and they're offering these degrees not because they choose to follow that academic path: they are offering these options because of real demand for PM competency! Just as in the world of academia, the acknowledgment of project management as a distinct discipline in an organization is the



#### Number of identified project management focused degree programs:

- 2002: 55 degree programs in 47 universities
- 2006: 284 degree programs in 235 universities
- 2010: 640 degree programs in 450 universities
- 2015: 969 degree programs in 711 universities

Adapted from: PMI Academic Programs Group, March 2016



- 1995: 2 Bachelor's degrees; 9 Master's degrees
- 2006: 9 Bachelor's degree programs; 139 Master's degree programs
- 2010: 52 Bachelor's degrees; 373 Master's degrees
- 2015: 206 Bachelor's degrees; 710 Master's degrees

Adapted from: PMI Academic Programs Group, March 2016

Figures 1.1a-d Project management degree programs



- 2003: 5 Programs in 2 institutions, in 2 countries
- 2006: 28 Programs in 10 institutions, in 4 countries
- 2010: 71 Programs in 30 institutions, in 11 countries
- 2015: 103 Programs in 56 institutions, in 16 countries

Adapted from: PMI Academic Programs Group, March 2016



- Over 1000 faculty teaching in PMI's Global Accreditation Center (GAC) programs.
- 6621 graduates of GAC programs in 2015.
- 18,928 enrolled students in GAC programs.

Adapted from: PMI Academic Programs Group, March 2016

first, necessary step in the development of a wide array of learning options specifically for the project manager population, rather than directing PM to general management or sales courseware. Managing projects is very different than managing an organization. Projects take place in different environments since they have their own challenges, constraints, and communications requirements. While we recognize that projects and general (operations) management share *some* attributes, projects are different enough (uniqueness, time-limited, PM framework) to deserve their own curricula.

## DEFINING PM COMPETENCY

What does PM competency mean? And what competencies should be developed in project managers? Is there guidance from research or industry associations? With regards to the definition of PM competency, we rely as a starting point on the definition from PMI that relates to the Talent Triangle<sup>®</sup>, shown in Figure 1.2:

"The ideal skill set—the PMI Talent Triangle<sup>®</sup>—is a combination of technical, leadership, and strategic and business management expertise. To stay relevant and competitive, you must develop these employer-demanded skills."

Combining this with the standard dictionary definition—*the ability to do something successfully or efficiently*—we get our preferred definition:

*PM* competency is the ability to successfully and efficiently manage projects with a combination of technical, leadership, strategic, and business management expertise.

The primary rationale for the Talent Triangle<sup>®</sup>—the main driver for the existence of the three sides, all three sides—is that when PMI interviewed thousands of CEOs and other C-level leaders at all sorts of companies all over the world, the senior managers were not looking for better scheduling, or better budgeting, or even risk identification, analysis, and management. They still think those things are important, of course. However, what they indicated that they were struggling with, in terms of capability and talent, was the more human side of our discipline—dealing with ambiguity and change, interaction with people, influencing stakeholders, and



Figure 1.2 The PMI Talent Triangle®

negotiating. They were looking for a better balance between the technical PM skills and the increasingly important human interaction, leadership, and strategic skills. Let's look at each of the sides of the Talent Triangle<sup>®</sup>.

### **Technical PM**

PMI's *Pulse of the Profession*<sup>®</sup> report (PMI, 2013) showed that for 66% of surveyed organizations, project managers with the appropriate technical skills were very hard to find. (See also: *Pulse of the Profession*<sup>®</sup> In-Depth Report: The Competitive Advantage of Effective Talent Management, 2013.) The root cause, however, is not a simple lack of project managers, but rather the fact that the project managers in the organization often simply don't possess the necessary technical PM knowledge.

What is this *technical* side? The term *technical* PM can best be understood if you think of the *technician* project manager, that is, one who is an expert in the science of PM—applying methods and tools, such as the Gantt chart, earned value management, RACI (responsible, accountable, consulted, and informed) matrices, and so forth. This is distinguished from the technical components of the practice area; so, for a construction project manager, the focus of the technical side of the triangle is not on new carbon composite building materials, but rather the technical components of planning for, assessing the risk involved with, and scheduling the assembly of those composite building materials.

Required competencies in the technical side of the triangle include (but are not limited to):

- Techniques for requirements analysis and definition
- Project planning and controlling
- Risk management
- Scope management

PMI advises that the competencies in the technical side of the Talent Triangle<sup>®</sup> can best be learned via seminars, webinars, online trainings, etc., due to the structured nature of this type of knowledge. In contrast, the elements which must be learned on the *leadership* side are developing and fine-tuning the soft skills of the project manager and likely requires training experiences which have an experiential element.

#### Leadership

Another *Pulse of the Profession*<sup>®</sup> survey (Navigating Complexity, 2013) showed that 71% of organizations indicated that they considered leadership skills and talent most important for long-term success, and 75% of survey respondents considered leadership as *very important* for the successful management of complex projects.

Consciously naming and designating *leadership* as its own area of competence emphasizes that the successful management of projects not only requires technical/methodical knowledge, but also leadership skills. As the project level becomes more complex, project leadership skills become perhaps exponentially—even more important.

Leadership is the sum of soft skills as well as the ability to demonstrate referent power. This side of the triangle is about the *ability to lead and develop a team* and to demonstrate the use of appropriate behavior in dealing with the various stakeholders in wildly differing situations over time.

While a project manager with expertise in the technical PM area can plan and execute the project, his expertise in the field of *leadership* will help in dealing with the handling of the various stakeholders in the project. It involves inspiring, leading, and serving the project team—helping them stay focused on the project's end goal and understanding the benefits that the project will realize for its clients, for the organization, and for the team members themselves.

Leadership talents include (but are not limited to):

- Negotiations
- Conflict management
- Motivation of employees
- Feedback techniques
- Ability to influence stakeholders
- Active listening
- Team development
- Emotional intelligence
- Change intelligence

#### Strategic and Business Management

PMI's research (PMI, 2013) has revealed that organizations which have their talent aligned with strategy have a 72% success rate in their projects (meeting original business goals) versus 58% when this connection is misaligned. That's a 14% increase in success rates and literally billions of dollars of difference (to say nothing of the morale, brand, and other hardto-measure attributes). This explains the rationale for PMI to include a side of the triangle dedicated to this focus.

*Strategic and business management* competency is focused on the connection between the project and the business environment in which it *lives*, including the organization's internal environment (the mission, vision, values, and strategy of the organization) as well as its external environment (customers, suppliers, competitors, and regulatory agencies).

This means specifically that project managers implement and execute their projects according to the strategy of the company, as well as acting with an entrepreneurial spirit and having knowledge of the industry they are working in. These include (but are not limited to):

- Entrepreneurial activity
- Marketing and law
- PESTEL (political, economical, social, technological, environmental, legal) and SWOT (strengths, weaknesses, opportunities, threats) analysis
- Strategic planning and alignment of multiple projects
- Contract management
- Management of complexity

(*Competitive Advantage of Effective Talent Management*—http:// www.pmi.org/-/media/pmi/documents/public/pdf/learning/thought -leadership/pulse/talent-management.pdf)

One of the more interesting findings in our research on the Talent Triangle<sup>®</sup> was that 90% of companies surveyed stated that the technical and strategic/business skills are teachable (PwC and PMI, November, 2014), but not so for the leadership skills. That is precisely why we put so much stress in this book on alternate ways of assessing and improving leadership skills, rather than relying on traditional classroom training as a way to improve capability on this side of the triangle.

## **DEVELOPING PM COMPETENCY**

Project managers, those who have been in this profession for many years, are a tremendous benefit to any organization. They possess general PM experience, know the organization's methodology very well, and understand the best approach to manage a difficult delivery. But does this experience always benefit the organization? Sometimes, being good at something leads to confidence, and often that same confidence that helps resolve issues also blinds us to shortcomings related to advances in methodology, soft skills, and technology.

Maintaining an open mind and a willingness to learn becomes a critical skill, in and of itself, for the whole community (catching up with the latest version of the *PMBOK*<sup>®</sup> *Guide*, learning about Agile, or how to use a new desktop sharing tool, etc.) and can make the difference between a

good enough project manager and an outstanding one—one which can serve as a differentiator for an organization.

One of the most important themes of the project manager's day-today work is *advancing* data into information, into knowledge, and into wisdom. In the *PMBOK® Guide*, this is presented as transforming *work performance data* into *work performance information* and *work performance reports*, but it is the same principle. Over the years, the authors have seen time and time again that one of the underlying functions of a successful project manager is to clarify, unify, and show the significance of apparently unrelated facts (data) to the more contextual intelligence (information) as the basis for quality decision making (knowledge). Let's look at a model often referenced to understand this process: the *data*, *information*, *knowledge*, and *wisdom* (DIKW) model illustrated in Figure 1.3. For more information on this model and its author, see Appendix 1.



Figure 1.3 The DIKW model

Data is raw. It simply exists and has no significance beyond its existence (in and of itself). It can exist in any form—usable or not. In computer parlance, a spreadsheet generally starts out by holding data. For a project manager, this could be a list of experts, which could be related to the project or not.

*Information* is data that has been given meaning by way of relational connection. This *meaning* can be useful, but does not have to be. In computer parlance, a relational database correlates information across the data stored within its tables. A project manager uses a stakeholder register for his or her project, and that's information.

*Knowledge* is the appropriate collection of information, such that its intent is to be useful. Knowledge is a deterministic process. When someone *memorizes* information (as less-aspiring test-bound students often do), then they have amassed knowledge. This knowledge has useful meaning to them, but it does not provide, by itself, an integration which would allow development of further knowledge. In computer parlance, most of the applications we use (modeling, simulation, etc.) exercise some type of stored knowledge. The sustainable capability to combine information such as templates, organizational roles, and prior experience into a stakeholder register is relying on the project manager's knowledge.

*Wisdom* is an extrapolative and non-deterministic, non-probabilistic process. It calls upon all the previous levels of consciousness, and specifically upon special types of human programming (moral, ethical codes, etc.). It beckons to give us understanding about which there has previously been no understanding, and in doing so, goes far beyond available knowledge. It is the essence of philosophical probing. Unlike the previous levels, it asks questions to which there is no (easily achievable) answer, and in some cases, to which there can be no humanly-known answer, period. Wisdom is, therefore, the process by which we also discern, or judge, between right and wrong, good and bad. This is what enables an experienced project manager to prepare an effective communication plan—an inherent sense of how to best reach stakeholders when standard methods fail.

When we apply the DIKW model to PM competency, we consider two aspects as essential for harmonious competency development.

**6.** Developing the specific skills of individuals allow the organization to advance data into knowledge. Projects, due to their very nature of uniqueness and exposure to uncertainty, require problem-solving and decision-making skills. Project managers who develop the ability to work with contextualized information can solve problems more efficiently and effectively, and make better decisions more reliably. This is the individual growth required to deliver projects.

7. The project managers, as a community, collectively develop an environment that supports an adaptable and evolving advancement of data into knowledge and wisdom. Note: this does not happen automatically—in our experience there needs to be at least one *catalyst*; an advocate for building and energizing this community. As a PM community builds appreciation for this flow of data-to-information-to-knowledge-to-wisdom, the project managers—as a community—become more capable of, and interested in, sharing knowledge, so that findings from Omaha, Nebraska, USA, for example, can be used in Kuala Lumpur, Malaysia for a similar project problem. This is the *collective growth* required to build a continuous learning environment.

### PM COMPETENCY AS A MEANS TO BE RESILIENT TO CHANGE

A competent project manager adapts better to organizational changes; and an organization with competent project managers is better able to adapt to business changes.

Organizations in any industry are frequently undergoing changes to adapt to new business models in order to improve efficiency and reduce costs. Project managers who are used to continuously learning new techniques and methodologies are more likely to take organizational changes in stride. In a complementary fashion, an organization's ability to leverage the opportunities triggered by business changes, and to mitigate any negative impacts, is strengthened considerably by a PM community that promotes a continuous learning environment.

Due to the nature of their role, project managers have to be able to move seamlessly through several management layers (to secure resources, gain consensus, etc.), across functional/technical silos (to reach experts, for example), and at the same time overcome geographical and cultural barriers (think of virtual and/or international teams!) as illustrated in Figure 1.4. Working across these different dimensions (management, technical, and cultural) helps project managers develop skills that are useful beyond project delivery: these are the skills needed to adapt to any type of professional change.

One of the reasons many people find PM intriguing as a career is the fact that although it is obviously important to know the *science* of your practice area (financial management, telecom, insurance, and so forth), the *art and science* of PM is almost always transferable across practice areas. In every case, projects are the single connection point between strategy and steady-state operations. In Figure 1.5, note the location of projects, programs, and portfolios as this connection point. This connection point is key. Without it, there is a gap (there it is again) between what the organization believes (mission, vision, values), what they want to do strategically, and their ability to execute day-to-day. The point here is that PM is *portable* as a profession and PM competencies will naturally be similar across industries.

An accomplished telecom engineer with several patents under his belt had transitioned to a career in PM, achieving his Project Management Professional (PMP)<sup>®</sup> credential after a few years of practice. When massive downsizing led to the company laying him off, it was not too long (actually, it was just a few weeks) before he jumped industries, and became a project manager in a leading pharmaceutical company—and ironically became director of their PM office within just a few more years. He told us that his competencies in PM were what made the difference in that not-so-radical career shift. No organization is greater than the sum of the people whose daily dedication and performance maintain the health and vitality of that organization.

This is the first of many examples that we will use throughout the book to support our statements. These examples are drawn from our experience, and some have been shared by other professionals as we have discussed competency development with them. We will be leveraging such examples to provide you the benefit of our combined experience in this field and that of our colleagues.



Figure 1.4 Maneuverability space: navigating across multiple dimensions as a project manager



**Figure 1.5** A strategic framework developed by IPS Learning and Stanford University's Advanced Project Management Program

One of the authors spent 25 years of his career at a 2,000,000 square-foot manufacturing and research and development (R&D) facility in the northeastern United States. Today, this facility is home to a bakery, a laser-tag arena, and a dance school, among other things. Other than cinnamon bread, not much is manufactured there anymore, even though the manufacturing facility formerly located there, at its peak, employed over 11,000 people—a small city in and of itself. When these sorts of major global shifts take place, it is the PM staff in the manufacturing company that can help it adapt to the change. The outsourcing or insourcing of jobs—well, that's a project. Relocating the R&D teams to another facility in the area—that's a project, too. Building a new business model for supply chain—that's a major transformational project. Establishing a video conferencing service to allow a global company to convene easily—yes, that's another project.

Earlier in this chapter we referred to the rapidly changing environment in which project management operates. None of these changes is a novelty: technology and project management knowledge evolve continuously, and have done so for a very long time. What is different today, compared to 20 years ago, is the *speed* at which these changes occur. An increasing speed of change means that the organization has less time to adapt to these changes, and renders the classical approach of *training classes* ineffective: by the time course content has been developed and packaged, it has become obsolete. Let's look at the three major areas impacting PM competency and generating the *gap* we plan to address.

#### **Evolution Within the Organization's Practice Area**

The technical, economic, and social knowledge for the specific industry in which the organization operates requires constant improvement. The project manager does not work in a vacuum: each project delivers in a community and uses technology to produce business outcomes; any changes in these areas has an impact on the success of the project. Experts whose knowledge is no longer accurate provide less accurate estimates and solutions; budget calculations are impacted by the political and financial health of the community in which the project is delivered, and so forth. Your PM staff gives you the ability to be resilient to change.

### **Evolution of PM Capabilities**

PM itself has changed significantly since the pyramids, and even since the first edition of the *PMBOK*<sup>®</sup> *Guide* in 1969. In addition to the standards, the tools—especially the online, collaborative tools—that are available to project managers have improved. Enterprise PM software, which provides the project manager with amazing insight—for example, how a supplier being late by a week *ripples through* the entire network diagram, showing the project manager in real time how this affects resource needs, and even how it moves the end date of the project. None of this matters, though, if the project manager does not grow along with the profession to take advantage of such features.

### **Evolution of a Global Mindset**

Our world is constantly getting smaller: we see increasing dependencies on the global economy, and our projects have stronger links to data and deliverables that are available from teams operating abroad. Project managers are not always attuned to the cultural and geographical realities of stakeholders, team members, and contractors located beyond their surroundings.

Traditional learning opportunities for project managers rarely provide recommendations and guidance on how to relate to a global team. More important, project managers might not even be aware of how such diversity can be leveraged for project success, or how they can create deadly pitfalls. Overlapping time zones might be difficult for team meetings, but may work wonders for handing over issues to those who can make progress while folks in our time zone are (generally) asleep.

## A MATTER OF SCALE

What we will discuss is organizationally agnostic. Most of the concepts we illustrate are applicable regardless of the size of your company or organization. Our recommendations and suggestions, however, will necessarily have to be based on some assumptions regarding the size and breadth of the PM community we are targeting.

When you see the ladder symbol throughout this book, there will be suggestions on how to scale up or down these recommendations, so they can be applicable to smaller or larger communities.