The Executive Guide to

BREAKTHROUGH PROJECT MANAGEMENT

Capital & construction projects
on-time in less time
on-budget at lower cost
without compromise

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BOOK SAMPLE EXTRACT

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Preface

In this book, we recommend that changes are made to how capital and construction projects are planned and managed.

This is not change for change's sake.

Whether you are a project client or a member of the project supply chain, the techniques that you will learn about in this book, will deliver significant and sustainable improvements in the profitability of your business.

The methods underpinning the changes we suggest are well-established, having been developed in the 1990's. Whilst they have proven themselves, they have not yet become "mainstream" in the project management profession. Not because they don't work, but because changing established habits and practices takes time, and meets with resistance.

Most projects use the same well-established approaches for contracting, planning and managing, without realising

that there are better, alternative methods for managing projects.

Having used these alternative methods ourselves, we were puzzled at why they are not more widely used on capex and construction projects. We have seen the significant improvements they can bring. We are not talking about small changes, we are talking about projects delivered in over 30% less time, and at least 15% lower cost.

As part of our research for this book, we talked with project managers who knew about these methods, about why their application is so limited. There was a common theme in what they told us:

- "They won't let us",
- "They insist we do it this way",
- "They give the project manager autonomy to manage how they want to",
- "They have just spent a fortune on a new IT system/training/ qualifications/consultants so they want to stick with that for now".

The finger is pointed at 'them', the leaders of the organisations who commission projects, the major contractors, and even investors and the providers of capital funding.

We don't believe that these senior executives are deliberately holding their organisations back, nor do we believe that project clients want to spend more money on a

project, or to have it complete much later, with a lower quality outcome.

So we wrote this book. We want to address the problem that "I didn't know".

The need to do this is becoming more and more important. Growing populations need more infrastructure, but at the same time there is pressure on budgets, and a need to get "more from less". As the business world becomes more and more volatile, and dramatic changes seem to happen overnight, the days of long-term investment paybacks seem to be numbered – investors are demanding shorter investment cycles, and lower levels of investment.

Although the construction industry has struggled for over 40 years to improve productivity, we believe that those who successfully adopt the methods we describe in this book, will notice an immediate and substantial improvement in project productivity.

There is nothing in this book that is beyond the capabilities of most organisations … if they are willing to change their current practices and habits. The techniques the you will learn can be used across a wide range of project types and sizes, whether they are worth less than £1 million or over £1 billion.

However, changing ingrained habits is not an easy thing to do, and without the active support of Senior Executives, change is unlikely to stick.

Senior-level leadership is key to making the changes that we recommend.

And what better time to do this that now? The world is crying out for innovators and leaders to build on the lessons learned by previous generations, and make their mark on an industry that has struggled to find a repeatable way to improve its performance.

We hope you find the book interesting, stimulating, and most importantly, that it encourages you to "give it a go".

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Authors' Note:

Throughout this book we will often use the term 'contractor' to mean the external organisations that have the greatest impact on a project's success. It is a broader definition that the more common usage.

This includes architects, designers & design consultants, main contractors, specialist sub-contractors, manufacturers of significant equipment, large wholesalers or distributors, and maybe even a project management consultant.

Introduction

In 1965 the American high jumper Dick Fosbury introduced the world to a new way of jumping. Although it sounded crazy – to jump head first, with your back to the bar - he had science on his side.

Even when the success of the technique became plain to see, many athletes stuck with what they knew best, and some of the more skilled jumpers continued to win competitions… for a short while.

But there was no turning back, and since 1977 every world record holder has used the "Fosbury Flop", as this technique became known.

We have written this book, to introduce the capex project industry to the "Fosbury Flop of project management".

We believe that in the future, we will see that those who deliver the fastest, and lowest-cost projects are using the methods that you will learn in this book.

Breakthrough Project Management has been written for Capital & Construction projects, those that involve major investment in assets and infrastructure, such as offices, hospitals, roads, rail systems, factories, and production plant.

These type of projects go by many names, including construction, infrastructure, mega-projects, capital projects, CapEx (capital expenditure), engineering, and EPC (Engineer-Procure-Construct).

For simplicity we will refer to them as capex projects.

The distinguishing feature of this kind of project is that the majority of the work is done by contracted suppliers and contractors, rather than employees of the client organisation. Many clients even outsource the overall project management responsibility, often without any understanding of how projects should and could be managed, and without realising the significant impact of the decisions that are being made on their behalf.

Chapter

1 The Need for Change

"We cannot solve our problems with the same thinking we used when we created them."

"Insanity: doing the same thing over and over again and expecting different results."

Albert Einstein

The Current System is Broken

The current methods used to manage projects are not good enough. There is too much evidence that shows that even when projects rigorously apply the accepted methods of project management, they can still be late and still cost more than budgeted.

By 'accepted methods' we mean (i) the use of critical path or sequenced tasks, to plan; (ii) managing progress by focusing on tasks and milestones, and driving them to complete on their planned completion date, maybe using techniques such as

earned value management (EVM)[1]; and (iii) contracting and subcontracting using fixed-price contracts wherever possible.

In practice, good project performance usually comes from a good project manager instinctively knowing what to do. Or luck.

A quick Internet search for 'major project failures' will provide sufficient supporting evidence for our assertion. A study of over 350 Oil and Gas mega-projects published in 2014 said that 64% of them overspent and 73% took longer than planned (Ernst & Young, 2014). Data from 2012, covering all capex project types showed remarkably similar results; 63% of projects are over budget, and 75% are late (AT Kearney, 2012). A recent McKinsey review of mega-projects claims that a staggering 98% of projects suffer cost overruns of at least 30%, and 77% are at least 40% late. (McKinsey, 2015).

[1] If you use EVM, you might be interested in one of the papers on the book website, comparing EVM and CCPM.

Chapter

2 Manage Projects using CCPM

"If you agree with every step of the argument, but the conclusion leaves you angry or uncomfortable, it might be time to reconsider your world view, not reject the argument."

Seth Godin

CCPM in practice:

- Emesa supplied the station structure for the new TVG station in Liege Belgium – a €50M, 3-year contract. With only 6 months to go, they were 5 months behind schedule! They implemented CCPM, which helped them deliver on time and avoid €5 million in late penalties. ***In effect they delivered 11 months' traditional work, in 6.***
- When Boeing introduced CCPM into its airframe design process, it completed the design in ***30% less time than the previous best. They recovered a 2-month delay in starting, and had 50% fewer***

errors.

- Japanese construction company Daiwa House used CCPM to turn around a failing ERP system implementation. It was 4 months behind schedule after just 13 months. 12 months later the project was completed on time, and used ***27% less implementation resources*** than planned, ***saving over $10M*** in external consultant fees.
- A joint-venture led by Primex was one of three contractors building 100km of road in Mexico. Within a few months unexpected ground conditions meant they were 45 days behind. Using CCPM, they ***completed on time, whilst the other two contractors (larger, more experienced, and not using CCPM) completed their sections 40% late***

The difference that project planning and execution management can make is of critical strategic importance.

What would be the impact on your business if you delivered the kind of improvements the above companies achieved? These results are typical for CCPM implementations, with many reducing project durations by over 50% compared to traditional methods.

The premise of Breakthrough PM is that the conventional ways in which projects today are planned and executed is the root cause of most delivery problems. It is why so many projects have poor performance, despite having industry veterans, qualified staff, and expensive software. Changing this is the key to delivering a project faster, at lower cost, and with much greater predictability.

Chapter

3 Collaborative Contracting & Project Alliances

"It is amazing what you can accomplish if you do not care who gets the credit."

Harry S Truman

Collaborative Contracting in practice:

- A collaborative contracting arrangement between the US Government's Department of Energy and the joint-venture Kaiser-Hill, ***saved $30 billion, and completed a project 65 years early***[2]
- The UK Oil and Gas industries CRINE initiative in the 1990's, significantly improved the performance of major projects, ***reducing capex costs by up to 30%, and cutting durations by up to half***[3]
- BP took the collaborative contracting

[2] Vitasek & Manrodt (2012)
[3] CRINE (1994)

approach used by CRINE to Australia. During the 2000's it became one of the Australian public sector's main contracting methods, between 2003 and 2008, it was used to deliver ***over $26 billion worth of infrastructure projects***[4]

- In 1995 the chemical company Rohm and Haas had an important project in the UK. Their plant had never had a project of this size compete on-time in the past, nor on budget. Working collaboratively with two supply partners, the project was completed on-time and under-budget, ***saving an estimated $5M***[5]
- In the USA, the Construction Industry Institute reviewed hundreds of construction projects in the US in the early 1990's. Those using collaborative contracting approaches were on average ***10% cheaper and 20% faster*** than less collaborative approaches[6]

Most capex projects have a preference for fixed-price contracting. It is seen as the best way to manage risk and uncertainty, and to remove the fear of being exploited by unscrupulous suppliers and contractors who, once selected and incorporated into the project, charge the client what they can get away with.

If you want to take advantage of CCPM, which we believe all projects should do, then fixed prices are not the right way to go.

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[4] Government of Australia (2011)
[5] Personal experience of Ian who was involved in the project
[6] CII (1996)

Even if you do not use CCPM on your projects, then fixed prices are still not the best commercial approach to use for the more complex contracts in place on capex projects[7]. The main reason for using fixed prices is to reduce risk in the project outcomes – a laudable aim. The irony is that they actually have the opposite effect. The cost and schedule uncertainty increases, and the whole investment and business case is potentially undermined. This is on top of increasing the total cost.

In this section we will introduce the *Project Alliance*, a 'collaborative', or 'relational', contracting approach, that can help to overcome many of the disadvantages with the more common commercial approaches used on capex projects. Project Alliances have been used successfully in a wide range of projects, bringing several advantages over the more traditional contracting approaches.

[7] We are not against fixed price contracting per-se. When buying well-defined, simpler services and materials they make a lot of sense. It is on contracts where there is lots of uncertainty and complexity that we question their suitability.

Chapter

4 Other Project Management Methods

Breakthrough PM uses CCPM to schedule and manage project progress, and Project Alliancing to remove commercial obstacles to teamwork.

The collaborative project team that is established with this process is much better placed to exploit a wide range of project management tools and techniques than would otherwise be the case.

This section describes a few of the most commonly known project management methods that are highly compatible with Breakthrough PM.

We also mention a few of those we believe to be incompatible. This doesn't necessarily mean that the methods are bad – many are significantly better than nothing.

Chapter

5 Implementation

"[If most organisations implemented what is known today]...

... the rare firms that are able to consistently translate knowledge into action would not enjoy the substantial competitive advantages that they do."

Jeffery Pfeffer & Robert Sutton, Stanford University, in their best-seller "*The Knowing-Doing Gap: How Smart Companies Turn Knowledge into Action*"

Warning: Change Needs Managing

The above quotation is over 15 years old, and is from a book published just after Oil and Gas companies learned how successful Project Alliancing could be, and after one of the UK's largest construction companies proved that CCPM could deliver significant reductions in the duration of construction projects.

In *The Knowing-Doing Gap*, Pfeffer and Sutton, show that the failure of

organisations to exploit and embed the competitive advantage that came from the knowledge they had acquired, is sadly, much more common than we might believe.

Their key conclusion was that good ideas don't embed themselves just by being good. Companies need to actively manage the process, and few do it well.

In almost all organisations, implementing the ideas in this book, whilst simple to understand in concept, will not be easy. It will need more than an email from the CEO, or sending a few project managers on training courses. Without the full and active support from the executive leadership team, it is unlikely even to get off the ground.

End Note

We started this book, with a quotation attributed to Einstein…

> "We cannot solve our problems with the same thinking we used when we created them."

Over the previous pages we have outlined why we feel that capex projects have problems, and have shared how we believe these problems can be overcome, with different thinking, and different methods.

We hope the knowledge shared in this book will help you achieve significant improvements, and look forward to hearing about your experiences.

If you want to find out more about Breakthrough Project Management, access a range of additional support services and information, and to join our community of change agents, visit our website:

www.breakthroughprojectmanagement.com

We look forward to seeing you there.

Bibliography & References

There is a wealth of resources available that support the ideas and methodologies in this book. Here we list a brief selection to help interested readers begin to research the topics in more detail.

These books, journals, websites and articles are a great place to find out more about CCPM, Collaborative Contracting, Project Alliances, and teamwork and we hope you find exploring them interesting and informative.

Critical Chain Project Management

Author	Year	Title & Details
Goldratt, EM	1997	*Critical Chain* North River Press
Kendal, G & Austin, K	2012	*Advanced Multi-Project Management* J Ross Publishing
Kishira, Y	2009	*Wa: Transformation Management by Harmony.* North River Press
Leach, L	2014	*Critical Chain Project Management*, Third Edition Artech House
Newbold, R	2011	*Billion Dollar Solution:* Secrets of ProChain Project Management. ProChain Solutions Inc

Project Alliancing & Commercial Partnering

Author	Year	Title & Details
American Institute of Architects	2007	*Integrated Project Delivery: A Guide* http://www.aia.org/contractdocs/aias077630
CII	1996	*Model for Partnering Excellence*, Research Summary 102-1. The Construction Industry Institute, University of Texas at Austin
CRINE	1994	*The CRINE Report*: Cost Reduction Initiative for the New Era. LOGIC, Oil & Gas UK

Government of Australia	2011	*National Alliance Contracting Guidelines*[8] https://infrastructure.gov.au/infrastructure/ngpd/files/National_Guide_to_Alliance_Contracting.pdf
Jones, D	2012	*Relationship Contracting* Chapter 3 in *The Projects and Construction Review*, 2nd Edition, Editor Júlio César Bueno, Law Business Research Ltd, London.
Ross, J	2003	*Introduction to Project Alliancing (on engineering & construction projects)*. April 2003 update. PCI Group, Australia. http://www.pcigroup.com.au/publications_pci/
State of Victoria	2009	*In Pursuit of Additional Value.* A benchmarking study into alliancing in the Australian Public Sector. http://www.dtf.vic.gov.au/Publications/Infrastructure-Delivery-publications/In-pursuit-of-additional-value
Vitasek, K, & Manrodt, K	2012	*The Vested Way* Palgrave Macmillan
Yeung, Chan & Chan	2012	*Defining relational contracting from the Wittgenstein family-resemblance philosophy* International Journal of Project Management, February 2012

[8] There are some aspects of the implementation of project alliancing in Australia that we do not fully agree with, and it is structured to the requirements of the public sector.

CapEx Project Management

Author	Year	Title & Details
AT Kearney	2012	*ExCap II: Top Level Thinking on Capital Projects* www.atkearney.com
CRINE	1994	*The CRINE Report*: Cost Reduction Initiative for the New Era. LOGIC, Oil & Gas UK
Egan J. et al	1998	*Rethinking Construction*: Report of the Construction Task Force ("The Egan Report") HMSO, London
EY (Ernst & Young)	2014	*Spotlight on oil and gas megaprojects* www.ey.com
KPMG	2013	*Avoiding Major Project Failure – Turning Black Swans White* www.kpmg.com
Latham M. et al	1994	*Constructing the Team* ("The Latham Report") HMSO, London
Lean Construction Institute	2014	*Construction Productivity in Decline* http://www.leanconstruction.org/media/docs/PEJune14_Construction.pdf
McKinsey	2013	*Infrastructure productivity: how to save $1 trillion a year* www.mckinsey.com/mgi

McKinsey	2015	*The construction productivity imperative.* http://www.mckinsey.com/industries/infrastructure/our-insights/the-construction-productivity-imperative

Collaboration & Teamwork

Author	Year	Title & Details
Braton, W & Tumin, Z	2012	*Collaborate or Perish* Crown Business, a division of Random House.
Collins, J	2001	*Good to Great* Random House Business
Hefferman M	2014	*A Bigger Prize:* Why no one wins unless everybody wins. Simon & Schuster UK.
Lencioni, P	2002	*The Five Dysfunctions of a Team* John Wiley & Sons
Pfeffer, J & Sutton, R	1999	*The Knowing-Doing Gap: How Smart Companies Turn Knowledge into Action* Harvard Business Review Press
Sawyer, K	2007	*Group Genius:* The Creative Power of Collaboration. Basic Books, New York

The Authors

Ian and Robert have over 50 years of experience on capex projects, working for consultants, contractors and clients.

As engineering graduates, they both started their careers working on projects; Robert with one of Australian's largest construction contractors, and Ian on the client-side with one of the world's largest chemical companies.

Their consulting experience includes working for major players such as PWC, along with niche specialists including Proudfoot/Crosby, REL/Hackett, PMMS/ ArcBlue, Newport, and Pinnacle Strategies.

In the 1990's they both came across CCPM, with Robert working directly with Dr Eli Goldratt's team during its development. It was at this time that they both saw its potential to improve capex project performance. Their careers then took them outside the industry, and they were intrigued as to why CCPM did not gain the prominence it deserved.

The initial idea of writing this book came in the summer of 2014, when they were discussing the low levels of CCPM use on capex projects - at 30,000 feet, on a flight from Washington to Dubai.

Ian Heptinstall

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In his early career, Ian managed projects in the process industries in the UK, France and Belgium, followed by time as a project management coach and advisor.

In the late 1990's he held a lead role in an award-winning project that was one of the first to apply the Project Alliance principles developed in the Oil and Gas industry's CRINE initiative to smaller projects outside of the Oil and Gas sector.

Around 2000, he moved into a global procurement role in the pharmaceutical industry, and later that decade was Chief Procurement Officer for a UK construction company before moving into full-time consultancy in 2011.

As a consultant Ian travels frequently to work with clients across the globe, from Japan to the US, and extensively in the Middle East, Africa and Europe.

Ian is a qualified mechanical engineer, and Fellow of the Chartered Institute of Procurement and Supply. He lives in the UK and Switzerland.

Robert Bolton
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After graduating in civil engineering, Robert commenced his career in the construction industry. He has managed large capex projects in the civil, building and mining sectors in Australia.

His consultancy endeavours continued his work in the complex projects field, with extensive experience in the mining and capital markets sectors, in addition to more general business and manufacturing improvement.

He is a pioneer in Critical Chain Project Management (CCPM), having been involved in its conception and early development in the 1990's.

More recently he was involved in a major Oil & Gas project rescue, working at client locations in Singapore, Malaysia and China.

Like Ian, as a consultant he works with clients across the globe to help speed up their projects and business processes.

Robert has an MBA from Ashridge, and lives in Australia.

We hope that you have enjoyed reading this book sample.

To find out more about our ideas for how capex and construction projects can be delivered

- on-time in less time;
- on-budget at lower cost;
- and without compromise on scope of quality;

please continue your reading with the full book. You can get this from Amazon, in both paperback and Kindle versions, or from all good bookstores.

And sign-up to our mailing list to receive regular updates and additional materials at

www.breakthroughprojectmanagement.com/join

Thank you, and good luck in your endeavours to improve the performance of major projects.

What would be the impact if your business could deliver its investment projects sooner, using less resource and at lower cost?

What if this could be done without compromising on scope and quality, and without, exhausting your people and suppliers?

What if high levels of confidence could be maintained throughout your organisation, with higher performance and lower levels of stress? And what if all this was possible while allowing suppliers and contractors alike to make money by ensuring the client has a successful project, rather than by drawing the project out and exploiting design changes.

This is not a pipedream. It is already happening in projects all over the globe, though not yet in a major way in the capex project field.

This book introduces senior decision makers to proven ideas that offer a robust and sustainable way for capex projects to reduce risk, reduce cost and reduce the duration of projects.

In **Breakthrough Project Management**, Ian Heptinstall & Robert Bolton show you how, by combining proven innovations in project management and procurement, you can break the so-called 'Iron Triangle' of project management.

It is no longer a case of "Time, Cost, Quality, choose any two".

Each of the two main elements of **Breakthrough Project Management** has been shown to bring step-change improvements in project durations, predictability, cost and quality.

Discover how ***Critical Chain Project Management*** reduces project durations by at least 25%, whilst at the same time increasing reliability and reducing cost.

Learn how ***Project Alliancing*** removes the commercial and contractual obstacles to establishing a truly collaborative project team across the range of suppliers and contractors involved in the project. This is key not only to exploiting Critical Chain, but to many other project improvement techniques, and to further increasing quality whilst reducing risk, cost and duration.

Do you want to be left behind as your competitors breakthrough the constraints imposed by today's "best practice" in project management?

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