

Chapter I Part I

WHY CHANGE?

Everyone knows
the trouble
I've seen

‘Prediction is very difficult, especially if it’s about the future.’ Nils Bohr, Nobel laureate in Physics

What happens when forecasting fails – why forecasting is more important than ever – why we can’t blame ‘the Street’ for our failures – what managers think about forecasting – how traditional management models make things more difficult – common symptoms of a failing process – remedies that don’t work and one that does – what success looks like – and the benefits

Sometimes, as with the human body, you only recognize how a management practice contributes to organizational health when it fails. This is the case with forecasting; almost every economic crash or catastrophic business failure is accompanied by the lament ‘how come no one saw it coming?’

The birth of an empire

We open with two such stories. The first concerns the company founded by the Italian Irish inventor Guglielmo Marconi, the man credited with the invention of the radio. He first demonstrated the ability to send radio messages across the Atlantic in 1901, but his invention shot to fame when it was used to apprehend the wife murderer Hawley Harvey Crippen, after the captain of the ship carrying him and his new partner to Canada had radioed his suspicions of their identity to Scotland Yard. One hundred years later, at what turned out to be a particularly inauspicious time, the company bearing his name was preparing to celebrate the anniversary by launching a new £0.5m website commemorating the life and works of the great man. ‘We like to draw the parallel between the man 100 years ago and the company and its potential now’ said Peter Crane, the man behind the project (Solomans, 2001).

The company’s journey through the previous century however had not been straightforward. Marconi’s company had been acquired by English Electric in the 1940s, which was itself taken over by GEC in 1968. GEC was the creation of Arnold Weinstock, the son of an immigrant Polish tailor, who, over 40 years had presided over the rationalization of the British electrical industry. Weinstock was a notoriously meticulous and cautious man, poring over the numbers of his various companies and deals in his dingy Stanhope Gate offices, surrounded by trusted lieutenants. By the time he retired in 1996, he had built up a conglomerate with profits of over £1 billion on turnover of £11 billion. More to the point, he bequeathed a cash pile of £1.4 billion to his nominated successor George Simpson.

Weinstock divided opinion strongly. To many he was simply ‘Britain’s best manager’. To others he was a narrow-minded bean counter who had sucked all the life out of a major chunk of Britain’s industry, leaving the country ill equipped to exploit the opportunities of the new digital era.

Lord Simpson addressed the challenge of reversing this trend with gusto. He recruited John Mayo, a high flying merchant banker, sold off GEC’s unfashionable defense businesses and used the proceeds of this and the equally unfashionable cash mountain to buy Marconi (as GEC was now called) a stake in the new economy.

‘Simpson continued to buy telecoms assets as if they were going out of fashion’ BBC business pundit Jeff Randall drily observed. ‘Unfortunately for him they were’ (Randall, 2001).

A bubble bursts

The second, related, story is about the poster child for the new digital age: a company called Cisco. Founded by a husband and wife team in 1986 it had, in a

mere 14 years, become the world's most valuable company when in March 2000 its shares hit \$80 (50 times earnings). The engine of this growth was Cisco's dominant position in the switching technology underpinning the Internet. In 1990, there were 200 000 Internet hosts. By the end of the decade there were over 100 million.

Barely a year after this peak, however, Cisco's CEO, John Chambers, was having a miserable time. On May 10, 2001 he announced Cisco's first ever quarterly loss. The loss Cisco posted for Q1 was a massive \$2.89 billion on revenues down 30% on the prior year quarter, when sales had posted year on year growth of 70%. The decline was across all sectors and all territories. Over the next few months most of Cisco's competitors, customers and suppliers were to follow suit.

Chambers compared what had happened to a biblical disaster: 'this shows that a once in 100 year flood can happen in your lifetime. It is now clear to us that the peaks in this new economy will be much higher and the valleys much lower and the movement between these peaks and valleys will be much faster,' he went on. 'We are now in a valley very much deeper than any of us anticipated' (Abrahams, 2001).

The drop in the market was only half of the story, however. Based on over-optimistic sales forecasts Cisco had taken a gamble. To avoid losing sales because of a shortage of components, the company had bought stock ahead. The reason why Q1's results were so bad was that the company was forced to write off \$2.25 billion of excess inventory – bringing the total inventory the company carried down to a mere \$1.9 billion.

Chambers reported to analysts that visibility remained difficult. 'The suspicion remains' reported the *Financial Times* 'that visibility is fine; it is merely that management does not like what it sees' (Abrahams, 2001).

By the end of May Cisco had lost over 75% of its March 2000 value and 25% of its employees had lost 100% of their jobs.

The calm ... and the storm

On the day after Cisco's announcement, in Liverpool – home to one of Marconi's 70 odd factories – the visibility was also fine. The city was enjoying a spell of unseasonably hot weather and so management sent workers at the plant out to sunbathe on the lawns in front of the glass-fronted buildings of the Edge Hill factory. Talk was of the plane crash at the city's airport and the following day's football FA Cup Final, which featured one of the city's two big teams. What also

featured in conversations was the shortage of orders that had led to this unofficial break. 'There were simply no orders going through for hardware' reported one of the workers (Daniel and Pretzlik, 2001). This did not come as a surprise to employees of the plant. In the period January to March when the plant's major customer, British Telecom, spends most of its money, workers 'usually work around the clock, seven days a week because there is a flood of work'. But this year 'work dried up – it was already quiet over the Christmas period' reported Sue Tallon, a union representative at Edge Hill.

Management only seems to have noticed this much later. On April 9, senior management gave an upbeat presentation to union representatives at the Coventry plant. It employed 1200 people but was operating at below 50% capacity. In Italy, Elio Troilli, the head of the workers' committee for Marconi plants there, says they began getting reports of a slowdown in orders at the beginning of the year.

Marconi's management was having none of this negative thinking however. On April 11, the *Financial Times* ran an article with the headline 'Marconi starts an assault on doomsayers' (Daniel, 2001). 'We have not needed to change our guidance,' Mayo said to the FT reporter. 'If we had come out each month saying "we haven't changed our guidance" people would have thought we were off our trolleys.' He based his confidence on the company's limited exposure to alternative carriers and the US enterprise market, its focus on 'solutions' rather than 'products' and its dominant position in optical networking outside the US. 'The history books will probably write that we were Lucent's nemesis. Nortel and us have taken share from them.'

The company continued in this optimistic vein. At the annual shareholders' meeting on May 15, Lord Simpson commented that while the first half of the year would be flat 'we anticipate that the market will recover around the end of this calendar year'. On June 19, he told the FT that 'we have no reason to change our view of what we said a month ago' (Daniel *et al.*, 2001).

But, when the 'flash results' came into Marconi's new Mayfair headquarters at the end of June it was clear that performance in the first quarter of the financial year was not merely weak; it was disastrous. Mayo flew back from a sales trip to Italy on the morning of Tuesday July 3 to go through the figures with Steve Hare, the Finance Director. At 6.26am on the following day, Marconi announced the completion of the sale of its medical unit to Philips, the Dutch electrical group. Fifteen minutes later the shares of the company were suspended. At 6.53pm, the Board of Marconi issued a trading statement. Sales would be 15% below the level of the previous year and profits halved. Four thousand jobs would be lost. 'Normally,

at the end of June we would see a sudden uptick in performance as orders are finalized at the end of the quarter. Instead what we saw in fact was a downturn ... it did just happen that quickly' reported Lord Simpson (Daniel and Pretzlik, 2001).

The next day Marconi shares fell 54%. They closed at 101 pence valuing the company at £2.6 billion compared to £35.5 billion nearly a year earlier. By September analysts had concluded that the shares were 'virtually worthless' (McCarthy, 2001).

By Friday evening of that same week, Mayo had been forced to resign. The Chairman of Marconi, Sir Roger Hurn, and Simpson resigned in September after a second profit warning. Steve Hare, the FD, lasted until November 2002 when he lost his job following a failure to renegotiate debt financing for the company.

Unfortunately, Lord Weinstock did not last that long. He passed away on July 24, 2002 after a short illness. 'He was the best manager Britain has ever produced' according to Lord Hanson, the industrialist. 'I think he died of a broken heart because of what happened to his company.' 'Watching Marconi slowly collapse like a great classical building was extremely painful for him,' said Sir David Scholey, friend and one time banker to Weinstock (Hunt and Roberts, 2002).

In 2005, at the end of 'one of the swiftest ever exercises in value destruction' (Plender, 2002), the bulk of what was left of Marconi was sold to Ericsson, the Swedish company, for £1.2 billion.

The world has changed, but our thinking and our tools have not kept pace

What do these stories teach us?

Clearly, growth through acquisition can be risky; most fail to deliver the anticipated benefits and many lead to calamity. And Marconi were certainly unlucky or unwise since they bought at the top of the market. Also, the simplistic, narrow minded focus on a single financial metric, particularly when it is linked to generous financial incentives, can be, as we have discovered again recently, a recipe for disaster (Plender, 2002).

All these, and many other criticisms may be valid, but there is something more profound, more relevant to the daily practice of management, that these stories illustrate.

It is clear that our modern economies have evolved to the point that things can happen at a frightening speed. Start-ups can become huge, globally dominant corporations in a matter of a few years; for example, Google has only just celebrated its tenth birthday. Conversely, as we have discovered over the past year, institutions that have been around for a century can disappear almost overnight. Economies

and institutions are now so interconnected that it can be dangerous to make assumptions about the business environment more than a few months ahead.

It follows from this that businesses have to pay more attention to the opaque nature of the future than ever before. Opting out of the global economy is not an option, and there is a limit to our ability to manage risk – the product of our inability to forecast perfectly – using tools such as insurance, hedges or diversification. If we cannot avoid business risk altogether, and it is not possible to insulate ourselves against it, we have to get better at anticipating danger – or for that matter opportunity – and responding to it, quickly and effectively. We have to become ‘Future Ready’.

That is the real story here. When making decisions, we cannot rely solely on information about what has happened, we need information about what we believe might happen as well; information that we create through the process of forecasting. Equally important, we then have to build the capability to act upon this information. If we have no such information, or it is deficient or misleading, then we risk loss of opportunity, resources or, in the case of Marconi, outright failure and collapse.

Without good forecasts, businesses are horribly exposed

What is particularly striking about the Marconi case is that it is clear that the information needed to anticipate the collapse of the telecommunications market did exist over six months before their bungled profit warning. What is more, it did not require superhuman powers of detection and insight to find it. Even shop floor workers knew about it. The information must have been in company systems, but for some reason the brains in the corporation were not in contact with the brain of the corporation.

‘If it wasn’t brutally clear to anyone at the start of the year that the industry was imploding it should have been clear by May,’ said James Heal, analyst at Commerzbank. ‘They must have been on another planet,’ concluded the FT (Roberts, 2001). Extraterrestrial vacations are not the only explanation for the catastrophic failure of Marconi, however. It is clear that Marconi either did not have or did not use or trust their forecasts. When asked at the annual meeting held on July 18 whether the Board knew about the poor sales figures in May, incredibly the Chairman replied ‘No. We did not know it in May. It was the second month of the financial year’ (Daniel and Pretzlik, 2001). Fortunately, when we are driving a car we do not wait until something has already happened before we change course, we look through the windshield. It is not recorded whether shareholders challenged

Sir Roger on his reliance on the rear view mirror to manage his business or asked why the timing of the financial year-end was relevant to managing the business.

Another telling comment was made by George Simpson. 'Normally we expect a sudden uptick in performance when orders are finalized at the end of the quarter' (Daniel and Pretzlik, 2001). Why, you might ask, are orders 'finalized at quarter end'? We often hear this kind of thing from companies who run their business by simply trying to 'hit the numbers'. Set a target, pay people to hit it (or punish them for failing) and if you succeed then assume the business is performing well. It is dangerous to run a business on automatic pilot. Manage this way and nobody is looking at where you are heading and whether you need to change course, speed up or slow down.

Whatever the reason the chronic inability of the business to anticipate the future was a major cause of Marconi's failure. With no early warning of the impending crash the painful truth revealed in the June quarter end numbers was, from the perspective of company management, sudden and unexpected. 'It really did happen that quickly' said Lord Simpson (Daniel and Pretzlik, 2001). It was not just that Marconi's business was weaker than everybody thought, or that the market had collapsed. The systems management relied upon were simply not up to the job. As a result, investors simply lost confidence in the ability of its managers to manage. Whatever you might think about the quality of Cisco's sales forecasts, it is manifestly clear that one of the reasons why the company (and its management) survived relatively unscathed was because they spotted the problem sooner than Marconi and took swift and decisive action.

In the world of business today, any company that is not able to forecast – to anticipate and to respond – risks loss (of money or opportunity) or in extreme case failure. And this is not just about what you say to the markets. Even Cisco, with its much-vaunted real time reporting systems, paid a massive \$2 billion price for failing to tie operational and financial forecasting together in a sound risk management framework. Similarly, buried in the wreckage of Marconi accounts for 2001/2 are stock write-offs of £518m attributed to overoptimistic forecasts made by two of Marconi's two big US acquisitions.

There is a big difference between forecasts and prophecies

Let us be clear. When we talk about forecasting we do not mean prophecy. No one can predict the future with certainty. Our focus is the process of systematically and rationally assembling information to give managers forward visibility; visibility of likely outcomes and visibility of potential risks and opportunities.

Effective forecasting is about hard work, skill and organization, not about genius. Lord Kelvin, the foremost scientist of his generation, on August 2, 1902 solemnly informed the Chairman of the Anglo-American Telegraph Company, Francis A. Bevan, that ‘I have given careful consideration to the subject, and I do not believe the shareholders of your company need be alarmed at the prospect of wireless telegraphy’ (Anon, 1902). Closer to home, Alan Greenspan, ex Chairman of the US Federal Reserve and a man, when in office, widely credited with almost superhuman wisdom, was interviewed on a CBS News ‘60 Minutes’ program broadcast on September 16, 2007. He was questioned about the sub-prime loans problem that had recently come to light. ‘It does not look sufficiently severe that it will spiral into anything deeper,’ he said. ‘We are going to get through this particular credit crunch, we always do ... the fever will break and euphoria will come back again’ (Sughrue, 2007). A year later, almost to the day, Lehman Brothers filed for Chapter 11 bankruptcy protection, and as these words are being written the world is holding its breath to see whether the unprecedented emergency bail out packages recently announced by the US and UK governments will help save the global financial system from meltdown.

The message that forecasting is within the grasp of mortals sounds like good news, which it is. All that is required is hard work, skill and organization, but this cannot be mobilized instantly. Most organizations realize that their forecast processes are not up to scratch only when it is too late to do anything about it.

One of the biggest myths in management ... ‘The Street made me do it’

It is a common misconception among managers that ‘Wall Street’ demands that businesses accurately predict the future. This view simply does not stand up to scrutiny.

Of course, it is dangerous to generalize about anything as diverse as the ‘investment community’. It is made up of thousands of people, spread all over the world, with different investment strategies and motivations all of which can change based on the prevailing market situation. However, here is a view we think is worth listening to.

In November 2002 the Beyond Budgeting Round Table held a meeting in New York. It was hosted by a financial information service company at their offices close to the site of the former World Trade Center. The guy in charge of the unit responsible for compiling the consensus forecast for Wall Street found himself (as I suspect he often does) addressing a room full of people about whom he knows very little.

Most of the room were like ourselves, slightly in awe of a man with over 30 years' experience at the center of the economic web of the most powerful nation on earth. We waited for the drops of accumulated wisdom to fall from his lips. He was talking just at the end of the 'dotcom' bubble.

This is what he told us.

He had lived through several periods of boom and bust. Although they were all different, they were also all the same; every boom sucked in people who really shouldn't have been there and who, through ignorance or hubris, contributed to their own downfall and the downfall of others.

This particular boom was characterized by an unspoken and unorganized conspiracy between senior managers of big businesses and inexperienced analysts. The senior business people need to talk up their stock price so they could make big bucks by exercising their options, and the easiest way to do this was to set expectations in the market and then deliver on them. Exactly. They did this by talking to analysts who in turn gained credibility by being seen to have access to the royalty of the business world and demonstrating an uncanny ability to predict the future. This worked well; at least it did until the bubble burst.

In the opinion of this seasoned pro, rookie analysts who had been sucked into the industry during the bubble had become mere stenographers for company leaders anxious to disseminate rosy forecasts and so put a shine on their share options.

These analysts had not exercised their most basic duty to their investors: to use their judgment. 'If you are in charge of a business and can't tell me what is going to happen at the end of the quarter then I suspect that you don't know what you are doing,' he said. On the other hand: 'if you can tell me exactly what is going to happen in a year's time then you are either a fool or a liar. You do not know what is going to happen in the future, and neither do I. What I, as an experienced analyst, want from you is a projection with some ranges around it, a good idea of what is driving the uncertainty and a convincing plan of how you are going to mitigate the risk or exploit the opportunity. I can then do something you can't do; I can go and ask your competitors the same question and based on that I will make the judgment about whether you are a good investment or not.'

So, according to this knowledgeable source, the market doesn't demand that you predict the future. It does expect that you have a good grasp of what might happen and are well prepared to deal with it. Isn't that just good, *common* sense?

Despite it being widely recognized as important the current state of the craft of forecasting is woeful

Given this backdrop it is no surprise that managers see forecasting as very important, as numerous surveys testify.

A survey of 540 senior executives conducted by KPMG in 2007 (EIU, 2007) found that over the previous three years those firms with average error in earnings forecasts of less than 5% enjoyed a 12% higher share appreciation than those with higher errors. Improving forecasting came at the top of the surveyed companies' priority list for the next three years. 'Ability to forecast results' also comes at the top of this list of the 10 most important 'Internal Concerns' for CFOs across the globe (Karaian, 2009). Furthermore, a PWC survey recorded that 65% of respondents thought the relevance of forecasting would increase over time, compared with only 5% who thought it would reduce (PWC, 2007).

One of the reasons why forecasting comes so high in the list of priorities for senior management is that the performance of their processes is so poor. According to the Hackett Group only 18% of senior finance professionals are 'highly satisfied' with their forecast process (Hackett, 2008) and it is easy to see why. On average, earning forecasts are 13% off (a fact that is estimated to knock 6% off their share price) (EIU, 2007). Another survey puts sales forecasting error in the 15–25% range (Mentzer and Cox, 1984). And industry analysts are no better, according to McKinsey (Goedhart *et al.*, 2001). What is more, the career penalties of failure have apparently increased post Sarbanes-Oxley (Mergenthaler *et al.*, 2008).

Fritz Roemer, Head of Enterprise Performance Management Practice at the Hackett Group has noticed an upsurge in interest in forecasting recently. In the past 'as long as the CFO hasn't had to declare a profit warning he thinks the process is fine, but today one profit warning involves a loss of credibility, a second the loss of the job, so the increase in interest isn't surprising'. The fundamental problem, according to Hackett, is the gap between the turbulence of the environment and the responsiveness of the forecasting process. 'The gap is widening,' Roemer explains. 'Many companies are doing nothing, but our surveys confirm that companies see the world becoming more and more turbulent. So things are getting worse' (Roemer, 2008).

The reality for many companies is even grimmer than the statistics suggest, if the scenario painted by performance management guru David Axson is true. 'Typically the sales forecast is extracted under duress from the sales organization. This forecast is then second guessed by marketing, production and finance with the

result that eventually sales throw up their hands in frustration and simply say “tell me what you want”’ (Axson, 2003).

It is therefore easy to see why over 70% of senior executives plan to make significant changes in their forecasting processes over the next two years, a figure which has been pretty constant since Hackett first started asking the question (Hackett, 2008). This finding is supported by a McKinsey survey entitled ‘Starting Out as CFO’ (Chappuis *et al.*, 2008), which found that 79% of the 164 CFOs interviewed would be making fundamental changes in the financial planning processes within the first 100 days.

However, assuming that you were one of the managers responsible for planning the changes, where would you look for help and guidance? How would you know what success looks like? And why doesn't the situation appear to be improving?

A big part of the reason is that our management systems, and the mindset that they have helped breed, are the product of a bygone era.

We have perverted the lessons learned from the pioneers of management ... and we are enslaved to our delusions

The boom in the automobile industry in the 1920s mirrored the telecoms bubble of the 1990s and General Motors was the Cisco of its day. Just like Cisco, General Motors enjoyed the boom but also suffered the bust. It was rescued by the banks and by du Pont Corporation twice in a period of 10 years. In addition, just like Cisco, GM was credited with management as well as product innovation; the modern diversified corporation with its concepts of ROI, standard Charts of Account, and the mechanisms for control of cash, inventory and production and market segmentation were all products of General Motors under the stewardship of Alfred Sloan in the early years of the 1920s.

These developments were paralleled in the world of academia. In 1922 James O. McKinsey, a Professor of Accounting at Chicago University, who subsequently went on to found the world's first modern consulting firm, wrote one of the first management books entitled *Budgetary Control* (McKinsey, 1922).

The achievements of Alfred Sloan and his contemporaries over this short period were phenomenal. Between them they almost single handedly invented much of what we call ‘professional management’. ‘By 1925,’ Professors Robert Kaplan and Tom Johnson tell us ‘virtually all management accounting practices in use today had been developed’ (Johnson and Kaplan, 1987). Not only was this the template that most businesses in the world followed for the best part of the century, but it was also copied by, among others, Stalin when in 1925 he instructed Gosplan, the

Soviet Union's central planning organization, to start issuing annual control numbers rather than just advice. We've heard about the Soviet 'Five Year Plan' but make no mistake, the USSR was run using annual budgets!!



Example

General Motors, modern management techniques and the birth of budgeting

When Sloan stepped into the top job in GM in 1923 he inherited a company created by an entrepreneur with the colorful name of William Crapo Durant. He was, in Sloan's words, 'a great man with a great weakness – he could create but not administer' (Sloan, 1967), twice leading GM into near insolvency, the last occasion being associated with a crash in the automobile market in September 1920 which left GM with a huge inventory problem (sound familiar?). It was from the ashes of this last catastrophe that modern management practices arose; they were effectively invented by Sloan himself with the help of Donaldson Brown, a man parachuted into GM from the DuPont Corporation – the largest shareholder in GM at that time.

Contrary to common belief Sloan's vision was that of a flexible, decentralized organization, which sought to respond quickly to changes and maximize returns to shareholders over an entire economic cycle. The rigid budgeting system that we have come to associate with this era of management is more consistent with the vision of McKinsey who promoted it as a mechanism for achieving centralized control. Interestingly budgeting in this form is probably the only innovation in management that has moved from the public to the private sector; McKinsey took the Federal Government's Budgeting and Accounting Act, passed in June 1921, as his model.

And, faced with the circumstances these pioneers were faced with, what they did was absolutely right. Even better, it worked ... at least until the world changed.

In the pre-war world, the major problem executives faced was a problem of coordination. Without calculators, with barely more than Morse code, how do you organize the collective efforts of hundreds of thousands of people to provide con-

sumers with products that only 20 years previously were built, one by one, in the garden sheds of a bunch of mad inventors? And produce them at prices millions could afford.

They solved the problem by constraining people. Work out, in detail, what you needed to do and how much it would cost, and then, put simply, make sure your employees did what they were required to do. Faced with a task of coordinating the actions of several hundred workers, many of whom were barely literate, the last thing you needed was flexibility. Change was a dangerous enemy that had to be captured and subdued.

Jump forward 80 years. What does the world look like now?

We still have huge businesses, which we have to organize, manage and control. But these are not the huge monolithic lumbering beasts conceived of by Alfred Sloan. They are staffed, for the most part, by well educated modern professionals who communicate using IT with a facility that would have seemed magical a hundred years ago. For sure, some of the big beasts from Sloan's era are still around, but often only because it is more difficult for them to die than it is to keep them alive. They are dinosaurs on life support.

The large businesses of today can appear and disappear within the time span of a Strategic Planning exercise. Getting big, and managing your internal affairs once you are big, is not *the* major problem any more. The problem, if you are trying to avoid becoming a twenty-first century dinosaur, is how do you deal with the voracious predators who share your patch of territory eating all the food?

Change is the problem, but we cannot deal with change by suppressing it or pretending it does not exist. The only way forward is to accept it and get good at dealing with it.

And, as business people we know that. This is why we recognize the importance of forecasting. We know now that we cannot manage businesses by remote control. We cannot just set the budgets, load up the incentive plans and let go. We cannot stick the autopilot on and go take a nap. We must steer the ship. And because the ship is so big we can't rely on a man on the top of the mast any more to tell us what lies ahead; we need technology that allows us to see over the horizon. The problem is that the radar – the forecasting process – is not working properly, and just hitting it does not seem to be the answer!

Part of the answer, for sure, is the kind of real time information systems that companies like Cisco have developed. Most companies have barely begun to learn these lessons – they are still lumbering around relying on the steam driven management processes of the industrial age.

Yet lightening fast reflexes, on their own, are not enough. Homo sapiens became the dominant species on the plains of East Africa, and subsequently the globe, not because it was quicker than a leopard, bigger than an elephant or taller than a giraffe but because it evolved a large brain; a brain that allowed it to think ahead, to anticipate and so to plan. The fact that the process of evolving from an animal with a brain the size of a modern chimpanzee to that of modern man – four times the size – took only something like 2 million years, a heartbeat in evolutionary timescales, perhaps shows just how potent this new capability actually is.

Our big challenge: to replicate in our organizations the human capacity to anticipate and so shape our destiny

This frames one of the greatest challenges facing companies in the information age: how do we build the organizational capacity to look ahead, to project our minds into the future and manage our destiny before fate manages it for us? How do we do this and in the process cure ourselves of some industrial age diseases, disentangling ourselves from our redundant legacy processes and unlearning some elements of the way we have habitually come to think and behave?

Most business people do not have time to contemplate big philosophical questions; their focus is more practical. Their concern is how do I know, before it is tested and found wanting, that my forecast process is unreliable? If it isn't up to the job, what do I do about it? And, are the benefits from an improved process worth the investment of time and resources involved? These are the questions that we will address in Part 2.

Chapter I Part 2

FORECASTING DISEASE the symptoms and the remedy

In the first part of this chapter we surveyed the forecasting landscape. We argued that, while the importance of forecasting is recognized, in practice it is rarely performed well, sometimes with disastrous consequences.

Common symptoms of forecasting illness ...

Fortunately for the practically minded executive, we can diagnose our industrial age forecasting diseases before they bring about complete collapse. There are telltale signs that can help you detect problems at an early stage, and from which few organizations are completely immune. Does your organization's forecasting process exhibit any of these Seven Deadly Symptoms?

SYMPTOM #1

Does your organization find it difficult to cope with unexpected or unwelcome forecast outcomes? if so it might be suffering from:

Semantic schizophrenia

Patients with this condition exhibit contradictory behavior patterns. At the root of the problem are the conflicting messages that they receive. For example, the patient may be asked for a 'best estimate' but then 'held accountable for it'. Another common example is for a patient to be asked for an update but then to be criticized for making changes to the previous forecast. Patients are also often verbally abused

for producing forecasts that the recipient 'does not like' but also for forecasts which 'do not reflect the truth'.

Such contradictory demands create a 'double bind' similar to that associated with schizophrenia. Because the patient believes he/she 'cannot win' they often retreat into a delusional state, producing forecasts that minimize the cognitive dissonance induced by the conflicting signals they receive. The objective of forecasting thus becomes to reduce the amount of stress to which the patient is subject. A typical manifestation of the attempt to reduce cognitive dissonance is the question: 'what forecast do you want to see?'

The cause of this problem is thought to be prolonged exposure to traditional performance management practices, which typically do not recognize the difference between a goal and a forecast. In addition, changes or deviations are often regarded as 'bad'. The dissonance between these practices and what the patient knows should be done are not consciously recognized, thus leading to perverted patterns of thought.

SYMPTOM #2

Is there a tendency in your organization for executives to engage in protracted and sometimes acrimonious debate about what the forecast numbers should be? if so this might be indicative of:

Single point tunnel vision

Patients with this condition exhibit obsessive compulsive behavior, commonly manifested in heated debate about 'the right forecast number'. These debates can be protracted and extremely acrimonious despite the patient being intellectually conscious of the fact that it is impossible to predict the future. Indeed, the only thing that can be said with any certainty is that any forecast will be wrong and the more precisely it is stated the more wrong it will be. This is similar to the human condition of tunnel vision whereby everything that lies outside the current narrow focus of attention is thought 'not to exist'.

The irony which tends to be lost on patients with this condition is that soon after these debates finish, they often consciously move to take action leading to changes which invalidate the forecast that the protagonists have just been defending.

One cause of this pathology is believed to be the use of traditional performance management practice which encourages the mistaken perception in the minds of patients that predictability is a natural state of affairs rather than a temporary or aberrant state.

SYMPTOM #3

Is your organization obsessed with forecast accuracy? do people feel that they will be punished for ‘getting forecasts wrong’? if so you might be suffering from: Delusions of accuracy

Patients with this syndrome suffer from a delusion that it is possible to predict perfectly. Flying in the face of several thousand years of human experience, any departure from this state is regarded as being deviant behavior – at best a result of lack of professionalism; at worst evidence of dishonesty. In their private life such patients will typically go to séances or invest their money in ‘get rich quick’ schemes which also offer the prospect of certainty.

Patients with this problem are allergic to ‘forecast error’ and naturally favor lower forecast error, without any regard to the source of the error. No distinction is made between error that is the result of random fluctuation and error that may be the result of poor forecasting. As a result they may punish employees for error which is totally outside their control, for example because their results are affected by the weather or a volatile market.



Example

Why forecast errors are inevitable

a

To illustrate the point about forecast errors write the letter ‘a’ on a piece of paper. For best results make it bigger than you normally would.

Now copy, as accurately as possible, what you have written ten times on the line below.

.....

Are any of the copies exactly like the original letter? Indeed are any of the letters exactly like each other?

The answer to both of these questions will almost certainly be no.

Now imagine you were performing the same task while riding in the back of a car speeding through rush hour traffic.

What this illustrates is that even in the most trivial and most simple process – even one where only repetition is required – there will be variation. In other words there will always be error and sometimes the error will be greater as a result of factors that are outside the control of the person performing the task.

We should therefore expect any forecast – which is the result of a complex activity involving many different people, a great deal of uncertainty and incomplete knowledge – to contain error. Also, in order to make meaningful comparisons between or judgments about forecasts you need to allow for differing environmental conditions – like how far ahead you are forecasting or the inherent difficulty involved.

Patients with this syndrome often engage in wholesale and self-righteous ‘correction’ of what they believe are faulty forecasts. Typically, these ‘corrections’ make matters worse as often as they improve them but ‘confirmation bias’ (whereby only successful interventions are recalled) renders patients blind to their delusion.

It is thought that this pathology is caused by the absence of sound approaches to measuring error.

SYMPTOM #4

Are your organization’s forecasts way too detailed? is there always pressure to provide more detail and more analysis? if so this may be evidence of:

Nervous system breakdown

This is another form of common obsessive-compulsive behavior. The cause is thought to be the impression created by exposure to conventional management practices that more data is always better; that more and more analysis will ultimately expose ‘the truth’. As a result, patients with this problem forecast at similar levels of detail to that used for annual budgeting but more frequently.

Since no real life data actually exists – all forecasts are made up of (hopefully well founded) assumptions rather than facts – the result of this obsession is the creation of enormous amounts of fictional ‘noise’ in the corporate nervous system, which is then analyzed to create more noise.

In chronic cases management act upon these analysis. In the milder form of this disease, the analyses are simply ignored since the results are recognized as confused, misleading or simply unintelligible. Unfortunately, patients with this syn-

drome often interpret this rejection as a weakness in the analysis rather than a systemic weakness, and so redouble their efforts and produce even more data – ultimately resulting in a breakdown of processes or a real breakdown in the workers enslaved in the system.

SYMPTOM #5

Is your organization focused exclusively on the year-end forecast number to the exclusion of everything else? are you sometimes surprised by developments in the early part of the new financial year? if so, you need to arrange corrective measures because you most likely suffer from:

Visual impairment

The symptoms of this complaint are an inability to see beyond the year-end and blurred vision in the short term, with sufferers only able to discern quarterly chunks in the future.

Because of this lack of visual acuity, patients find it very difficult to track trends and therefore make reasonable projections. Often patients complain of ‘number blindness’, a complaint resulting from prolonged exposure to tables of figures set in small type, another practice which increases the difficulty of spotting trends.

The inability to see beyond the financial year-end, with visibility becoming increasingly constrained as the year-end approaches, leaves patients very vulnerable to shocks in the early months of the new year, since they do not have sufficient time to take evasive or defensive action. Where a patient does have visibility beyond the year-end, it is often unreliable, since the sufferer is often obsessively focused on the position at the year-end, to the detriment of everything else.

This problem is a common side effect of over reliance on conventional performance management systems based on the financial year.¹ It is particularly prevalent where financial incentives are tied to the achievement of annual goals.

SYMPTOM #6

Is your experience of corporate life one of being part of a well oiled machine or is it characterized by conflict, chaos and continual fire fighting? if it is the latter this is symptomatic of:

Lack of coordination

A common problem is that various organs and limbs of a corporate body develop their own nervous systems that send differing forecast signals to the different parts

of the body. So, for example, the sales limbs may have a different view of the future to the operational organs which in turn may differ from that of the financial system of the corporation. As a result the patient will exhibit uncoordinated behavior, moving – if at all – in a stumbling fashion or in spasms, sometimes with different appendages apparently working in opposition to each other.

Clearly, with this complaint, the patient is unable to move about in an efficient or effective way. It is common that the patient will either be carrying too much or too little weight (stock) or in extreme cases become bulimic, violently oscillating between two states.

With so many forecasts – by pure chance – one will always be ‘more accurate’ than the others, but since this performance cannot be sustained, none of the competing views of the future are ever eliminated and the organization continues to suffer with double, triple (or multiples thereof) vision.

SYMPTOM #7

A particularly nasty and common complaint is associated with endemic manipulation and distortion of information. if forecasts are routinely ‘sandbagged’ or overhyped, even when it is clearly against the interests of the organization as a whole, then you have been infected by:

Socio-pathological behavioral patterns

A final, widespread and particularly nasty, symptom associated with chronic forecasting failure is dysfunctional behavioral patterns.

Patients will withhold knowledge until the truth becomes impossible to conceal or knowingly provide misleading information. A perverse subculture often grows up around this practice. The process of forecasting comes to be seen as a game that you can ‘win’ by indulging in practices that are harmful to the corporate body. For example, the rule of thumb, ‘never give any nasty surprises’ is used to justify consistent and deliberate biasing of forecasts, and those that are good at the politics of managing information flows can be held up as role models to be emulated. Also, patients can be practiced in the art of ‘bleeding in’ bad news gradually, so as to avoid recriminations. The recipients of the deliberately misleading information can unwittingly be party to their own downfall by rewarding those who lie, by mistaking falsified forecasts for ‘good performance’.

Usually this pathology is associated with behavior that rewards patients for lying or punishes them for telling the truth. For example, if patients are punished when recipients react negatively to ‘bad news’ and rewarded when they are set less demanding targets when they hide ‘good news’.

... and how we fail to make things better

Ineffective therapeutic interventions

The forecasting disease has been around for a long time. What cures have been tried and why have they failed?

The technical fix; statistical therapy

The reason for the failure of most cures is poor diagnosis of the complaint. Often the disease is treated as a defect in the technology of forecasting.

For instance a common error is to regard the cure for all 'forecasting problems' as the prescription of a better statistical method, one that provides the 'best fit' to the historic record upon which forecast can be based. If you only have a hammer, everything looks like a nail.

There are a few problems with this. The first one is that, put brutally, the fancy statistical algorithms often aren't very good. The consensus among academics is that simple extrapolation techniques (such as moving averages) generally perform as well, if not better, than the more complex ones.

The other problems with the statistically based therapy are more fundamental. The fact is that business people often cannot rely on history in the same way that someone forecasting macroeconomic trends can. First, the pace of change is such that the kind of historic record demanded by academic statisticians – at least 36 data points – often does not exist. Most major businesses and/or their markets will have undergone some sort of major structural change within the last 36 months. Even if the business has not changed, there is a good chance that accounting or reporting conventions will have, and restatements of history are usually pretty rough and ready exercises. In addition, business data, particularly financial data, is notoriously unreliable, prone as it is to manipulation, pulling sales forward, pushing costs back etc.²

The other fundamental problem is that for much of the time managers in business are doing or being subject to things that have never happened before, where, by definition, history is of little use as a predictor. This 'stuff', which is so inconvenient for statisticians, is called innovation. In fact, one could argue, if your management team did not succeed in making the future different from the past you should sack them. All you really need in those circumstances is a caretaker.

The upshot of this is that if you cannot rely on history to make forecasts, you have to rely on judgment, and this equates to 'unscientific' in the eyes of many academics. There is the occasional mournful debate in academic circles about the

amateurish nature of business forecasting, since surveys show that judgmental forecasting is by far and away the most popular forecasting techniques in business. We would agree that the forecasting processes used by business are poor, but not simply because they are often judgmental. We argue that there is often simply no alternative to judgmental forecasting. There is, however, plenty of scope to adopt a more scientific approach to the use of judgment. This is where the opportunity lies.

Software therapy

The second kind of failed technologically based therapy involves the inappropriate application of software.

It is well known that applying an IT 'solution' without understanding the problem often simply leads to making the same mistakes more quickly and on a bigger scale – and forecasting is no different.

As a senior manager you might think that you have the right numbers but they are either not available to you or they are not available quickly enough. You might believe that the problem is that your people are either incompetent or that they are deliberately misleading you, and so need to be 'held to account' for their failings. In either case, you might decide that the solution is to introduce a fancy new piece of software that allows you to collect submissions, consolidate and analyze them. Often this approach simply ends up with 'budgeting on steroids'. Lots of numbers. Lots of gaming behavior. Lots of wasted time.

It might be tempting to blame the software industry for this, but they are commercial enterprises and can only sell solutions to problems that people recognize they have. It is easy, and worthwhile, to sell a piece of software that promises to 'eliminate spreadsheet hell' by using the Web to collect, collate and manage submissions from thousands of different contributors to a business forecast. It is much more difficult for software providers to sell a product that requires you to fundamentally rethink the whole way in which you go about doing things. Physicians face similar problems, with patients saying 'I know I need to lose weight but don't tell me that I need to change my life style, eat less of what I like and exercise more. Just give me the pill.'

To be fair, there is a lot of talk right now in the world of business software about 'driver based' forecasting, which is very definitely a move in the right direction. However, putting an engine in a horse drawn carriage doesn't make a car and some of the efforts run a serious risk of falling into the same technophiliac trap as the academic statisticians; if you only have a software hammer, everything looks like a nail.

The final problem with dipping into the ‘technical medicine cabinet’ as the first resort whenever you have a problem to fix is that it becomes exactly that – a fix, and you can become addicted. If the technical cure does not work the first time round you are tempted to try ‘one more fix’ to solve the problem. However, if the pharmacology is not addressing the root cause of the disease, there will be no relief.

Technique and technology are certainly part of the remedy, but they are not *the* cure.

Folk lore remedies

Another failed set of remedies comes from folk lore. The huckster who sold patent medicine was always able to produce someone from the audience who had been ‘cured’ ... and they might even have believed it themselves. In casual arguments about the health risks of smoking, often someone will cite the example of a relative or acquaintance who has lived to a ripe old age and has smoked 10 packs of cigarettes a day since they were 14.

The fact is that isolated cases prove nothing, and the healthy state of any one individual may be down to any number of factors.

Similarly, we have not based this book, and the ideas in it, upon a handful of ‘success stories’ or any arbitrary definition of ‘best practice’. Examples are helpful to illustrate or to gain deeper understanding of a point of principle but on their own case studies are not enough.

No one ever cured an illness by showing the patient a picture of someone who is healthy.

A counsel of despair ...

Not everyone falls for the ‘technological fix’ or the ‘folk remedies’. Some seem to believe that it is not possible to forecast well because of fundamental flaws in the human psyche.

With a shrug of the shoulders, they will say things like ‘it’s all about judgment’, ‘you can’t buy experience’ or ‘there is no point doing anything until we get people to stop being too optimistic/sandbagging’. Another common one is: ‘you will never change sales people; they will always ...’ (insert appropriate prejudice).

While these fatalistic comments reflect genuine challenges, all too often they become an excuse for not trying, or, worse, a justification for manipulation of a forecasting process in the name of compensating for the perceived weaknesses.

... and the cure

We believe – in fact, we know – that it *is* possible to change, and that the cure we are searching for is KNOWLEDGE.

The name we give to useful knowledge is ‘science’. It is useful knowledge because it has been systematically assembled from logical first principles, tested, and found to be robust; a basis for informed action. According to a recent KPMG survey ‘it is those companies that tackle forecasting as a science that are the ones that are getting it right’ (EIU, 2007). Without this knowledge, we will fail to grasp the nature of our relationship with the future and what we can do to influence it. It is because we do not understand the ‘science’, that we place blind faith in technological fixes and folk lore.

Adopting a ‘scientific’ approach does not mean that judgment and learning are irrelevant. Our knowledge needs to be both theoretical and practical. You can be the best pastry chef in the world but if you have no grasp of the properties of eggs and how they respond to heat, your soufflé will always come out as a soggy mess. On the other hand, you cannot consistently make good soufflés without a lot of practice. How happy would you be if you were treated by doctor who had a good scientific training but no practical experience or vice versa?

We believe that we have been living in the ‘snake oil’ era of forecasting, but that we have the knowledge to do much better. Theory without being theoretical. Practical but more than mere technique. This combination will give you the ability to master forecasting and so better navigate the organization through turbulent times.

The even better news is that you can get instant benefits from almost any increase in your knowledge. Any bad habit abandoned and any improvement in forecasting health will be rewarded with tangible benefits, with little extra cost apart from that involved in acquiring, practicing and deploying the knowledge.

What does success look like?

Imagine this.

It is the first Tuesday of the new month. It is 2pm and you have just received your monthly forecast briefing pack, bang on time, so you now have half a day to digest the content before your regular monthly meeting.

All the normal stuff is there, but you first dive into the section marked ‘changes since last month’. The process is so well grooved now that most of what you saw last month will not have changed much – so it is like finding out about what is happening in the world by glancing at the headlines of a newspaper rather than

diving straight into the stock quotes. One of the first things you look for is the forecast reliability indicator since this tells you whether your process is working well and whether there are any alarms about to go off. The rest of the pack is very familiar and easy on the eye. There are a few tables with key statistics but there are also many graphs and pictures that quickly give you a sense of trend. In particular, you look at the risk charts that reveal how much reliance you can place on your central forecast by showing 'a bandwidth' around it and several alternative medium term scenarios.

The Wednesday morning meeting has all the usual suspects: colleagues from sales, marketing operations as well as finance. The atmosphere is relaxed and congenial, but that is because everybody knows the drill and his or her own part in it – there is no need for excessive formality.

The meeting starts off, as usual, with a quick review of the last month. People are open; where there have been failures to anticipate events people are willing to admit shortcomings and oversights – there is no blame because everyone knows that some sort of error is inevitable in forecasting. Openness and candour are important if you are to properly understand what has happened and learn what this means for the forecast process and what implications this might have for the future of the business. In many cases, because problems and opportunities have already been flagged the meeting is simply informed of the corrective action already taken.

The second part of the meeting usually involves one member of the team presenting the results of a 'deep dive' into an issue that cropped up in the previous meeting. Relentless curiosity and skepticism are qualities that have proven to be valuable. Most months throw up something that does not feel right or needs further investigation to get a proper understanding about what is going on.

Finally, you come to the most important part of the meeting: actions. Discussions about 'what needs to be done' take account of the 'gap to target' but strategic goals and competitive performance trends often override gap closing considerations. In addition, it may be that a completely unforeseen set of circumstances demands swift response, which might mean putting a contingency plan into action. However, things are normally under control so the team often does no more than reshape the existing plan. This involves rescheduling activities, perhaps stopping some and starting others in response to the changing outlook and an evolving understanding about their effectiveness.

After two hours the meeting finished with a review of the meeting itself. What went well? What could be done better? What will you do differently next month?

... and what are the benefits?

What kind of results might you expect by improving your forecasting process? Ask yourself these questions:

- If you were able to consistently produce forecasts that were neither optimistic nor pessimistic, and with a small level of variability, by how much would you be able to reduce stocks? 5%? 10%? In one major multinational business which suffered from persistently optimistic forecasting this number amounted to over \$500 million, more than enough on its own to justify the investment required to improve forecast processes.
- How much product is thrown away or discounted because it is out of date or obsolete? By how much might you be able to reduce the cost of obsolescence? 50%?
- In a service business, better forecasting means improved use of resources and better customer service. How much would you be prepared to pay to improve this by 2% or 5%? What is more, there is evidence to prove that by improving forecasting organizations can and do improve customer service *and* reduce stocks at the same time.

While there will be efficiency benefits, the real value lies in enhanced effectiveness.

- Better forecasting means that decisions are better informed. There is an increased chance that the right things will be done at the right time: fewer last minute panics, fewer times when the business has to slam on the brakes. How much time and resource would be saved by avoiding doing things in a hurry or by not needing to abort part completed projects?
- Better forecasting helps organizations enhance what the US military calls 'situational awareness' and so helps a business spot discontinuities early. What value would you place on improving the agility of your organization? What costs would be avoided if you were able to spot problems early and put appropriate contingency plans into effect? What opportunities might you be able to exploit?
- By anticipating better and responding more quickly the performance of your organization will become more predictable, less prone to shocks and surprises. What value would you place on that?
- Finally, good forecasting demands and so fosters effective teamwork and collaboration. What other spin-off benefits might there be and what are they worth to you?

Whatever number you come up with we are confident that it will be a big one – certainly big enough to reward the investment of time in reading this book. There is little cost; the journey on which you are about to embark does require application and discipline, but nothing that is beyond the vast majority of readers.

If this sounds like it is for you then read on.

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You should think of the next five chapters – section 2 of the book – as being like a Sunday afternoon hike in the hills; it starts off gently and then gradually gets a little steeper. The hill might slow you down a little but climbing it doesn't require any special aptitude or training. If you are unfit, you might find yourself breathing a little hard in the later chapters, and your legs might ache on Monday morning, but for an investment of four hours or so, and perhaps a little bit of practice, you will have made an enormous step towards acquiring the knowledge needed to enhance your organization's forecasting performance. At the end of Part 2 we will take stock and prepare for the next leg of the challenge.

The next chapter is 'Forecasting 101'. The content is technically undemanding but you might find that it challenges many of your current assumptions about what forecasting is and what is required to be good at it.

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Another story ... but with a happier ending



Example

On September 11, 2001, just 6 months after the bursting of the telecoms bubble, two jet liners flew into the World Trade Towers in downtown New York. In the process the Head Office of the American Express Corporation was severely damaged, and along with the office went a whole set of assumptions about the future. 'Basically we didn't have a head office, the place was in turmoil and we were left sitting at our desks in alternate locations without even calculators and wondering "what does this mean for our business?"' says Jamie Croake, VP of Planning.

But instead of the total loss of control and collapse that the jihadist terrorists undoubtedly hoped for, the experience gave urgency and focus to an initiative that had been on the stocks in AMEX for a few months: Planning Transformation. Over the next two or three years AMEX learned that not only was it possible for a business to operate without the traditional panoply of fixed plans but that there was a better way of doing things ...

We will return to the AMEX story later.

SUMMARY

In an increasingly turbulent world the ability to anticipate, even if only a few months ahead, can mean the difference between survival and failure. In addition, if managers fail to demonstrate an understanding of the dynamics of business performance investor confidence can be seriously undermined. As a result, senior executives in business place an increasingly high priority on improving their forecast processes. The record of business, however, is not good. One reason for this is that the traditional management model, based on the concepts of budgeting, has not kept pace with the demands of the times. Budgeting is based on the assumption of predictability rather than the reality of change. As a result, we do not have a process legacy that helps us forecast well or a mindset that helps us deal with change and turbulence. The inadequacy of current processes and thinking is manifest in a set of failure symptoms that are endemic in organizations. Technological fixes are no cure; the remedy has to be based on a sound conceptual understanding of the purpose and nature of forecasting. The benefits of getting it right are considerable, both in terms of improvements in efficiency and effectiveness.

KEY LEARNING POINTS

Seven common symptoms of forecasting illness

SYMPTOM #1 Semantic schizophrenia: confusion about the aims, purposes and characteristics of good forecasts.

SYMPTOM #2 Single point tunnel vision: an unhealthy obsession with a particular forecast number.

SYMPTOM #3 Delusions of accuracy: the mistaken assumptions that it is possible to be perfectly accurate and that lower errors are representative of better forecasts.

SYMPTOM #4 Nervous system breakdown: misguided attempt to improve forecasts by going into more detail and analyzing forecasts obsessively.

SYMPTOM #5 Visual impairment: the failure to provide enough forward visibility and discern trends in performance.

SYMPTOM #6 Lack of coordination: the tendency to generate a proliferation of competing forecasts.

SYMPTOM #7 Socio-pathological behavioral patterns: the unwitting encouragement of behavioral patterns that are damaging to the forecast process and to the health of the organization as a whole.

‘Fixes’ that don’t work

1. The application of IT without understanding
2. Blind faith in sophisticated statistical forecasting techniques
3. Simplistic remedies based on incomplete and selective use of case studies.

Enhanced capabilities from improved forecasting

1. Better anticipation
2. Better situational awareness
3. Greater responsiveness
4. Enhanced coordination
5. More relevant analysis of performance.

Potential benefits

1. Lower stocks
2. Less obsolete stocks
3. Better customer service
4. Lower costs
5. Better use of resources
6. Fewer shocks
7. Quicker to exploit opportunities
8. More predictable performance
9. Enhanced teamwork and collaboration.

NOTES

- 1 Frederic Vester, the German systems scientist, has speculated that planning first started when humankind made the transition from hunter-gatherers to farmers, since this activity required that they think a year ahead (Vester, 2007). It is not clear why the position of the earth in relation to the sun should still be the primary driver of planning in twenty-first century corporations, but it clearly is.

- 2 Many managers are unaware of just how much judgment is involved in the preparation of financial statements, and how this judgment can become biased if pressure is applied (as it often is) to come back to a number such as a profit target or a forecast. According to *CFO magazine* nearly half of finance executives feel under pressure to adjust results (Durfee, 2004). Given what we know about the variation and inevitability of error, we should therefore be very wary if there is no difference between forecasts, targets and actuals.