THE GLOBAL MANAGEMENT SERIES

Project Management

Amos Haniff and Mohamed Salama

(G) **Goodfellow Publishers Ltd**

Contents

Dedications

To my beautiful wife Lisa and our gorgeous children Qasim and Safia. Love you xxx

AH

To my Mum & Dad, my lovely wife Zaza and our boys Omar and Ally. You are the most precious!

MS

Acknowledgments

The editors of this text book are grateful to the series editors Professors Robert Macintosh and Kevin O'Gorman who were the main drivers behind writing this book. We are also grateful to all our colleagues in the School of Management and Languages as well as the very professional team at Goodfellow publishers who contributed to and have helped in the production of this book. It has been a pleasure to work with you.

AH & MS

Biographies

Amal Abbas is a doctoral researcher in the school of Management and Languages at Heriot-Watt University. Drawing on the new institutional economics theory, her doctoral research investigates the effect of the individual, the firm and the environmental level factors on female entrepreneurial activity in Egypt. More widely she is interested in examining entrepreneurial behaviour and entrepreneurial ecosystems in both the developing and developed countries. Additionally, Amal works as an assistant professor in the Business Administration Department, Cairo University, Egypt

John Rudolph Raj, PhD is with the Faculty of Management, Multimedia University, Malaysia. He has more than 30 years of experience in corporate, industry, and academia. His research interests are in the disciplines of Project Management, Operations Management and Advanced Statistical Analysis.

Isla Kapasi, PhD is an early career researcher in the field of entrepreneurship. She has published several academic papers in well-respected peer-reviewed journals and presented at major national and international conferences. Isla is also experienced in the development of innovative teaching curricula, most recently with Team Entrepreneurship and has taught at all levels. Prior to developing her academic career, Isla was involved in public, private and third sector employment and self-employment.

Amos Haniff is Associate Professor of Project Management at Heriot Watt University and Deputy Head of the Department of Business Management within the School of Management and Languages. He teaches project management and strategic project management at postgraduate and executive levels, and delivers training courses in project management and strategic change to public and private sector organizations. His research interests is on project success and the strategic alignment of projects with organizational strategy. In particular, he has conducted research into the strategic behavior of temporary multi-organizations and project leadership. He has created a portfolio of MSc and Executive MSc programmes in project management, including European funded Erasmus Mundas courses. He is a member of the Court of the University, a fellow of the Higher Education Academy, a PRINCE2 Practitioner, and former Scottish representative for the Association of Project Management (APM) Education Network. He is also a frustrated blues guitarist.

Laura Galloway is a Professor of Business and Enterprise in the school of Management & Languages at Heriot-Watt University and Dean of the University for Arts, Humanities and Social Science. Based in the School of Management

and Languages, her teaching focuses on leadership and entrepreneurship and her research interests are in these broad themes too. In particular, Professor Galloway's research involves the theory and practice relating to entrepreneurship amongst different groups, leadership, and the effects of entrepreneurship education on skills and business outcomes. Examples of her recent work include exploring the experiences of being a leader or an entrepreneur.

Robert Graham is Associate Professor of Organisational Behaviour in the School of Management and Languages, Heriot-Watt University. His research interest is in the emergence of Human Resource Management and organisational change. Robert teaches both Organisational Behaviour and Human Resource Management on the Post-Graduate Masters in International Business Management and Human Resource Management at undergraduate level. Robert is a member of both the Centre of Work and Wellbeing (CROWW) and the HR Research Group at Heriot-Watt University. Robert has delivered courses on organisational change to the Nigerian Securities and Exchange Commission, the Wood Group and Standard Life Investments, and he was a visiting lecturer in management at Shanghai University of Finance and Economics (SUFE). He has a background in trade union education, having been a tutor with the Trades Union Congress for fifteen years and then worked in management training and development for a number of years. Robert has worked with the Scottish Fire Service, the General Teaching Council for Scotland, Edinburgh University, the Faculty of Advocates and the Royal College of Surgeons (Edinburgh).

Reza Mohammadi is Course Director and Project Coordinator for the suite of MSC Engineering and Physical Programme at Heriot Watt University. He teaches courses in Project Management and Critical Analysis, and Research Preparation at postgraduate and undergraduate levels. He also delivers workshops in Project Management Concept and Project Soft Skills to public and private sector organizations. His research interests are in human factor and stakeholder management in programs and the project environment. He is an Information Technology Project Manager by background with extensive professional experience in the public and private sectors both national and international levels. He is also a PRINCE II, ITIL, Waterfall, Kanban, Scrum and Agile project management methodologies Practitioner and an active member of Association of Project Management (APM) and the Project Management Institute (PMI).

Mohamed Salama is currently the Director of Corporate Executive Relations and the former Acting Associate Head of the School of Management and Languages, Heriot Watt University, Dubai Campus. He has joined academia in 2002 and has been the Programme Director of MSc in Strategic Project Management

since 2006 at Dubai Campus. Dr. Salama has 30 years of academic and industrial experience in Project Management, Marketing, Strategy and Mergers & Acquisitions. Mohamed has taken senior management posts in Construction Management, Marketing and Mergers & Acquisitions in ME, Italy and UK over the period 1990 – 2002. He holds BSc (Hons) in Civil Engineering from Cairo University, an MBA from Edinburgh Business School and a PhD in Construction Management from the School of Built Environment, Heriot Watt University. He has been delivering training workshops in project management and strategy for executives over the past decade in the UK, Middle East, and Denmark. He is a Fellow of the Higher Education Academy (HE) in Scotland and a member of the Project Management Institute PMI (USA), The Chartered Management Institute (CMI-UK), and The Association of Researchers in Construction Management (ARCOM) in the UK. He has publications in the areas of Project Performance, Green Buildings and Higher Education.

Mo Sherif is an Associate Professor of Finance. He received his PhD from the University of Manchester, Manchester Business School, UK. He is an interdisciplinary finance researcher whose initial contributions to the finance literature are in entrepreneurial and behavioural finance, stock trading strategies and asset pricing fields. He is a fellow of the Higher Education Academy in the UK and a member of American Finance Association in the USA. He is currently the Director of Postgraduate Taught Programmes in Finance (AEF) at SML at Heriot-Watt University.

Gowrie Vinayan, PhD is Assistant Professor in the School of Management and Languages, Heriot Watt University, Malaysia campus. Gowrie teaches International entrepreneurship and resources and talent management at undergraduate level and project management and demand and planning for the postgraduate masters in project management. Her scholarly efforts are devoted to areas of operations and production management, project management and supply chain management. Prior to joining the academia, she was with a multinational organization where she received extensive industry exposure in the area of project management, logistics, warehousing and procurement. Besides lecturing, she has also designed and conducted trainings related to project management and strategy execution to working adults.

Preface

Introduction

Project management has attracted significant attention over the past decades and in a world that continues to witness very dynamic business environments regardless of location, change is inevitable and project management tools and techniques become even more popular. During the early days of its evolution, project management was predominantly an engineering-led specialization. During that period, those who wrote about project management and who taught or conducted research about project management were mostly either engineers or looking at engineering related sectors such as construction.

Context

Now-a-days, project management tools and techniques have attracted the attention of almost all disciplines, as emphasized in the membership of the major professional bodies such as PMI, and indeed in the diversity of students attending the project management courses offered at undergraduate and postgraduate levels. This textbook aims to provide readers from different backgrounds with the essential knowledge that would help them acquire and furthermore develop basic project management skills.

In the past few decades, Higher Education, endorsed by the advancements in technology, has witnessed a notable shift from the traditional learning and teaching methods. Having taught project management in different contexts and for a wide range of audience for a combined total of more than 30 years, the editors have been motivated to introduce this textbook as a useful guide to facilitate the learning of students regardless of the mode of study. In addition, practitioners and independent learners who are seeking to enhance their knowledge base and develop their project management skills away from the classroom will benefit from the practical approach adopted in writing this textbook; simplifying some of the challenging concepts and numerical aspects.

In this pursuit, the authors of different chapters have attempted to gradually guide the readers in developing their knowledge, starting from first principles and working towards a relatively advanced stage, with the help of a range of

case studies, practical examples and numerical worked examples. The end of chapter questions aim to provoke critical thinking, analysis and synthesis. In addition, the references listed at the end of each chapter and cited within the text offer the reader an additional set of resources that will provide further in-depth knowledge about some of the specific areas mentioned in the text.

Content and pedagogy

This textbook comprises 12 chapters covering the key areas in the context of managing projects that span both soft and hard skills. Each chapter starts with a list of learning outcomes that pinpoint the objectives of the chapter and should be used alongside the end of chapter questions as a benchmark for students to evaluate their erudition and learning. Chapter 1 provides a background to the development of modern project management and sets the scene for the following chapters. Key concepts are introduced, including the project life cycle, project constraints and project success criteria. Chapter 2 positions projects within the context of the organization and environment. Project stakeholders are identified, with guidance on how they should be managed. This is followed by presentation of three types of organizational structure that need to consider the organizational culture when implementing projects. This chapter also introduces the growing practice of the project management office.

Chapter 4 discusses the critical project management competency of leadership. This chapter explains the concept of project leadership, in detail, through the introduction of contemporary leadership theories. Following on from the discussion on leadership, Chapter 5 provides a comprehensive explanation of managing project teams. Key concepts include the stages in team development, team dynamics and the management of virtual teams.

A detailed discussion about the financial dimension, supported by simple numerical examples, is presented in Chapter 3 with emphasis on the impact of inflation and taxation on project appraisal and selection decisions. The areas of project scope management and communication management are detailed and debated in Chapter 6 with some useful templates, exercises and practical examples. The core areas of project cost estimating and budgeting, time scheduling and resource management are presented and discussed in depth with a range of examples, case studies and end of chapter multiple choice and numerical questions in Chapters 8, 9 and 10, respectively.

An introduction to cost modeling techniques and the factors affecting the accuracy of the different cost models is presented and discussed under cost estimating and cost forecasting. In addition, Chapter 8 includes a section on

bidding strategies, with emphasis on the difference between front and back loading and the importance of considering the present value of the tender price whilst comparing different bids. In Chapter 9, the concept of project scheduling complemented by a detailed step-by-step guide that helps students to estimate activity duration then draw and analyze the network for a simple work package using the critical path method. In addition, the project evaluation and review technique (PERT) is introduced and explained.

Project Risk management is discussed in Chapter 7, with a range of practical examples covering the different types of risk, and also has a detailed section on risk clinic with useful templates. The important aspect of risk attitude has been presented and utilized to explain why managers may have different responses to the same risk event. In addition, the chapter concludes by comparing and contrasting the traditional project management methodology to the contemporary Agile Project Management methodology in the context of risk. In this pursuit, the discussion presents the basic concepts of Agile methodology which has proven to be quite popular within IT and software development projects over the past two decades.

Chapter 11 falls into two main parts. The first discusses change management and configuration management. The second part addresses the areas of project evaluation and control. The earned value analysis as a performance measurement technique, that can shed light on project cost performance as well as the progress of the project, is explained and discussed using numerical examples. The challenges of project closure and the key attributes of this, often neglected, stage of the project life cycle is presented and discussed in Chapter 12.

Project management is a practical discipline. No matter how many books one reads about managing projects, students can only get a feel of the real-life project themes, issues and challenges through interactive discussions, practice, critical thinking and analysis of the various exercises, and case studies provided within the different chapters. Hard skills such as the numerical techniques presented under project financial appraisal, project cost estimating, budgeting, time scheduling (CPM), crashing and project performance measurement (EVA) need to be well understood and practiced through numerical examples followed by a clear interpretation of the results. On the other hand, the soft skills such as leadership, communication, and team issues need more practical workshop based activities such as group activities and team work based projects.

In order to maximize the benefit of the resources provided within this text book, it is recommended that students should be assigned prior relevant reading utilizing the references provided at the end of chapters before being introduced to, and asked to engage in higher order discussions such as those pertaining to

leadership theories, the different types and accuracy level of cost models or the debate about the pros and cons of the traditional project management methodology versus more contemporary approaches such as agile methodologies.

Mohamed Salama and Amos Haniff