

Tim Stapenhurst

The Benchmarking Book

A how-to-guide to best practice for managers and practitioners



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Practice for Managers
and Practitioners

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Tim Stapenhurst



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- (b) Bar chart of the performance of 20 participants split by performance levels

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List of Case Studies and Examples

Page	Case study/example name	Summary
8	Tupolev Tu-4 Aircraft	The Russians reverse-engineer a crashed American B-29 bomber and developed the Tupolev Tu-4 bomber on their findings.
9	Why Xerox Invented Benchmarking	Summarizes the history of how and why Xerox developed benchmarking as a business improvement tool.
27	Xerox and L.L. Bean Distribution Benchmarking	Xerox visited L.L. Bean after reading about their distribution process and later developed their own system based on what they had learned.
27	Formula 1	A manufacturing organization visited a Formula1 racing team to learn how to set production lines effectively and efficiently.
32	Review Benchmarking	Review Benchmarking process example also shows the importance of understanding participants' working environment.
65	Solomon Refinery Benchmarking	Facility benchmark study.
66	Valve Trialling	Product benchmarking: an organization buys different makes of valves and installs them to see which perform best.
72	Team Charter: Order Fulfillment	Abbreviated example of a project charter.

Page	Case study/example name	Summary
77	Maintenance Process Benchmarking Study Scope	Example of defining a project scope for a process.
77	Processing facility Benchmarking Scope	Example of defining a project scope for a facility.
81	Logistics Objectives	Worked example showing how objectives are linked.
85	Warehouse Benchmarking Objectives	Typical internal benchmarking study objectives.
93	Aircraft Maintenance Benchmarking Participants	Example of competitive, non-competitive and cross industry benchmarking studies.
96	Difficulties of Cross-Economic Zone Benchmarking: Work Hours	Difficulties of cross-economic zone benchmarking due to differences in working hours.
96	Diavik Mine, Canada	Benchmarking between different physical environments.
98	Benchmarking with a Business Excellence Award Winner	One organization benchmarked with a Business Excellence Award winner only to find out that the winner's performance was little better than their own.
99	Using Criteria to Rank Preferred Potential Participants	Example of how to rank potential participants for a benchmarking study based on selection criteria.
107	Importance of Consistent Data – Late Deliveries and Reliability	The effect of participants using different definitions for reporting "Late deliveries".
110	Variation in Late Deliveries	Example of how an unusual event may distort normal operations data.
116	Normalizing by Selection for Oil Well Drilling	Selecting wells for benchmarking based on their attributes.
117	Weighting Factor Normalization Airline Maintenance 1	Use of a weight factor to normalize for different types of aircraft.

Page	Case study/example name	Summary
117	Weighting Factor Normalization Gas Processing 1	Use of a weight factor to normalize for different types of equipment at processing facilities.
118	Weighting Factor Normalization Airline Maintenance 2	Worked example of comparing performances using weighting factors.
118	Weighting Factor Normalization Gas Processing 2	Worked example of comparing performances using weighting factors.
120	Deriving a Weighting Factor for a Hospital	Example of how to derive Weighting Factors for different treatments at hospitals.
121	Applying the Weighting Factor to Hospital Treatment	Worked example of comparing performances using weighting factors for hospital treatments.
127	Transport Arrival Delays	Calculating a ranked performance.
128	Scoring Using a Business Excellence Model	Shows how to benchmark performances using the results of a Business Excellence Award model assessment.
132	Choosing Between Categories, Weighting Factors and Modelling: Cancer Treatments	Worked example using categorizing, weighting factors and modelling for benchmarking cancer survival rates.
133	Infrequent Activities: Maintenance	Illustrates the problem of benchmarking major infrequent maintenance activities when reporting over a fixed period which may or may not include the major activity.
136	Benchmarking Infrequent Maintenance Events	Describes how participants learned how to experiment with reducing major maintenance activities.
140	Revising the Scope: Information Technology	A project team revises the scope of a project at metric selection stage.

Page	Case study/example name	Summary
141	Revising the Scope: Oil Well Drilling	Participants decide to reduce scope at metric development stage.
142	Identifying Wasted Effort	Example showing how reviewing a regularly produced report resulted in improvements to the report and reduction in wasted effort.
147	Analysing a Mission Statement to Develop Metrics for a Passenger Railway	Shows how to develop metrics from a mission statement.
149	The Purpose of the Balanced Scorecard for a Call Centre	Demonstrates a typical problem of focusing on one performance metric.
149	The Purpose of the Balanced Scorecard for a Police Force	Demonstrates a typical problem of focusing on one performance metric.
155	Flowchart Metrics for Oil Well Drilling	Example of how one company used flowcharts to help identify performance metrics.
155	Hospital Records Retrieval	Shows how a common step in flowcharts was selected for measurement.
157	SWOT Analysis for Business Expansion	Shows how a SWOT analysis can be used to identify potential areas for measurement.
158	Cost of Poor Quality for a Mail Order Company	Shows how a Cost of Poor Quality study identified weaknesses that were targeted for measurement and benchmarking.
164	Efficiency and Effectiveness: Hiring Personnel	Example of efficiency and effectiveness metrics.
165	Economic Viability in the Extraction Industry	Shows that however efficient an organization may be there are factors beyond their control that may make them economically unviable.

Page	Case study/example name	Summary
167	Availability Metrics: Port Loading Facility	Example comparing availability metrics: planned and unplanned downtime, availability and loss.
168	Testing Theories: Maintenance	Example showing the use of scatter diagrams to test relationships between variables.
173	Effect of Short Term Maintenance Cutback	Demonstrates the risk of reducing maintenance too far.
174	Internal and External Metrics for Purchasing	Demonstrates the need to consider customer centred metrics.
176	Environment	Considers at the metric development stage how data will be analysed.
180	The Risk of Non-Productive Time as a Metric	Example demonstrating how minimizing Non-Productive Time (and similar metrics) may not be appropriate.
181	The Importance of Definitions	Example of how developing a definition of a “failure” halved failure rates.
182	The Importance of Maintenance	Shows how clarifying a definition of maintenance effort resulted in a change in the best performer.
184	Clarity of Metric Name	Example of providing clear metric names.
184	Use of General Definition	Example of a general definition.
185	Use of Inclusions and Exclusions	Example of what is included and excluded as part of a definition.
185	Use of Examples	Example of how to use examples in a definition.
185	Specifying Context	Example of explaining the context for a definition.
186	Use of Widely Accepted Definitions	Example of widely used definitions for safety statistics.

Page	Case study/example name	Summary
187	Situations Where There are No Definitions	Example of where definition agreement between participants is unlikely.
188	Use of Estimates	Example of the need to use estimates when data are not available.
201	A Domineering Participant	Example of a domineering participant and his effect on a participant meeting.
202	Presuming on Commitment	Example of an opinion leading participant later withdrawing from a study.
224	Learning from Zero	A participant reported zero effort for planning activities. On querying the data it transpired that the participant had an unusual planning process.
225	Data Validation: Use of a Scatter Chart	Example of using scatter diagrams to validate data.
226	Validating Unexpected Values: Stores Area	Demonstrates the importance of querying unexpected values.
226	The Value of Logging Queries	One participant asked for data from previous years' data submissions. Because the data and data queries had been kept the facilitator was able not only to supply data but changes to the data and explanations of specific data values.
233	Learning from a Participant Query	A participant asked the Help Desk how to report shared security costs. The participant's situation was unusual and on explaining it to the facilitator, the facilitator realized that this would be a useful learning point for the study.

Page	Case study/example name	Summary
233	Mitigating Circumstances	A facilitator queried data from a participant showing slow progress and learned that it was due to a labour dispute.
234	Learning from Site Visits.	Example of how a facilitator found a major opportunity for improvement because he visited the facility and witnessed how the organization ran.
238	Relating Targets and Technical Limits.	Related to golf, a technical limit is a hole in 1 and the target is par.
243	Deducing Management Philosophies	A data analyst spotted that a participant had fewer stoppages than other participants. By investigation she deduced the management philosophy which was then presented in the report for the consideration of other participants.
257	Benefits of a Pre-Report Review Meeting.	Advantages of a pre-report review to participants.
263	Benchmarking for Planning	Common methods of planning: based on opinion, tough targets and stretch targets and the fact that they are not based on what is appropriate in a commercial environment.
264	Benchmarking Manning Levels	One organization used benchmarking to ascertain whether planned manning cuts were appropriate.
265	High level Benchmarking as a Method of Initiating Detailed Benchmarking Studies	A study benchmarked all hospital activities at a high level. This allowed participants to identify which activities they wanted to benchmark in detail for improvement purposes.

Page	Case study/example name	Summary
266	Benchmarking as a Driver for Improvement 1	Explains how an organization used the results of a benchmarking study as a driver to begin a systematic review of activities which resulted in improvements.
266	Benchmarking as a Driver for Improvement 2	Explains how an organization used the results of a benchmarking study as a driver to begin a major multi-year improvement drive including for example, training of all staff and setting up of improvement teams.
271	Offers of Help for Installing Software	Describes how one participant received offers of help during an informal conversation during a meeting break.
273	Working Groups	Facilitators do not always hear about improvement activities that participants agree amongst themselves.
273	Organizing a Visit	One manager asked the facilitators to identify the best participant in a particular aspect of the study and organize a site visit.
276	Unexpected Benefits from Site Visits	One participant remarked that quite incidentally to the purpose of a site visit he picked up a useful safety tip when entering the facility.
282	Learning During the Benchmarking Process	Explains how a major benefit of benchmarking for one participant was the development of a set of metrics that they could use to manage their business.
290	Volvo Quality Circles and Suggestion Schemes	Describes how Volvo failed to reap the same benefits of suggestion schemes.

Page	Case study/example name	Summary
290	Suggestion Schemes and Management Committees	Example of why one company failed to reap the benefits of suggestion schemes.
292	Mis-Reporting Accidents	Example of how paying bonuses for safe working resulted in covering up of accidents, not necessarily a reduction in accidents.
293	Theory X and Theory Y	Explanation of how McGregor's Theories X and Y lead to different practices and different business results.
295	From Mental Models to Results: John Lewis Partnership, Measurement and McGregor's Theory X	Describes how Mental models are related to results using three short case studies.
304	Lunch-and-Learn Sessions	Describes how one organization used "Lunch-and-Learn" sessions to host benchmarking related events for anyone within the organization to attend.
305	Management Involvement in Training	Describes how a senior manager would give a presentation on benchmarking courses as a way of demonstrating his commitment.
305	Result of Lack of Management Support	Describes how management did not support a Quality Circle initiative. Staff were expected to meet after work with no extra pay or time off in lieu.
306	The Result of Using Benchmarking as an Appraisal Tool	Two brief case studies describing the results of management using benchmarking as an appraisal tool.
307	Demonstrating Priorities	Shows how one manager demonstrated his priorities at a monthly meeting.
308	We're Unique, Just Like Everybody Else	Acknowledges that every organization and every group believes that they are unique.

Page	Case study/example name	Summary
309	Smoke Screen	One manager was challenged to provide examples of organizations where benchmarking had worked, but even having provided examples, was challenged to provide more and more.
310	Short cut to Cutting Costs	Describes how one manager wanted to benchmark manning levels to ascertain what an appropriate level would be. His managers said they didn't have time to benchmarking. Being concerned for the deepening financial problems of the company, he decided to act by just cutting staff ng.
311	We are Doing Well Enough (Xerox)	Xerox thought they were "doing well enough" before they were nearly swept away by Japanese competition. (from Prophets in the Dark xiii)
331	Citigroup IT Benchmarking	IT benchmarking study using Global Information Partners as consultant.
341	Drilling Performance Review	Project benchmarking club for drilling oil wells.
367	Dundee City Council	Describes a public sector body's approach to benchmarking in general and how they benchmarked a One-Stop-Shop facility with another council.
368	Recycling	Describes how a local authority monitor domestic recycling rates and adopt practices from better performing authorities.
370	Servicing of Aircraft and Hospitals	Explains that one authority benchmarked hospital servicing with aircraft servicing.

Page	Case study/example name	Summary
374	One-Stop-Shop	Explains how an authority carried out site visits to learn how to implement a authority one-stop-shop for services.
377	Best Practice Club	Describes the services offered by an on-line benchmarking community host. Includes 3 short case studies.
381	The Highways Agency	Benchmarked how to implement a Management System.
382	High Street Retailer	Benchmarking Scenario planning.
383	Health, Safety and Environmental Interest Group	Group that meets regularly to learn from and work with each other to improve HSE.

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Preface

When I started out in benchmarking in 1993 I knew very little about the subject. A good place to learn, I thought, was to read some books. The first book I read was *Business Process Benchmarking* by Robert Camp, the recognized father of benchmarking. Useful though his book is for an organization wanting to benchmark by visiting other organizations (called One-to-One benchmarking in this book), there was little mention of groups of organizations wanting to work together to benchmark and improve. What I needed was help on facilitating benchmarking meetings, developing metrics for benchmarking studies, expediting, validating and analysing benchmarking data... in fact I needed practical help and advice on all aspects of running successful benchmarking studies. That was in 1993, and I believe there still is a dearth of benchmarking books giving this type of practical guidance.

Together with various colleagues I have learned many different ways to benchmark – simply by responding to clients' needs and being open to new methods. I learned, for example, how to run benchmarking clubs; how to benchmark using a database of performance levels; how to organize benchmarking visits and how to facilitate learning between organizations.

My aim in writing this book is to provide a practical “how-to” guide for benchmarking and the sharing of Best Practices. It is based on experience and practice, illustrated with many case studies (based on actual situations we encountered) and examples (hypothetical situations developed to illustrate a point).

One of the many things I have learned is that there is no single “right” way to benchmark. Each study needs to be tailored to meet the needs of the organizations involved in it. However, there are common phases and tasks that need to be considered by all benchmarking studies. We need, for example, to determine our objectives, decide with whom we want to benchmark and select which performance metrics, if any, we want to compare. For some benchmarking studies some of these steps will be very easy or may even be omitted, whilst the same tasks may require considerable time, effort and research in other studies. What is important is that each task is addressed appropriately. The aim of this book is to explain and provide practical guidance on each of these tasks, highlighting pitfalls for the unwary and giving tips to help make every study a success.

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Acknowledgements

As the author of this ‘ ‘how to’ ’ book I am v ery aware that the infor mation it contains is a conglomeration of w hat the many people I have worked with over the last 16 years have said or done. Even the ideas and practices that I developed were usually developed in conjunction with, or at the prompting of others. There are too many people to list them all, and in an y case the source of some ideas, practices and methods are lost in the mist of time.

To start at the beginning, I owe much of my benchmarking experiences to Peter Rushmore, and am grateful to his and Helen’s agreeing to my using the Drilling Performance Review as an excellent project benchmarking club case study . My thanks also to Alexander Janssen and his team at Juran Institute: we have worked together for over 10 years and many of my experiences of benchmarking derive from the work we have done together.

There are also man y participants of the benchmarking studies and lear ning events I have been involved with whose ideas, requests and obser vations are included throughout this book.

The aim of this book has al ways been to illustrate the wide v ariety of benchmarking methods. One key method of doing so has been to elicit a cross section of case studies from both par ticipants and consultants, in dif ferent business sectors, using dif ferent benchmarking methods. In addition to the Drilling Performance Review which is used to benchmark projects, my thanks go to Ray Wilkinson at the Best Practice Club for submitting a case study of how on-line communities can benchmark, lear n and improve together. My thanks also to Caleb Masland of Infor mation Management Forum for the IT benchmarking study with Cityg roup, a major international f nancial services organization. Many people see benchmarking as appropriate only for industry, and so I am g rateful to Paul Carroll for his case study e xplaining several different benchmarking methods used by city councils and for his explanation of the One-Stop-Shop case study.

Thanks to Michael Conway at the British Quality Foundation who encouraged me in the writing of this book and allowed me to carry out a benchmarking survey of the British Quality Foundation’s membership.

A common aim in benchmarking is to lear n from other organizations. Experience has shown that sometimes this simple idea w orks and sometimes it does not. I wanted to elicit the vie ws of current management thinking on benchmarking

and on the importance of understanding why practices may not be transferable between organizations. Gordon Hall's knowledge of management thinking is extensive and he kindly offered to contribute a chapter on the importance of understanding how and why copying practices may fail.

Finally, my gratitude for her patience, hours of dedication to meticulous proof reading and advice, to my wife Pat, who is herself an experienced benchmarking professional. Without her this book would not have been written.

Introduction

The aim of this book

If you want to know *how* to benchmark, this book is for you.

If you have picked up this book the chances are that you are, or plan to be, involved in benchmarking. It may be that you have participated in benchmarking projects and wonder if there is a better way of reaping the promised benefits. My aim and hope in writing this book is that it will provide a guide to successful benchmarking.

This is a practical “how to” book about how to run effective benchmarking projects and clubs. The aims of the book are to:

- ✓ Explore the different methods of benchmarking (summarized in [Chapter 2](#), with examples throughout the book).
- ✓ Highlight unusual uses and applications of benchmarking that go beyond the traditional concept of comparing performance levels and practices.
- ✓ Provide a road map that will guide both participants and facilitators in completing successful benchmarking studies and projects. ⇒ [Part 2](#).
- ✓ Provide details of how to use data analysis tools and charts for benchmarking purposes. ⇒ [Chapter 14](#), Appendix A1.
- ✓ Provide a selection of detailed benchmarking case studies ⇒ [Part 4](#), along with vignettes and learning points from a wide range of organizations, to demonstrate how benchmarking has been used.
- ✓ Finally, to encourage those not currently involved in benchmarking to use this tried and tested tool to help improve their own organization.

To achieve this aim I have:

- ✓ Kept theory to a minimum.
- ✓ Arranged the material in a logical order following a typical benchmarking project so it can be used as a handbook.
- ✓ Included examples and short case studies in the text, and stand alone case studies as the last section of the book ⇒ [Part 4](#).

This book is aimed at:

- ✓ Managers who want to understand how to use benchmarking to improve their part of the organization.
- ✓ Representatives from participant organizations or independent facilitators responsible for managing and steering benchmarking studies.
- ✓ Anyone involved in the benchmarking process.

Currently available books on benchmarking tend to:

- Focus on only one type of benchmarking e.g. what we call in this book “one-to-one” benchmarking where the organization initiating the study seeks to visit one other organization.
- Focus on specific aspects of benchmarking such as Strategic Benchmarking.
- Provide little detail on exactly *how* to run and manage a benchmarking study.

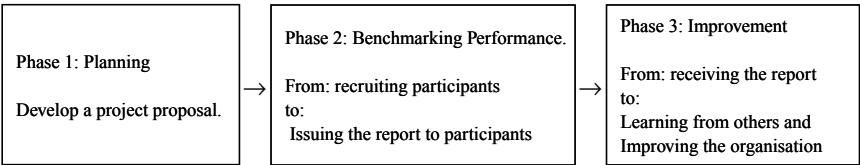
This book aims to fill that gap and provide the reader with a practical guide for use at all stages of running a benchmarking study.

The structure of the book

Part 1 provides an introduction to benchmarking, including the role of benchmarking in improvement activities, and an explanation of different types of benchmarking.

Part 2 describes in detail how to successfully carry out a benchmarking project, following the benchmarking process outlined in the introduction to [Part 2](#).

A typical benchmarking project consists of three phases:



Phase 1, Planning, consists of all the internal preparation from project inception up to the point at which we begin inviting organizations to join the study.

Phase 2, Benchmarking Performance, begins by recruiting participants onto the study and continues by honing the project plan with participants, gathering and analysing data and ends, frequently, with issuing a report.

Phase 3 Improvement, it is the responsibility of each participant to use the data and information presented in the report to drive through improvements. These improvement activities are different to performance level comparison activities and are covered in phase 3.

Part 3 Explains the two managerial aspects of benchmarking. Firstly we explain how to manage and support benchmarking activities within an organization including highlighting some of the legal considerations, benchmarking protocols and the use of consultants. Secondly, we explain the project management activities and responsibilities.

Part 4 consists of four detailed benchmarking case studies. The cases have been carefully selected to demonstrate benchmarking from both the facilitators/consultants and the participants' view. They are drawn from local government, public service and industry and illustrate several different methods of benchmarking.

How to use this book

This book has been designed for the general reader interested in benchmarking to read from the beginning through to the end. It begins in [Part 1](#) with an explanation of what benchmarking is, how organizations use benchmarking and the benefits it brings. [Part 2](#) describes in detail, step by step, how to run a successful benchmarking study, from identifying projects through developing metrics, collecting, validating and analysing data, working with and learning from participants. [Part 3](#) discusses both how to manage individual benchmarking projects and how to promote and manage benchmarking activities within an organization.

The book is written with the benchmarking practitioner in mind. Once the reader has found his way around, it can be used as a reference book for helping with issues that may arise during benchmarking studies. These include dealing with confidentiality issues, organizing Best Practice meetings and overcoming resistance to benchmarking.

Some readers may have specific needs or reasons for picking up this book and the table below suggests ways in which you may wish to use it.

If this is you....	Try reading this....
I know very little about benchmarking. I want an overview of what benchmarking is and how it can help me improve performance in my organization.	<p>This book was written in a specific sequence for you.</p> <ul style="list-style-type: none">• It begins by explaining what benchmarking is, the benefits of benchmarking and its role in process improvement in Part 1.• At the beginning of Part 2 is an overview of the benchmarking process. This may be all you need, or if you want more detail you can dip into the appropriate pages in the rest of Part 2.• For information about managing benchmarking activities within your organization and for how to manage specific projects, see Part 3• To see how benchmarking works in practice, Part 4 provides several detailed case studies.
Many people in my organization believe that benchmarking is just another fad. How can I persuade them otherwise?	<p>See the benefits of benchmarking Chapter 1 and the case studies in Part 4.</p> <p>Start with small simple projects, perhaps implementing ideas that you have read or heard about outside the organization. Once these can be shown to be effective, progress to a more formalized method of identifying improvements from external sources – i.e. benchmarking.</p> <p>Some organizations benchmark, but because of the connotations of the word within their organization call it something else.</p> <p>Good luck with changing their minds, remember that doing so may take a long time!</p>

If this is you....	Try reading this....
<p>You can't benchmark what we do because every time we provide a service or product it is different</p>	<ul style="list-style-type: none"> • Many organizations have the illusion that because their business is "different" they cannot benchmark, and so miss out on the benefits that benchmarking can bring. The Drilling Performance Review case study is an example of benchmarking projects where every project is different. The Citygroup benchmarking case study shows how IT services can be benchmarked even though each participant's IT service is tailored to its own needs. See also the Formula1 case study where a manufacturing organization benchmarked with a Formula1 team. • For methods of normalizing to take account of differences in participants operations see Chapter 7.
<p>We tried benchmarking and found that copying other organizations' practices didn't work.</p>	<p>There is a real temptation to copy what works in another organization without thorough investigation. Sometimes such copying will work, sometimes not. See Chapter 19 on Copying Without Understanding.</p>
<p>I am tasked with benchmarking my section, but I know nothing about benchmarking.</p>	<ul style="list-style-type: none"> • Read Part 1 which explains what benchmarking is, the benefits of benchmarking and its role in process improvement. • Read the summary at the beginning of Part 2 for an overview of the benchmarking process. • Read some of the case studies throughout the book and in Part 4 to see how benchmarking has been implemented. • Get a feel for the detailed benchmarking process in Part 2 by skimming through it, ignoring any sections that may not be relevant to your situation.

If this is you....	Try reading this....
	<ul style="list-style-type: none">• Review “Methods of benchmarking” in Part 1 to help focus on what type of study you want to develop.• Work through Part 2 to develop a detailed project plan.
How do I select what to benchmark?	There are many tools for helping you decide what to benchmark – see Chapter 3 on selecting projects.
I am involved in a benchmarking study run by a consultancy, but I don’t really know if they are doing a good job or how I can improve the study.	<ul style="list-style-type: none">• Part 2 especially explains in detail what the facilitators should be doing. Check to see if they are.• Read the Drilling Performance Review and Citigroup IT case studies. Your facilitators are probably delivering a different service, but are they as committed to improving the service they provide?
We are concerned about the quality of data used for analysis. What should we do?	Data integrity is a very real concern when benchmarking. Ensuring that data is consistent, correct and complete is covered in detail in Part 2 , especially Chapter 13 .
It’s not possible for us to benchmark because we won’t be allowed to show other organizations, especially our competitors, what we do nor give them data on how we perform.	<p>This is a common concern. There are several potential solutions depending on your situation. Database benchmarking, overviewed in Chapter 2, would only require sharing data with an independent benchmarking consultant. Other organizations need not even be aware that you are benchmarking.</p> <p>If you want to work with a known group, methods of anonymizing or not sharing data are discussed in Chapter 15.</p> <p>Lawyers may tell you, incorrectly, that you cannot share data. Be persistent in ensuring that what they are telling you is correct. See Chapter 21</p>

PART I

A Background to BM

INTRODUCTION

In [Part 1](#) of this book we aim to provide a backdrop for the rest of the book which deals with the practice of benchmarking.

The first question to answer is what exactly is benchmarking? In [Chapter 1](#) we explore different ideas of benchmarking as proposed by those who have developed and used it. To help clarify what benchmarking is, we also look at some practices that are not benchmarking.

Benchmarking developed as a solution to a problem. Though practices akin to it had been around for many years, it is Xerox that we have to thank for formalizing it and developing it into a crucial performance improvement tool. It is appropriate, therefore, to include a description of how benchmarking enabled Xerox not only to survive but to become a market leader in a competitive market during the 1970s.

Benchmarking has moved on over the last 40 years and there are now many reasons why organizations benchmark, and many benefits that they gain. Performance improvement, budgeting, testing ideas, technical problem solving and resolving disputes are just a few of the reasons why organizations benchmark today.

There has been a surge in interest in Six Sigma and other improvement methodologies in the last few years. The connection between these and benchmarking is highlighted at the end of [Chapter 1](#) and shows that they are closely related. Indeed, it has been said that benchmarking is a short cut improvement process as it identifies best practices without us having to try to invent them ourselves.

Many books on benchmarking propose one specific process. That is a shame, for in reality the benchmarking process that an organization uses needs to suit the specific objectives of the project. When writing this book I realized that the only

way to keep the size of the book within reasonable limits was to follow the same path of focusing on one specific, albeit generic process. However, a key message throughout the book is that there is no one right way to benchmark. To highlight this fact [Chapter 2](#) overviews several different methods of benchmarking, and acknowledges that there are almost endless variations. Despite the very different types of benchmarking the process of each can be seen to be a special case of a generic process which is explained in detail in [Part 2](#) of the book.

What is Benchmarking?

The chances are that if someone is able to do what you are doing better, faster and/or cheaper, they have different practices than you have. Discovering what those practices are, adapting them to your situation and adopting them is very likely to improve your performance.

INTRODUCTION

How do we define ‘benchmarking’? What are its origins? Why do organizations benchmark? What benefits does it bring? What can I benchmark? How does benchmarking relate to Six Sigma and process improvement?

These are typical questions that people first ask when they become aware of benchmarking and all of them are addressed in this chapter. There is also a brief summary of how and why Xerox developed and used benchmarking as a key survival tool in the face of fierce Japanese competition.

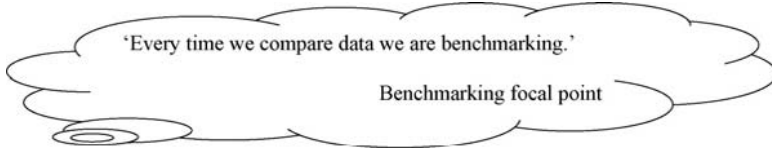
This chapter also explains the two aspects common to many benchmarking studies:

1. Comparison of performance levels to ascertain which organization(s) is achieving superior performance levels.
2. Identification, adaptation/improvement, and adoption of the practices that lead to these superior levels of performance.

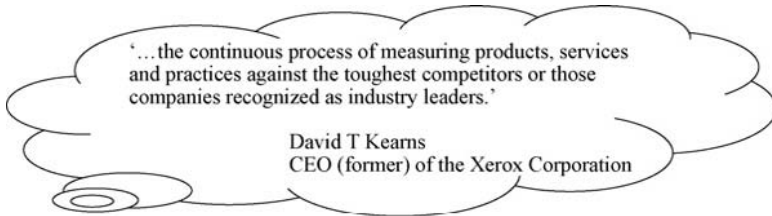
1.1 WHAT IS BENCHMARKING?

Developing a single all-embracing definition of benchmarking is not easy. It is commonly applied to a wide variety of activities that organizations undertake to compare their performance levels with others and/or identify, adapt, and adopt practices that they believe will improve their performance. Before presenting the definition of benchmarking that forms the backdrop of the book, let us look at some of the things that those involved in benchmarking have said of it.

For some, benchmarking needs only to involve the comparison of performance metrics, and needs not include an element of process improvement. This would certainly be the case for the organization with the best performance levels.

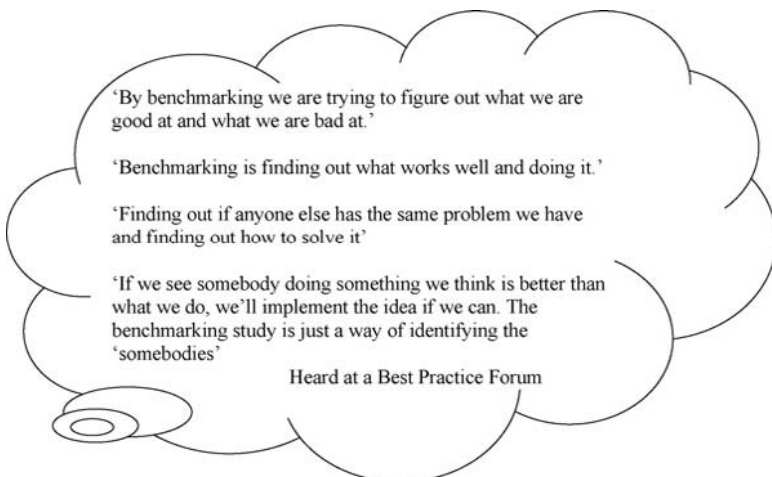


For some people, benchmarking is a continuous process rather than a one-off process.



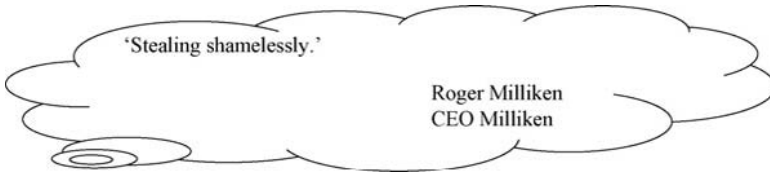
This definition specifically highlights that benchmarking can apply to the products, services, and practices of an organization. More broadly, benchmarking can be applied to any area where we want to compare performance and/or learn from others. The definition also specifies that we want to benchmark against either our toughest competitors, so that we know where our strengths and weaknesses are in relation to them, or industry leaders so that we are aware of the highest performance levels currently being achieved.

Some consider benchmarking as the comparison of practices, while for others, and perhaps most commonly, it includes both the comparison of performance and practices.



Notice that these four comments on benchmarking do not focus on the method, only on the required end result.

One interesting definition from Roger Milliken is:



Benchmarking definitely is not stealing, at least not without permission! But it may entail adopting and adapting ideas, practices or methods, with permission, from other benchmarking participants.

As these definitions and quotes illustrate, there are different ways to view benchmarking. In this book we take the view that benchmarking consists of two basic phases (Figure 1.1): (phase 1 is a preparation phase)

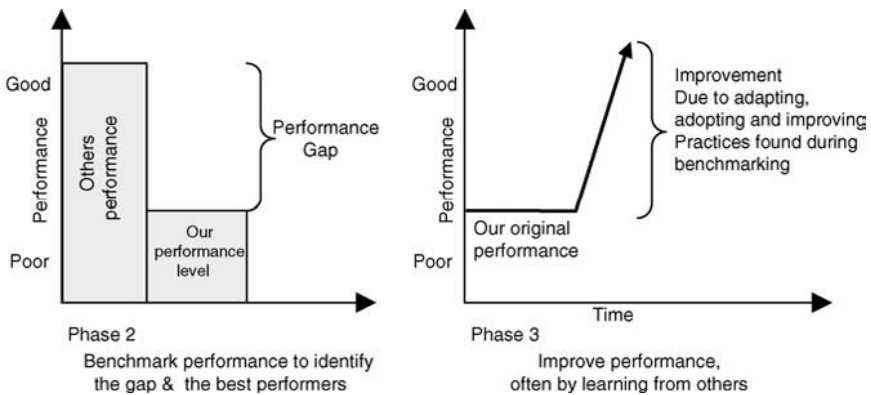


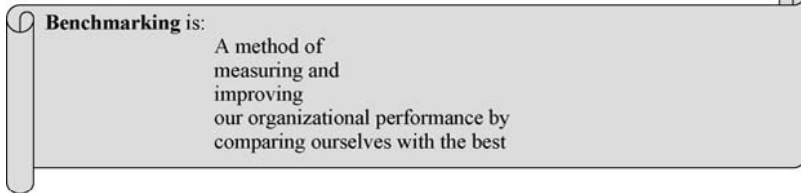
FIGURE 1.1 Two phases of benchmarking.

1. Benchmarking performance (i.e. data) to:

- quantify performance levels of different participants,
- identify the gap between participants, often between the best performer(s) and other participants,
in order to:
- quantify the potential gain for each participant to operate at the level of the best performer(s).

2. Changing our practices to improve our performance, possibly, but not necessarily by learning from other participants (⇔ Chapter 17).

From the above discussion we can produce a useful and comprehensive definition of benchmarking that applies to many benchmarking projects:



In [Part 2](#) of this book we focus on the comparison of metrics and a variety of improvement activities, including methods of sharing practices. We acknowledge the many other reasons for, as well as methods and ideas of benchmarking by including case studies, discussions, and examples that do not adhere to this definition.

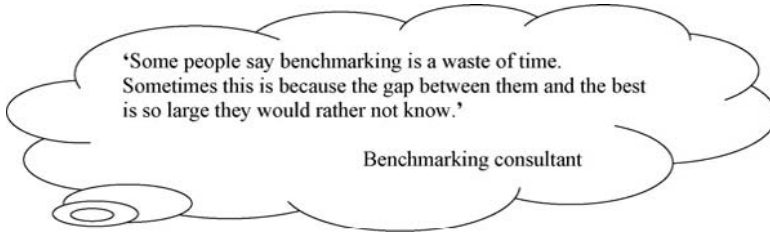
1.2 ... AND WHAT BENCHMARKING IS NOT

If statistics is the art of manipulating data to tell the boss what he wants to hear, then perhaps benchmarking is the art of comparing your organization's performance with other carefully selected organizations to ensure that the conclusion is what you wanted it to be before you started benchmarking. That would, of course, be a misuse of benchmarking and statistics, but sometimes it seems that these are the aims.

In order to clarify what benchmarking is, it helps to consider what benchmarking is not. Benchmarking:

- ✗ Is **NOT** industrial tourism whereby companies visit one another, enjoy a day out, or even a trip half way around the world but no objective comparison or analysis takes place. Such activities lead to benchmarking being seen as irrelevant and a perk for the favoured few. However:
 - ✓ it **IS** planned research with a high return on investment.
- ✗ Is **NOT** a staff appraisal tool. This will lead to resistance to benchmarking by falsifying data, delaying the project, or discrediting the study (⇒ The result of using benchmarking as an appraisal tool [Chapter 20](#)). However:
 - ✓ it **IS** helpful to identify where and how to improve the processes.
- ✗ It is **NOT** a copy and paste activity. Copying what someone else has done in their organization and expecting it to work assumes:
 - that your organization has a similar culture, a similar operational environment, and similar issues as the one from which you are copying (⇒ [Chapter 19](#));
 - that the organization you are copying from has the optimum solution.
 However:
 - ✓ It **IS** a potential source of ideas, information, methods, practices, etc. that it may be appropriate to adapt, adopt, and implement.

- ✗ Is **NOT** a one-off event. At best this will lead to achieving a competitive edge today, but that is likely to be eroded as other organizations continue to improve.
- ✓ It **IS** part of a culture of striving to be the best, or amongst the best, at what the organization does. (There are exceptions however, for example benchmarking can be used to solve specific problems or justify decisions
⇒ [Part 4 'Dundee City Council Case Study'](#).)



1.3 A BRIEF HISTORY OF BENCHMARKING

Benchmarking may seem like a management fad from the 1970s, 1980s, and 1990s. It is not. It is not a fad and it is not from that era.

How did the idea of benchmarking evolve? What are its origins?

Perhaps the idea started when a man first looked at a neighbour's hut and thought 'That design lets in less rain than mine, perhaps I should build one like that'; or when he looked at his neighbour's crops and asked 'Why are his plants producing more fruit than mine? What does he do that is different to me'?

One can imagine a king, in the years before records began, sending out spies to observe what kinds of weapons his enemy was developing; or seeking to discover what features enabled another nation's ships to travel faster. We can picture a wise ruler sending envoys to foreign countries to learn what remedies they used for certain ailments. Our imagination tells us that somewhere near the start of the road to modern civilization men realized that they could learn from each other's discoveries and thereby improve their own situation.

As industry became more developed and organized, it became clear that large profits could be made by developing better products, and producing goods in ways that were faster and more efficient. Now there were companies vying for customers. In order to stay on top, it was necessary to be aware of the competition – what features made the competitors' products more desirable; what manufacturing processes were they using to produce their goods more cheaply; where were they getting their raw materials, or indeed, what raw materials were they using?

Nowadays there are legal mechanisms to deter companies from stealing designs and discoveries from one another, and organizations go to considerable lengths to guard those secrets which give them competitive advantage in the marketplace. In the unforgiving climate of the global market, not keeping up

with competitors often means going out of business. This seems too contrary to the idea of sharing information for the greater good of the industry. In this environment how can organizations learn from each other?

1.3.1 Reverse Engineering

In the industrial world reverse engineering appeared as method of covert benchmarking. Not only did organizations look at the competition and try to improve their products and services, they acquired competitors' products, dismantled them and learned how to equal or if they could, improve on what they learned.

Reverse engineering is nowadays, of course, often illegal and the use of information gained by reverse engineering is protected, typically by patent (⇒ [Chapter 21](#)).

Case Study: Tupolev Tu-4 Aircraft

One well-known example of reverse engineering was the development of the USSR's Tupolev Tu-4 bomber aircraft. In 1944, three American B-29 bombers on missions over Japan were forced to land in the USSR. The Soviets, who did not have a strategic bomber as advanced as the B-29, decided to dismantle and study both the design and components of the B-29. The Tupolev Tu-4, a close copy of the B-29, flew in 1947.

1.3.2 Japanese Industrial Visits

After WWII Japanese industry was all but non-existent. Many of their factories had been bombed, and most had been focusing on the war effort. As part of their effort to establish a vibrant manufacturing industry Japanese industrialists visited American factories. This gave them both an insight into American manufacturing practices – i.e. what their future competition was doing and how they were doing it – and ideas that they could use in their own factories.

The Japanese had been warned by Dr W.E. Deming (ironically an American) not to simply copy what they saw, but to understand why it worked and to adapt and improve on the practices and ideas they discovered before adopting them (⇒ [Chapter 19](#)). America and the West in general, did not perceive Japan as a threat and were quite happy to show off their industries.

1.3.3 The Story of Xerox

Up until the 1970s benchmarking practices were somewhat haphazard and certainly not widely seen as a management improvement tool. Xerox developed and established benchmarking as a tool to drive out waste, drive down costs, and drive up quality. Current benchmarking thinking and practices are firmly based on what Xerox did over 30 years ago.

Case Study: Why Xerox Invented Benchmarking

The phenomenal growth of Japanese cars, radios, computers, cameras, motorbikes ... the list is almost endless forced many Western companies out of business. But not one company: Xerox. They fought against the seemingly unstoppable Japanese expansion and survived. The story of Xerox is documented in the book *Prophets in the Dark*, well worth reading as an account of how one organization avoided extinction, as well as an instructive book on benchmarking.

In the 1960s, Xerox was experiencing phenomenal growth. For example, profits in 1961 were \$2.5 million. By 1968 they had jumped to \$128 million. At one time some managers were hiring 50–100 people per month.

However, by the late 1970s Xerox had a string of problems. The Japanese had just entered the photocopier market and the Xerox 3300 copier was designed to push them out of it. The X3300 was so bad it had to be recalled and redeveloped. It was released again a year later, but could hardly be considered a success. Earnings and margins were dropping rapidly. Xerox became aware that the Japanese were using worker participation and began to study other American companies such as Lockheed and AT&T to discover what they did. As a result they tried to introduce worker participation and then Quality Circles – both unsuccessfully. Eventually they visited Japan to compare key data. They discovered that, for example:

- Xerox's overheads were double those of the Japanese.
- The Japanese were carrying six to eight times less inventory than Xerox.
- The quality of incoming goods at Xerox was 95%, in Japan it was 99.5%.

After the visit they reported that 'In category after category the difference was not 50% or anything like that; it was almost always over 100%' (p. 122, *Prophets in the Dark*).

Of course, knowing the performances of their own and other organizations did not solve the problem, but it did two things:

1. Made Xerox realize why they were about to go out of business and hence
2. Gave them the shock they needed to act.

Xerox finally conceived the idea of Business Effectiveness, a strategy to improve the competitiveness of the company. It embraced two underpinning thoughts:

1. Employee involvement and
2. Benchmarking.

Their goal was superiority in all areas – quality, product reliability, and cost. Starting in 1979 they identified which company was the best at distribution and used it as the standard to shoot for. The same would go for manufacturing, engineering, marketing, and so forth (p. 123, *Prophets in the Dark*). Their plan was to find out:

1. Who was best at doing something (benchmark the data).
2. Find out how the 'best' achieved their superior performance. (Learn)

These two concepts still form the cornerstones of benchmarking today. Xerox did it by a series of site visits. The most famous was probably that of L.L. Bean where they benchmarked distribution, but at around that time they also visited John Deere, IBM, Texas Instruments, Motorola (who later popularized Six Sigma) and Burroughs.

Identifying specific landmarks after events at Xerox is difficult. Robert C. Camp, who was heavily involved in benchmarking at Xerox wrote the first definitive book on benchmarking: *Benchmarking: The Search for Industry Best Practices that Lead to Superior Performance* in 1989. His latest book was published in 2007. Also in 1989, BP and nine other oil and gas exploration companies initiated a benchmarking study of wells drilled in the North Sea. This study, which is an example of project benchmarking, is still in existence in 2009 with over 200 participants from around the world and has spawned other spin-off studies (⇒ [Part 4](#) ‘Drilling Performance Review’).

In the 1990s benchmarking activity increased markedly. In the UK, for example, the report by Coopers & Lybrand, the CBI, and the National Manufacturing Council, “Survey of benchmarking in the UK 1994” identified that 78% of The Times top 1000 companies claimed to be benchmarking. In 1992, the American Productivity and Quality Centre (APQC) established the Benchmarking Clearinghouse (IBC). The business models that were developed throughout the 1990s and 2000s such as the Baldrige Award and the European Foundation for Quality Management (EFQM) Excellence Award imply the need for or specifically require that an organization be involved in benchmarking activities.

Benchmarking has now spread to all five continents. One small benchmarking study, for example, includes participants from Australia, Asia, the Middle East, Europe, and the USA. Some organizations still refuse to benchmark: sometimes because national regulations prevent them from divulging data, sometimes because they think they have nothing to learn or for some other reason, but perhaps most often because they do not know how to benchmark.

In the last few years benchmarking has no longer made the headlines, but that is quite possibly because it has now become an established part of business life. There has been a growth in the types, methods of and reasons for benchmarking, many of which are discussed in this book.

Applications of benchmarking have also grown as organizations become familiar with the technique and find a wider variety of uses. For example:

- Consumer magazines are well known for testing and comparing (benchmarking) competing **products and services** and often include users’ experiences and comments.
- Investors are well known for analysing and comparing the **financial** performance of companies before investing or recommending others to invest.
- Organizations often compare **functions** such as maintenance, information technology, or human resource management.
- Organizations operating on discrete **facilities** such as factories, ports, airports can benchmark the whole facility.

- Organizations also benchmark **processes** such as purchasing, recruitment, or research and development.
- Perhaps the most recent development is strategic benchmarking where organizations benchmark long-term **strategies** and approaches in an attempt to find those that seem to result in the greatest success. Strategic benchmarking typically focuses on areas such as product development and delivery, customer services, and core competencies.
- Organizations also benchmark to resolve specific **problems** such as how to reduce the number of faults of a certain operation.
- **Project** benchmarking, the benchmarking of stand alone events or projects such as construction projects is also possible.

The emerging message is that any aspect of an organization where performance can be compared or where it may be possible to learn from other organizations has the potential to be benchmarked (⇒ [Chapter 3](#) for a fuller discussion).

1.4 WHY DO ORGANIZATIONS BENCHMARK?

There are many reasons why organizations benchmark. For Xerox it was a matter of survival. Fortunately, few benchmarking studies are initiated in such dramatic circumstances. Some of the more common reasons for benchmarking include:

1.4.1 As Part of an Improvement Culture

It is interesting that despite Xerox's benchmarking successes, the 1980s are known mainly for the growth and development of improvement ideas, methodologies, and philosophies such as Total Quality Management, the Quality Management Standard ISO9000, Supply Chain Management, and Quality Circles amongst many others. Perhaps the spread of these ideas was itself a result of awareness that Japan was steadily encroaching on traditionally Western manufacturing havens and an effort to respond to the higher quality and lower prices that Japanese goods offered. Part of this response was an attempt to find out what the Japanese were doing differently to the West and copy at least some of these practices. A typical example of this was the adoption of Quality Circles to foster employee involvement. ⇒ [Chapter 19](#)

A shortcoming with most of these tools is that while they are excellent in themselves and have a role to play in improving the way organizations are run, they:

- ✗ do not suggest where to focus improvement activities,
- ✗ do not identify appropriate performance levels, and
- ✗ do not suggest what practices are likely to lead to optimum performance levels.

Benchmarking, on the other hand, addresses the issues:

- How competitive are we?

For example, it may cost us \$20 to raise an invoice, and we can use business process re-engineering to reduce that cost to \$12. What we do not know is how competitive that is with other organizations. Perhaps our competitors only spend \$10 to raise an invoice, in which case we are still uncompetitive.

- Where should we focus improvement activities?

As organizations implemented and became familiar with improvement methodologies, another issue arose. Managers realized they did not have the resources to work on improving every aspect of the business at the same time. They needed to focus improvement activities in those areas where the return on investment (i.e. the ratio of cost of improvement activities to benefit achieved) would be greatest. In order to do this they needed to estimate the post-improvement performance level. Sometimes it was possible to do this or alternatively to calculate a theoretical performance level, but often organizations did not know what improved performance level to expect until they had carried out some analysis. A solution to this quandary is to benchmark potential areas for improvement. This aims to:

1. Discover the potential performance level in each area, based on what other organizations are achieving.
2. Calculate the benefit for each area of performing at the potential performance level.
3. Calculate the expected return on investment for improving each area.
4. Prioritize areas for improvement, based, at least partially, on the return on investment.

1.4.2 To Short-Cut the Improvement Process

Some organizations view benchmarking as a possible short-cut to improvement. Why, they argue, expend effort on analysis, re-designing processes, re-training and other costs and even then perhaps not achieve the same levels of performance as others. It would be better to identify current best practices, adapt and improve them and then expend effort on implementing changes with a high degree of certainty that the performance will be at least amongst the best that we have found.

1.4.3 Target/Budget Setting

Many organizations set targets. Unfortunately, many set arbitrary targets, frequently of the form of a 5% or 10% improvement on current or previous

performance levels. One use of benchmarking is to help identify appropriate target performance levels based on what others are achieving.

1.4.4 As a Driver for Improvement

If we benchmark against competitors, the results can be a very strong driver for improvement because if an organization cannot perform at similar or superior levels to competitors in enough key areas then market forces will eventually force them out of business (⇒ ‘Benchmarking as a driver for improvement 1 and 2’ case studies [Chapter 16](#)).

Even when benchmarking against non-competitors, poor comparative performance can be the shock required to persuade management that they need to examine their organization’s performance and look for ways to improve.

1.4.5 To Solve Problems

One use of benchmarking is to solve a specific problem. Participants will look for others carrying out similar work to see what types of equipment they use and what problems they encountered (⇒ [Part 4](#) ‘Dundee City Council Case Study, Formula1 Case Study’).

1.4.6 Requirement of Business Excellence Models

Business Excellence models such as the Baldrige Award in the USA, European Foundation for Quality Management Excellence Award in Europe require or at least imply the need for benchmarking (⇒ [Chapter 2](#)).

1.4.7 To Build up a Network of Like-Minded People

One of the benefits of benchmarking that many people cite is that they become part of a network of people interested in improving the way they run their organization. They use this network to discuss any topic of mutual interest, to form focus groups or simply to talk with like-minded people. Though this is seldom the main reason for benchmarking, it is often a useful outcome that is fostered through benchmarking-related activities such as participant forums, websites, and meetings.

1.4.8 To Justify a Proposal

One organization I interviewed when researching this book explained that one of the main reasons for benchmarking within their organization was to test draft proposals. They would search for a benchmarking partner who had

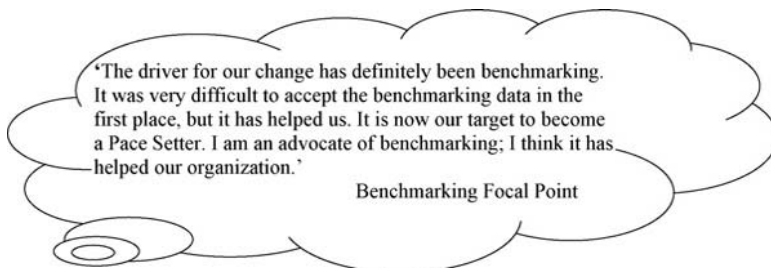
implemented, or tried to implement something akin to their proposal. The findings of the studies resulted either in the proposal being dropped or the findings being included in the proposal which was then submitted to management for approval.

Benchmarking has also been used to help justify manpower and/or expenditure increases as well as decreases (⇒ Benchmarking Manning Levels [Chapter 16](#)), and as a method for joint venturers to satisfy themselves that the organization responsible for operating facilities on their behalf is managing them efficiently and effectively (⇒ Review Benchmarking [Chapter 2](#)).

1.4.9 To Target a Competitor's Weak Points

While it is not the usual stated reason for benchmarking, there have been instances where it was used to find a competitor's relative weak points as perceived by customers. The benchmarking organization would then ensure that their performance was better in these areas and market on those relative strengths.

1.5 HOW EFFECTIVE IS BENCHMARKING?



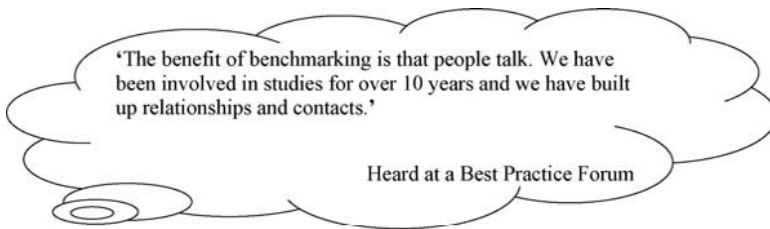
The extent to which benchmarking 'works' is dependent upon whether the organization is prepared to invest in making it work. Results do not come without effort and investment, and benchmarking is not a panacea for all issues. However:

The evidence is irrefutable that applied thoughtfully benchmarking does yield benefits

This book and others written on benchmarking describe many examples of successful benchmarking. What seldom appears in the literature are examples of organizations that try benchmarking and gain no benefit, but they do exist. Although this book does not make a specific study of these

companies, a common reason for benchmarking failing them is that they had no driving desire or reason to benchmark. A participant of one benchmarking club decided not to participate in future studies because they never used the results. A manager in a different organization stopped benchmarking because senior management had blamed him for the organization's relatively poor showing in a previous study. Such an organization will never benefit from benchmarking as long as senior management uses it as a tool to appraise and criticize.

The contrary view, expressed by forward looking organizations, is that there is always room for improvement and they can always learn something from others. For them benchmarking is simply a vehicle through which they improve.



1.6 HOW DOES BENCHMARKING RELATE TO SIX SIGMA AND PROCESS IMPROVEMENT?

All organizations develop processes by which their inputs are converted into outputs. Put simply, the inputs are raw materials and the outputs are the products, services, and/or information that they provide to their customers.

Benchmarking projects are typically initiated to help organizations improve their processes, resulting in higher quality products or services, reduced costs, and/or other benefits.

However, benchmarking is not the only improvement methodology available to organizations. Many methods have been developed over the last few decades in the never ending drive for improvement of which Six Sigma is probably the most popular.

In this section we examine the relationship between benchmarking and Six Sigma as an illustration of how benchmarking is intimately linked with organizational improvement.

We begin by summarizing the use of benchmarking as an improvement tool, and then identify how and where benchmarking fits in with improvement methodologies in general, using Six Sigma as a specific example.

In [Chapter 16](#) we discuss how benchmarking may in turn lead to the use of improvement methodologies in order to improve performance and close the gap on the better performers in a benchmarking study.

1.6.1 Benchmarking as an Improvement Tool

Benchmarking has been used as an improvement tool for many years, and the fundamental idea behind its use is simple:

1. Define the project, i.e. the area of the business to be improved.
2. Find an organization that does what you want to do better than you can.
3. Find out what practices the organization uses that makes them better.
4. Adapt and adopt their practices to your situation.

The method of achieving improvement through benchmarking is a major theme running through this book.

1.6.2 The Role of Benchmarking in a Six Sigma Improvement Project

Many organizations use process improvement methodologies to improve the performance of their organization. These methodologies follow a similar pattern from project identification through identifying root causes, selecting and implementing solutions to ongoing monitoring of process performance. We have chosen the Six Sigma DMAIC (Define, Measure, Analyse, Improve, Control) improvement process as a popular and typical example to show how and where benchmarking can be used to help in the improvement process. [Figure 1.2](#) gives the steps and brief explanation of the DMAIC process along with comments summarizing typical roles of benchmarking.

In addition, what is commonly called Step 0, project identification, has been added to the table.

It is also interesting to note that the benchmarking process explained in this book can be mapped onto the DMAIC process. The correspondence is not exact on a step-by-step basis, but all the elements of the DMAIC process are contained within the benchmarking process:

Step 0, Project selection, is described in ⇔ [Chapter 3](#).

Step 1, Define, corresponds to finalizing the team charter (⇔ [Chapter 4](#)).

Step 2, Measure, corresponds to the benchmarking performance levels which is described in the rest of [Part 2](#) phase 1 of the book.

Step 3, Analyse, is described in [Chapters 14](#) and [15](#).

Step 4, Improve is described in [Chapters 16–18](#).

Step 5, Control is not specifically discussed in the book, but is considered as part of the improvement phase discussed in [Chapter 18](#).

Step	Brief description of Six Sigma activity	Role of benchmarking
0	<p>Project Selection Management is responsible for setting the criteria for selecting projects, reviewing candidate projects and selecting those that will be carried forward.</p> <p>The team is commissioned.</p>	<p>Benchmarking studies have a useful role to play by:</p> <ol style="list-style-type: none"> 1. Identifying areas of weakness compared to other participants (i.e. identifying potential projects) and 2. Quantifying the potential benefit of achieving the performance levels of the better performers. <p>Since the potential benefit of improving the process is usually a key criteria for selecting improvement projects, benchmarking can play a key role in project selection.</p>
1	<p>Define. The team review and finalize the project requirement (i.e. the team charter). Much of this phase is honing, validating and adding details to the information passed to them when they were commissioned. This includes:</p> <ul style="list-style-type: none"> • Defining the scope of the project. • Documenting the reasons for selecting the project. This usually includes evidence that the process needs to be improved. • Estimating (or validating if it has been estimated beforehand) the project benefits/impact on the organization. • Finalizing the Team Charter and gaining management approval. <p>Any quick improvements that have been identified and can be made at this stage are implemented.</p>	<p>Benchmarking has a limited role to play. However, benchmarking may have identified quick and simple improvements that can be made. These may have already been made outside the improvement project, or may be incorporated during the appropriate phase.</p>
2	<p>Measure. The Measure phase of the project gathers information about the area being studied. Typical activities include:</p> <ul style="list-style-type: none"> • Mapping the process, identifying key inputs and outputs. • Develop cause/effect relationships to identify potential causes of poor performance. • Developing and implementing a measurement system for gathering the data to investigate the relationships between the causes and effects. • Establishing the process capability. 	<p>Talking with benchmarking partners who have experienced similar problems in the past may provide theories of causes that the team only needs to confirm with their own data.</p> <p>Process maps may be available from other participants allowing comparisons to be made with the aim of identifying potential improvements.</p> <p>Benchmarking data can provide comparison process capability information from other participants.</p>
3	<p>Analyse. The team analyses the data gleaned in the Measure phase to establish the relationship between the causes and the effects. The output of this phase is proven root causes of current poor performance levels.</p>	<p>Some benchmarking studies include detailed analyses of data and these may be of help, or data may be available from these studies for the team to carry out their own analyses.</p>
4	<p>Improve. The team generates and evaluates potential solutions, testing those that it believes will resolve the root causes. Those solutions to be implemented are selected and the implementation planned.</p>	<p>Benchmarking can play a key role in finding solutions that other organizations have implemented. These solutions can be reviewed, adapted and adopted as appropriate. Where other participants have implemented similar solutions to those being planned, they may be able to provide advice on implementation.</p>
5	<p>Control The team designs and implements controls to monitor performance to confirm expected performance improvements and ensure that the improved performance is maintained.</p>	<p>Benchmarking has a minimal role to play, but participants who have implemented similar solutions may offer advice on effective controlling and monitoring as well as experience of problems that occurred after implementation.</p>

FIGURE 1.2 Relationship between Six Sigma and benchmarking.

SUMMARY

There are many different definitions of benchmarking. The one we present here reflects many, but not all, benchmarking activities.

Benchmarking is:

A method of
Measuring and
Improving
Our organization
By *comparing* ourselves with the best.

Benchmarking usually consists of two aspects:

1. Comparison of performance levels to ascertain the gap between 'us' and the 'best' and to ascertain from which organizations we are likely to be able to learn the most.
2. Studying how the best or better performers achieve their superior performances and then adapting and adopting their practices as appropriate.

Modern benchmarking activities have become established since the 1940s when governments reverse engineered military equipment. In the 1950s and 1960s Japanese industrialists visited American factories to gain insight into mass production methods. In the 1970s Xerox visited leading organizations in order to discover what levels of performance were possible and to discover how to achieve these levels of performance. Since then the use and applications of benchmarking have grown rapidly and encompass product/service, financial, process, functional, facility, strategic, and project benchmarking.

Organizations benchmark for a variety of reasons, including:

- ✓ To enhance improvement culture.
- ✓ To short cut the improvement process.
- ✓ As a driver for improvement.
- ✓ As an aid to planning/budgeting/target setting.
- ✓ To solve specific problems.
- ✓ As part of a submission for Business Excellence Awards.
- ✓ To build up a network of like-minded people.
- ✓ To justify proposals.

Benchmarking is a useful tool in process improvement and problem solving. Its key uses are to:

- ✓ Help select and prioritize projects.
- ✓ Search for appropriate solutions.
- ✓ Identify appropriate target performance levels.

Bibliography

Websites

On-line Benchmarking/Best Practices communities and services:

Best Practice Club (The) www.bpclub.com is an on-line community of organizations interested in learning from and benchmarking with each other. See their case study in [Part 4](#) for more details.

APQC International Benchmarking Clearinghouse www.allianceonline.org is a benchmarking group aimed at not-for-profit organizations (nonprofits)

Benchmarking Exchange (The), www.benchnet.com provide a variety of services to those interested in benchmarking including an on-line benchmarking/survey facility.

Benchmarking Network (The) www.benchmarkingnetwork.com provides a variety of benchmarking services

Best Practices LLC can be found at www.best-in-class.com it is a research, consulting and publishing organization focusing on the health care industry.

British Quality Foundation (The) www.quality-foundation.co.uk promotes business excellence through numerous activities, based on a Business Excellence Model

Organizations quoted in the book offering Benchmarking Services include:

Information Management Forum (See [Part 4](#) case study), are highly experienced IT consultants who offer a range of services. They can be found at www.globalinformationpartners.com/

Rushmore Reviews (see [Part 4](#) case study) specialise in Drilling and Completions benchmarking and can be found at www.rushmorereviews.com

Juran Institute: <http://www.juran.com/>

Juran Institute is a management consultancy founded by Dr Joseph Juran. They provide training and consultancy in a range of quality management issues including Process Performance Improvement, Six Sigma, Change Management

and Benchmarking. They also run regular and bespoke benchmarking studies. They have offices in the US, Canada and Europe.

Solomon Associates are renowned for refinery benchmarking and consultancy services. www.solomononline.com

Excellence Awards:

There are numerous quality awards and associated models. We include three of the better known ones here:

Details of the Baldrige Award and model details can be found at: www.quality.nist.gov

Details of the Dubai Quality Award details can be found at www.dqa.ae

European Foundation for Quality Management (EFQM) Excellence Award and model can be found at: www.efqm.org

Codes of conduct:

The American code of conduct can be downloaded from www.apqc.org/PDF/code_of_conduct.pdf as a PDF file.

The European Code of Conduct can be found at www.efqm.org

Other websites:

Deming Learning Network (DLN) focuses is the official site for those wanting to know about the management guru Dr Edwards Deming. The sites includes a number of useful links, recommend appropriate books and other resources:

In the UK: <http://www.dln.org.uk> and <http://www.deming.org.uk/>

In the US: <http://deming.ces.clemson.edu/pub/den/>

Currency exchange rates current and historic, can be found at www.oanda.com

World Intellectual Property Organization, www.wipo.net provides information on intellectual property rights.

An example of an on-line benchmarking study can be found at www.croner.co.uk which benchmarks salaries.

Finally, Tim Staphenurst can be reached at tim@sigma-c.co.uk

Books

Benchmarking books:

Camp, R. C. (1994). *Business Process Benchmarking Finding and implementing best practices*. USA: Brown (William C.) Co.

Robert Camp has been involved in benchmarking since his days at Xerox and has published many books on benchmarking, of which this is a major contribution to the literature.

Kearns, D. T., & Nadlar, D. A. (1993). *Prophets in the dark – How Xerox reinvented itself and beat back the Japanese*. Harper Business.

The first half of this fascinating book details how the photocopier was invented and brought to market. The second larger part describes how Xerox, one of the leading American manufacturing companies took the market by storm as it mass produced photocopiers. However, while sales, profits and staffing were taking the company to new height after new height the Japanese were planning its downfall as they saw the waste in Xerox's processes and planned to take the market away from them. Fortunately David Kearns became aware of Xerox's vulnerability and acted by "inventing" benchmarking as a tool for identifying specific weaknesses with Xerox and learning new practices from world-class performing companies. This now legendary story ended with the survival of Xerox, and how it survived is a must-read for anyone interested in benchmarking.

Watson, G. H. (2007). *Strategic benchmarking reloaded with six sigma: Improving your company's performance using global best practice*. John Wiley & Sons. 'O Theory' is explained in the footnote on p xii.

McCabe, S. (2001). *Benchmarking in construction*. WileyBlackwell. The case study of a five-person organization successfully benchmarking is given on p. 182.

Other books:

Kaplan, R. S., & Norton D. P. (1996). *The balanced scorecard: Translating strategy into action*. HBS Press.

The Balanced Scorecard (BSC) is a management system that can help an organization translate its mission and strategy into operational objectives and metrics which can be implemented at all levels in the organization. This highly respected book quickly became a key for helping organizations determine, communicate and measure against key factors vital to success. If implemented correctly, the mission determines the metrics, and conversely, it should be possible to determine the mission by looking at the metrics. The authors demonstrate how senior executives in industries such as banking, oil and retailing are using the technique to evaluate current performance and target future performance based on financial and non-financial criteria such as customer satisfaction, internal processes and employee learning, and growth. If you are concerned that you may not be measuring the appropriate metrics, this book is worth reading.

Senge, P. M. (1990). *The fifth discipline*. Doubleday

This classic book on the Learning Organization is a milestone in business literature. It deals with the art, science and practice of organizations learning and improving. A key contribution relates to the soft issues such as teamwork and resistance to change. However, he also deals with systems thinking and management. The connection with benchmarking is that benchmarking is an improvement (learning) tool and so many of the ideas in the book are applicable to benchmarking, even though Senge does not discuss benchmarking in the book (however, as early as page 4 he quotes ‘The ability to learn faster than your competitors may be the only sustainable competitive advantage.’). In addition to the Fifth Discipline, Senge later published *The associated Fieldbook: Strategies for Building a Learning Organization*, a large apparently daunting book that is surprisingly easy to read and which gives examples and explains further the ideas in the Fifth Discipline. These books are key management reading whether or not you are involved in benchmarking.

Deming, W. E. (2000). *Out of the crisis*. The MIT Press

This highly respected book was a landmark in management thinking that is still relevant today. Do not be fooled by the easy style of the book, it provides food for deep thought about the way we manage our organizations. It is an excellent starting point for thinking about what we need to do to help ensure long-term success in our organizations. Deming gives several simple examples of control charts but focuses much more on the implication of variation within organizations. He also explains the Red Beads experiment, an excellent tool for teaching many of the concepts and managerial implications of variation. For comments relating to the importance of soft issues, see pp. 121–126.

Stapenhurst, T. (2005). *Mastering statistical process control*. Elsevier, Butterworth-Heinemann. Includes examples of Control Charts used in benchmarking applications. Three detailed case studies are based on comparing performances between groups. See, [Chapters 9, 10 and 13](#).

References for [Chapter 19](#) Copying without understandings

1. The Fifth Discipline – Peter Senge – Century Business

The most successful organizations of the future will be learning organizations. The organizations that excel will be those that discover how to tap into their people’s commitment and capacity to learn at every level in the company.

2. The Fifth Discipline Field Book – Peter Senge & others – Currency Doubleday

An extension of the above book concentrating on how to make the above ideas work.

3. Out of the Crisis – Edwards Deming – Cambridge University Press

This book provides a full account of Deming's thinking on the primacy of management's role in improving quality and productivity. He demonstrates what managers do wrong and how costs, dependability and quality must be improved. This is not just another manual of techniques; Deming provides a theory of management that gets to the roots of the problems of industrial competitiveness, which face management today.

4. The New Economics – Edwards Deming – Massachusetts Institute of Technology

The aim of this book is to provide guidance for people in management to successfully respond to the myriad changes that shake the world. Transformation into a new style of management is required. The route to take is what Deming calls profound knowledge – knowledge for leadership of transformation. Transformation is not automatic. It must be learned; it must be led.

5. The Human Side of Enterprise – Douglas McGregor – Penguin Books

The landmark book that encapsulated the X & Y theory concepts of management. The book portrays two contrasting theories based on managements perception of its workforce. X theory where employees are seen as inherently lazy, and Y theory where it is recognized that work is a need, we are trustworthy and like responsibility. The structure evolving from these two contrasting perceptions is very different. X theory spawns a very hierarchical command and control culture while Y theory leads to an enabling and trusting atmosphere. McGregor's argument is that we capture so very much more of the talent and creativity of staff from Y theory perceptions.

6. Unleashing Intellectual Capital – Charles Ehin – Butterworth-Heinemann

The organization that has become a world leader in applying the type of thinking McGregor described as Y theory (see above) is W.L. Gore. They are one of the most innovative companies in the world as well as regularly being recognized as one of the best companies to work for. Professor Charles Ehin was the Dean of the Gore School of Business at Westminster College. And in taking McGregor's thoughts further it reveals breakthrough principles for structuring Knowledge Age organizations. It offers a comprehensive framework to generate sustained levels of involvement and commitment.

7. The Seven Habits of Highly Effective People – Stephen Covey – Simon & Schuster

With penetrating insights and pointed anecdotes Covey reveals a step by step pathway for living with fairness, integrity, honesty and human dignity – principles that give us security to adapt to change and the wisdom and power to take advantage of the opportunities that change creates.

8. Mastering Statistical Process Control – Tim Stapenhurst – Elsevier Butterworth-Heinemann

A book full of case studies demonstrating the importance of a basic knowledge of SPC when interpreting data. It provides the basis from which we can secure knowledge from data so that we can predict future outcomes. A practical book aimed predominantly at the service sectors.

9. Beyond Negotiation – John Carlisle & Robert Parker – John Wiley & Sons

We all work in a system – the supplier, the organization and the customer – our future lies in maximizing the system for everybody's benefit. If we compete within that system all we are doing is creating the opportunity for waste and conflict. John Carlisle has been awarded his doctorate for his work in the field of co-operation

10. Punished by Rewards – Alfie Khon – Houghton Mifflin & Co

Our present-day culture wishes to control our staff and our children through rewards and punishment – unfortunately this has a detrimental effect on the motivation of our people.

11. Maverick – Ricardo Semler – Arrow

This is the inspiring story of a young man who took over his father's ailing company based on hierarchical thinking and transformed it into a company based on trust. A company where true democracy is approached.

12. Deming's Profound Changes – Kenneth Delavigne & Daniel Robertson – PTR Prentice Hall

This book helps us appreciate the origins of our management thinking which is still very much based on the teachings of Fredrick Taylor (1900s) – or worse still the corruption of Taylor's concepts. It expands on the transformation of our thinking that we should address if we are to compete in the modern world.

13. Future Edge – Joel Baker – William Morrow

In order to solve major problems facing us today, it will be necessary to break out of our existing paradigms or mindsets. This book aids that process.

14. Fourth Generation Management – Brian Joiner – McGraw-Hill

The first generation of management is simply doing it oneself. The second is instructing in detail others to do the work. The third is setting targets and allowing the employees to develop their own methods – it seeks to make employees accountable, this method is susceptible to distortion of the figures. The fourth generation of management is based on leadership understanding, through quality as defined by the customer, scientific method that includes the analysis of variation and team spirit both within and beyond organizations.

15. Leadership and the New Sciences – Margaret Wheatley – Berrett-Koehler

The book explores how new discoveries in quantum physics, chaos theory and biology contribute to our thinking of how we organize work, people and life.

16. A Simpler Way – Margaret Wheatley – Berrett-Koehler

The recognition that as humans we have the ability to self organize. We therefore need far less supervision and direction than is commonly assumed. It is a book full of hope.

17. Seeing Systems – Barry Oshray – Berrett-Koehler

Oshray weaves a remarkable explanation for the subtle, and largely unseen, ways in which our structures influence our behaviour.

18. Good to Great – James Collins – Century

Following the success of “Built to Last” James Collins collected a team to research, over a five year period, 1,435 fortune 500 companies on the underlying mechanisms that made some of these companies emerge from being good to being great. This insightful book is the outcome of that research.

19. The Living Company – Arie de Geus – Nicholas Brealey

At the heart of this book is a simple question with sweeping implications: What if we thought about a company as a living being? From the basis of this question and his lifelong commitment to Shell, de Geus develops his theme of living companies.

20. Guns, Germs and Steel – Jared Diamond – Vintage

The book is nothing less than an enquiry into the reasons why Europe and the Near East became the cradles of modern societies. Diamond shows definitively that the origins of this inequality in human fortunes cannot be laid at the door of race or inherent features of the people themselves.

He argues that inequality stems instead from the differing natural resources available to the people of each continent.

21. The Scottish Enlightenment – Arthur Herman – Fourth Estate

Herman, an American with no particular connection to Scotland explores the enlightenment years of eighteenth-century Scotland with such names as David Hume, Adam Smith and James Watt. He traces how we developed a love of learning, and how that learning combined a rigorous understanding of theory and the nuances of the application of that theory. From this foundation, and through the fact that we Scots have travelled the world, we have produced an idea of modernity that has shaped much of civilization as we know it.

22. The Power of Learning – Klas Mellander – American Society for Learning

A book on how we learn. It has major implications, therefore, on how we teach.

23. Profit beyond Measure – Tom Johnson & Anders Broms – Nicholas Breley

Starting from a background in accountancy the authors are highly critical of the present practice of using figures to ‘manage by results.’ They recognize that we can only measure 5% of the whole. Using car/vehicle manufacturers Toyota and Scania they develop their argument to manage the whole system by seeing the organization as a living system. Their concept is “Managing by Means” guided by precepts that guide all living systems: self-organization, interdependence and diversity.

24. Birth of the Chaordic Age – Dee Hock – Berrett-Koehler

Dee Hock was the founder and CEO of VISA. He makes a compelling case that all organizations are fundamentally based on flawed seventeenth century concepts that are no longer relevant to the vast systemic social and environmental problems we experience daily. He delineates a path to organizations he believes can harmoniously blend chaos and order, competition and cooperation.