Analytics for Leaders

Analytics for Leaders provides a concise, readable account of a
complete system of performance measurement for an enterprise.
Based on over twenty years of research and development, the system
is designed to provide people at all levels with the quantitative
information they need to do their jobs: board members to exercise
due diligence about all facets of the business, leaders to decide where
to focus attention next, and people to carry out their work well. For
senior officers, chapter openers provide quick overviews about the
overall approach to a particular stakeholder group and how to
connect overall performance measures to business impact. For
MBA students, extensive supporting notes and references provide
in-depth understanding. For researchers and practitioners, a generic
statistical approach is described to encourage new ways of tackling
performance measurement issues. The book is relevant to all types
of enterprise, large or small, public or private, academic or
governmental.

Additional resources including downloadable articles are available
at www.valuemetrics.com.au.

NICK FISHER is the founder of ValueMetrics Australia, an enterprise
that carries out research and consulting primarily in the area of
Performance Measurement. Dr. Fisher carries out R&D projects
around the world, with particular emphasis on improving quantitative
reports to boards and top management. His more recent work has
focused on measuring Research Quality and measurement of public
policy. He is also a Visiting Professor of Statistics at the University
of Sydney.

Analytics for Leaders

A Performance Measurement System for Business Success

N. I. FISHER

University of Sydney and
ValueMetrics Australia

CAMBRIDGE
UNIVERSITY PRESS

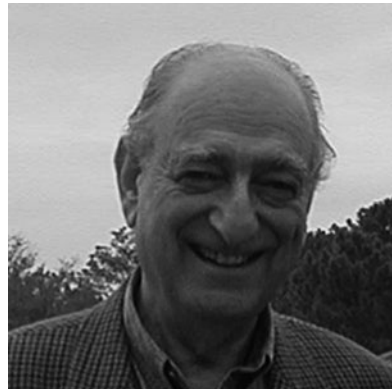## CAMBRIDGE
UNIVERSITY PRESS

To Homer Sarasohn and Myron Tribus
Wise men whose work transformed countries, industries and cultures

Generous and steadfast friends

Homer Sarasohn, 2001. Photograph:
Lisa Sarasohn

Myron Tribus, 2001. Photograph:
Michael King

Contents

Exhibits

XII EXHIBITS

Preface

Day after day, day after day,
We stuck, nor breath nor motion;
As idle as a painted ship
Upon a painted ocean.

"The Rime of the Ancient Mariner" – Samuel Taylor Coleridge

THE NEED FOR ANALYTICS

Is that how your enterprise is going – or rather, not going? Which lever should you pull to give it the best impetus? Why this lever and not another lever? *How will you decide? And how will you know whether you've changed things in the way you intended?*

The purpose of this book is to describe how to obtain performance measures that will provide you with a sound basis for answering these questions: measures that can help you focus your efforts on improvements likely to have the biggest impact on your most pressing business issues – how to increase market share, how to reduce staff turnover, how to work better with suppliers, how to build community support for a development.

Most leaders now recognize that it isn't good enough to rely simply on some financial measures supported by a few indicators such as market share. More information is needed if companies – let alone, countries – are to guard against the sorts of risks that resulted in the 2007–2008 Global Financial Crisis. And there are numerous other risks that can also cause the downfall of the most well-intentioned leader who hasn't got timely and actionable data.

If you're on the Board of Directors, you are indeed *obligated* to exercise due diligence with the whole spectrum of risks confronting your enterprise in order to assure good corporate governance.[1]

The other side of this coin is that by harnessing the power inherent in systematic gathering and analysis of appropriate performance data, you can make a critical difference to the competitive position of your enterprise. Recent books by Thomas Davenport and co-workers[2] are full of examples showing how enterprises are increasingly turning to the use of data and associated *business analytics* to achieve greatly enhanced performance. In the words of Davenport and Harris:[3]

> By analytics, we mean the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions.

And, in a discussion about practicing "Big-Picture Thinking," they comment:

> High-potential targets for business analytics vary by industry dynamics and, of course, by how firms add value in the marketplace.[4]

This provides a natural launching platform for our discussion.

FOCUS ON STAKEHOLDER VALUE

Our starting point will be to define and measure the *Value* that your enterprise delivers to your stakeholders; that is, to each of the groups whose support you need to survive and thrive.

Regardless of your line of business, you need to keep the owners happy with their investment. And then there are the people you'd like to have as customers; the people you'd like to employ; the key partnerships and suppliers you need to run your business; and, finally, the wider community, whose sanction for a proposed course of action may make or break your company.

In other words, we start by describing and measuring *outcomes for stakeholders*.

However, these outcomes resulted from actions you took in the past. What you really need is a set of lead indicators that tell you where the enterprise is actually heading.

The *measurement system* we describe seeks to align the people and processes in your enterprise with the goal of delivering superior Value to all your key stakeholder groups. It does this by separating the system into two basic components:

1. a performance measurement *framework*, that defines the sorts of measures that are needed at each level of the enterprise, to help people do their jobs well; and
2. a process for *managing stakeholder value*, that helps you put these measures in place and use them to best effect.

Of course, like any model for what happens in an enterprise, this model for a performance measurement system is a considerable over-simplification of reality. Nonetheless, it may help guide our thinking in a usefully structured way. As the eminent statistical scientist George Box famously observed:

> All models are wrong but some are useful.

Davenport and co-workers, in discussing how to overcome "sticking points" to embedding analytics in business processes, suggest that the key to this is

> to get data assets well organized into a robust representation of the business.[5]

We contend that the process of managing stakeholder value described in the following pages provides a natural organizing principle for this purpose. From a different perspective, it is also a natural generalization of Richard Normann's observation that[6]

> the logic of value production in society and in service industries is changing at a rapid rate.

Sutcliff and Donnellan noted that[7]

> High performance businesses have a very strong value orientation. They firmly ground their strategy in driving value and the key

result measures of performance are linked to total returns to shareholders. They clearly understand their value drivers and have a proven process for identification and prioritization of the key causal drivers. They focus on the few critical drivers of value and causal information necessary and sufficient for managing their business.

The material in this book is very much in this spirit. The overall system is described in three basic steps:

1. Stakeholder analysis: who are the main groups and sub-groups of stakeholders for an enterprise?
2. What are the different types of metrics that are needed, at different levels of the enterprise, from the Board to the shop floor, to help people do their jobs?
3. How can you go about identifying the particular metrics needed for your enterprise?

HOW TO READ THIS BOOK

The book is designed to be read in different ways, as shown in Exhibit 0.1:

EXHIBIT 0.1. How to read this book. Depending on your purpose, you can get an overview of the system, or gain a fuller understanding of how to do it, or go into the operational aspects.

Purpose	What to read
1. To understand what it's about	Chapters 1–4
	Part I of each of Chapters 5–8
	Chapters 9 and 10
	Appendix: Don't be fooled by statistics
2. To understand how to do it	Chapters 1–10
	Appendix: Don't be fooled by statistics
3. To understand the operational aspects	Chapters 1–14
	Appendix: Don't be fooled by statistics

The first ten chapters describe the system: what it is, how it works, and examples of its use. If you simply want an overview, just read Part I of each chapter when you get to Chapters 5–8, which are particularly relevant to leaders interested in the benefits to be gained from a properly designed performance measurement system.

Chapters 10–14 look at how to start implementing the performance measurement system in your enterprise. They are particularly relevant to the person who is told to "Make it happen" and who needs to appreciate the practical aspects in some operational detail.

USE OF CASE STUDIES

Case studies have been selected to illustrate different aspects of the methods presented. For example, a case study relating to managing Customer Value focuses specifically on the critical issue of finding good operational internal metrics. On the other hand, a case study on managing People Value illustrates the power of continuously acquiring stakeholder data in terms of enabling timely decisions.

OTHER APPROACHES TO PERFORMANCE MEASUREMENT

The topic of performance measurement[8] has received some attention in the management literature, without generating the range of competing approaches that one might have expected. There are many more articles warning about the hazards of poor performance metrics than articles recommending approaches to avoid peril.[9]

The simplest approach is to look for a very small set of generic metrics that can be used throughout an organization or, equivalently, at all scales of measurement from micro to macro. Fisher and Nair observe that[10]

> The power of this concept is that it could be used to focus communication at all levels of the organisation: in the words used by a senior industry figure to one of the authors, "I want to be able to drill down through management layers with a single metric, to find out what's causing a problem"

and discuss two examples: the Motorola metrics of cycle time and "Six Sigma"; and Eliyahu Goldratt's advocacy of three key performance measurements: throughput, inventory and operating expense.[11] However, Fisher and Nair conclude from their discussion that

> the search for a single generic measure is almost certainly going to be fruitless; and once more measures are included, the whole rationale of the approach is lost.

Neely and co-workers[12] provided a brief overview of performance measurement *frameworks* developed over the last quarter-century. The most popular proposal has been due to Robert Kaplan and David Norton, in a stream of publications relating to the Balanced Scorecard.[13] As originally described, their approach defines four *perspectives* – Customer, Internal, Innovation and Learning, and Shareholder[14] – and posits "a set of measures that gives top managers a fast but comprehensive view of the business. The balanced scorecard includes financial measures that tell the results of actions already taken. And it complements the financial measures with operational measures...that are the drivers of future financial performance."

The *system* described in this book accommodates the Customer and the Shareholder (or more generally, the Owner) perspectives directly, and adds the perspectives of three other critical stakeholder groups, while treating the operational aspects in another part of the system. Atkinson and co-workers, in discussing a similar stakeholder approach to strategic performance measurement, commented on the "incomplete" nature of the Balanced Scorecard as a basis for a performance measurement system.[15,16]

Put another way, our summary reports for enterprise leadership are comprehensive in terms of coverage of stakeholder interests, and are confined largely to strategic and tactical metrics. Generally speaking, it is not the responsibility of top management to be monitoring operational measures, unless they are mission-critical.

There are other published models[17] that address aspects of a performance measurement system, but without capturing the full intent of the two components – a Performance Measurement Framework and a process to populate the Framework with metrics and use them to best effect.

As recently as 2007 there was still debate in the literature about the definition of a business performance measurement system.[18] For our purposes, it's simple: it is a system that provides the people in an enterprise with the quantitative information that they need to do their jobs well.

WHAT THIS BOOK IS AND IS NOT

This is *not* a book on how to be an effective leader. Leaders need the knowledge and information we describe, but the book is not about leadership skills, methods, approaches, and so on.

We do *not* get into the world of designing complex databases and information systems. However, the system we describe does call into question the content of large multi-national corporate IT systems. It implies that data need to be arranged into a logical cause-and-effect hierarchy, and so has implications for the design of databases. It can serve as a checklist to evaluate your current information systems.

The book is concerned with how to identify, obtain and present appropriate quantitative information to inform decision-making, an essential requirement if leaders are to be effective.

We are talking about creating Value for everyone, which we see as the purpose of an enterprise. But what you cannot measure, you cannot create and then manage. We describe what you have to measure to create and manage Value. In fact, we go further: we claim that only the best Value wins in each of the markets you compete in. We show how to measure and track *competitive* Value.

Finally, we show how all Value is judged between what one gets versus what one gives, and how that can be broken down into very understandable, measurable and manageable levers and sub-levers. This means that the leadership team can make sound decisions about

where to spend the scarce time, energy, money and resources of the enterprise.

INTENDED READERSHIP

We believe that this book will be of interest – and value! – to a number of audiences.

Firstly, we trust that leaders will find it helpful in understanding what information they need to see regularly, to help their enterprise navigate an increasingly competitive environment with an increasing requirement to manage a wide range of risks.

Next, we have sought to provide guidance to people charged by their leadership with implementing performance measurement in their enterprise.

Another important audience relates to research, teaching and learning:

- Methodological aspects will be of interest to academics and practitioners in areas such as Business Administration, Management, Marketing, Human Resources (HR), Statistics, Environmental Monitoring, and Science Communication.
- Experience has shown that the material is well suited to workshops and executive education programs of the sort run by business schools.

The basic approach to adopting the Performance Measurement Framework has been trialed extensively and successfully with owners and managers of small and medium enterprises (SMEs).

NOTES

1 Although sets of Corporate Governance principles vary from country to country in their emphasis on shareholder interests vis-à-vis those of other stakeholders (typically, they talk about "respecting the rights" of shareholders compared with "recognizing the legitimate interests" of other stakeholders), they generally include mention of all types of stakeholder. This implies a full spectrum of risks to be managed.

2 Davenport and Harris (2007), Davenport *et al.* (2010).

3 Davenport and Harris (2007), page 7.

4 Davenport *et al.* (2010), page 77.

5 *Ibid*, page 133.

6 Normann (2001), page 19; earlier (page 11), Normann observes that: "value creation in today's economy is increasingly related to intangibles, and managers who do not have even a systematic language for looking at those processes will inevitably lag behind."

7 Sutcliff and Donnellan (2006), Chapter 5. Chapter 5 is entitled "*Enterprise performance management: Transforming finance in the journey to value-based management.*"

8 Neely (2007), quoting from the Preface to the earlier (2001) edition of an edited volume on performance measurement, talked about: "New reports and articles on the topic [of performance measurement] . . . appearing at a rate of every five hours of every working day since 1994." Neely then provided an updated assessment that as of September 2006, there were: "over 50,000,000 websites dedicated to performance measurement. . .." These include the very considerable literature relating to Quality Management or Business Excellence frameworks, indeed a very active area for many years, but very different from the topic addressed in this book. Nonetheless, the estimate appears to be somewhat higher than one might expect. The contributors to this book provide a number of references to the literature, but the volume as a whole does not constitute a complete coverage of the topic.

9 See *e.g.* Likierman (2009).

10 Fisher and Nair (2008).

11 Goldratt (1990).

12 Neely *et al.* (2007).

13 The original article was Kaplan and Norton (1992), and many subsequent books and journal articles (*e.g.* Kaplan and Norton 1996a, 1996b, 2006). Neely *et al.* (2007) reported that: "By 2001 the balanced scorecard had been adopted by 44 percent of organizations worldwide" although no data were provided to support such a remarkable statistic.

14 Subsequent publications by these and other authors have elaborated this approach in a variety of ways, for example, by describing scorecards that include environmental and people perspectives. For example, Huselid *et al.* (2005) describe an HR scorecard. However, that is as far as it goes.

There is no proposal for an overall system that helps put metrics in place that support priority-setting.

15 Atkinson *et al.* (1997) stated that:

"While we have no basic comment with this process approach to performance measurement, we feel that it is incomplete because it fails to:

- Adequately highlight the contributions employees and suppliers make to help the company achieve its objectives.
- Identify the role of the community in defining the environment within which the company works.
- Identify performance measurement as a two-way process, which enables management to assess stakeholders' contributions to the company's primary and secondary goals and enables stakeholders to assess whether the organization is capable of fulfilling its obligations to them now and in the future."

16 Various other writers have also noted the need to augment the scope of the Balanced Scorecard in terms of providing a Performance Measurement Framework, *e.g.* Otley (2007) and Neely *et al.* (2007).

17 Parmenter (2010) has developed an approach to Key Performance Indicators (KPIs) based on the Balanced Scorecard. The approach is almost completely *opposite* to the one advocated in this book. To take just two of the more striking examples:

1. "Many management books that cover KPIs talk about 'lead and lag indicators'; this merely clouds the KPI debate. Using the new way of looking at performance measures, we dispense with the terms *lag* (outcome) and *lead* (performance driver) indicators."
   This statement is completely discordant with best practice management frameworks. Parmenter's indicators depend significantly on measuring activity. This is a well-known trap in the Quality Management literature (and indeed, the literature for measuring research quality) as such measures are manipulated all too easily and can drive undesirable behaviors.
2. There is no focus on business processes in the book, let alone mention of the need to focus on improving business processes in order to improve KPIs.

18 Franco-Santos *et al.* (2007).

Acknowledgments

The origins of this book date back to the early 1990s, when I was confronted with the issue of what sorts of quantitative information I needed to run my research group.

I had encountered a compelling analogy: when I went to see my doctor for a check-up, he took a relatively small number of measurements, on the basis of which he was able to tell me about the current state of my health, where I was heading and what I needed to change to improve it. An organization is hardly a more complex organism than a human body. Why wasn't there any comparable information?

Thus began a lengthy odyssey. Initial advice from the leading Australian thinker in Quality Management, Norbert Vogel, led me to the United States to meet Myron Tribus; and through Myron, Homer Sarasohn, and Yoshikazu Tsuda in Japan; and then to Stockholm and Paris to talk to Richard Normann and his colleagues. An unrelated comment from my friend and colleague Bill Cleveland led me to meet Ray Kordupleski. In their various ways, these people had transformed industries, countries and business cultures. Each asked me difficult questions; each was remarkably generous with his time and ideas. And out of all these discussions emerged the overall shape of a performance measurement system centered on Stakeholder Value.

A basic framework was developed while I worked for CSIRO, and thoroughly tested by CSIRO colleagues. After I left CSIRO in mid-2001, the research into identifying and validating Stakeholder Value models was evaluated in case studies with a wide variety of businesses, large and small. Many people provided invaluable assistance along the way.

Clem Doherty suggested that the best way to get the system publicized was to write this book. Lourdes Llorens, Stephen Sasse and Brendan Donohue contributed extensively to validating the People Value model; Tony Peacock supported the development and testing of the Community Value model; Tony Press and Tessa Jakszewicz agreed to trial the Partner Value model; Ian Pollard was an invaluable sounding board when I was developing the concept of Owner Value, with David Gonski, John Deane, Greg L'Estrange, Russell Fountain, Frank Gooch and Peter Wolnizer also providing critical input.

Frank Blount, Robert Burke, Bill Cleveland, Tom Davenport, Peter Fitzgerald, Debby King-Rowley, Ray Kordupleski, Greg L'Estrange, David Morganstein, Ian Pollard, Stephen Sasse and Norbert Vogel provided insightful comments on various drafts of the book. Dan Lunn provided essential coaching in the use of CorelDraw to produce the exhibits. Michael King and Lisa Sarasohn kindly provided two photographs for the dedication.

Julian Cribb, Alan Lee, Ray Kordupleski, Peter Salmon and Norbert Vogel have, in their various ways, been excellent collaborators throughout the development of the research and the implementation and testing of the results in case studies.

To all these people, I offer my sincere thanks. Without their assistance, the system wouldn't have been created. Of course, any shortcomings in the resulting book are present despite their efforts.

I have made extensive use of Fisher Library at the University of Sydney, especially online. I thank the School of Mathematics and Statistics for my honorary appointment as Professor of Statistics since 2001, which has enabled access to this excellent resource.

I am most grateful to Paula Parish of Cambridge University Press for all her assistance in working with me to produce a convincing proposal to the Cambridge University Press Syndicate, and to Claire Poole for guiding the book through production. As always, Cambridge University Press has been an excellent collaborator in publishing ventures.

Finally, I thank my wife Lila for her love and support; firstly, for my decision to leave CSIRO so that I could test the methodology I was developing "in real life"; and secondly, because of the lengthy absences she has endured while I carried out the research for the book in various corners of the world.

<div align="right">

N. I. Fisher
McMahons Point
2013

</div>