CASE STUDIES

in Project, Program, and Organizational Project Management

Dragan Z. Milosevic
Peerasit Patanakul
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To Dragana, Jovana, and JR

—Dragan Z. Milosevic

To my parents, Arun and Soisalinee; my wife, Severine;
and my children, Ananya and Yanat

—Peerasit Patanakul

To my father, Sabieng, my mother, Songsee,
and my lovely wife, Jany

—Sabin Srivannaboon

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Preface

Traditionally, the use of case study has been largely emphasized in many disciplines. People use cases in different manners from theory building, to theory testing, to description, or even to simple explanation. Nevertheless, learning is always one ultimate goal in which we center our attention on the gravity of the problems and issues in the case, regardless of any purpose. In particular, the learning occurs when we dissect the case, identify issues or problems in it, and then discuss or solve them.

In the field of project management, case studies as well have been one of the main sources and tools used for professional development and higher education. Over the years, the Project Management Institute (PMI) has attempted to get a large number of authors to contribute to case studies in project management. The idea is to use these cases as a means to accelerate the project management learning. This is also similar to academia where a number of cases are integrated into textbooks. A few standalone case books dedicated to project management are also available.

However, what is critically missing is a comprehensive case study book where it meets diverse needs of the readers at large. To be more specific, there is no book that has project management cases arranged in an orderly fashion that comprehensively addresses various knowledge areas, different process groups, and the global best practice standards. In particular, there are very few cases in program management and organizational project management, even though the two areas are now recognized as two standalone disciplines, and officially standardized by PMI.

We believe this book is the first of its kind to deal with the management of projects from a hierarchy perspective: project, program, and organization. The purpose of this book is to maximize the readers' learning experiences through the use of case studies, which we believe will allow our readers to carefully think and enrich their understanding of the concepts and practices in project management. In attempting to capture various aspects of project management, we have written 90 cases, each of which was triangulated by professionals with

different expertise varying from engineers to industrial psychologists, to quality computer experts, to software programmers, to businesspersons' service providers, and to organization specialists. These cases are factual from real people and actual companies in different industries, settings, or cultures with diverse sizes and types of projects, although we used fictitious names to conceal their identities. Our goal is to highlight the applications and practices of project management, program management, and organizational project management in real-world settings.

The book is designed to address multiple groups of people with different needs that include but are not limited to:

- **Executives, program and project managers:** This book will help executives and program and project managers improve their management knowledge regarding projects, programs, and organizations. We present cases that discuss many best practices and lessons learned from such management in actual companies across industries.
- **Academics and consultants:** For academics, this book is a good resource of project management, and a recommended accompanying reading for their project management, program management, and organizational project management classes. The students may use this book as a reference or as a required text since the cases can well support any basic textbooks of the class, whether it is a project management, program management, or organizational project management class. For consultants, this book provides many real-world stories in which the frameworks for project and program management as well as organizational project management were implemented. They can easily incorporate a number of cases in this book, or use the entire book for their in-class trainings.
- **CAPM®, PMP®, and PgMP® candidates:** This book perfectly aligns with the standards created by PMI, and provides important details necessary for the CAPM® (Certified Associate in Project Management), PMP® (Project Management Professional), PgMP® (Program Management Professional) certification exam preparations.

For each individual, excellence in project management comes from both theoretical knowledge and practical experiences. Either one of these alone would not be sufficient in today's era of hypercompetition. After reading this book, we believe that our readers will gain such knowledge and learn from experiences shared by other project management practitioners.

All in all, this book just captures small stories. We hope, however, that these stories will serve as building blocks to drive excellence in project management, which is undoubtedly one of the fastest growing disciplines today.

Structure of the Book

This book offers a number of case studies that demonstrate effective use of project and program management methodologies, as well as organizational project management practices. Drawn from a variety of industries and regions, the case studies capture real-world situations, challenges, best practices, and lessons learned both from successful and not-so-successful perspectives. In order for our readers to best learn project management, we have categorized and arranged our cases into two different dimensions: case types and parts.

CASE TYPES

We classify our cases into three different types: critical incidents, issue-based cases, and comprehensive cases. The three case types differ in length and specificity, which are described as follows:

- Critical incidents are written in the form of short stories that illustrate an issue or a problem related to project, program, and organizational project management.
- Issue-based cases provide more information than critical incidents. They handle two or more issues either in project management, program management, or organizational project management.
- Comprehensive cases are the longest in length. They feature multiple issues or the entirety of the project, program, or organizational project management.

The purpose of these different levels is to offer the reader different categories of the learning skills, contingent on their experience. This way they can use this book to customize learning needs. In addition, the book has both open-ended cases, where we don't show the final outcome of the story, and close-ended cases, where the final outcomes are presented for further discussion.

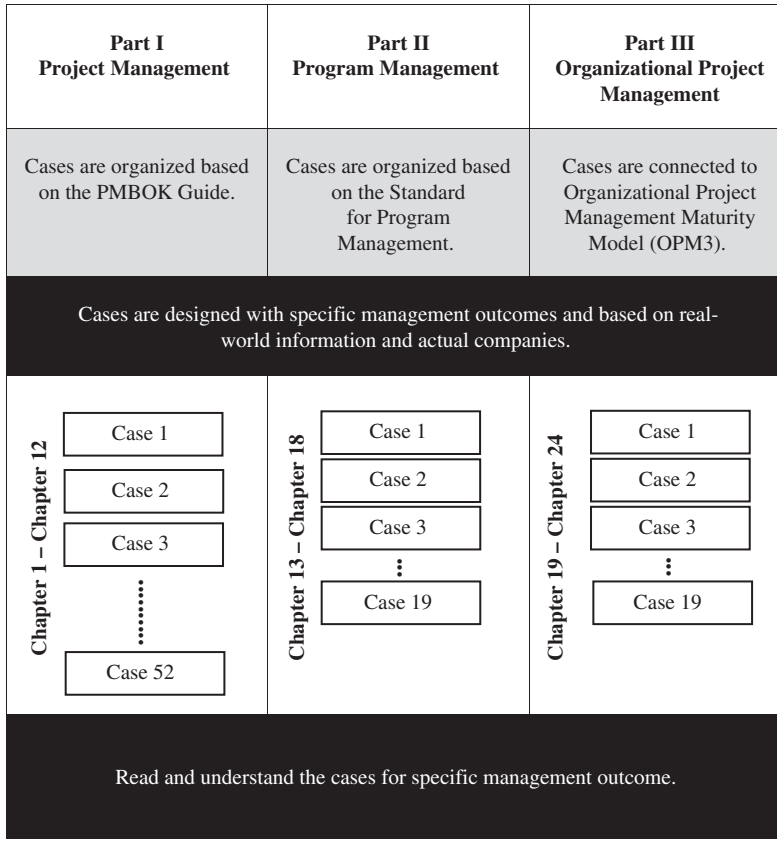
While the case types are different, their structure across different parts is similar. Each case includes an introduction, main body, conclusion, and discussion items.

PARTS

In addition to the case types, we adopt the standards created by PMI, the leading global association for the project management profession, to arrange our cases. Namely, these standards are "A Guide to the Project Management Body of Knowledge" (the *PMBOK® Guide*), "The Standard for Program Management," and "The Organizational Project Management Maturity Model (OPM3®)." We follow these standards, and organize our cases and chapters into three different parts: Project Management (Part I), Program Management (Part II), and Organizational Project Management (Part III), (see Figure i).

- We organize Part I based on the PMI's *PMBOK® Guide*, which addresses the introduction, project life cycle, and organization (Chapter 1), project management processes for a project (Chapter 3), and the nine knowledge areas (Chapters 4 to 12). Added to that are the cultural aspects of project management (Chapter 2), in which we strongly feel that culture, whether it is corporate, project, or regional, plays a significant role in achieving project goals. In sum, Part I has a total of 52 cases.
- We structure Part II based on the process groups of the PMI's Standard for Program Management, including the Initiating, Planning, Executing, Monitoring and Controlling, and Closing processes (Chapters 14 to 18). We also offer cases about the themes of program management (Chapter 13), and program management in action (Chapter 18) for further discussion. There are a total of 19 cases in Part II.
- Part III focuses on issues in organizational project management, which address some of the best practices in the Organizational Project Management Maturity Model (OPM3®). This part presents cases related to strategic alignment and project portfolio management (Chapter 19), standardized methodologies (Chapter 20), and competencies of project managers and project management office (Chapter 21). We also present cases on information systems, organization, and metrics (Chapter 22) and organizational and project or program culture (Chapter 23). Cases on organizational project management in action are presented in Chapter 24. There are a total of 19 cases in Part III.

Figure i Structure of the Book



The Principles of Management

EQUIFINALITY

Equifinality, a term from systems science, refers to the principle through which multiple means (different inputs and processes) may lead to a same end in open systems.

CONTINGENCY

Contingency, in management terms, refers to one of several approaches one might take in dealing with a condition, situation, or set of circumstances involving uncertainty. In other words, after examining alternatives to find the most appropriate solution, another possible solution might be considered if the first one doesn't work out (a "Plan B," so to speak).

Acknowledgments

To complete the book, we owe gratitude to many people.

First, we'd like to thank our co-authors who helped us in writing a number of the outstanding cases or provided many valuable inputs for the case write-ups. These people are:

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Part I

CASE STUDIES IN PROJECT MANAGEMENT

WHAT IS PROJECT MANAGEMENT?

It is well recognized that project management has been practiced since early civilization. The evidences from past history to the present are abundant: the construction of the Great Pyramids of Giza in the ancient world, the Great Wall of China construction in the 16th century, and the London Millennium Bridge in the globalization era. Without project management, these structures would not have existed.

With a competitive business environment, many organizations nowadays use projects not only to build structures, to implement changes, or to introduce new products, but also as a way to put strategies into action. Despite multiple meanings of a project, the one defined by Project Management Institute (PMI) is perhaps the most widely known definition. According to PMI, a *project* is a temporary endeavor undertaken to create a unique product, service, or result.[1] With its temporary nature, a project is often perceived as standing on the opposite spectrum of business as usual; it is often referred to as an "operation" by project management scholars. As projects differ from operations, managing projects therefore

[1] *A Guide to the Project Management Body of Knowledge*, 4th ed., Project Management Institute, 2008, p. 5.

requires a discipline[2] of planning, organizing, and managing resources to bring about the successful completion of specific goals and objectives. This discipline is referred to as *project management*.

The discipline of project management has evolved from different fields of application. The work of Frederick Winslow Taylor on theories of scientific management is considered to be the foundation of project management tools, such as the Work Breakdown Structure. The Gantt chart, developed by Henry Gantt, is recognized as a forefather of project management planning and control techniques. And the work of Henri Fayol on management functions is the foundation of project and program management body of knowledge.

However, it wasn't until the middle of the 20th century that project management was recognized as a formal discipline[3]; emerging from the construction of the first atomic bomb during World War II (the project known as the Manhattan Project). Since then, more and more new processes and disciplines have emerged that support the use of project management, including Time Quality Management (TQM) in 1985, concurrent engineering in 1990, and reengineering in 1993, just to name a few. As a result, more and more project management tools and techniques have emerged, including the Critical Path Method (CPM) and Program Evaluation and Review Technique (PERT) in the 1950s, and the Critical Chain Project Management in 1997.

As the discipline of project management has grown, the standards governing the field have also evolved. While each organization practicing project management may develop its own criteria, several national and international organizations have proposed project management standards. These standards are, for example, *A Guide to the Project Management Body of Knowledge* (*PMBOK® Guide*) from the Project Management Institute in the United States and PRINCE2: 2009 Refresh (PRoject IN Controlled Environment) from the Office of Government Commerce in the UK. Among these standards, the *PMBOK Guide* receives strong recognition from project management communities.

The *PMBOK Guide* suggests nine knowledge areas of project management: integration management, scope management, time management, cost management, quality management, human resource management, communication management, risk management, and procurement management. These knowledge areas are used as skeletons for organizing case studies in Part I.

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[2]David I. Cleland and Roland Gareis, *Global Project Management Handbook*, McGraw-Hill Professional, 2006.

[3]Aaron J. Shenhar and Dov Dvir, *Reinventing Project Management: The Adaptive Diamond Approach*, Harvard Business School Press, 2007.

Chapter 1

INTRODUCTION

Chapter 1 presents examples of organizations that have recognized the importance of projects as an engine of their growth or a survival mechanism during economic turbulence. Various efforts of these organizations in response to the need for project management, therefore, were initiated.

In this chapter, there are six case studies: five critical incidents and one issue-based case. The cases generally discuss a number of concepts (e.g., organizational structures), that can be found in Chapters 1 (Introduction) and 2 (Project Life Cycle and Organization) of *A Guide to the Project Management Body of Knowledge* (the *PMBOK® Guide*).

1. AaronSide Goes to Teams
2. Cocable Inc.
3. A RobustArm Global Industries' SledgeHammer
4. Another Trojan Horse
5. Call a Truck
6. The Project Hand-off Method

These cases demonstrate different situations where companies made the transition from non-project-oriented organizations to project-oriented ones. To capture the transition efforts from multiple views and settings, we offer cases from different industries: "AaronSide Goes to Teams" is in the metal machining industry; "Cocable Inc." is in cable manufacturing business; "A RobustArm Global Industries' SledgeHammer" providesbuilding materials; "Another Trojan Horse"

is in the nuclear industry; "Call a Truck" offers shipping and transportation services; and "The Project Hand-off Method" is from the field of medical equipment manufacturing.

CHAPTER SUMMARY

Name of Case	Area Supported By Case	Case Type	Author of Case
AaronSide Goes to Teams	Project Management Organization (Functional vs. Matrix Structure)	Critical Incident	Dragan Z. Milosevic, Peerasit Patanakul, and Sabin Srivannaboon
Cocable Inc.	Project Management Organization (Training by Doing)	Critical Incident	Jovana Riddle
A RobustArm Global Industries' Sledgehammer	Project Management Organization (Standardized Project Management)	Critical Incident	Dragan Z. Milosevic, Peerasit Patanakul, and Sabin Srivannaboon
Another Trojan Horse	Project Management Organization (Training)	Issue-based Case	Stevan Jovanovic
Call a Truck	Project Management Organization (Matrix Structure)	Critical Incident	Dragan Z. Milosevic, Peerasit Patanakul, and Sabin Srivannaboon
The Project Hand-off Method	Project Management Process	Critical Incident	Dragan Z. Milosevic, Russ J. Martinelli, and James M. Waddell

AaronSide Goes to Teams

Dragan Z. Milosevic, Peerasit Patanakul, and Sabin Srivannaboon

It took AaronSide, Inc. almost 80 years to grow from a small mom-and-pop business to a company that held the largest market share internationally. What made this feat special was that a single family owned the company since its inception. It is suffice to say that this success made owners, management, and all employees more than proud.

A WALL IS BETWEEN US

Operating in the metal machining industry, AaronSide's organization was perfected over time through experience and many saw this as a competitive advantage. Basically, it was an efficient, functional organization where marketing, engineering, and manufacturing with a strong quality group played a major role. The engineering department achieved the fastest 16-month lead time for a new product development project when compared with competitors. Fundamentally, product development was an operation that worked like a well-oiled machine. It started with marketing, which did market research and then threw the specification of what customers desired "over the wall" to the engineering department, which released final drawings to manufacturing, which made the quality product. The approach was called the relay race. Its secret was an efficient, functional department. Typically, if you worked in a specific department, say marketing, you would never talk to a guy from a different engineering. If you did, you might be reprimanded. Indeed, departments talk to each other, not individuals that belong to different departments. How do departments converse? Usually, only heads of departments are authorized to speak on behalf of their staff.

TO SURVIVE, CHANGE IS REQUIRED

The more intense globalization of business brought more international competition. The two largest rivals in the industry from Europe, subsidiaries of the large multinational organizations, largely expanded their operations in the U.S. market.

This is when problems for AaronSide began to mushroom. AaronSide found it difficult to compete with the Europeans, who had access to resources and new management of their rich parents. As a result, AaronSide slipped to a close third in market share, behind the European rivals. Freefall continued and by 1990, AaronSide was the distant third. Several management teams were replaced during this period, new manufacturing equipment was installed, the company was seriously reengineered, and different management was used to catch up with the leaders without significant results. So, AaronSide became ripe for a sale.

After talking with four suitors from the United States and Europe over the last several years, owners concluded that the best offer for purchase of AaronSide was one from Titan Corp, a Swedish company. So, after almost 90 years of being family-owned, AaronSide became a wholly owned subsidiary of a large multinational firm.

To facilitate the integration of AaronSide into Titan Corp's network of companies, the management team of AaronSide was retained. The first initiative of the new owner was to direct AaronSide to commission a pilot project management team (in manufacturing companies usually referred to as concurrent engineering teams), cross-functional in nature, and made up of the permanent members from marketing, engineering, and manufacturing, and auxiliary members from finance and field repair. The team was chartered to develop a new mining vehicle in eight months, twice faster than usual and as fast as the world leader. The new team was empowered to make all major decisions. The idea was to accomplish success with this team, and then use it as a paradigm along with the lessons learned from its operation to establish a company-wide project management system.

Eight months later the project was not finished, and needed eight more months to reach its conclusion. The Swedish parent asked for an immediate investigation. The investigation showed that the team did not make any major decisions. Instead vice-presidents (VPs) who were heads of the departments directed the members of their team to make no decisions, but to bring all necessary information to them and they, the VPs, would make the decision. Having discovered this, the management of Titan Corp decided to fire the CEO and all VPs.

Discussion items

1. What are the pros and cons of the relay race approach and the cross-functional team approach to product development projects? Which approach is better?
2. Who gets more power and who gets less power by shifting product development projects from the relay race to the cross-functional team approach?
3. Does the shift from the relay race to the cross-functional team approach require a significant cultural change? Explain why or why not.
4. Why do you think the VPs took the approach of not letting a pilot team make major decisions although the team was empowered to do so?
5. Was the firing of the CEO and all VPs justified? Why or why not?