Sample Chapter

The Intelligent Company

Five Steps to Success with Evidence-Based Management

BERNARD MARR

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CHAPTER 1

THE DATA–KNOWLEDGE CRUNCH

> Evidence-based management is a simple idea. It just means finding the best evidence that you can, facing those facts, and acting on those facts.
>
> **Professor Robert I. Sutton, Stanford University**

INTRODUCTION

To use a 19th century analogy to begin a book that explains how to overcome the 21st century challenges of converting ever-increasing amounts of data into insights that drive effective decision making might seem odd. But this is exactly what I will do, and for good reason.

Think of the California gold rush of 1849. People flocked en masse to that US state with the hope of making their fortunes from unearthing more of the gold that had just been found. A core tool, or technology, used by these prospectors was a gold pan,

which would sift out gravel, sand, sediment and so on, but retain the heavier gold nuggets. By panning the endless tons of worthless silt, the prospectors hoped to find those few precious nuggets of gold that would make them rich men. A few did indeed become hugely wealthy, but most returned to their homes having either expended their investments without an adequate return (if any) or worse, bankrupt.

I now fast forward more than 150 years to the end of the first decade of the 21st century. Switching attention from gold prospectors to business managers – and analysing how the latter are attempting to secure financial and other gains from their particular economic and business landscapes – leads to a quite disturbing observation: most are behaving, and deploying interventions, in ways that are in reality little different to the gold prospectors of old.

Within enterprises today, business leaders are simply expected to pan masses of essentially worthless, or background, data, with the hope that somehow they will discover those golden nuggets that increase the wealth of the enterprise.

THE DATA AND INFORMATION EXPLOSION

To explain: thanks to a decade or so of breathtaking advancements in information and communications technologies humans now live in a world in which data, in all its forms, can be transmitted simultaneously to large numbers of people across the world by a single click of a button – and at the speed of light. Moreover, as a result of equally stunning technological improvements in data storage, much of the mass of data transmitted between employees resides *somewhere* in the enterprise – in databases, computer systems or other devices.

Within most medium to large enterprises the amount of data being exchanged and stored on a daily basis is almost incalculable:

as is its value, because this data is the core material required for forming those 'golden nuggets' of insights that enable the enterprise leaders to make better decisions and so ultimately gain measurable and sustainable financial and other successes.

And we should not forget that having rapid access to the best information for decision-making purposes is not just about securing the obvious gains such as increased revenue, profit or market share. Today, it might be as much about ensuring survival in increasingly networked and connected globalized economies by getting early warning signals of potentially catastrophic market problems or other failings. For instance, the credit crunch of 2008 led to the collapse of long-established and venerable companies such as Lehman Brothers and many other household names would have been lost to history if it were not for large-scale financial interventions by national governments. The aftermath of the credit crunch has been the destabilizing of global markets and national economies. As much as anything these events shone a spotlight on what can happen when senior managers lack insight into what is happening in their organizations and markets and when bad decisions are being played out in fully networked, global, marketplaces.

Only the most foolishly optimistic would believe that in today's globalized economies the cataclysmic economic events of 2008 are isolated events. The implications are clear. Decision makers require a quality and accuracy of decision-support that is quantum leaps superior to a few short years ago. The rewards from getting those few golden nuggets of knowledge into the right hands at the right time might be astronomical.

THE FAILURE TO TURN DATA INTO MISSION-CRITICAL INSIGHTS

Yet, and despite the mouthwatering benefits on offer (be that growth or survival), few organizations are deploying practical,

reliable and replicable processes for unearthing those mission-critical insights. Research into the working practices of most organizations and their managers confirms that the 'gold prospector' analogy holds true. Many organizations are content to hoard data, in the mistaken belief that simply having the data available is in and of itself value-adding, leaving it up to individual decision makers to pan for those golden nuggets. Management writer David Apgar is correct when he says in his book *Relevance* that although new technologies, such as faster processors, bigger storage and optical fibres have made data storage easier, relevance has become less important: 'Cheap information has tempted us to neglect relevance and led us into some bad habits,' he writes (Apgar, 2008).

But not all organizations have fallen into bad habits. As one example, a global study (The Hackett Group, 2006) found that those finance organizations that were judged as world-class EPM (Enterprise Performance Management) performers generate significantly less reports than the non-world-class group – namely 691 reports per year per US$ billion in revenues compared to 1474, and the reports were also much shorter.

On first reading it appears that the world-class group was less productive and less value-adding than their non-world-class counterparts. However deeper analysis tells a very different story. The finance staff of the world-class group spent considerable time ensuring that the reports that they provided to business leaders focussed on the critical information that was required for decision-making purposes. They weren't just throwing a mass of data at business leaders with the instruction to besieged managers that somewhere in the mass of pages delivered would be something of value. So, the unwritten message is that managers should get their knowledge prospecting pans out.

The world-class group recognized that they have a core responsibility to apply their analytic skills in the translation of raw data into knowledge. And the rewards to their firms of doing

so were considerable. Over a three-year period the world-class group generated industry-relative equity returns that were more than twice that of the non-world-class group (The Hackett Group, 2006).

Research by the management consultancy Accenture confirmed the likelihood of greater stock market returns as a consequence of better analytics (Harris and Davenport, 2007). A survey of 371 companies found that 65% of top performers said that they had significant decision-support or real-time analytical capabilities – versus 23% of low performers. The same study found that 40% of top performers use analytics across the whole organization compared to 23% of low performers.

Yet, if organizations are today struggling to extract the greatest competitive benefits from their available data, there is no doubt that the scale of the challenge will grow significantly going forward, as year on year our capabilities to store and communicate data increase exponentially. To illustrate, as a result of the masses of data that it can access through myriad information and communication channels, the typical weekday edition of *The New York Times* contains more information than the average person was likely to come across in a lifetime in seventh-century England. However, research predicts that by the end of 2010 the world's information base will be doubling in size every 11 hours (therefore, more than twice in each and every day!).

Humans are experiencing an almost unimaginable information explosion. We will soon reach the stage where it will be virtually impossible to point to a subject or topic for which there is a lack of data (although that does not mean that people will have articulated answers to the pressing questions related to those subjects/topics, which is a central argument of this book).

What we are witnessing within most organizations, and across all sectors and industries, is that decision makers are being bombarded by an ever-expanding supply of data. This is placing them and their organizations under great strain, and led to what can be

termed 'the knowledge crunch'. This term suggests the organizational paralysis that is being experienced as a result of possessing large amounts of data, but being incapable of converting this data into the key information required to support effective decision making. It is safe to argue that although most organizations are drowning in data they are thirsting for the relevant information to support key decisions.

Put another way, the more data that is available the easier it is to miss the most crucial bits of information being sought. Most readers would, at some time, have completed a Google or similar search and spent a significant amount of time in an increasingly frustrating hunt through many and ultimately irrelevant links before finding that specific piece of information they were looking for. The fact is, the required information was there, it was just hidden.

INVESTMENT IN BUSINESS INTELLIGENCE

Of course, most business leaders are acutely aware that they might have somewhere in their organizations the data or information that they require and that it is simply hidden away in a system, database or some other storage facility. And most are equally and painfully cognizant of the fact that as they see their information stocks snowballing and as the amount of data that is gathered grows, there is an urgent need to be able to analyse that information in a way that can add value and bring competitive advantage.

Most leaders, however, would acknowledge that analytic skills are in short supply, as confirmed by research evidence. A recent global survey found that more than half of organizations (59%) believe that they do not have sufficient capabilities to analyse comprehensively their data, while as many as 87% feel that their analysis capabilities need to be improved (Marr, 2008).

As a matter of urgency, organizational leaders are asking themselves a question of strategic importance: how to retrieve and make strategic, competitive sense of the mass of data that they possess or could access. With an acknowledged lack of adequate business analytical capabilities, many organizations have turned to information technology (IT) solutions in the belief that this will answer the question and therefore solve their data and analytics problems. In 2007 alone, organizations spent more than $4 billion on licence revenue for so called business intelligence tools (software applications that allow people to analyse data; see Box 1.1 for a definition of business intelligence and other key terms).

Indeed, the world's leading IT research and advisory company Gartner (2008) reported that business intelligence was the number one technology priority for the third year in a row, and that it is seen as supporting the top three business priorities of improving business processes, attracting and retaining new customers. Clearly,

Box 1.1: Defining some key terms

- Data comes in myriad forms, including numbers, words, sounds or pictures but without context (e.g., 15/3, 5, 68).
- Information is a collection of words, numbers, sounds or pictures that have meaning (e.g., on the 15th March at 5pm we were all at 68 Victoria Street).
- Knowledge is where we take in and understand information about a subject that then allows us to form judgements in order to make decisions and act on that knowledge. We do this by using rules about the world that we worked out through having lots of information from the past.
- Business Intelligence refers to technologies, applications and practices for the collection, integration, analysis and presentation of business information.
- Analytics refers to the use of data and evidence, statistical, quantitative and qualitative analysis, explanatory and predictive models, and fact-based management to drive decision making.

business leaders firmly believe (or at least hope) that the implementation of business intelligence tools will resolve pressing business issues.

In spite of their massive investments into technological solutions, there is little doubt that organizations are still failing to convert data into strategically valuable knowledge. The fact is that software alone will not solve the decision-support crisis that organizations are facing, and neither should they expect it to do so. As I explain in this book, technology is simply an enabler of the data to knowledge metamorphoses.

To be fair, it is unsurprising that organizational leaders can be seduced into believing that IT can resolve many of the issues that give them sleepless nights. As far back as 1963 an article in *Business Week* predicted that, 'the great day – when all the information for solving a management problem is only a push button away – is closer than you think.' More than 45 years later we are still waiting for this 'great day' to arrive. Although the sensible among us realize that it never will, it is easy to see from the marketing literature that supports many of the business intelligence applications why many people might believe that analytics-related questions will indeed be answered by the simple pressing of a button.

You should also bear in mind that those at the top of organizations are experiencing IT as a 'second language' and have had to learn how it can be most effectively applied within organizations while the relevant technologies themselves were evolving at breakneck speed. When most of today's senior managers entered the workforce, technology was little more than a mainframe computer that lived in a big room somewhere in the organization that only a few made use of or could understand. Personal computers might have been in the early stages of appearing on the desktop, but connective technologies such as the Internet and email were still unheard of outside of limited academic and military fields.

Those entering the workforce today, however, have a different story. They are experiencing technology as a 'first language', and

are as fluent in the language of technology as they are in their spoken language. When these employees reach senior positions they will be well aware of the shortcomings of technology (or rather what it cannot do or should not be expected to do), irrespective of how advanced technological capabilities are at that time: and we can have little doubt that they will be extraordinarily advanced.

EVIDENCE-BASED MANAGEMENT

Rather than being deployed in isolation, to be fully effective IT and applications have to be used in close alignment with the business goals and the information and analysis needs of the people in the organization. Such alignment creates a dynamic in which it is much more likely that the right management decision can be made because technology can be used to facilitate the answering of focused performance questions and the solving of specific business problems. And the best management decisions tend to be those that are supported by relevant facts and insights. This is where Evidence-based Management (EbM), the focus of this book, comes in.

EbM is an approach used by a growing number of leading organizations (such as Google, Capital One, Harrah's Entertainment and Tesco, to name but a few that I highlight within the book) to ensure that they collect the most relevant information to support the key decisions. These companies are doing much more than just collecting and storing data and information in large quantities. They are building their competitive strategies around data-driven insights. Babson College Professor Thomas Davenport, a leading thinker in and exponent of evidence-based approaches to management, explained that such organizations are becoming 'analytics competitors' (Davenport, 2006). He urged business leaders to

> Use sophisticated data-collection technology and analysis to wring every last drop of value from all of your business processes. With analytics, you discern not only what your customers want but how much they are willing to pay and what keeps them loyal. You look beyond your compensation costs to calculate your workforce's exact contribution to the bottom line. And you don't just track existing inventories; you also predict and prevent further inventory problems.
>
> **Davenport (2006)**

Davenport continued his 'call to arms', by exhorting organizations to

> Make analytics part of your overarching competitive strategy, and push it down to decision makers at every level. You'll arm your employees with the best evidence and quantitative tools for making the best decisions – big and small, every day.
>
> **Davenport (2006)**

Although the EbM idea is intuitive and straightforward, most organizations seem to struggle with three aspects: (i) collecting relevant and reliable information; (ii) finding relevant data among the overwhelming amount of data available to them; and (iii) turning the data into information and knowledge that allows them to act on it.

This book provides a step-by-step guide for overcoming these challenges. This is achieved by deploying a five-step EbM framework, which is broadly described in Chapter 2 (and summarized in Figure 2.1 on page 14), with each step fleshed out fully in subsequent chapters. In addition to being of value to large firms, the framework is equally relevant to small- and medium-sized firms that might not have a massive budget for the latest business intelligence tools but which are also facing even greater challenges in relation to skills shortage and the need for better decision making.

But at the outset, it should be stressed that EbM is not some new and complex business theory that is difficult to put into operation or that requires substantial consulting support to get

started and a well populated functional barony to maintain. Indeed Stanford University Professor Robert I. Sutton, another leading EbM proponent, rightly argues that 'Evidence-based management is a simple idea. It just means finding the best evidence that you can, facing those facts, and acting on those facts' (Sutton, 2009).

Evidence-based management in our private lives

When reflecting on Sutton's statement, readers might be struck by the fact that in essence EbM is little more than the commonsensical approach to decision making that most of us apply intuitively on a regular basis in our private lives.

As a matter of course, everybody systematically collects, analyses and interprets as much data as possible, or as necessary, in order to be comfortable that they are making the right and most appropriate decisions. As just one of limitless examples, consider purchasing a house. Collecting the requisite evidence for this decision might include looking at crime statistics for the neighbourhood in which the house is located, speaking to potential future neighbours and looking at the published ratings of local schools, the availability of local transport links and networks, as well as spending time in the house to ensure that it meets all our living requirements. With all the required evidence collected, a yes/no decision can be made that is based on the best available evidence.

As another example, consider purchasing a car; collecting the evidence here might include reading expert reviews of the car that you are interested in, speaking to people who drive that model and the consulting of statistics on, as examples, fuel consumption, safety ratings and performance, as well as test driving the car to ensure that it meets your needs for comfort and ease of driving.

In short, therefore, without thinking of it as advanced management best practice, most of us make decisions on a day-to-day basis using sound EbM principles, which we would rightly argue as being 'common sense'.

In essence, this book recommends taking effective decision-making approaches from our private lives and applying these within our working lives – oh, and underpinning this work-based decision-making process with powerful information technologies and applications to ensure that the evidence we collect is as robust, reliable and useful as possible. And once we have the insights, acting upon them.

CONCLUSIONS

Given the ever sharpening competitive and other pressures that organizations are facing in the early part of the 21st century, the time has arrived for a systematic, evidence-based approach to making decisions. The rewards for those organizations that inculcate such capabilities are as incalculable as might be the penalties for those that do not.

But succeeding with an evidence-based approach is not just about having business intelligence and analytics capabilities, although both are critical and indeed the core sub-components. Also required is an organizational culture that supports and values fact-based decision making, rather than decisions made purely on gut feel.

Importantly, a successful EbM implementation also requires an underpinning and far reaching mindset transformation from business leaders. Professor Sutton says that

> [EbM is not about] doing what everyone else does, what you have always done, or what you thought was true. It isn't an excuse for inaction. Leaders of organizations must have the courage to act on the best facts they have right now, and the humility to change what they do as better information is found. It isn't a new idea and isn't an original idea. Yet surprisingly few leaders and organizations actually do it – and those that do trump the competition.
>
> **Sutton (2009)**

CHAPTER 2

THE EVIDENCE-BASED MANAGEMENT MODEL

> Facts are stubborn things; and whatever may be our wishes, our inclinations, or the dictates of our passion, they cannot alter the state of facts and evidence.
>
> **John Adams (1735–1826), 'Argument in Defense of the Soldiers in the Boston Massacre Trials', December 1770**

INTRODUCTION

You have probably visited a doctor on many occasions. At these times you are sometimes fully aware of what the medical condition is (such as an infection) and the probable cure (such as antibiotics). There are other times, however, when you have a symptom, or range of symptoms, for which the underlying cause is uncertain, and this might trigger feelings of anxiety and deep concern. When such anxiety is present you rightly expect much more from your doctor than a cursory 'once over' and the writing of a

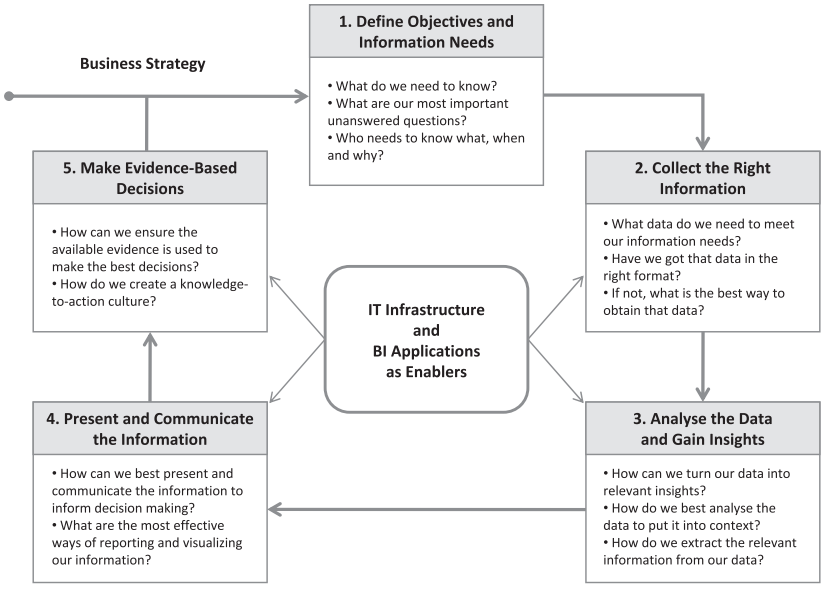

Figure 2.1: EbM model.

prescription. You expect a thorough medical examination that might include a range of relevant tests to rule out critical illnesses (and so allay your worst fears) followed by an accurate diagnosis and an appropriate and effective course of treatment.

Put another way, you look to your doctor to collect all the relevant and available *evidence* relating to the symptoms in order to identify the underlying problem and its solution. You also expect the doctor to assemble this evidence from a range of sources, such as talking to you (the patient), consulting your medical records, taking blood and/or tissue samples and comparing the findings with documented case histories, as well as making use of his or her own experience and past observations.

From the perspective of this book the medical analogy is appropriate. As well as continuing the argument from the previous chapter that evidence-based decision making is something that we all apply in our everyday lives (from buying a house to getting a proper medical diagnosis) without questioning the logic, and that

we assemble that evidence from a broad range of data and information points, the roots of EbM can be found in an established discipline from the medical world: evidence-based medicine.

EVIDENCE-BASED MEDICINE

Evidence-based medicine (which first appeared in the medical literature in 1992, but that can be traced back to ancient China) is, according to the Center for Evidence-based Medicine (2009), '… the conscientious, judicious and explicit use of current best evidence in making decisions about the care of individual patients'.

To demonstrate the strength of the link between evidence-based medicine and EbM, consider this quotation alongside that from Professor Sutton in Chapter 1: 'Evidence-based management is a simple idea. It just means finding the best evidence that you can, facing those facts, and acting on those facts.'

THE SCIENTIFIC METHOD

The core of the EbM approach is the application of 'the scientific method' to the decision-making process. The scientific method is a well-established practice that refers to techniques for investigating phenomena, acquiring new knowledge, or correcting and integrating previous knowledge. It is basically the universally accepted process on which any scientific knowledge is based and which humans have applied for hundreds of years to build our knowledge.

To be termed scientific, a method of inquiry must be based on gathering observable, empirical and measurable evidence subject to specific principles of reasoning. Although there is no definitive standard for 'the scientific method', the following eight-step

process offers a generally accepted guideline. Just think of the processes Galileo went through to develop the principles of flying or how Newton developed the laws of gravitation:

1. Define the question.
2. Gather information and resources (observe).
3. Form hypothesis.
4. Perform experiment and collect data.
5. Analyse data.
6. Interpret data and draw conclusions that serve as a starting point for new hypothesis.
7. Publish results.
8. Retest (frequently done by other scientists).

As well as medicine, the scientific method is used to guide other evidence-based approaches, such as evidence-based marketing, evidence-based education, evidence-based conservation and evidence-based software engineering. Within this book, I use these guidelines to inform my own evidence-based management model.

THE EbM MODEL EXPLAINED

In essence, the EbM model is a practical framework for the translating of raw data into information and then information into actionable knowledge. It has been designed as a tool to help busy executives overcome the myriad challenges they face as they pan for the 'golden nuggets' of knowledge from the fast flowing river of data that submerges them in their day-to-day work, as outlined in the previous chapter.

The EbM model has five steps, each of which is fully fleshed out in the following chapters:

1. What do we need to know?
2. Finding the evidence.

3. Getting the insights you need.
4. Communicating the message.
5. Making the right evidence-based decisions.

As can be seen from Figure 2.1, Steps 2–4 are underpinned by a 'sixth' step, or component, which is 'IT infrastructure and business intelligence as enablers'. As I explained in the previous chapter, and which I stress continually throughout this book, IT, and in particular business intelligence tools, are not in themselves sufficient for making meaning from the masses of data that reside in, and flow through, organizations. Many companies waste incalculable amounts of time and money in the search for a technology tool that will solve their data crisis. That said, IT and business intelligence are powerful enablers of the data to knowledge translation. Business intelligence tools are invaluable when effectively and properly coupled with analytical capabilities. Steps 1–5 of the EbM model provide the architecture to support an effective analytics process, as I summarize in the following sections.

Step 1: What do we need to know?

This step begins by fully understanding the strategic aims of the organization and keeping these as a steer for the whole EbM process. Only by keeping the strategic goals front-of-mind can we ensure that the analytics we generate are relevant to the organization's competitive positioning and support its greatest information needs.

With the core strategic goals identified we then need to ask the question: Based on those aims, what do we need to know? That is, whose decision-making process does the data to knowledge translation aim to support? Data customers can be internal such as the board of directors, senior mangers, the HR department, the marketing managers or a single person; or they can be external: regulators, capital markets, local communities or

suppliers. Such clarification is critical because different audiences have vastly different needs, even with relation to a single strategic objective.

With the audience identified, it is then important to consider for which performance-related questions they are seeking answers? Put another way, what problem are they trying to resolve?

Step 2: Finding the evidence

This step is where organizations ensure that they gather and organize the right data. The emphasis here is on meaningful and relevant data to meet the information needs identified in Step 1. Organizations need to assess whether the data needed is already held in the organization or how to devise a best way to collect the data.

Organizations must keep in mind that data is available in myriad formats: sounds, text, graphics, dates and pictures are as much data as are numbers. Moreover, there are many methodologies for collecting data, which can be quantitative in that they are concerned with the collection of numerical data or qualitative (concerned with the collection of non-numerical data). In building evidence, organizations should look to collect both objective and subjective data (as in the medical diagnosis example at the start of the chapter).

Data, however, is not information. Data in and of itself provides little value to organizations without interpretation and contextualization (that is, turned into information).

Step 3: Getting the insights you need

This step focuses on turning data into relevant insights. Data has to be analysed and put into context in order to extract informa-

tion. Analysis must support the core strategic objectives of the organization (as understood through Step 1). Central to the analytics process (and in line with the scientific method that informed the EbM model) is the running of experiments to test assumptions. This is central to the ability to prove or disprove a hypothesis.

Step 4: Communicating the message

This step focuses on communicating the information and insights extracted in Step 3. The main focus here is to get the information, in its most appropriate format, to the appropriate decision makers.

Throughout this book I stress the importance of keeping in mind the target audience and their needs when analysing data. But even with proper and tailored analysis in the engaging of the minds of the target audience, it is crucial that the visual presentation tools are clear, informative and compelling. You need to package information in a way that helps the recipients to understand it. Different types of graphs and charts can be used as appropriate, for example pictographs, tally charts, bar graphs, histograms, scatter plots, line graphs and pie charts. Moreover, it is important to use narratives that put context around and provide meaning to the data. Using graphs and narrative together enables the telling of the story, which neither approach can fully do in isolation.

Step 5: Making the right evidence-based decisions

Amassing knowledge, however insightful or compelling, in and of itself is of little value unless it is turned into action. Decisions have to be made and acted upon. Making this happen often requires a wholesale reworking of the process for turning knowledge into

action. This often needs a cultural transformation which includes, for example, ensuring the following:

- the organization has a passion for learning and improvement;
- there is an unswerving leadership buy-in to the principles of EbM;
- there are widespread analytical capabilities within the organization (and not just within a designated function, such as finance);
- there is a willingness to share information;
- EbM attempts are recognized and rewarded.

The five sequential steps of this framework provide a blueprint for evidence-based decision making. However, the logic of good evidence-based decision making is not just linear (from Step 1 to Step 5) but there is a feedback loop between the last and the first steps (from Steps 5 to 1). When learning has taken place and decisions have been made, they in turn inform future information needs.

CONCLUSIONS

This chapter provides an outline of the EbM framework. Each step has many sub-steps, which together provide a full picture of how evidence-based decision making is built into the cultural and structural architecture of the organizations. In the next chapter I look in detail at Step 1: identifying objectives and information needs.

As information and data volumes grow at explosive rates, the challenges of managing this information is turning into a losing battle for most companies and they end up drowning in data while thirsting for insights. This is made worse by the severe skills shortage in analytics, data presentation and communication.

This latest book by best-selling management expert Bernard Marr will equip you with a set of powerful skills that are vital for successful managers now and in the future. Increase your market value by gaining essential skills that are in high demand but in short supply.

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The five steps to more intelligent decision making are:

Step 1: More intelligent strategies

Step 2: More intelligent data

Step 3: More intelligent insights

Step 4: More intelligent communication

Step 5: More intelligent decision making

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Bernard Marr is a leading global authority and best-selling author on organisational performance and business success. He regularly advises leading companies, organisations and governments across the globe. He is acknowledged by the CEO Journal as one of today's leading business brains. Bernard heads up the famed Advanced Performance Institute, where he can be contacted at www.ap-institute.com.

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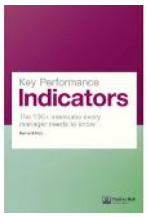

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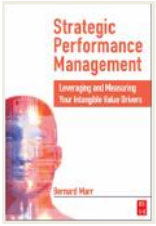

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