CGMA REPORT

IMPROVING DECISION MAKING IN ORGANISATIONS

Unlocking business intelligence

CGMA
Chartered Global Management Accountant

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CONTENTS

Two of the world's most prestigious accounting bodies, AICPA and CIMA, have formed a joint venture to establish the Chartered Global Management Accountant (CGMA) designation to elevate the profession of management accounting. The designation recognises the most talented and committed management accountants with the discipline and skill to drive strong business performance.

1. EXECUTIVE SUMMARY

There is a danger in today's economic climate that organisations could make false economies or even damage their long-term prospects when cutting costs and limiting investment budgets. Research shows that the organisations with the best prospects of emerging successfully from any recession are those that can balance cutting costs to improve efficiency with continuing to invest to develop their competitive position.[1]

Achieving this balance requires a combination of better information and the engagement of talented individuals with a keen understanding of the drivers of cost, risk and value to improve decision making and performance management. 'Big Data' needs to be translated into information. Management accountants are particularly well placed to provide this support to management.

The finance function is being transformed in terms of the efficiency of its operations, the quality of the information it generates and its level of influence in management. Leading organisations have already grasped the opportunities presented by developments in information and communications technology to improve the efficiency of accounting operations. They recognise that there is a limit to how much cost can be taken out of the finance function. Their focus has shifted instead to how they can get more value from finance. Some have already developed and deployed management accountants to help improve decision making across the business. Current developments in business intelligence (BI) present an opportunity for finance functions to provide better management information and to realise their potential to better support the business.

The term 'business intelligence' is often used to describe the technical architecture or 'stack' of systems that extract, assemble, store and access data to provide reports and analysis. It can also be used to describe the reporting and analysis applications layer or performance management tools at the top of this 'stack'.

But BI is not just about hardware or software. Success depends on senior management recognising that an organisation's data is an important strategic asset that can yield valuable management information. Their leadership is essential when implementing changes and developing the culture necessary to unlock the potential in a BI solution so the better information generated is actually used to improve decision making.

Management's expectations and demand for information have expanded and business intelligence has evolved to meet their needs. Over recent years BI has matured as a technology and expanded to include the reporting and analysis or performance management tools used by accountants.

For example, BusinessObjects, Cognos and Hyperion performance management applications were often viewed as specialised reporting tools for accountants. They are now seen as business intelligence tools and have been acquired by SAP, IBM and Oracle respectively to augment their BI stacks.

Most organisations are either not alert to the potential in BI or are still wary of investing in information systems. Meanwhile, major companies in certain sectors already use BI to achieve competitive advantage. Software vendors have developed solutions to address systems integration or data quality which were often areas of difficulty. Moreover, developments in cloud computing and in in-memory processing mean this technology is becoming more cost-effective for a wider range of sectors and for smaller companies too.

Management accountants have important roles to play in unlocking the potential in BI and transforming their finance functions. BI may threaten some traditional accounting roles in the monthly reporting cycle, but it presents new opportunities to stimulate stalled finance transformation projects. It could release management accountants' capacity to help improve decision making from strategy formulation to risk and performance management.

Management accountants should work closely with their colleagues in information and communication technologies (ICT) discipline to help develop and implement a BI strategy. This is what management accountants could be engaged to do:

- Articulate the business' information needs for decision making and potential economic benefits to support the business case for the investment in BI.
- Determine the actions to be taken and risks to be managed so the expected benefits can be realised.
- Support implementation, ensuring that change management and project management disciplines are applied.
- Help ensure data quality, perhaps taking responsibility for this, often unclaimed, problem area.
- Use these tools to improve accounting operations, particularly the budgeting, consolidation, financial reporting and forecasting processes.
- Work with business managers to help articulate the business' reporting needs for risk/performance management and identify the metrics to be displayed on individuals' dashboards.
- Conduct analysis and modelling of financial and non-financial data, and commission more advanced analytics (data mining or predictive modelling) when necessary to assess performance and enable evidence-based decision making.

Many leading companies are already seizing the opportunities presented by developments in BI to provide a broader range of management information in more accessible formats and conduct more forward-looking analysis to improve decision making. But while competitors are gaining a competitive advantage, business intelligence strategies have not yet delivered where senior executives either do not see the potential in BI for their organisation or do not ensure that the company's data is managed to generate management information to improve decision making.

Likewise, finance transformation has stalled where senior executives do not have a shared vision for the new, broader role of the finance function in decision making. If accounting is about producing financial accounts and finance is about applying financial expertise, then too many accountants are so fully occupied by the reporting cycle of accounts, budgets, reports and forecasts that they are too busy to realise their potential and challenge less financially expert competitors such as engineers or MBAs for these new finance business partnering roles.

Business leaders and management accountants must be alert to the potential of developments in the role of the finance function (finance transformation) and BI. The combination of these developments provides an opportunity to improve accounting operations and acquire a greater competence in informed decision making. These could enable an organisation to ensure its sustainability by becoming more adaptable through being better informed and able to respond more rapidly than its competitors to market developments.

CASE STUDY

I am the FD of a SME (turnover €20m) distribution company. We have developed a BI capability as an essential part of our business. I am delighted that CIMA is looking at this area, as I think it is going to be one of the key drivers of business development in the medium term.

I came from a large multi-national background and so was familiar with BI to some extent. Otherwise, it was unlikely that the SME that I am now involved with would have had access to this relatively new development.

Some of the issues I suggest need to be addressed are:

- BI is not just for large organisations. Affordable software tools are now available for even small organisations.
- We use Dimensional Insights Pro Diver, but there are many other solutions available.
- The finance function should be a key developer and participant in the design of a BI system. However, it is essential that the analysis is across the total organisation with for example, sales and the supply chain being centrally involved. The analysis must take in non-financial measures and capture the total picture of what drives the business.
- It is essential that a reporting system that is close to real time and updates continuously is the core of the system.
- While it must be a living evolving model, it is also essential that adequate thought is put into the reporting structure so it is logical, focuses on the key issues and is capable of being drilled down.
- Immerse yourself in the data but do not drown into it, keep sight of the big picture at all times.
- Agree on a core set of reports on, for example, a daily, weekly, monthly, yearly basis. One of the key things to get right is the balance between allowing each function to analyse the data in its own way, but ensuring that the data is consistent across all reports. This normally means having a core database, with flexible user-definable reporting capability. For example, sales may wish to analyse turnover by customer and supply chain may do it by supplier but it must be the same total figures.

– Liam Roche, Finance Director
McLoughlin's, Dublin, Ireland

2. DEVELOPMENTS IN THE ROLE OF THE MANAGEMENT ACCOUNTANT

Management accountancy was born of change through the industrialisation of manufacturing. The roles played by management accountants have continuously evolved to meet organisations' needs. The recent financial crisis and a challenging future highlight the need for management accountants to take on a broader role. They must still report on financial performance to stakeholders and business managers but must also contribute to strategic and operational decision making. They must be prepared to apply their professional objectivity when necessary to ensure that performance is managed in the long-term interests of stakeholders.

Definition of management accounting[2]

Management accounting is the application of the principles of accounting and financial management to create, protect, preserve and increase value for the stakeholders of for-profit and not-for-profit enterprises in the public and private sectors.

Management accounting is an integral part of management. It requires the identification, generation, presentation, interpretation and use of relevant information to:

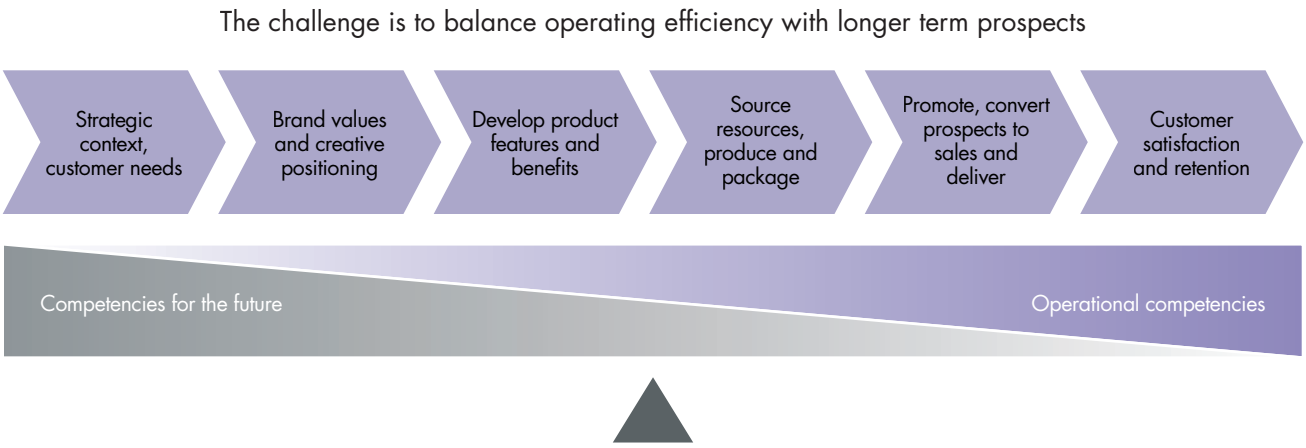
- Inform strategic decisions and formulate business strategy.
- Plan long, medium and short-run operations.
- Determine capital structure and fund that structure.
- Design reward strategies for executives and shareholders.
- Inform operational decisions.
- Control operations and ensure the efficient use of resources.
- Measure and report financial and nonfinancial performance to management and other stakeholders.
- Safeguard tangible and intangible assets.
- Implement corporate governance procedures, risk management and internal controls.

This definition of management accounting is from the *CIMA Official Terminology 2005 edition*. We might make more explicit reference to ethics, external stakeholders, the public interest and sustainability if we were updating this definition but its emphasis on management information holds true.

Since 2005, the levels of efficiency expected of the finance function have increased. Advances in information technology have raised expectations of the range and format of management information that should be provided. Senior finance personnel are expected to be able to contribute more influentially to how the organisation is managed in the long-term interests of its stakeholders.

2.1 Management accountants and an organisation's sustainability

FIGURE 2.1: The sustainable value chain



Research over many cycles has shown that the organisations with the best prospects of emerging successfully from a recession are those which can balance cutting costs to improve operating efficiency with continuing to invest to develop their competitive position.[3]

When budgets are tight it can be easier to make false economies than to invest to improve operational efficiency. Expenditure to develop differentiating competencies that may be needed in the future can seem the most discretionary and therefore, the easiest to cut. These soft targets include marketing, brand development, product design and investment in innovation. These may be needed to ensure the business' long-term success.

Using financial measures alone to budget, forecast or manage performance would only be 'painting by numbers.' Long-term value creation is a greater challenge than meeting this year's budget. Achieving both at the same time is an art that requires the management accountant's combination of financial expertise, business understanding and strategic reasoning.

An organisation's value chain can be described in the language of the business without financial metrics. Financial accounts report outcomes. They do not assess current performance or risks along the firm's value chain. They don't provide leading indicators of future performance and don't report if or how well the organisation's strategy is being achieved.

The range of information which must be assembled by management accountants has expanded to include operational and external metrics. These help measure performance, risk and the firm's progress towards improving its competitive position and strategic goals. Management accountants can also apply professional objectivity to ensure the veracity of these metrics and challenge a business' managers to balance its short-term aims with developing its competitive position or even revising its business model. This can be necessary to ensure the sustainability of the business.

Sustainability in this commercial context is about ensuring the long-term economic success of an organisation by balancing current and longer term objectives so as to maximise stakeholder value. This requires a preparedness to incur costs in the current period for future advantage. It can also mean taking an enlightened self interest approach to long-term risks or stakeholders' concerns about business ethics or the societal and environmental impact of the organisation.

"Gathering, analysing and disseminating forward-looking, business information (for example, 'CSR' data, carbon, marketing and sales) is exactly what the finance function should assume and how it can make a valuable contribution to strategic and project decisions. Many companies outsource this work to consultants. However, much of this expertise is available in-house, it just has to be utilised correctly.

In our organisation, finance is responsible for collecting all market-related data to provide the backdrop for key decisions, whether this is for budget or forecasting purposes or for specific projects when a multitude of information is required to measure the potential impact of any corporate action."

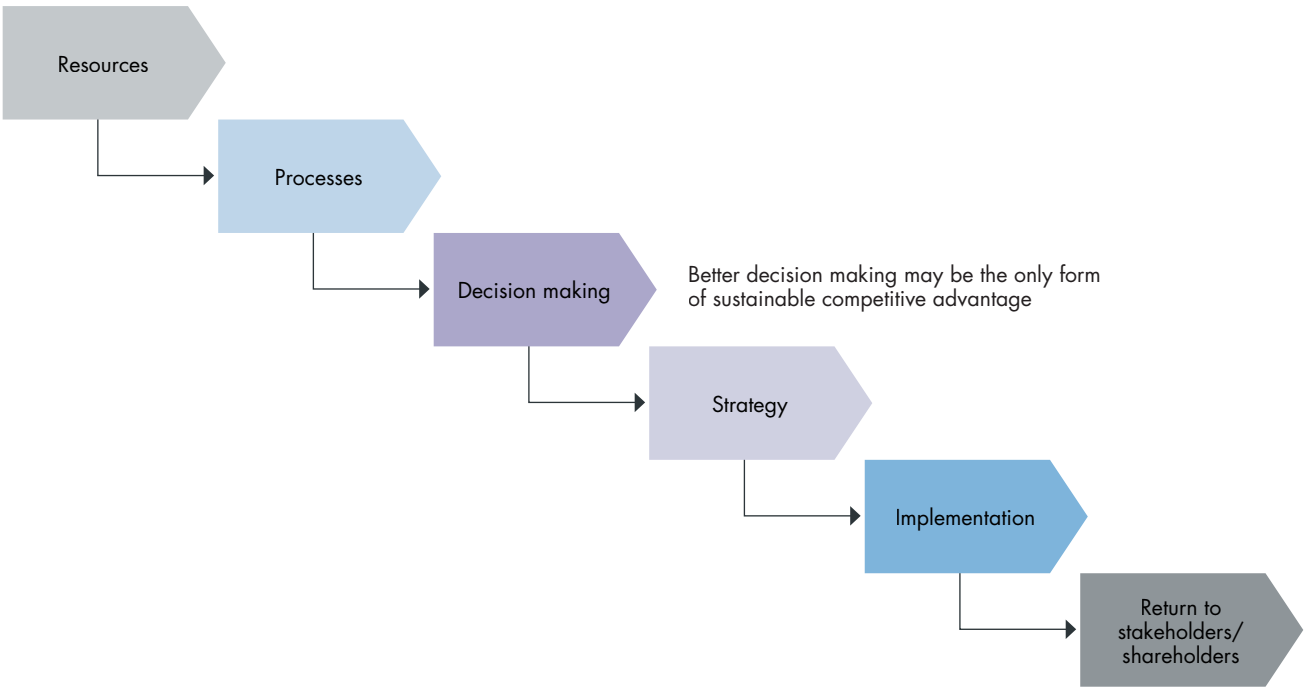
– Jörg Pässler, Group Treasurer
Sappi Group

2.2 Improving decision making

An entrepreneurial spirit and sound business judgement is always important when making decisions about intangibles and ambiguities. The risks of personal bias, repeating past mistakes, acting on guesses or following hunches can be limited if a culture of evidence-based decision making is fostered. Where reliable information is available there is no need to risk making unforced errors by not considering the evidence at hand.

As globalisation gives competitors access to similar resources and competition causes their business processes to converge on similar standards, decision making becomes the remaining key to superior performance. Any company that fails to transform its finance and accounts function to support decision making could be putting its competitive position at risk.

FIGURE 2.2: Why is decision making so important?



SOURCE: CIMA after Prof John Barbour Strathclyde Business School

A survey commissioned by Business Objects from the Economist Intelligence Unit (EIU) found that nine out of ten corporate executives admit to making important decisions on the basis of inadequate information.

Less than one in ten executives in the survey receive information when they need it and 46% assert that wading through huge volumes of data impedes decision making. Worse still, 56% are often concerned about making poor choices because of faulty, inaccurate or incomplete data.

Senior management decision making at the majority of the surveyed companies (55%) is largely informal and unstructured, with executives consulting others largely on an ad hoc basis. Most executives seem comfortable with these arrangements: only 29% think poor decision making structures are a common cause of bad choices. This reflects a view expressed by several interviewees that strategic decisions always require a strong element of intuition or judgment. Nevertheless, there can be no doubt that better data and processes would take some of the guesswork out of decision making. Common metrics and greater use of information tools such as dashboards would also help to support better quality decisions.

Lord Bilimoria, founder and CEO of Cobra Beer, an Anglo-Indian firm said, "You cannot make proper decisions without proper information."

Fully 56% of respondents say they are often concerned about making poor choices because of faulty, inaccurate or incomplete data. Generally speaking, their confidence in the quality of information emanating from within the organisation is high only when it comes from finance. There is a good deal less satisfaction with information coming from HR and IT, as well as from regional and country head offices.

Also timeliness of information is an issue. Only 10% of executives report that the information to make a decision is usually there as needed, with more than one third admitting it is only available after a long delay or not at all. Another 40% also say that waiting for information to be updated is a common cause of delay in their decision making. 46% agree that having to process huge volumes of data slows decision making at their companies.

SOURCE: Paul Kielstra, Economist Intelligence Unit[4]

FIGURE 2.3: Accountants' roles in effective decision making

SOURCE: CIMA

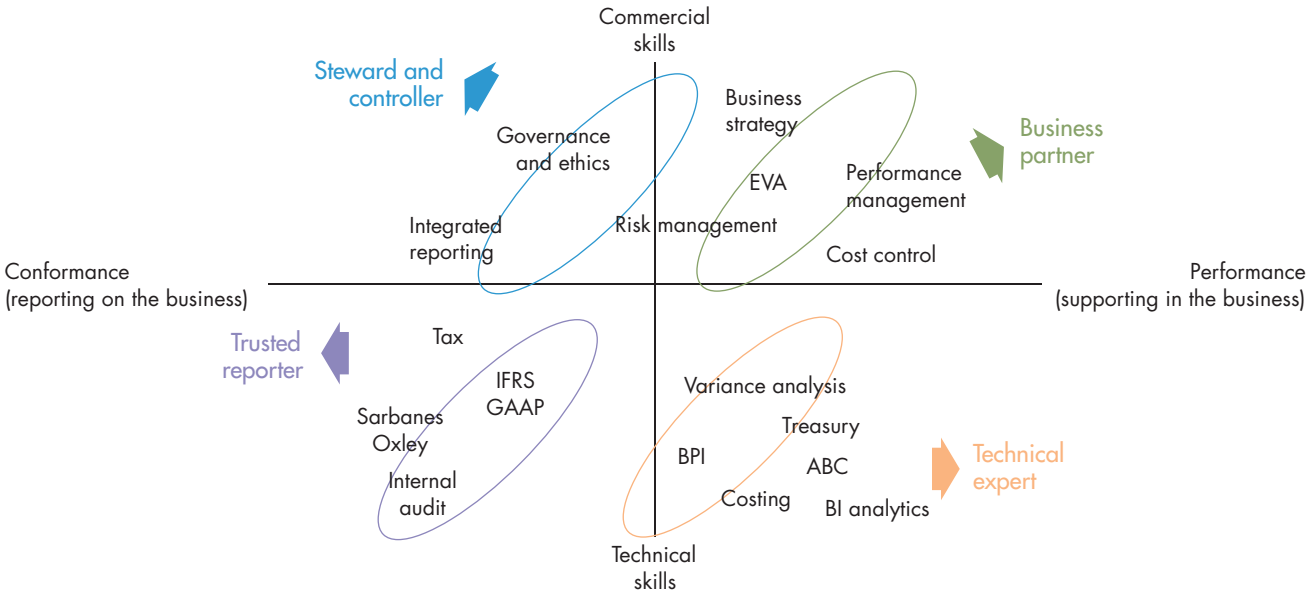
Providing evidence in the form of financial reports, management information and analysis has long been the basis for accountants' role in the decision making process. Management accountants who can combine their financial expertise with an understanding of business have the potential to support the decision making process in a wide range of roles, from how decisions are framed and informed through to helping to ensure they achieve impact. Ideally, data should be assembled and analysis or insights considered before the decision is made. But that is not the end of the process. Effective decisions are those that achieve impact. This requires the decision to be articulated in terms that will allow it to be implemented, progress measured and performance managed through to impact.

'Finance transformation' puts the emphasis at the data end of the decision making process on efficiency (systems, processes and shared service centres). About midway, the emphasis is increasingly on providing insightful business information. At the impact end, the emphasis is on effectiveness, where the skills required are more commercial than technical. For many traditional accountants this end of the process can be outside their comfort zone but it is where they could contribute more value. Management accountants at this end of the spectrum are in demand.

"Our research has found a shift from using intuition toward using data and analytics in making decisions. This change has been accompanied by measurable improvement in productivity and other performance measures. Specifically, a one-standard-deviation increase toward data and analytics was correlated with about a five to 6% improvement in productivity and a slightly larger increase in profitability in those same firms. The implication for companies is that by changing the way they make decisions, they're likely to be able to outperform competitors."

SOURCE: Competing through data: Three experts offer their game plans. *McKinsey Quarterly*, www.mckinseyquarterly.com, October (2011)[5]

FIGURE 2.4: Demands on accountants in business



SOURCE: Improving decision making in organisations – the opportunity to transform finance, CIMA (2007)

Like closing the stable door after the horse has bolted, typical responses to a crisis are to increase the emphasis on financial controls, risk management and providing transparency in reporting so as to inform stakeholders and engage them in governance. Management accountants need to be trusted reporters. Moreover, they have fiduciary responsibilities as stewards which they are expected to carry out objectively – in essence reporting on the business and helping to ensure its conformance with the standards expected by regulators and stakeholders. These have always been important.

Meanwhile, underlying trends are expanding the role of finance to support the business and help improve performance, both as a technical expert and as a more commercial partner to ensure the business is managed in the long-term interests of stakeholders.

Developments in information systems and in the technical aspects of management accounting can allow better information to be produced, the application of which increases the management accountant's influence in the business decision making process.

2.3 Information technology as an enabler?

Enterprise resource planning (ERP) systems have done much to improve processes and rationalise operational data. However, information is often captured in different processes and stored on multiple systems, making it difficult to ensure consistency. Finance, sales and operations reports rarely agree. Even when the data comes from the same ERP source, the reports may not reconcile because of the extract process or how the programme to generate the report was written.

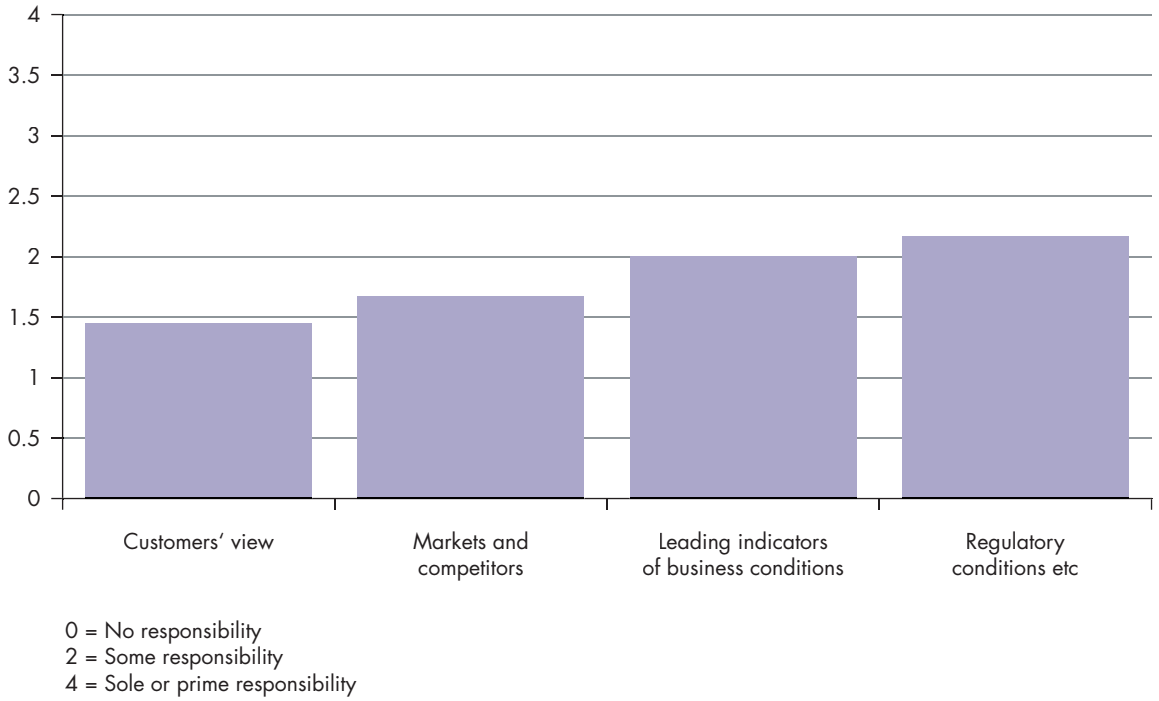
Over recent years specialist software houses have developed performance management applications to address the shortcomings of the accounting modules offered by the major ERP vendors. These are better than ERP systems for performing activities such as consolidation, budgets and forecasting. Some can also deliver insightful management information directly to managers' desks. They can be used by business users to view scorecards or dashboards, generate their own reports, drill down for more information or conduct analysis. They are a form of BI application.

Accountants' main area of interest with regard to BI has been in these financial reporting, consolidation and analysis applications. BusinessObjects, Cognos and Hyperion are probably the best known. Leading organisations have invested in these as 'best of breed' performance management applications. However, these have often been acquired as solutions for the finance function to produce traditional forms of management information more efficiently rather than as part of a business wide BI strategy.

Elsewhere and sometimes despite the investment in these BI applications, many accountants still use shared or inherited spreadsheets to re-work numbers, to consolidate information from different systems, produce reports, budgets, forecasts and to conduct ad hoc analysis. This focus on producing financial information or 'number crunching' perpetuates the myth that accountants are scorekeepers on the sideline rather than players on the business team. It can limit their credibility as contenders for business partnering roles.

Although leading organisations have embraced BI and their management accountants play a progressive role in providing a wide range of management information, CIMA sponsored academic research has found that most accountants in business are not engaged in producing non-financial information. They do not have a significant role in providing information about customers or markets, and only some responsibility for providing leading information about business conditions. It is only in the area of regulatory conditions that they were found to have more than some responsibility, probably because of their technical expertise in matters of statutory reporting, tax and regulatory compliance.

FIGURE 2.5: Management accountants' role in business information



SOURCE: CIMA based on analysis by the CIMA Centre of Excellence at Bath University School of Management (2010)

3. DEVELOPMENTS IN BUSINESS INTELLIGENCE

This section provides an overview of the developments in BI, its components and the major vendors. Examples are given of considerations that often steer organisations to select one product over another.

The breadth and complexity of these products prevent us from providing a comprehensive comparison of the vendors or their solutions. The BI landscape continues to develop. BI is a dynamic area with frequent announcements of new products, alliances and acquisitions. Since some vendors may have analytical applications specific to an industry or functional analysis, organisations considering purchasing BI products should look at each vendor in more detail to determine the fit for their intended use. Current reports from independent research firms such as Aberdeen, Datamonitor, Forrester Research, Gartner and Info-Tech should be consulted.

3.1 Developments in BI

The emergence of the data warehouse in the 1980s was the dawn of BI. Batches of operational data could now be copied across to a centralised pool of data structured to facilitate access and analysis. Queries could be run without affecting the live data in the operating systems. By the early 1990s, online query and reporting systems began to look like spreadsheets, such as IBM's Lotus 123 and later Microsoft's Excel, which had become familiar over the late 1980s. This made BI accessible to business managers for the first time.

Developing the data warehouse and maintaining data quality has been the greatest challenge. The source data can be in a range of ERP instances and other legacy systems. Inconsistencies in the data can lead to the loss of business managers' confidence in the analysis or information presented.

Data warehouses were followed by data marts – specialised data stores that accelerated the process of getting information to managers for the purposes of informed decision making on a particular business aspect.

Soon people in the organisation without IT or analytical expertise wanted to be able to drill down to find out more and conduct their own analysis. This form of tactical business analytics depends on a well-designed BI information architecture that anticipates the most frequently asked questions. Cubes or data tables can then be developed to allow click-through analysis along pre-determined lines of enquiry. Online analytical processing (OLAP) cubes and other multi-dimensional analytical tools provided a solution. These allowed managers to slice and dice the data in the cube from many different angles.

Software vendors began to offer packaged business analytic applications targeted at particular user groups including accountants. Although the analytic applications most familiar to accountants are often termed BI applications, the range of data assessed is usually more limited than true BI. Rather than taking the BI approach and working from organisation-wide data in a data warehouse, software vendors usually bundle an OLAP cube with a business reporting tool and a dashboard. These packaged applications often have separate analyses focused on different ERP modules such as the general, sales, purchase and inventory ledgers. These terms are considered later in Section 3.4.

Lastly, the application of data mining into OLAP cubes provided the opportunity to identify hidden relationships or correlations in the data. This often allowed previously hidden insights, about customer buying behaviour, for example, to be found.

With the rise of cloud computing there are now cloud-based providers of BI technology, which could bring BI within the reach of smaller organisations without the expertise or resources to build their own BI infrastructures. Cloud-based solutions could give organisations access to robust BI infrastructures, without a large capital investment and sometimes without a lot of IT involvement.

While cloud computing has many benefits for quick BI infrastructure deployment and scalability, it also brings with it some additional risks since the organisation is now dependent upon the cloud vendor's infrastructure. Key areas for consideration include: availability, confidentiality, data integrity, security and privacy.

According to Roger Tomlinson of Rolls-Royce, "ERP systems originally threatened the role of the management accountant but actually they have generated extra work for them."

Rolls-Royce has developed a BI application to tackle the 'spreadsheet monkey' problem.

As Tomlinson says, "This constant re-working of numbers added no value. Now, the numbers are the numbers and we have more transparency. The debate is much less about whether the numbers are right or how they could be flexed. Management accountants can now help us to consider the business issues and the actions to be taken. The real benefit of this system to more senior executives is the transparency it provides.

The only downside for managers reporting to them is the transparency it provides. The numbers can't be fudged so the business issues have to be addressed."

3.2 The BI vendor landscape

Following the consolidation which occurred during an acquisition spree by IBM, Microsoft, Oracle and SAP over 2007-08, the BI vendor landscape has slowly started to become diverse again with a variety of niche players emerging.

Connecticut-based information technology research and advisory firm, Gartner Inc. **www.gartner.com** see the market segmenting into two major camps:

1. Traditional BI vendors, led by the 'mega-vendors': IBM, Microsoft, Oracle and SAP.
2. Data discovery vendors consisting of a group of small niche players.

The key differences between these camps are shown in Figure 3.1.

FIGURE 3.1: Key differences between two major camps

	TRADITIONAL BI	DATA DISCOVERY
KEY BUYERS	IT	Business
MAIN SELLERS	Mega-vendors, large independents	Small, fast growing independents
APPROACH	Top-down, IT modelled (semantic layers), query existing repositories	Bottom-up, business user mapped (mash up), moving data into dedicated repository
USER INTERFACE	Report, key performance indicator (KPI) dashboard, grid	Visualisation
USE CASE	Monitoring, reporting	Analysis
DEPLOYMENT	Consultants	Users

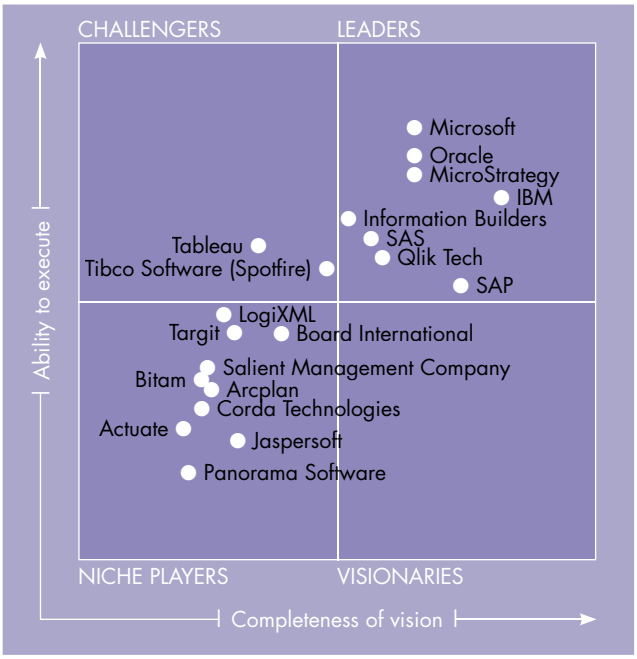
SOURCE: Gartner

These camps represent a shift back to user-driven BI purchasing. As more timely and relevant information is needed by users, they cannot wait for IT to push the data through its modelling and standardisation routines. They therefore purchase smaller niche solutions that can be more easily implemented.

The ease of access, scalability and the low cost of cloud solutions add to the divide between these camps. With the mega-vendors selling large costly 'enterprise stack' solutions, smaller footprint niche solutions and zero-footprint cloud solutions provide an attractive alternative for organisations seeking ease of deployment and lower-cost investment.

Gartner's Magic Quadrant for Business Intelligence Platforms shows a dispersion of vendors with the mega-vendors dominating the leaders' quadrant and a peppering of smaller vendors in the niche players' quadrant.

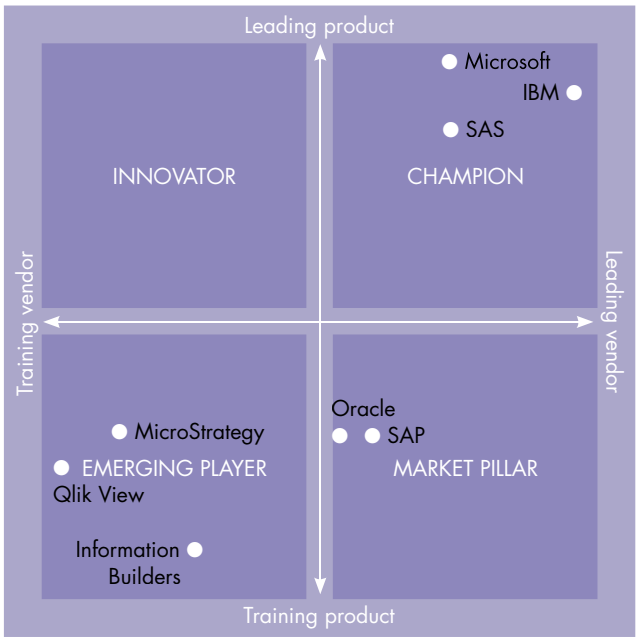
FIGURE 3.2: Magic Quadrant for BI Platforms (2011)



SOURCE: Gartner (January (2011)[6]

Info-Tech Research Group provides an alternative two by two matrix to illustrate how the leading players and their products are positioned across the Vendor Landscape for Enterprise BI. This view reflects how many people considering a BI solution will want to consider a vendor's market position as well as the qualities of the actual product. This approach identifies the same top six vendors as Gartner to be the major players.

FIGURE 3.3: Vendor Landscape for Enterprise BI (2011)



SOURCE: Info-Tech Research Group[7]

3.2.1 Major players

Six vendors have the lion's share of the BI market. Each major player and their main applications are highlighted opposite. The information provided in this section is primarily adapted from desktop research and conversations with members. Gartner's Magic Quadrant for Business Intelligence Platforms (January 2011) and the Info Tech Vendor Landscape for Enterprise BI (September 2011) provide alternative overviews of the vendor landscape. These reports contributed to the vendor summaries that follow. The views expressed here are not opinions of AICPA or CIMA.

IBM (Cognos, SPSS, Applix TM-1)

IBM already had capabilities in databases and data management with its DB2 product and SQL servers. Having acquired Cognos in 2007 and SPSS (originally known as the statistical package for social sciences) in 2009, IBM has a complete BI stack and commands a leading position in the BI market. IBM's offering can be software-driven or solution-driven. Cognos is one of the recognised leaders in the enterprise BI space and is a mature product (version 10 was released in October 2010). The IBM tool suite is also broad, including TM-1 for in-memory OLAP, SPSS for statistical analysis or predictive analytics and LotusNotes for integration. Since acquiring the companies, IBM has also done a lot of work to improve the integration of these products. On the solution-driven front, IBM's Global Business Services division provides both a technical and business consulting service for the implementation of the products.

Microsoft

The Windows operating system and the MS Office suite (Word, Excel, PowerPoint etc) have achieved world domination. SQL servers and the acquisition of Great Plains gave Microsoft's BI offering strength in database and financial software but they are not regarded by some as having the same depth as more specialist competitors' products. However, with the combination of ProClarity, Dundas Data Visualization and the familiar MS Office suite integrated as the top layer, Microsoft's SharePoint has the potential to bring BI to a much wider market.

As with other parts of the software market, Microsoft generally represents the low-cost enterprise solution. MS Excel is often overlooked as a BI tool but actually has a lot of BI functionality built-in. Functionality, such as pivot tables, data source connectors, and automated grouping and subtotalling, make MS Excel the most underutilised reporting and analysis tool. With the addition of Power Pivot for Excel (add-in), Microsoft has enabled users to work with much larger data sets and perform more complex analysis – all in MS Excel. MS SQL Server and Analysis Services (Microsoft's OLAP solution) also still represents a low-cost enterprise database management solution. Microsoft has also included some visualisation and reporting capabilities into its SharePoint Server solution, which helps provide data access in the web collaboration environment.

MicroStrategy

As a supplier focused on enterprise BI tools, MicroStrategy often complements large enterprise data warehouses including its partners, Sybase and Teradata. It is known for its high performance with large data volumes and wide enterprise deployment. Its self-serve capabilities are a strength. Enterprise deployment is facilitated by a good set of developer tools and the centralised management of the development environment. The ability to integrate with Facebook enables users to collaborate.

Oracle

Building on Oracle's reputation as one of the best database servers in the world and its 2007 acquisition of Hyperion, a leading financial software vendor, Oracle's BI offerings are some of the most widely adopted tools in large enterprises. The Oracle Business Intelligence Suite Enterprise Edition (OBIEE) is the tool often used for the most complex and globally distributed BI solutions. It presents a well-designed stack of BI tools and common architecture, providing the end user with a seamless and intuitive experience. With the release of OBIEE Plus, Oracle now offers next-generation BI capabilities with the addition of robust interactive reporting and integration with Microsoft Office.

SAP (BEx Analyser, BusinessObjects, NetWeaverBW)

More commonly known for its enterprise resource planning (ERP) software, SAP used an acquisition strategy to add BI functionality to its toolbox. The acquisition in 2008 of leading financial software vendor BusinessObjects may have seemed to be in response to rival Oracle's acquisition of Hyperion but it certainly gave depth to SAP's BI offering. As with its ERP software, SAP is often adopted as an enterprise standard. Customers often cite its top strengths as its reporting and ad hoc querying capabilities.

SAP is usually perceived as a solution for major multinational companies but SAP's Business ByDesign is targeted at much smaller companies and is provided on a software as a service (SaaS) or cloud basis.

SAS

SAS has come a long way from its origins as a project to analyse agricultural data at North Carolina State University in the 1970s. It escaped the feeding frenzy when other leading BI applications were acquired by the major software vendors and is still privately owned. SAS is the market leader in the statistical and predictive analytics space, recognised for its ability to implement complex models, perform data mining and model advanced analytics. The company is also highly rated for its data integration driver.

SAS may be perceived by others as an expensive and specialist tool, requiring expertise to use but it has a loyal following among its users. Together with the ability to interface with Microsoft's SharePoint or Outlook, business users' ability to select data and generate graphs automatically demonstrate that SAS can be user friendly too.

3.2.2 Other BI vendors should be considered

There are many other software vendors who should be considered. For example, QlikView is not one of the top six but they are mentioned favourably in two case studies in this report. They are gaining a reputation for ease of use. Likewise, BOARD is mentioned in another case study as being particularly flexible.

Filtering through BI vendors can be a tiring job for anyone trying to figure out how to differentiate the offerings. Here are some common differentiators to consider.

Cloud/SaaS

Many cloud or SaaS solutions are departmental, mid-market, or analytic applications. Gartner research shows that only 30% of current users of BI expect to adopt offerings in the future. Pure-play cloud/SaaS vendors include: 1010data, Birst, GoodData, Oco, myDials and PivotLink.

Social analytics

Many other cloud solutions are also focused on 'social analytics' that tie to the use and content of social media and social networking sites, rather than traditional quantitative data analysis. Organisations for which customer or constituent engagement and relationships are important, social data analytics is an important area of BI to watch and consider adopting.

Social data analytics

Shawn Rogers, in Focus Inc.'s *2011 Trends Report: Business Intelligence,* defined social data analytics as BI software that, "Delivers behavioural, sentient, social graph and video/audio data to decision makers, allowing them a greater level of insight when executing BI." Gartner also included social analytics on its October 2010 *Top Ten Strategic Technologies for 2011* list.

Described another way, social analytics gauge interactions and associations among people, topics and ideas. It is sometimes referred to as social business intelligence. While not part of the traditional BI stack, with the increased usage of social media, social data analytics is becoming an increasingly important part of the 'customer intelligence' area of BI.

SOURCE: In Focus Inc.'s *2011 Trends Report: Business Intelligence*

Internal vs external data

Most BI tools are focused on working with internal data. BI functionality that directly utilises external data or provides data to external parties – for example, business partners or suppliers – is an area where some vendors perform better than others. For example, a supermarket may share sales data and forecasts with its suppliers to enable alignment of resources within its supply chain. Organisations that plan to use this functionality should clearly define their external data needs and validate that a vendor is able to demonstrate how it has met this need for its customers. Top vendors for externally facing applications include Actuate, Information Builders and LogiXML.

Mobile BI

As consumers, people have become very comfortable using mobile devices. This raises their expectations of how readily available management information should be. It lowers resistance to change towards providing management information through mobile BI solutions as a wide audience is already familiar with this technology.

Gartner predicts that BI functionality will increasingly be consumed via handheld devices. Tablet technology (such as Apple's iPad) enables easier consumption and viewing of reports by providing a more intuitive interface and easier portability of information. The larger screen size also makes it possible to go beyond the viewing of reports.

> The app of the month featured in the November 2011 issue of CIMA's *Financial Management magazine* was Oracle Business Indicators: Oracle Business Indicators is a business intelligence application that provides real-time, secure access to business performance information on your mobile. So whether you are travelling or stuck in meetings, you can see in real-time exactly how things are going at the press of a button.
>
> SOURCE: Financial Management[8]

Open source

In the BI world, open source does not necessarily mean free. While the software itself is often free, support, training and consulting services are usually where open source vendors earn their revenue. The two most well-known open source BI vendors are Jaspersoft and Pentaho. Both offer enterprise-level solutions and a complete suite of supporting services and tools.

Product quality is often a higher risk with open source software. Care must therefore be taken to ensure that the build used is bug-free and being used by other organisations. Availability of support is the other major consideration when looking at open source options. Paying for support from a vendor (or its business partners) or the existence of a strong user community can mitigate some of the above concerns, the use of open source vendors also means that there will need to be high IT involvement in these solutions.

Niche functionality, geography and verticals

Particularly when looking at niche vendors, care must be taken to understand the vendor's true 'sweet spot'. If the vendor's sweet spot doesn't align well with the organisation's functional needs, then it may be wiser to find another vendor that is better able to provide that functionality.

Niche vendors often service a particular geographic area or specialise in specific industries. From a support and services perspective, it is important to ensure that a vendor is able to provide adequate local or regional support. For example, there are some vendors who operate only in the US and others only in Europe or even within one country in Europe. Vendors that specialise in an industry may not have as much flexibility built into their tools but may have predefined analyses or industry context that can allow organisations to quickly deploy their tools and realise value.

In-memory processing

In-memory processing allows data to be accessed directly from source systems and processed in random access memory (RAM). Generally, this makes processing significantly faster and more flexible than extracting and storing data which may be required for analysis in a data base, structured in cubes in anticipation of likely queries, and then retrieving the data when required. The ability to access data directly from source systems is simply data access technology, which has been around for many years (open database connectivity is one example). So while it is nothing new, it needs to be used with care because of the risks associated with data integrity, security and privacy.

XBRL

Extensive business reporting language (XBRL) is an example of how sometimes a company may need to invest in new information systems to meet a regulatory requirement. In the US public companies filing with the Securities and Exchange Commission (SEC) must already file accounts in this form. In the UK, the tax authorities expect all company accounts to be filed in this way. In time, more companies may be expected to report more frequently and/or provide more detailed information to a regulator, tax authority or stock exchange in a standard format such as XBRL. This information may be made publicly available so analysts and investors can conduct their own analysis. Competitors would then have access to this information too and might be able to derive insights about a company's market position or performance before its own management if they are not maximising the value of their information.

XBRL, or extensible business reporting language, is an international IT standard, or computer language, for coding financial information. It's a method for transmitting financial data electronically, by adding 'tags' to each section of financial data, allowing it to be both computer- and human-readable. XBRL is a standard which is freely available and owned by a consortium (XBRL International). This consortium comprises 642 companies who are a mixture of accountancy organisations, consultancy firms and software vendors.

Essentially then, XBRL is a standardised way of sharing information. My fellow speaker on the subject at the WCOA 2010 event, Jan Pasmooij, Manager of the ICT centre for Royal NIVRA (the Dutch Institute of Accountants) describes XBRL as a 'barcode for data and text' and uses the metaphor of a box of toy Lego bricks to make the comparison.

"XBRL represents the elements inside the box of Lego bricks. It gives a barcode to every element and a computer therefore can read every piece of information pertinent to the contents."

XBRL is a standard that involves the whole supply chain and is designed explicitly to attack process problems.

The use of XBRL globally is rising at an exceptional rate. Pasmooij summed up the situation succinctly when he said, "If you're not involved with XBRL now, you need to be next week. XBRL is happening." Filings in XBRL will completely replace paper filings, it's a just a matter of when. The US stock exchanges already rely on XBRL for filing accounts electronically and the Chinese stock exchanges are said to be adopting it in the future too. Singapore has been very proactive in introducing it for businesses' financial reporting procedures.

In the UK, the tax authorities have mandated XBRL as the data standard to submit a company's financial statements. The UK tax authorities have released a full list of all the elements that are compulsory to be XBRL-tagged if they occur in either the accounts or the tax computation.

– George Glass, Past President of CIMA

SOURCE: Insight Magazine[9]

3.3 A balanced approach to BI

Organisations must take a balanced approach to BI vendor selection. Implementing too many stand-alone niche solutions will create a data management nightmare and introduce risk to the organisation. However, trying to stay within a mega-vendor stack may limit the organisation's time to market and availability of functionality. So a balanced approach that allows for coordination (not necessarily integration) within an enterprise architecture and the leveraging of innovative functionality will provide the most value to an organisation.

Despite being placed first on CIO agendas for the past five years, BI has still not lived up to many organisations' expectations of the value it can provide. This may be due primarily to IT taking the lead on BI initiatives and using a technology-focused approach to developing BI solutions. Instead a balanced approach that looks at information needs and business processes, and 'just enough' technical standardisation and modelling should be used. This allows for the quick delivery of relevant information to business users, balanced with the data integrity and reliability of operations controls often present in IT structures.

Sometimes, the IT and finance functions can seem to have been cast in adversarial roles. IT personnel can feel they are keen to deliver solutions to meet business units' needs and create value for shareholders. To them, finance people can seem keen to limit expenditure so as to protect shareholder value. A balanced approach would mean working to ensure the delivery of a solution to meet a business unit's immediate BI need will fit with a longer term overall BI architecture. This can balance short-term delivery with longer term integration and enable the eventual enterprise wide adoption of BI. Developing a BI architecture can seem imposing but with a little guidance on terms and concepts, management accountants can meet IT in the middle and work intelligently with IT to develop a policy on BI architecture that balances business units' current needs and the whole business' longer term needs.

Wayne Eckerson, former Research Director of The Data Warehousing Institute (**www.tdwi.org**) also sees this need for balance, "The key challenge in the next ten years is figuring out ways to balance top-down and bottom-up activities so they complement, not undermine each other." Wayne's definition of top-down activities includes metrics-driven reporting and dashboard – where you know in advance what you want to monitor – whereas bottom-up activities include ad hoc analysis to answer unanticipated questions.

So in addition to balancing technical architecture approaches, organisations using business intelligence must also balance their architecture to ensure that they are able to meet both their top-down and bottom-up information needs.

CASE STUDY

1-800-FLOWERS.COM

Thomas G Hartnett, CFO of 1-800-FLOWERS.COM consumer flower brand, a leader in multichannel gift catalogue brands, observes that customer service is critical to retailers. By applying business intelligence, his company builds stronger relationships with customers, increases customer lifetime spending and encourages cross-brand shopping. Hartnett collaborated with his CIO, Stephen Bozzo. Hartnett's team brought analytical skills that were and continue to be combined with Bozzo's team's skills and the technology to collect, validate, report and analyse information for insights and better decisions. The resulting improvements in customer satisfaction helped significantly improve revenue growth trends as they learned how to compete based on analytics.

Using software from SAS, a global leader in business intelligence and analytics technology, 1-800-FLOWERS.COM gains insights about customers, drives new revenue ideas and predicts what customers will want – and then targets marketing campaigns to fill those needs. The integrated data foundation from SAS dramatically reduced the time it takes to perform analyses and share results. For example, instead of analysing sales and customer service information after a major holiday, the company can now see what's happening in real time and adjust its website offerings accordingly.

Subsequently, to further enhance cross-sell and up-sell opportunities, the company expanded its analytical platform to its affiliated gift brands, driving more revenue and creating a unified means to look at its broad and growing specialty retail businesses including Fannie May Confections, The Popcorn Factory, Cheryl's and 1-800-BASKETS.COM

By using business analytics, 1-800-FLOWERS.COM :

- Executed a successful Mother's Day sales programme. The company understands that women are the driving force for this holiday's sales. The professional, suburban mother buys for both her mother and her mother-in-law. "We noticed that when we appealed to that persona, we also appealed to the rest of the base,'' Bozzo explained.
- Reported a strong improvement in Mother's Day customer demand. The company analysed the best price points and product mix to entice recession-weary customers, with substantial results.
- Initiated their Perfect Order Every Time (POET) programme. The company trimmed customer service problems by 40%. Business analytics allows the company to isolate, analyse and eliminate customer service problems by understanding root causes and quickly remedying them.

Previously, 1-800-FLOWERS.COM reviewed customer service data after a few days to a few weeks. In an industry that historically receives close to 30% of its annual floral gift sales from two major holidays – Valentine's Day and Mother's Day – looking only at historical data was not adequate. The business team needed to quickly spot issues and resolve them. Is a fulfillment florist in a certain USA zipcode delivering late or substituting with inferior flowers? With business analytics, 1-800-FLOWERS.COM can now see such trends in real time and proactively adjust orders sent to the florist based on consumer concerns. It can also adjust the product mix offered on the website. If customers complain about substitutions when many florists are struggling to get a certain kind of tulip included in a bouquet, 1-800-FLOWERS.COM can quickly detect the issue and remove the bouquet from its website until supply issues are resolved.

Standardised business rules are now applied across all the brands to better analyse costs and share information about costs and revenue across the company. Their competitive advantage is from understanding their customer.

– Gary Cokins, Principal Consultant, SAS, March (2011)

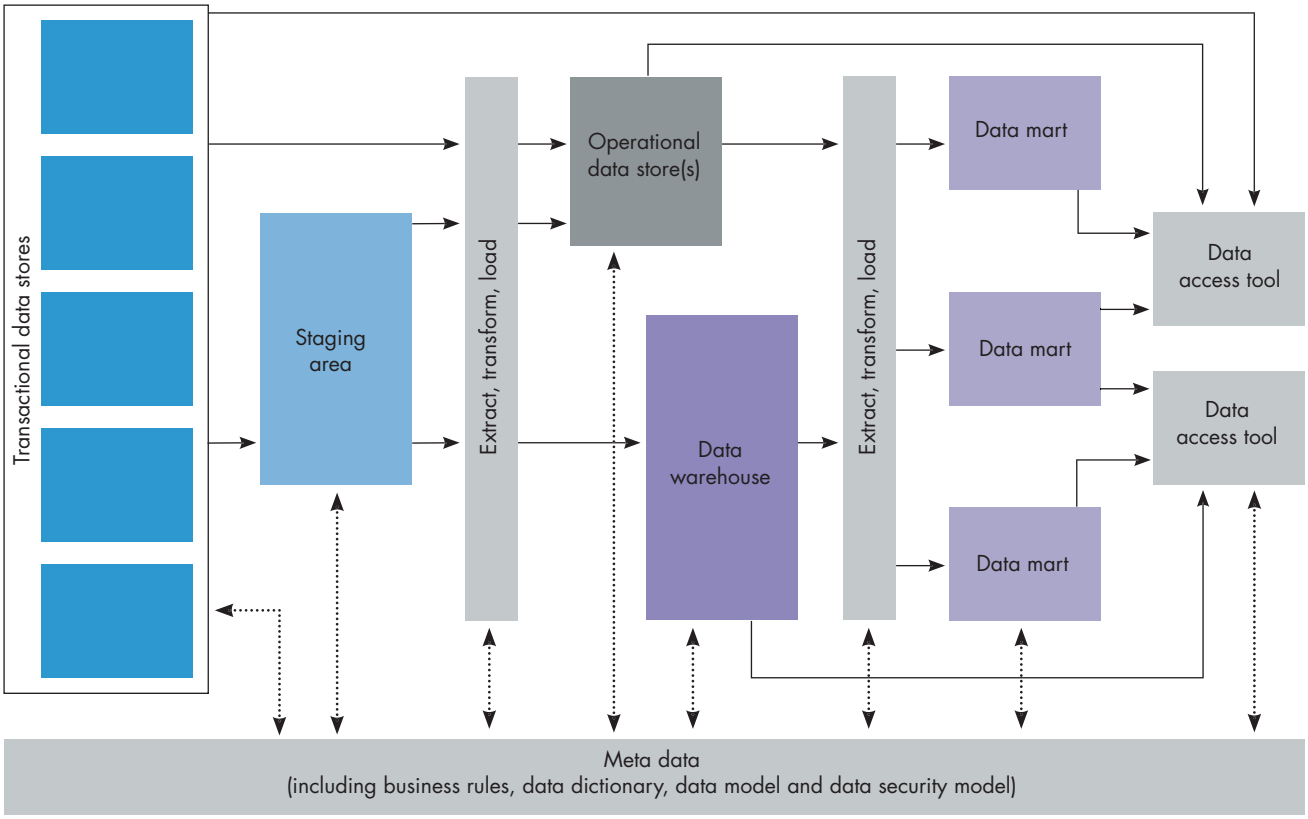
SOURCE: www.sas.com

3.4 Understanding BI architecture components

A BI architecture can take many forms but it is essentially a series of data stores and processes by which data is moved among the data stores. At a conceptual level, all BI architectures look essentially the same and have common components.

Figure 3.4 shows the full set of standard conceptual components of a business information architecture and the flow of data among the various components.[10] Data is entered into transactional systems – for example, general ledger, point-of-sale – then flows through the architecture and is delivered to end users via data access tools – often in the form of reports.

FIGURE 3.4: Business information architecture (conceptual components)



SOURCE: IntrapriseTechKnowlogies LLC

While Figure 3.4 may look daunting, management accountants need only focus on three key elements:

1. **Extract, transform, load** (ETL) – Each of these elements represents a point at which data is potentially being changed and where there is a risk of data corruption. Management accountants should work with IT to ensure that data quality is maintained at each of these points by looking at completeness, accuracy, cut-off and precision. Additionally, management accountants should work to ensure that source and transformation traceability is enabled so a proper audit trail is maintained as data moves through the various systems.

2. **Data marts and data access tools** – These are the points through which information is stored (data mart) and delivered (data access tools) to end users. Management accountants should be involved in the design of the data marts, which is driven by the answering of key business questions and performing analytical procedures. They can also help business users with their adoption of data access tools that help create and deliver reports and alerts.

3. **Meta data** – Meta data often represents the context in which all the information is flowing through the business information architecture. Management accountants should be involved in the capture of business context, such as business rules and the data dictionary (definition of terms) and also with ensuring that data-related risks, such as security and privacy, are addressed.

By focusing on the areas of data quality, information delivery and understanding (decision support) and standardised business context, management accountants help to ensure that a BI architecture is designed to meet business needs and mitigate business risks.

"We are currently in the middle of rolling out Qlikview as part of our BI project and it really is the next big thing. As an overview I would state,

1. The project, although in its infancy, has already shown its worth in terms of auditing control. But it's also opened up many new areas of analysis and insight, such as promotional reporting and associated spend analysis.

2. In terms of the role of the management accountant, it's only adding to our skills and impact on this business. Management accountants have driven a project that has impacted on operations, systems, commercial and board levels.

   We are now able to supply information dynamically at a level we could only imagine six months ago. Sales reports have become daily and day-part level, with covers and trends a mere click away.

3. It has improved understanding of commercial and marketing aspects of the company by allowing information from different sources to integrate easily.

4. Next on our list is a living Balanced Scorecard."

– Michael Toon, Group Management and Systems Accountant
Tragus Holdings, London, UK

3.5 BI is an enterprise initiative

While BI technology is important, it only represents one aspect of an overall business intelligence strategy.

These applications have often been deployed as tactical solutions to specific problems. Users often selected a tool within a local budget without reference to IT or finance, potentially creating a new silo of information. Some have been the preserve of data analysts or IT technicians and others have been acquired independently by users, including the finance function, for their own department's use.

Reflecting the criticism that accountants can sometimes seem to be scorekeepers on the sideline rather than players on the business team, accountants sometimes use a performance management system, a form of BI application, as a financial reporting tool alongside, rather than as part of, the company-wide BI architecture. Meanwhile, IT could provide other business users with a data warehouse and dashboards, leaving the accountants marginalised in a parallel universe. These accountants gain tools to produce financial reports and miss the opportunity to transform the business.

Lacking expertise in the accounting area, IT professionals have tended to allow accountants to acquire these tools tactically as accounting applications. Lacking expertise in BI, accountants have often limited their use of these tools to improving the efficiency of reporting cycle processes such as preparing budgets, consolidations, forecasts and reports.

However, for BI to really provide enterprise value, it must be integrated into the way the organisation looks at itself and makes its decisions. Enterprise adoption of BI should result in more robust and higher quality information, providing a critical insight into end-to-end business processes, transforming them from being mundane and isolated to being information-rich and integrated.[11]

Building enterprise BI capabilities does not have to be an overwhelming undertaking. First, an overall BI framework and architecture should be set out. Smaller projects can then be undertaken to build out smaller pieces of the architecture over time, addressing specific data sets or business needs. This incremental method can help an organisation better manage the risk of the overall initiative and realise value.

4. THE ROLES OF MANAGEMENT ACCOUNTANTS IN BI

BI is about improving decision making. So too is the role of the management accountant. Yet the congregations at BI events are still mostly enthusiasts from the IT profession. Even if a CIO can persuade a business to invest in BI, the potential benefits cannot be delivered without engaging business users to implement changes and use the applications. Management accountants' roles in organisations position them as the knowledge workers with the best commercial overview of the business. They are therefore well placed to unlock the potential in BI.

If implemented properly, BI applications can provide those accountants engaged in transaction processing and the production of regular reports, such as budgets, monthly accounts and forecasts, with a means to produce them more efficiently and to higher standards of timeliness and reliability. Other accountants may become experts in the areas of accounting information systems or data quality to help ensure that these systems produce better management information in the formats that business users expect.

Moreover, BI could release many management accountants from the budgeting and reporting cycle, allowing them to contribute more analytical rigour and professional discipline in risk and performance management, both operationally and strategically. This development could be the key to unlocking the potential in BI and improving business performance.

So, management accountants should be engaged in BI because they have important roles to play in helping to realise its potential.

4.1 The business case for BI

4.1.1 BI strategy

"A BI strategy is advantageous to an organisation, but it requires finance and IT to engage with senior executives and key stakeholders. Management accountants have long been tasked with the provision of information for decision making; BI technology will assist in this process in the future. Therefore there are opportunities for the management accountant to ensure that BI systems deliver valuable information to business users and provide them with decision support. Management accountants are best placed to see where the automated provision of information will deliver the best results to the organisation."

– Kevin Cooper, Finance Manager
AOL Broadband

SOURCE: MIAGEN

Accenture's long running analysis of high-performing organisations has identified that they consistently use information technology not only to reduce costs, but also to build competitive advantage and drive growth. However, many business leaders have long memories. Having experienced the rush to invest in Y2K ready systems, overly optimistic dot com projects or the need to ensure that systems are Sarbanes-Oxley compliant, many business leaders are wary of new IT projects. Their concerns are that these projects can overrun, exceed budget and, even if the technology solution is implemented satisfactorily, can still fail to deliver some of the benefits expected.

In the current climate, cutting costs is a priority so most business leaders would prefer to conserve cash rather than make further investments. Those businesses that can cut costs to improve operating efficiency, but also invest more than their competitors in marketing, research and development, and capital expenditure, are likely to be the most successful as they emerge from recession. Furthermore, a crisis provides an opportunity to address issues that could be tolerated in a more benign environment as the 'buy-in' necessary to implement change can be easier to win.

"One of the best things that has happened to this bank is the global economic crisis. The reason I say that is when I first started with the bank and we were trying to launch our integrated financial solutions business across the UK, when you went to people and said, 'We need you to start doing this,' they would say, 'Why do I need to do that? That's not what I do.' Now that people know we are in unprecedented times, they have woken up to the need to re-evaluate what they do and why they do it."

– Steve Orme FCCA – Head of Finance
UK National Australia Bank

SOURCE: From an article in the ACCA's Accounting & Business magazine

The cost may not be prohibitive. Most large organisations will already have an ERP system and database. These are the core, and usually the most expensive, building blocks of a BI stack, the architecture of the systems needed. BI reporting and analysis tools could allow non-technical business users access to the potentially valuable data already captured. Investing in BI tools could be seen as an incremental cost to release the potential in this data to improve performance.

Some business users will have already acquired applications for their own department's purposes. But unless there is an overall BI strategy, these will probably have been acquired tactically within a local budget rather than strategically as part of an organisation-wide BI programme.

For example, the finance function may have BI tools that access data from the ERP system and allow them to produce consolidated financial reports, budgets, forecasts and financial analysis. Meanwhile the sales and marketing people may have a customer relationship management (CRM) system that maintains customer data and records contact with customers on a database. Without a common approach and consistency in data controls, it is not unusual for the finance and sales directors to present conflicting views.

In companies that have grown through acquisition, or which allow business units a high degree of autonomy, or in the public sector where separate bodies can be combined as a group for political reasons, the lack of a consistent BI strategy can lead to a fragmented structure of systems and applications. This increases operating costs relative to better consolidated groups of similar scale. In this context, group-wide BI projects are especially challenging because imposing common operating standards may require cultural change as well as IT investment across all members of the group.

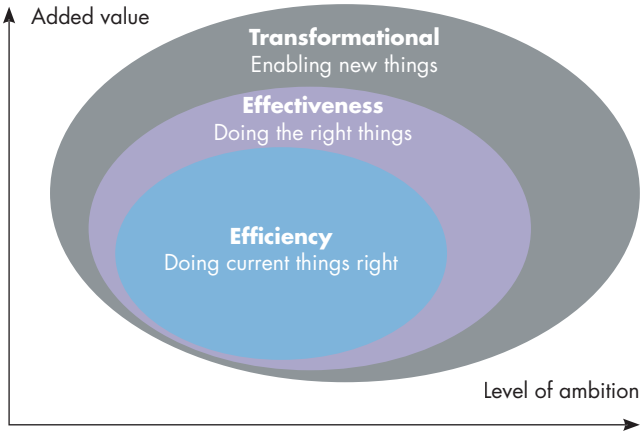
Even when local autonomy is not an issue, business users must be engaged throughout the development of the BI strategy and its implementation. Otherwise there will be no ownership and the expected benefits will not be realised. Users may continue to expend energy in work-rounds or even continue to invest in their own local solutions and not use the new BI to its full potential.

Ideally, the future role of BI in the company should be determined by senior management. A coordinated BI approach could start with an assessment of the organisation's needs, its current solutions and competitive environment. The risk to the company's competitive position in the longer run of not investing in BI should be considered.

IT professionals have the expertise in IT architecture but often require the support of the finance function to help make the business case for BI. The business case can be challenging because, although there should be some cost savings through efficiency gains, much of the potential pay-off from BI can have less to do with cost saving than value creation.

4.1.2 Costs and benefits

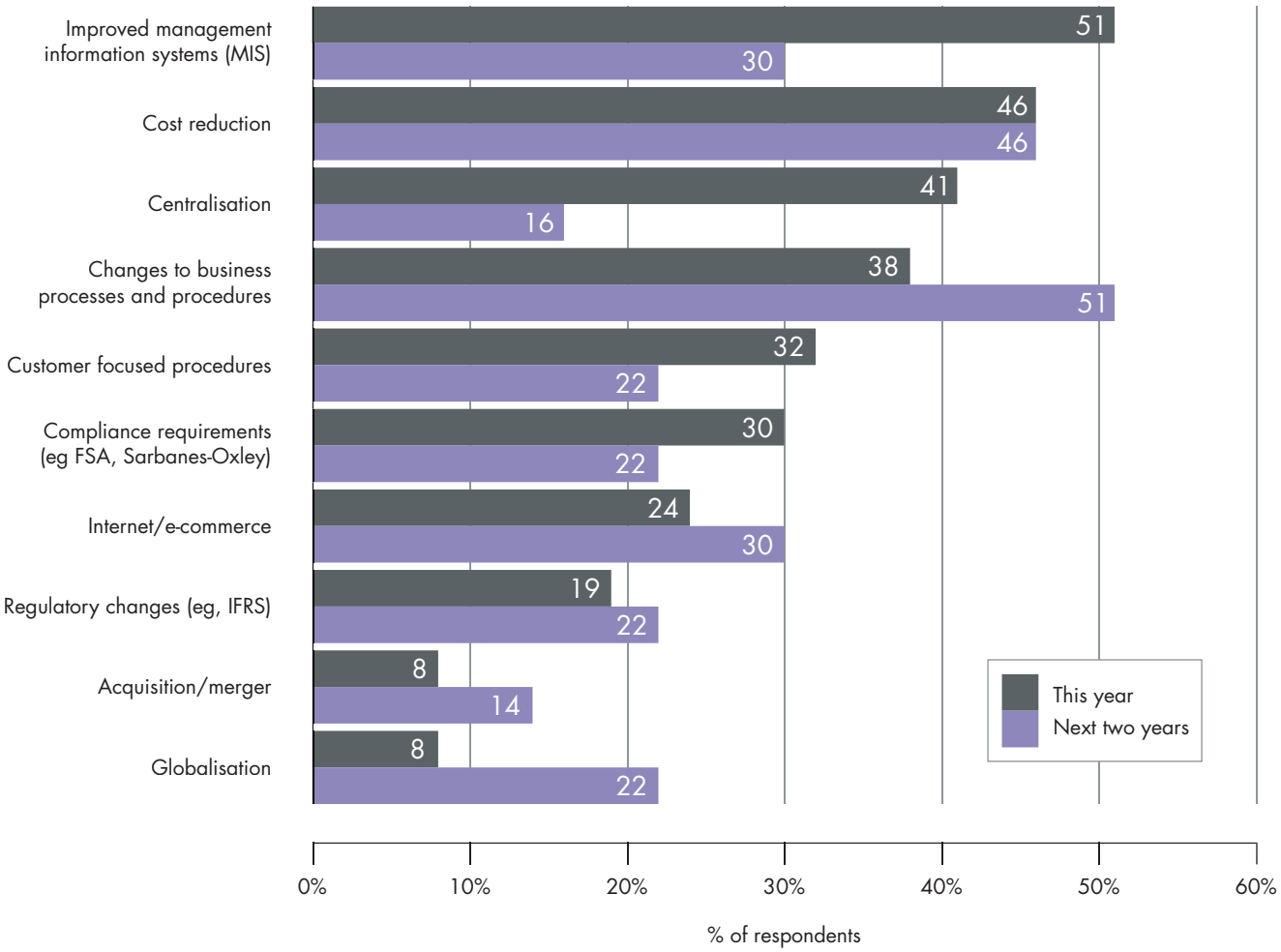
FIGURE 4.1: Benefits from business intelligence



SOURCE: Oracle

This chart from Oracle[11] illustrates how the benefits from BI, the 'added value,' range with the 'level of ambition.' Doing what we already do more efficiently is the area where an investment can be considered by weighing up current costs against the total cost of ownership of new systems.

FIGURE 4.2: What have been the main business drivers from recent developments in financial and accounting systems?



NOTE: Respondents could choose all that apply

SOURCE: Conspectus Magazine May/June 2011[12]

The drivers for investing in BI can be varied as this NCC research for Conspectus found as illustrated in Figure 4.2. The main reasons may be for softer benefits which create value such as improvements in effectiveness or the transformational change that might be achieved. However, unless the investment is necessary either to meet a regulatory reporting requirement or reduce a major risk, in most organisations, the business case for the investment in BI must still meet firm investment objectives based on a cost/benefit analysis which emphasises savings. Organisations will take different approaches but the achievement of a target return on investment (ROI), payback within a set period, or a positive net present value (NPV) are typical approaches.

The direct benefits of BI, as with many IT investments, can be difficult to value. The indirect causal chain between any IT investment and performance outcomes makes it difficult to track benefits realisation. BI is an IT enabler that should allow changes in the way data is processed and information produced. The solution may be delivered satisfactorily, but the reporting and analysis tools must be used by people in the business to gain information and insights if it is to enable the business to derive economic value. This may require business changes too if the information obtained is to be acted upon. These in turn can provide tangible and intangible benefits which the business can use to generate economic value. But a wide range of external factors could also influence business performance and investment outcomes.

CASE STUDY

BIG BUILDERS

The recent downturn in the housing market has posed unique challenges for all homebuilders. Take for example, the building company Big Builders. Historically, each division of the company has been run as its own business. Their estimating and purchasing system manages vendor contracts and job pricing. It also houses the materials needed to build a house, taking into account all possible standard features, options or upgrades, and regulatory building requirements.

Because of the lack of shared master data and standard processes, materials and costs vary widely across the country. The newly formed corporate purchasing group had the difficult task of negotiating corporate-wide contracts with little or no visibility into what was being purchased and in what quantities.

Before Big Builders decided to hire and bring in consultants to discuss its business intelligence needs, Barbara Ranson, CPA and Chief Operational Officer, researched which questions she should ask and how much she should consider spending for a BI solution. She utilised the BI valuation Excel spreadsheet and considered the following factors built into it:

- time savings
- expense reduction
- revenue opportunities
- miscellaneous benefits
- data development
- software costs – one time
- hardware costs – one time and ongoing.

Once the data was entered into the spreadsheet and the cash flow analysis was calculated, Ranson was able to conduct a cost-benefit analysis and determine the baseline financial impacts to Big Builders.

Working together with consultants, Big Builders considered the redesign of the procurement application to use common master data, conform to standardised business processes and re-platform the application to be easier to develop and maintain going forward.

For more information about the Business Intelligence Value Proposition Tool Kit, and to learn more about the IT resources offered by the AICPA and the IT Section Membership, please visit **www.aicpa.org/infotech**

The direct costs should be relatively straightforward to quantify. Many of the building blocks may already be in place. Where new investment is necessary, the cost may be offset to some extent by savings on software licenses and training on a diverse range of legacy systems. In addition to hardware, allowances should be made for software, consultancy fees, training and for proper project governance and change management, without which the hoped for benefits are unlikely to be realised. A contingency factor in line with comparable implementations must also be allowed. For large-scale projects, the appropriate level of contingency may be estimated by reference class forecasting based on the experience of projects of a similar scale elsewhere.

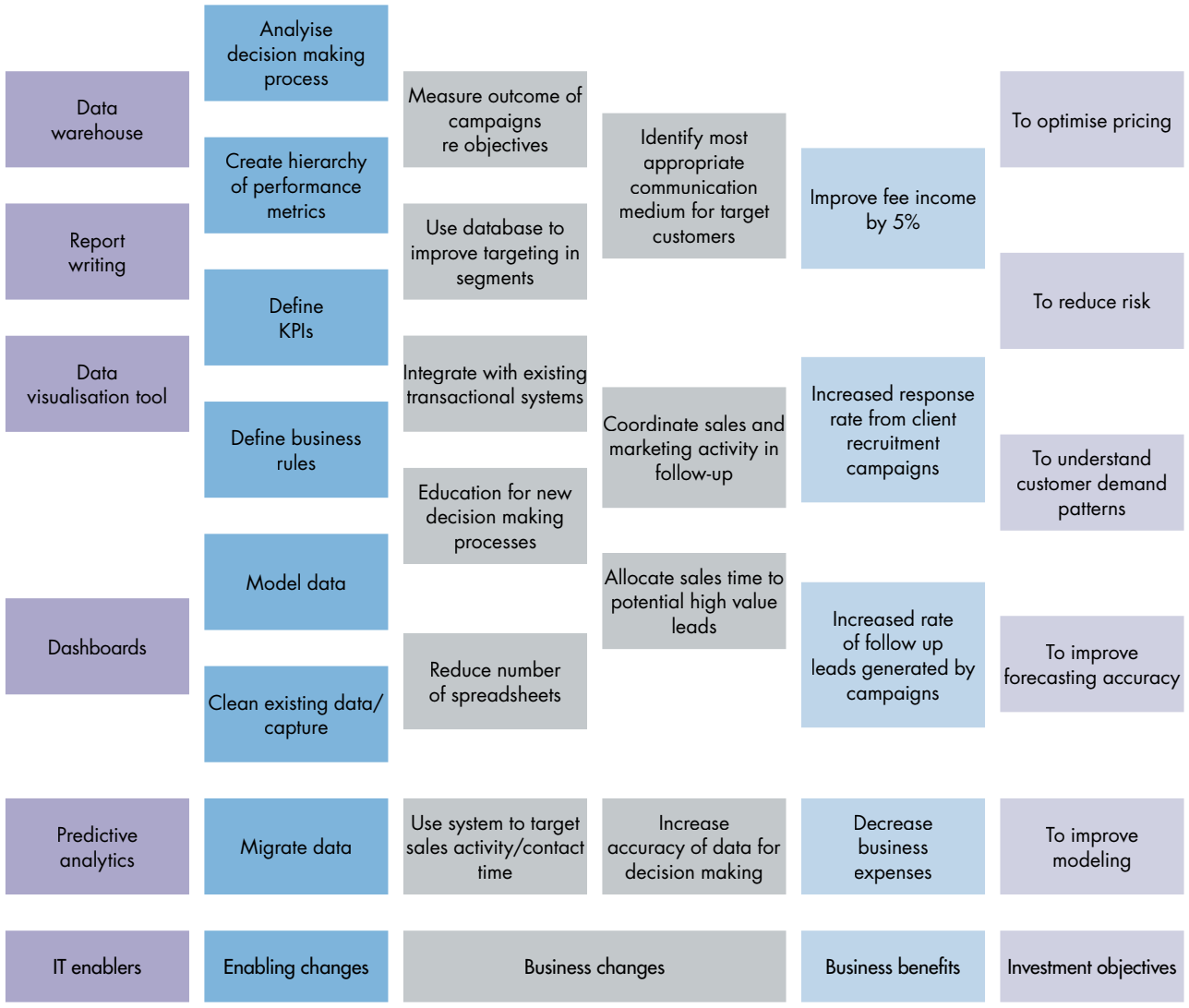
As BI can be used widely throughout the organisation, and even outside through an extranet, the business benefits can be wide and varied. Benefits are unlikely to be realised or the investment objectives met unless there is clarity about the benefits and economic value expected at the outset, and a project plan established to manage benefits realisation.

For most enterprises, the potential benefits from BI and performance management software already exceed their ability to fully exploit them. Users may be empowered to find new, unforeseen ways to get further value from their investment in BI. These unidentified benefits may be in the form of future options that the BI competency allows, however, they are unlikely to be taken into account in any investment appraisal. The benefits that the business can be confident it will realise are those for which there is a credible plan and commitment to deliver. These are the only benefits that will be considered in a prudent investment appraisal.

According to Professors Joseph Peppard and John Ward of Cranfield University and Elizabeth Daniel of the Open University Business School, realising benefits depends on a network of IT enablers, IT enabled changes and business changes to realise benefits that will lead to economic value that can be assessed against investment objectives. A benefits dependency network (BDN) provides a framework for explicitly linking the overall investment objectives and the requisite benefits with the business changes which are necessary to deliver those benefits and the essential IT functionality needed to both drive and enable the changes to be made.

Figure 4.3 is an example of a benefits dependency network for a BI/Analytics project. This is based on the work of Prof Joe Peppard at Cranfield School of Management. For further details on this technique see J Peppard, J Ward and E Daniels, *Managing the realisation of business benefits from IT investments.*[13]

FIGURE 4.3: Benefits dependency network for a BI/Analytics project[13]



SOURCE: Prof Joe Peppard, Cranfield School of Management

As Figure 4.3 illustrates, benefits arise from:

- The IT enablers that a broad-based project implementation team with senior level sponsorship commits to deliver.
- The enabling changes that business managers commit to make to realise benefits and generate economic value that can be assessed against investment objectives.
- The business changes necessary to achieve the benefits expected.
- The acceptance by business managers of targets and budgets reflecting these enablers and changes.
- These should lead in turn to financial outcomes and the achievement of the financial objectives in the business case.

4.1.3 Cost savings

- BI tools can be used to improve the efficiency of producing management information. This can include budgets, monthly accounts, consolidations and forecasts. With the benefit of BI, it should be possible to provide this information on a more up-to-date basis, in a more user-friendly format with greater accuracy. Reducing the month-end close from several days to a few may have intangible benefits, however, there should be quantifiable savings in the production of this information and in the reduced level of iteration and re-working in producing reliable figures.
- BI tools are user-friendly. Users will be empowered to conduct ad hoc analysis which would previously have required support from the IT function.
- Savings will include efficiency gains, often expressed as numbers of full-time equivalent (FTE) employees. To realise these as actual cost savings, for example, through redundancies, can be difficult but the capacity released can be deployed to provide more valuable support to the business.
- The BI tools may, to some extent, replace a disparate array of tools already being used. This should yield benefits in terms of savings in software licensing and training costs.
- Virtualisation – bundling applications on a smaller number of servers – can save costs as fewer servers will be required.
- The ability to comply with reporting and regulatory requirements is a form of licence to trade. Changing reporting standards will require greater transparency about business performance and prospects. The need for more narrative reporting about the organisation's situation and prospects will require commentary on both financial and non-financial indicators. Without a BI solution these requirements may only be met through ad hoc analysis, so there should be a potential savings here too.
- Compliance with regulations may also require the disclosure of data that may not be readily accessible without a BI solution. In addition to saving costs, using BI to provide better more reliable compliance reporting can help ensure that risks or potential non-compliance in future are addressed to avoid future compliance problems.

4.1.4 Increase profitability

BI tools will be used for new reports and analysis that should lead to increased profitability through improved operating performance and a better strategic focus on profitable products and segments.

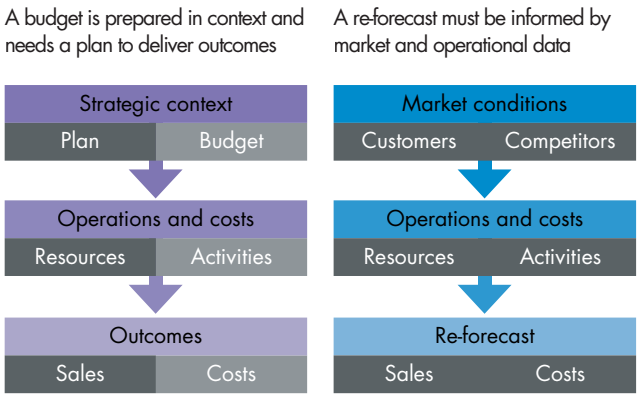
For example:

- Sales people who are better informed about a customer's situation and preferences, product holdings, cost to serve and profit margins should be able to achieve more profitable sales.
- Greater transparency enhances performance. Internal benchmarking between individuals and divisions that are measured on a consistent basis can help identify best practice and raise standards.
- Performance management can be improved by event management – automated reporting which triggers alerts – enabling managers can take prompt action to address indicators of problems or adverse trends.
- Negotiators can be better informed about the economics of current or comparable arrangements when agreeing contracts with suppliers or customers. Potentially uneconomic arrangements can be identified promptly and renegotiated at the earliest opportunity.
- Advertising and promotional spend can be better focused on initiatives with a higher probability of success, based on better analysis of the evidence about the performance of past campaigns.
- Some data may have value outside the business. For example, some supermarkets sell electronic point of sale (EPoS) data to their suppliers.

4.1.5 Intangible benefits

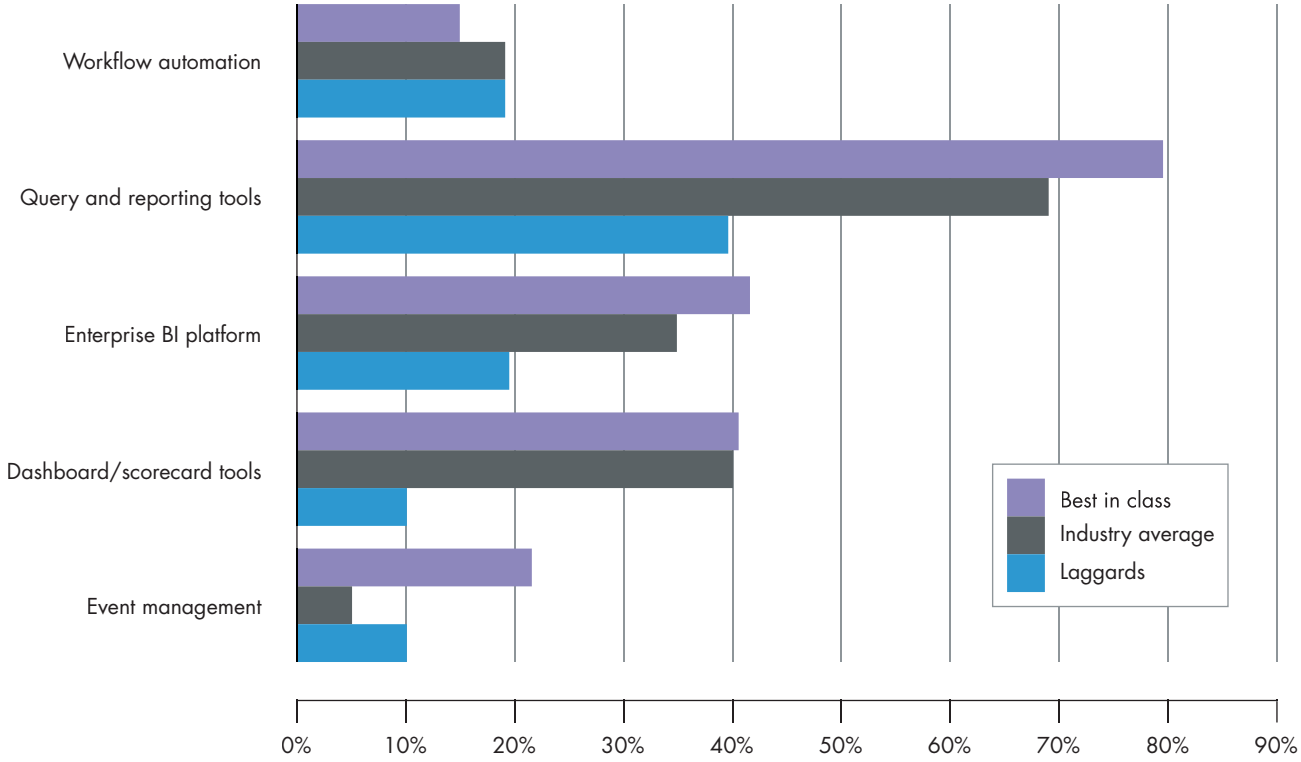
Some benefits may be intangible. These too can be of value and considered as part of the business case if a firm plan is put in place and commitment given that they will be used by the business to generate value.

FIGURE 4.4: Extrapolating a budget of re-forecast from financial data alone will not suffice



The use of planning, budgeting and forecasting tools can transform the production of forecasts from processes conducted within the finance function to a company-wide exercise. A forecast or budget could be produced by extrapolating financial figures to produce a projection. If a budget or forecast is to be achieved, congruent plans must be made and resources deployed to drive the financial outcomes expected. In the past, a budget or forecast might have been produced within the finance function, with less than active engagement of business managers. With BI tools, business managers can contribute to the budgeting and forecasting processes so that these financial projections can be built on non-financial customer and operational drivers. This can improve the alignment of planning and budgeting and the accuracy of forecasts.

FIGURE 4.5: Technology enablers differentiate best in class



SOURCE: Aberdeen Group[14]

The Aberdeen Group's benchmark research into best practice in financial planning, budgeting and forecasting practices has found that those companies which make more use of BI tools are more likely to perform these processes more efficiently and with more accuracy than their competitors.

- More prompt closing of period end accounts gives an impression of good systems. Over time, these can increase analysts' and investors' confidence in a company. This can increase shareholder value by reducing the risk premium expected by the market and increasing the share price.

- Greater clarity about the drivers of value can provide insights into which products, segments and customers are most profitable and those which are uneconomical can be used to improve the retention of valuable relationships. These can be defended from competitors and business developers can focus attention on winning more relationships with similar potential. The profitability of less economic products or customer relationships may be improved through using lower cost channels, cross-selling or more appropriate pricing.

- Emerging trends can be spotted earlier and improved or new products and segments developed.

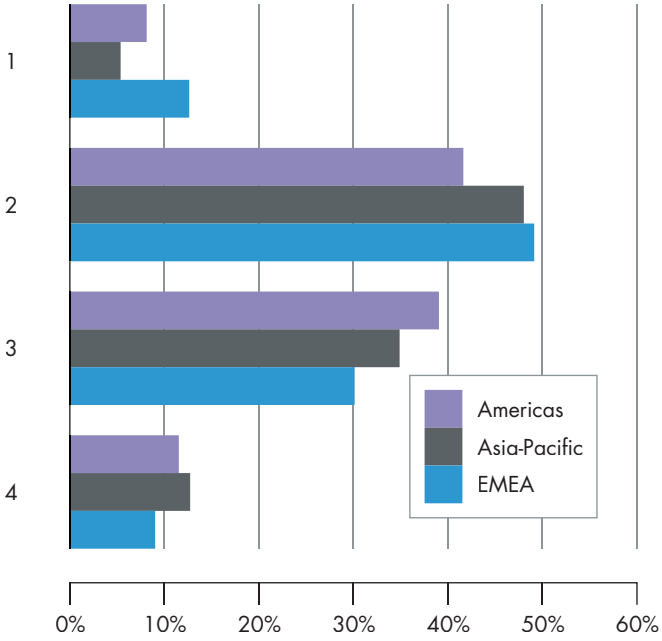
- The use of planning tools and the ability to identify trends early should improve a company's adaptability to changing market conditions. They can re-forecast more readily and more accurately. Evolution is not about survival of the fittest but of the most adaptable, so adaptability can help ensure the long-term survival of a business.

The challenge can be to make the benefits from IT investment clear so as to win buy-in from business managers and to make sure the opportunity to realise these benefits is taken.

4.1.6 Post project review

Performance of the project against cost and timeline or the delivery of IT systems can be measured relatively easily. What is not always addressed is the measurement of benefit to check if the outcomes expected or benefits have been realised.

FIGURE 4.6: Benefits measurement



1 Benefits are never measured after completion
2 Benefits area rarely measured, only by exception and or limited elements in an ad hoc way
3 Benefits are regularly measured, on some elements defined in the business case
4 Benefits are always measured on a large number of elements defined in the business case through a formalised process

SOURCE: © 2011 Deloitte Global Services Limited[15]

Management accountants should conduct a post audit to establish if the benefits have been realised. When the benefits expected have been detailed in the business case, it is easier to measure the performance of the project. When stakeholders are alert to the fact that there will be a review exercise and that their own delivery of commitments will be considered, the probability of the project's success is enhanced.

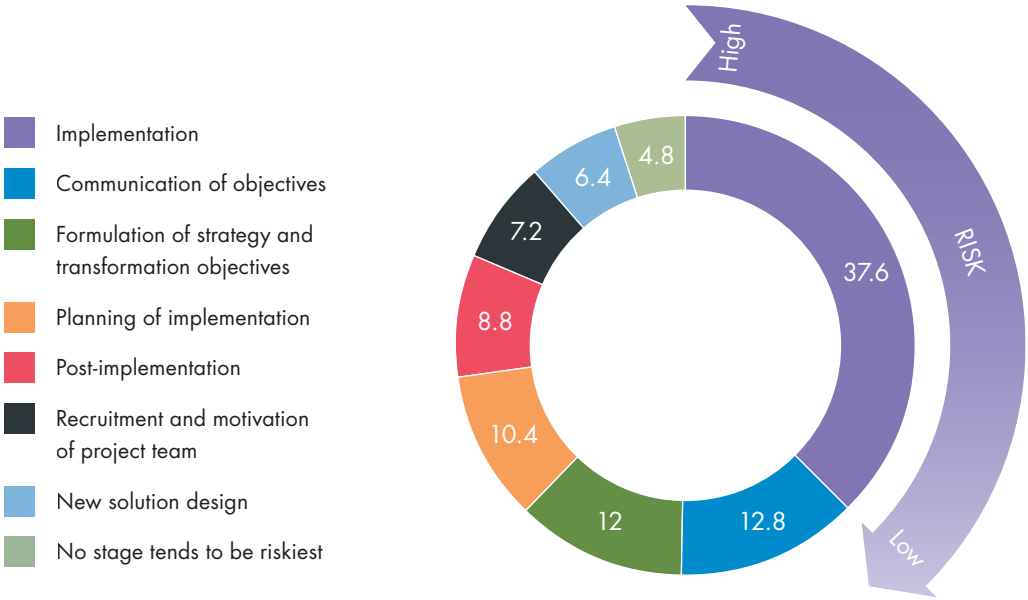
Research by Deloitte found that although most organisations consider a business case before making major IT investments, relatively few apply the same rigour to measuring the benefits realised. Measuring benefits is not easy. It requires that how value would be generated should have been defined at the outset. Appropriate measures and responsibilities have to be determined at that stage. Unless benefits are measured, the potential value of the investment may not be realised. Or, even if the benefits are realised, the success of the project may not be recognised and future IT projects will face the same challenge to overcome business leaders' reservations.

4.2 Implementation

"We have surveyed our customers in the business and found that what they value most in finance/business partners is that their finance process training has given them an understanding of business processes, inherent risks and financial impact. This means that they know what it takes to get things done and can attend to the detail."

– Simon Newton, Vice-President
North Atlantic Finance and shared services
Kimberly-Clark

FIGURE 4.7: Source of a business transformation project where the risks of failure are highest?



SOURCE: Capgemini/EIU Trends in Business Transformation
(online survey of 125 Western European C level execs in US$500m+ companies and interviews with 15)

The objective of a BI project is not to acquire the latest in IT systems but to improve decision making by delivering the information and analysis that decision makers require at different levels in the organisation, and ensuring that this information is used. This can require change of a transformational nature.

Research commissioned by CIMA (Grabski et al, 2008) shows that the board's sponsorship was critical and that when management accountants were involved in the implementation of an ERP system there was an increased likelihood of its success. Successful ERP implementations released management accountants' capacity to provide decision support. As one top management interviewee put it, they became 'business partners, not just budget buddies'. This should hold true for BI implementations too.

Research in 2008 by Capgemini consulting into risk in business transformation projects finds that implementation is regarded as the stage where the risk of failure is highest. Project management and change management disciplines have to be applied. Appropriate people from each of the following levels across the business must be engaged.

- Strategic decision makers need to be able to review the business' strategic position, assess opportunities and risks to prepare strategic plans, and track and review performance in implementing these plans. They will also require management information, financial reports, budgets and forecasts.

- Knowledge workers, including business managers, accountants and marketers, require information, statistics and analysis about the performance of their areas. Dashboards, reporting and portals may be required. Some will need to be able to drill down predetermined queries to identify root causes. Others will want to conduct ad hoc analysis and commission reports or forecasts. Usually only more expert users will conduct data mining and advanced analytics, but these tools are becoming more user-friendly.

- Operational level workers require information, sometimes in real time, about the customer, product or process they are handling. Call-centre workers for example, need access to information about the customer with whom they are dealing. They may be prompted by business rules to ask appropriate questions or offer further products or services. Guidance as to customer value may give them discretion to resolve a valuable customer's issue promptly, for example, by waiving a charge in the event of a complaint.

Some of these people may help form a business intelligence competency centre (BICC). This is a panel of experts that may coordinate the implementation of a BI project. This panel often oversees the management of the BI architecture in the business and can serve as a decision support centre.

However, the key to achieving a BI project's investment objectives is that the business managers who can deliver the project's benefits must be engaged in the investment decision. They must contract that, subject to the IT enablers being delivered and the necessary changes being made in the processing of data and the generation of information, they will make business changes to use the improved intelligence and deliver the benefits promised, accepting responsibility for generating economic value.

Demonstrations of BI's potential benefits to them, based on samples of real data (in data marts, for example) may be important in convincing these key business users about the potential of BI.

Dr Thomas D Queisser of Troy University and Gloria Miller of Maxmetrics GmbH surveyed 529 respondents from 50 countries representing 30 industries. 83.2% or 425 of the respondents indicated that their organisation uses decision making software.

73% or 312 of the respondents indicated that their organisations used decision making software and also indicated having a decision making support entity.

Queisser and Miller found that, "Implementing a decision making support entity (a BICC) can deliver superior decisions, and based on managers' assessments organisational performance. Although some non-adopters reported quality, speed, or performance improvements without a specific BICC investment, BICC adopters did report a higher degree of improvement than non-adopters."

SOURCE: Queisser and Miller (2008)

Eleanor Windsor, Head of BI at European law firm Osborne Clarke, says a critical first step is to set up a cross-functional project team to look at the use of management information across the business. The key success factor here is to involve people from as many different areas of the organisation as possible – finance, IT, knowledge management, sales, directors/senior managers from the business.

These are the critical aspects to address in the review process.

- Robust? Data quality is critical. In Osborne Clarke, the data quality concerns related to culture, processes and getting buy-in. The review had to get to grips with the problems and take steps to address them.
- Timely? It is equally important to ensure information is delivered in sufficient time to be useful and that the information is up-to-date.
- Relevant? Management information and those responsible for the different systems need to properly understand their audience so the information they collate and then analyse is relevant to them.
- Presentation and comparison of data must spark interest. The current trend is to present 'digital dashboards' but will they suit your audience? The information needs to be given context, for example relative to the previous period or targets.
- Insight is the critical bit. Osborne Clarke addressed this by setting up a small specialist team to lead a separate BI function. The team has a variety of different skills, from running CRM systems to research and project management.

This group networks across the business. It is responsible for all research projects, whether one-off or regular surveys, external or internal. The BI function takes responsibility for a range of areas, including regular company-wide reporting, business planning and competitor analysis. By doing so, the team develops insights, internal relationships and reputation to ensure a robust and respected business critical function.

A useful spin-off is the ability to combine internal and external information. Internal management information can be contextualised by research into recent market, economic and competitor trends, providing a broader view and helping to identify trends and opportunities.

SOURCE: Evaluation Centre (2008)

4.3 Ensuring data quality

Companies often have a variety of operational sources across different vendor platforms and technologies. In data warehousing and BI solutions, a great deal of effort must go into sourcing, transforming, integrating and cleansing data from source systems as data must be migrated into a common structure in the data warehouse.

To support evidence-based decision making, leading organisations' accounting and finance functions can no longer rely on multiple data sources, different and often inconsistent data sets, and accountants' work-rounds. Finance functions are showing leadership and pressing for a consistent way of doing business, relentless process improvement and automation and a single data set across the whole organisation. This requires data management.

To manage data effectively, many leading global organisations are working to streamline their systems and standardise their operating processes. Some leaders for example, Diageo, whose world-famous drinks brands include Guinness, Johnny Walker and Smirnoff, have moved towards a single instance of ERP.

"When we see organisations with fragmented and inconsistent sources of information, we are witnessing a lack of governance. Where there is a vacuum, we believe that the CFO should own the governance process around information integrity because weaknesses in this ultimately are reflected in financial results.

This is not the same as saying that the CFO should own all the data, as clearly others are better placed to own information originating in their domain. For example, marketing may own customer relationship management (CRM) data, finance owns accounts receivable data but finance ensures that there is an overarching governance framework in place."

– IBM's 2007 report, *Finance strategy: delivering the partnering role*[16]

The ideal scenario is to capture essential data correctly in the first instance and have control mechanisms in place to eliminate duplication and inconsistent classification in subsequent records. Accountants are well placed to apply disciplines learned in accounting processes to help ensure the quality of data.

- The starting point is to analyse or profile the data to understand its quality and completeness. Data sources must be assessed to identify which system stores what, which is more authoritative and where inconsistencies exist. This helps to assess the complexity of the data transformation exercise.
- Meaningful data integration requires a common set of definitions of metrics – for example, what is a customer? For the accounts receivables team a customer is a debtor but for the sales team he is a prospect.
- The key to this is clearly articulating the business requirements and objectives of the project. Common master data definitions will have to be determined.
- Data quality assurance – incoming data may need to be corrected, enhanced and validated through the transformation process. This requires a data rejection and error management process. Suspect data must be analysed in the data warehouse or, preferably, at the point of origination.
- Virtualisation (sharing servers) and moving towards network attached storage (NAS) or storage area networks (SANs) can improve data governance. NAS and SANs provide greater agility in the way users store data.
- Data quality management tools allow data from disparate systems to be integrated into a data warehouse and provide a mechanism for monitoring and improving quality. A master data management (MDM) or customer data integration (CDI) application may appear to be needed, but many of the problems with data are people issues that can still occur after investing in MDM or CDI. A culture which values data is required.

4.4 Generating reports

Accounting operations is the engine room of a finance function. This is where transactions are processed, suppliers are paid and monies due are collected, proper records are kept and financial reports produced. In larger organisations, teams work on key financial processes, such as accounts payable, accounts receivable and record to report. Systems standardisation, process improvement and the use of shared service centres are increasing the efficiency of finance operations. Most of the cost savings to be achieved through the implementation of the financial aspects of a BI project will be achieved in this area. However, this is also the area with the potential to become the centre of expertise in data quality and generating business information.

For many financial accountants the main benefit in investing in Corporate Performance Management (CPM) tools - primarily for budgeting, reporting, forecasting and consolidating – is their ability to generate standard financial reports more efficiently. For example, month-end close can be achieved more promptly, and the budgeting and re-forecasting process cycles can be reduced considerably.

It also has to be appreciated that the ability to re-forecast promptly will lead to more frequent forecasting, which will enable the business to adapt more readily to change. Expected cost savings, therefore, may not be realised in terms of a reduction in employee head count but in terms of additional capacity to generate more and better reports. Also, as the forecasting process will be informed by leading indicators, for example, non-financial operational data, the reliability of the forecasts will increase.

Being able to produce revised budgets and forecasts speedily can help an organisation to respond to opportunities or threats. This adaptability can be key to an organisation's survival.

So in addition to the cost savings made it is in the area of accounting operations that many of the intangible benefits of a successful BI implementation will be produced. The accountants working in this area of the finance function have important roles to play in delivering the benefits of the BI project. Some may feel concerned that increasing efficiency here may threaten their job security, but most will appreciate that there is no long-term security in not being efficient. There will still be important higher level roles in the production of, for example, better financial reports, and BI could unlock some accountants' potential to contribute more to performance management.

CASE STUDY

New England Seafood is a major supplier of fresh and frozen premium sustainable fish and seafood in the UK and one of the largest importers of fresh tuna. Their customers include the UK's leading supermarkets, smaller retail outlets, restaurant chains, catering suppliers and wholesalers.

Established in 1991, the company works in close partnership with supplier and customer, with an aim to be the first choice supplier of sustainable fresh and frozen quality seafood products to the UK market. The company is growing year on year and employs around 240 people at its processing plant with a turnover in excess of £50m.

New England Seafood are known in their industry for their commitment to sustainability and they have a very fast paced operation which takes raw fish, processes it and delivers to store within a very short time period.

When New England Seafood found themselves in a period of fast growth, the finance, sales and IT teams realised that their methods of collating business information, reports and analysis were not being met by their existing IT systems. As a result, the team members started to ask the Finance Director, Charles Noble, for an IT solution.

At that moment in time, most of their sales information was being kept in spreadsheets which often led to lengthy delays in running standard reports or data queries.

The management team knew that it would be much more constructive for their sales team to be spending more time focusing on offering their customers new products and better service, so they agreed that a BI solution which provided easier and faster sales reporting was a priority requirement.

As the management team had been specifically recruited from larger companies, they were all used to having a central repository of data where they could go to analyse information and had experience of a number of different product solutions. They therefore approached the market to see what products were available and, more importantly, which were the most appropriate for the size of their organisation. They saw a range of products from bespoke solutions, through to a number of packages such as QlikView, Inca Software and IBM Cognos. They also considered not just the product on offer but the way in which it would be implemented.

Continued on next page

"Out of all the different packages we approached with sample data, we chose BOARD as it was the one which felt the most flexible and that was probably the biggest selection criteria for us."

– Charles Noble

The objectives of the initial implementation were as follows:

- improve the ease and speed of their forecasting and reporting processes
- reduce the need for/reliance on so many spreadsheets
- improve the quality of financial planning and management reporting.

As New England Seafood need to be constantly aware of their margins, costs and product demand, their historical data had been kept in a large number of spreadsheets that were interconnected. This solution has given them the ability to combine these spreadsheets with accounts information from their ERP and with careful project reviews throughout phase one, it is now working well.

They have been impressed by the clear user interfaces, lack of separation between planning and analysis functionality and the relative ease with which New England Seafood could administer the system internally.

Their forecast data is now input directly into the system by the sales team with actuals such as costs and profit then interfaced from their ERP on a weekly basis too. This now means that they can analyse and look at company profitability without searching through a large number of spreadsheets.

Within the sales forecasting and reporting functions, the most important thing for New England Seafood has been the improvement in their ability to analyse their data.

"Previously, it was being analysed but we were overly reliant on the intuition and experience of a number of key people within the team. We have now got a system that shines a light on all areas of the business, product profitability, trending of product lines etc. We also now have sales team members doing a lot more analysis themselves, safe in the knowledge that they are dealing with reliable data from one source."

– Charles Noble

The package's integration with Office has also helped New England Seafood team members to be more at ease with the solution. Charles has noted, "People are starting to see the opportunities that the system can bring. They understand that their daily, weekly or monthly reporting tasks can be automated to make analysis quicker, easier and more reliable."

As BOARD is an all-in-one toolkit, Charles believes that it is the ideal BI & CPM Solution to grow with New England Seafood;

"If someone had the same brief as us, I would definitely give BOARD a 'thumbs-up'. My advice though would be to start simple, get to know the software and its capabilities and then grow as you go."

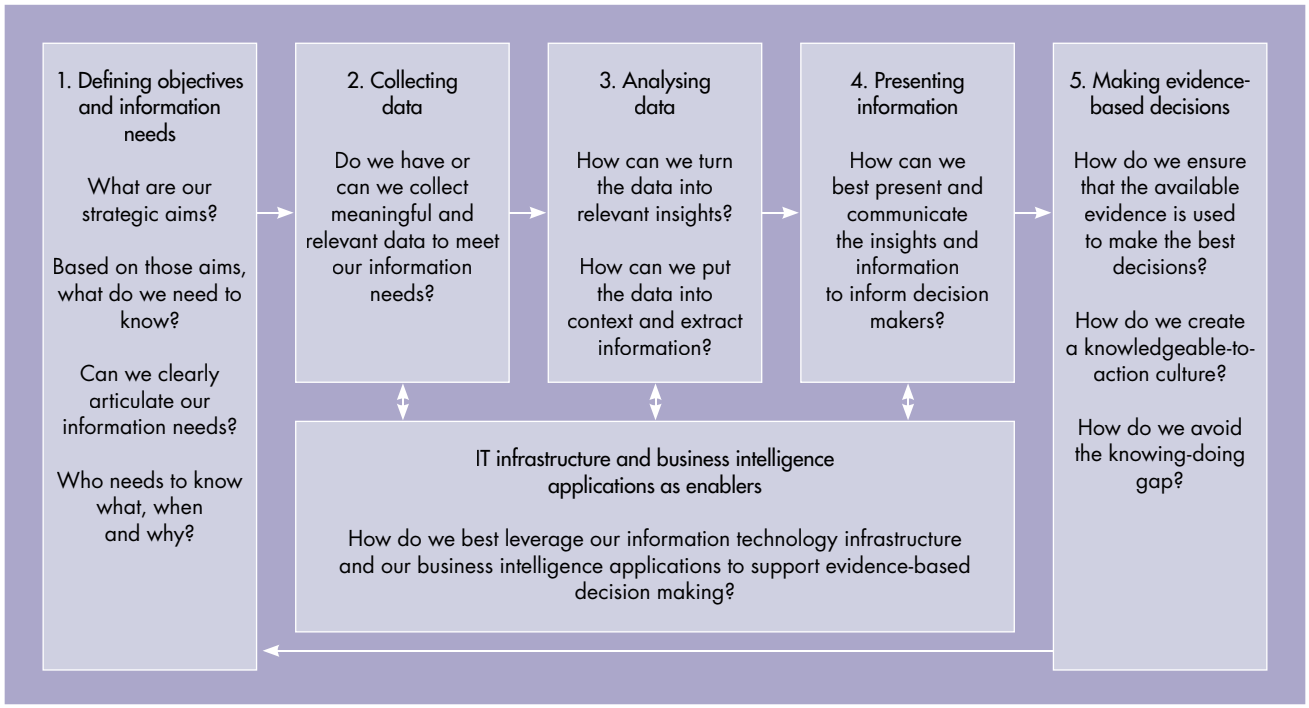
– Charles Noble

New England Seafood are now moving towards the next phase of the implementation which focuses more on the operational planning side of the business.

SOURCE: BOARD

4.5 Performance management

FIGURE 4.8: Evidence-based management framework[17]



A managing accounting guideline entitled *Evidence Based Decision Making: using Business Intelligence to drive value* by Bernard Marr was published jointly by CMA Canada, AICPA and CIMA in 2009. This provided a framework for evidence based management. Information needs have to be defined. The necessary data must be collected, analysed and presented. It must then be used to support a culture of evidence based decision making and performance management. A feedback loop helps to continually redefine information needs. The IT systems are shown as enablers supporting this framework.

Performance management with the benefit of appropriate evidence is both the outcome of this framework and the starting point in the continual improvement of evidence based management.

Enterprise performance management (EPM), corporate performance management (CPM), enterprise information systems (EIS), decision support systems (DSS) and management information systems (MIS) are all terms used to describe BI applications which generate and consolidate financial reports, budgets and forecasts. These reports are then presented as management information to decision makers and managers of operations or processes.

Usually, a summary sheet will present key performance indicators. These should include leading indicators of progress towards financial objectives. Organisations need to balance current and future performance so ideally these KPI should include measures of progress towards strategic objectives too.

Too much business planning and performance management can be focused on budgets and financial figures. These are often measures of outcomes in the short run, rather than indicators of performance towards achieving strategic intent. Non-financial metrics are often in the language of the business and they may better describe progress towards achievement of a sustainable competitive advantage for the long run.

Dashboards can be very useful for performance management because they present information in formats which non financial users find less daunting than voluminous financial reports. This point is illustrated by two screen shots provided by Dundas.

The dash board for sales management at Green Bean Foods (Figure 4.9) presents an executive summary which features a table that uses traffic light colours (green, amber and red) to highlight satisfactory and adverse financial performance measures on a scorecard. Below that table, another shows the trend in revenue relative to the previous period graphically. A drop down menu would allow other measures to be viewed. To the right there is a comments bar where questions are raised and explanations provided. Other tabs would allow performance to be considered by store operations or the customer experience.

The dashboard for Verntec (Figure 4.10) shows contact information for a customer, Sequentier Communications and features a graphic representation of that customer's service mix and financial contribution. Below that, non-financial metrics about this customer relationship are shown. It can be seen clearly that the emphasis has shifted from consulting services in 2008 to training services in 2009 and support services in 2010. The spike in support services is welcome and may present an opportunity. Meanwhile, the proportion of contracts renewed is in the amber zone and service quality is unsatisfactory so these issues must be addressed to maintain the relationship. Again the dashboard includes a commentary box which allows dialogue and performance management, informed by pertinent information.

FIGURE 4.9: Green Bean Foods dashboard for sales management

SOURCE: Dundas Data Visualisation Inc[18], a sample screenshot – not from a real company.

FIGURE 4.10: Verntec dashboard for customer contact information

SOURCE: Dundas Data Visualisation Inc[19], a sample screenshot – not from a real company.

Sometimes a selling point for a BI application is the user-friendly dashboard. However, the financial and non-financial metrics presented by an off-the-shelf application, and the further analysis it allows by 'click-throughs', may not be the most appropriate for the business. It is very important that the measures selected are linked to intended outcomes. Tracking the wrong metrics or using the wrong metrics in performance management or reward mechanisms can lead to perverse outcomes rather than improved performance.

The metrics presented and the analysis allowed should provide insights and enable management to investigate properly and take prompt action to improve business performance. When Dundas work with clients to develop dashboards, a lot of thought goes into selecting the right metrics.

Determining the right metrics to track and the right lines of enquiry to pursue is a challenge that management accountants are well positioned to help their organisations address.

A consensual approach can be used to identify the key performance indicators (KPIs) that are critical to sustainable success. A balanced scorecard may be used and suitable KPIs selected under the standard headings of customer, operations, finance and learning.

Appropriate KPIs can then be selected for different roles in the organisation. This can have the advantage of simplicity and be useful for winning buy-in to the performance management system. But performance measures selected in this manner may not be useful for managing progress towards achieving strategic objectives. They are not likely to reflect the true drivers of value as causal links have not been established.

- Management accountants are familiar with the strategic planning process and the contributions of different divisions. They are, therefore, well placed to ensure that the metrics selected can be used to measure progress towards achieving the organisation's performance targets and strategic objectives.

- Management accountants in business partnering roles should engage with business managers to help identify the best metrics to use to manage performance, risks and progress towards strategic objectives. Assumptions should be challenged as to the evidence on which they are based. Strategic mapping, constructing and testing a causal model can be a useful exercise. The value of the metrics used should be subject to review.

- Having selected the metrics to be used, aligned KPIs for people in different roles at strategic, managerial and operational levels have to be identified.

- Having numerous KPIs distracts focus and can generate extra cost in producing information. A disciplined approach, based on the value versus cost trade-off, can be used to manage the demand for management information. This can allow a more focussed approach to data capture and management.

- Finance must take responsibility for non-financial metrics as well as financial ones so these KPIs have credibility. They can then be used with confidence to support decision making, planning, forecasting and predictive modelling.

Management accountants' understanding of the business' value chain, the most appropriate KPI to use and therefore the data to track and analysis to perform must be continually developed. The BI project is the starting point towards a culture where critical decisions and performance managed on the basis of evidence. Soon, the appetite for insight will increase and more detailed analysis may be required.

CASE STUDY

INTERNATIONAL TELECOM COMPANY – US BASED

Each month management accountants are asked to describe business activities to company leadership. The accountants must be able to slice and dice the information by categories, such as expense and revenue and also perform other types of analysis, such as comparing one regional business activities against another or identifying high or low performing sales teams.

This business case describes how a large telecom company leveraged technology and business information to manage revenue and related sales compensation and ultimately increase sales and decrease unproductive compensation expense.

The telecom company had originally based all their sales compensation on total regional revenues and did not take into account any related expense activity. Telecom product revenues were also aggregated at a high level, that is voice, data and other categories and geography were loaded at a regional level (ie southwest, west, midwest, etc).

This reporting structure did not support and provide accurate or efficient means of reporting, and it did not allow the telecom leadership to manage the sales teams or target sales efforts. Using business intelligence tools and applications, the telecom company was first able to delineate their product base. Each product was identified as its own discrete product that matched what a customer would order from a call center. For instance, the products were broken into speeds, such as DSL, DS1 or Centrex products. The sales data was also broken down to a local sales area, such as state, city or in some cases, even local neighborhoods. Finally, the sales person who managed the order was tied to the sale and related customer premise equipment expense were related to the products, along with overhead expense allocations.

The information that the management accountants had was a clear view into what products were being sold, who was selling the products and where the sales were taking place. The management accountants then combined marketing expense, where they were able to understand how much revenue was being generated for each dollar of marketing spend. The last piece of the puzzle was to include the expense related to the sales, along with the compensation expense for the employee and a very different view of the business become clear to leadership.

Areas of the business that were believed to be profitable, were actually driving large reductions in overall margins and geographies that were believed to be profitable, were in fact loss areas. Markets and areas that were being ignored by both marketing dollars and sales activity were identified as profitable areas.

Ultimately, the telecom company's leadership was able to understand how all the pieces of the business fit together and they were able to increase margins by 10% without spending any additional dollars on marketing or increasing headcount.

– Steve Palomino, E&Y, March 2011

4.6 Analytics

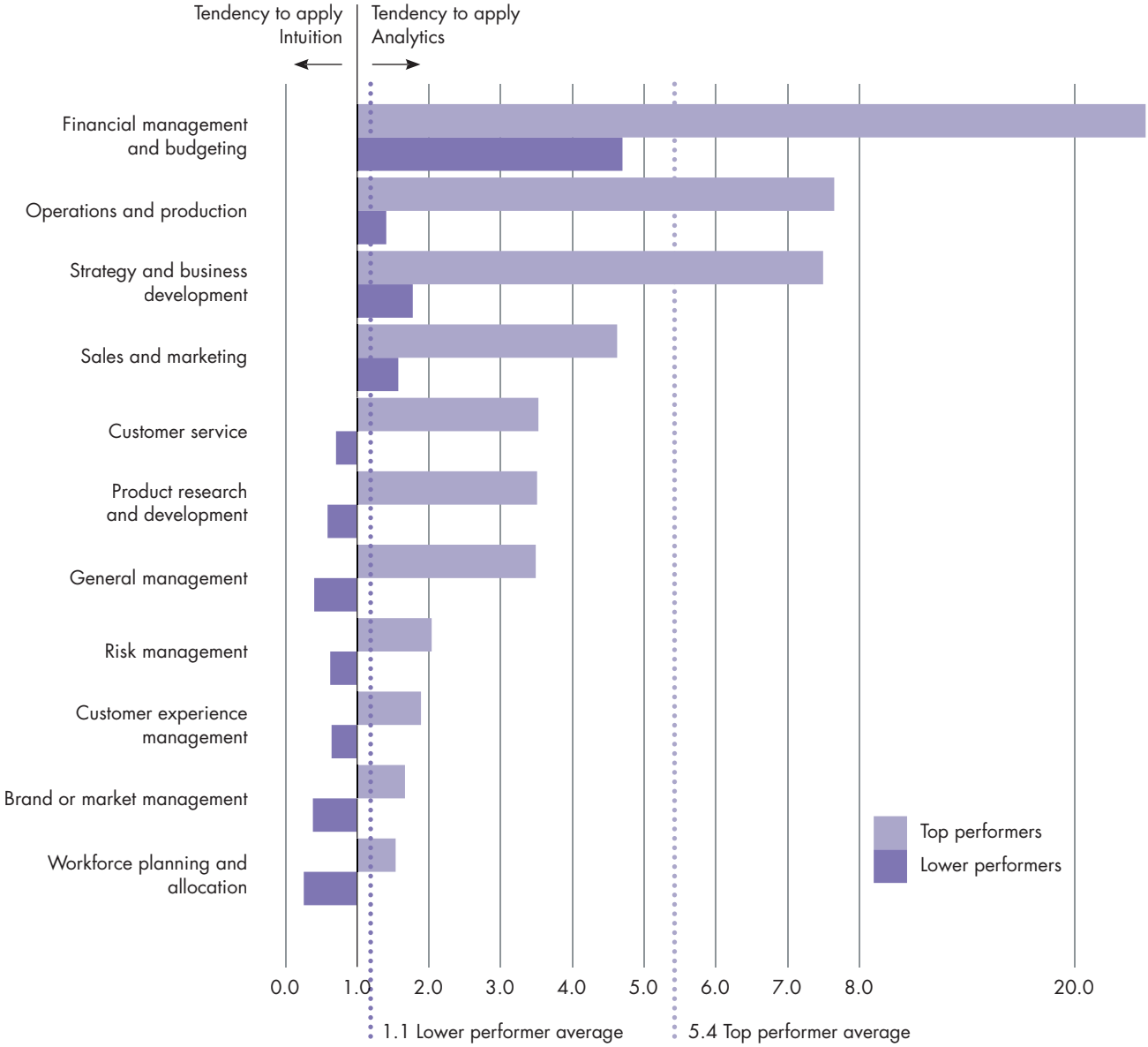
The guiding principles underpinning predictive business analytics (PBA) are:

- Demonstrate a strong cause-and-effect relationship. To be able to predict outcomes, it is important to measure and monitor what most likely causes the outcome to occur.
- Incorporate a balanced set of financial and non-financial, internal and external measures. Too often, management reporting is concentrated on internally focused financial results, such as net income, and less on the (a) non-financial activity that has a financial impact, or (b) externally driven metrics that show how the marketplace views the organisation.
- Be relevant, reliable and timely for decision makers. PBA should be provided to users when, where, and how they need it. Analytics should be relevant to the business, industry, or function, and have the right level of timeliness and reliability for the critical issues being addressed.
- Ensure data integrity. Data integrity is of paramount importance in fostering trust in PBA. Ensuring data integrity depends on the establishment of data standards and data quality practices, which are the foundation for a trusted and accepted PBA.
- Be accessible and well organised. For PBA to contribute to managerial decisions and actions, it needs to be easily accessible, using tools and technologies that are 'user-friendly' and organised in a way that reflects the business model.
- Integrated into the management process. PBA and forward-looking performance measures should be tied to accountabilities and be an integral part of the management process.
- Drive behaviors and results. PBA should highlight those measures that foster desired behaviors of the organisation, such as innovation, teamwork, collaboration and risk taking and facilitate the achievement of desired results.

SOURCE: IFAC[20]

The term analytics is used here to mean advanced analysis techniques. These usually require the use of computers and artificial intelligence, operations research, data mining, simulation, econometric or predictive modelling. These techniques allow more detailed analysis to provide insight into the drivers of cost, risk and value. This can allow better informed driver based planning, budgeting and forecasting. It can also generate previously hidden nuggets of insight to improve performance tactically, to suggest potential innovations or even identify strategic opportunities.

FIGURE 4.11



SOURCE: *Analytics: The new path to value*, a joint MIT Sloan Management Review and IBM institute for business values study. Copyright Massachusetts Institute of Technology (2010)[21].

The MIT Sloan Management Review in collaboration with the IBM Institute for Business Value, surveyed a global sample of nearly 3,000 executive managers and analysts. This chart (Figure 4.11) shows how top-performing organisations were found to apply analytics to activities across the organisation, as compared to lower performers. Top-performing organisations use analytics five times more than lower performers.

Respondents were asked about their organisation's application of analytics to the activities listed. See Figure 4.11 where a score of 1.0 indicates an equal likelihood of applying either analytics or non analytical methods while a score of 0.0 indicates a tendency to use non analytic methods.

Management accountants are keen to grasp the opportunities offered by BI to apply analytics. They want to perform their budgeting, reporting, analysis and forecasting roles ever more efficiently and effectively. In addition to being able to flag issues as they arise, they want to become more proactive. They want to be able to identify trends or mine data for those nuggets of insight that may suggest performance gaps or opportunities.

Management accountants can combine their financial and accounting skills with business understanding to generate insights. However, conducting advanced analytics, in the sense of data mining and predictive modelling, using multi-variable regression techniques and complex algorithms is beyond the scope of most management accountants. Over time analytical tools are becoming more user-friendly. Meanwhile, as champions of evidence-based decision making, they are more likely to commission advanced analytics and help to interpret and apply the findings in financial and business terms, rather than conduct the analysis themselves.

For many management accountants the benefit of BI is not that it will enable them to produce better management information more efficiently. An attraction for these accountants is that BI has the potential to release them from the cycle of producing routine accounting information. They will be able to engage with business managers, combining business understanding and financial disciplines, to perform a decision support role or even challenge managers as sparring business partners to improve performance.

For other management accountants, the attraction is the opportunity to provide better management information. BI tools will enable accountants and other knowledge workers to conduct more advanced analysis than they have performed traditionally. And some very useful analysis and predictive modelling is already within the management accountant's remit.

For example, as Director of Finance at Punch Taverns PLC, the UK's largest pub company, Sara Shipton demonstrated how management accountants can use new forms of data analysis to produce insightful information and also challenge the business to improve performance. Relating analysis of EPoS data, captured at tills to a segmentation of public houses, allowed Punch to identify under performance in product categories. Sara's team not only produced this analysis but also helped to develop and manage the implementation of plans and negotiate budgets to close this performance gap.

Likewise, a finance team at Ford Europe have taken the opportunity presented by BI to generate insight into performance at the retail level so that the margin contribution of vehicles is better understood. This has allowed Ford to focus on those models and customer segments which are more profitable.

"Punch Taverns owns 8,500 licensed properties, and leases around 7,400 of these properties to individual entrepreneurs who run pub retail businesses of their own. The agreements under which these businesses are leased vary, primarily according to level of obligation to buy drink products from the company. This obligation is nearly always for beer, and sometimes for other drink categories like, cider, wines, spirits and minerals.

The estate therefore contains a mix of lessees, who buy non-beer categories from the company because they are obliged to, under the terms of their lease, or because they find our prices competitive, and/or they like the advantages of a single delivery of drinks. Since some are not obligated and also since some don't comply to the terms of the lease, we have long been aware that there is a large sales/compliance opportunity that we had not tapped into. Knowing where sales were sub-optimal and moreover, where to challenge retailers for 'buying-outside of the tie', and where to target our field teams, was very difficult.

In December 2006, Punch Taverns purchased a managed pub company, Spirit Group. A managed house business model is different, in that the pub is run by an employed manager and the entire retail business is owned by the company. It immediately became apparent that since we now owned and had access to pub retail EPoS data, by segmenting the estate by style of pub operation, we could more accurately provide gap analysis between the non beer sales to our leased pubs, against what we know the throughputs in a like size and style pub in the spirit estate was."

– Sara Shipton, Director of Finance
Punch Taverns PLC (2008)

CASE STUDY

FORD

Ford Europe's success in developing high quality, fuel efficient vehicles posed an interesting challenge. In an industry suffering from over capacity, they could sell every unit they could produce of many of their vehicle lines. So, in order to increase profitability they needed to focus attention on producing more of the right models and promoting and selling those models to the right customer segments at the right price. Ford has long been able to identify the cost of each single vehicle as it rolls off the production line but the contribution margin achieved at the retail level has always been more difficult to identify. Sales costs and advertising and promotion activity or incentives could not be tracked to that level.

In 2007 a dedicated Revenue Process Development (RPD) team was established in finance to ensure alignment of systems development efforts with the aim of developing revenue management tools that would provide:

- Accurate and timely profit data to support decision making.
- Identification of high and low margin business.
- Allocation of capacity constrained vehicles to customers generating the most profit.
- Better management of incentives.

Ford's RPD team was formed with appropriate project management disciplines from the outset. These included the governance of the project by key business owners who signed off on the project's objective, approach and milestones. This leadership gave the project team a mandate which enabled them to engage other key stakeholders including:

- Ford of Europe IT – whilst the project is owned by the business, the team includes IT personnel who support with appropriate hardware and software solutions.
- Global Finance System and Process team, who are the owners of the Finished Vehicle Accounting system at the heart of contribution reporting and based in the US.
- European Accounting business development team.
- Ford Financial, who provide credit and leasing products to Ford customers.
- Product Development teams, to inform understanding of vehicle profitability when developing future products.

Implementing such a project across 19 national sales companies with dependencies on colleagues in operations, marketing, information technology and accounting roles across many countries and business units required true business partnering.

This is a major project for Ford that has been implemented over a number of years. The first step was the introduction of Contribution Margin @ Wholesale in 2009 which allowed contribution profits to be reviewed by model and by market on a monthly basis.

The provision of this data changed the way Ford managed its business. Until that time, individual revenue actions were measured against the annual Budget, but there was no measure of the health of the business in a particular market or with a particular car line. With the new reports available, a new team was formed to review the monthly data and help the marketing teams to develop action plans to improve ongoing margins.

A major challenge for the development team remained the accounting of incentives. Ford sells almost all of its vehicles to dealers and at that point (wholesale) accrues for the likely incentive spending. It is these accruals that are reflected in the Contribution Margin @ Wholesale data. The next step was to develop a way to measure the incentives being paid on an individual vehicle. The development team were able to do this by tapping into the information held in the different dealer payments systems run across Ford of Europe.

In 2011, Contribution Margin @ Retail was launched. This allowed the contribution margin for each individual vehicle to be measured based on actual levels of incentives. Knowing the incentives on each individual vehicle, the success of particular incentive programs can be measured. The dealers that continually do low, or high, margin business can be identified. Even the success of particular vehicle derivatives can be judged. But Ford of Europe makes over 5,000 cars a day, each with its own contribution margin and around 30 other different pieces of financial data – how could this data be analysed?

It was immediately apparent that the traditional average reports would not allow the secrets that were within the data to emerge. With a lot of assistance from their IT partners, the development team embarked on a 'skunk' project to develop a Data Mining tool that would bring the data to life.

The team built a working prototype of the tool which, in late Spring 2011, was shown to senior management. This tool put all of the information relating to each of the vehicles into a database and which then allowed sets of vehicles to be picked and analysed graphically. Doing it this way meant that the full population of vehicles could be viewed, and variances considered. Until this point, only averages had been used.

The interface on the Data Mining tool has been designed to be simple and intuitive so that it can be deployed, to the Marketing teams within each market. A pilot project has been initiated with five European markets to fully understand how the data can be used and develop best practices.

There has been an overwhelmingly positive reception to the pilot project. Whilst it had been expected that the participants on the pilots would have needed encouragement to use a tool that is really still in development, the data is so powerful that the participants can immediately see the benefits. The market teams are using the data for aspects of dealer and regional area management that had not been envisaged. One of the best things about the pilot is that the tool is getting used by teams outside of Finance to answer the following sorts of questions:

- Which dealers generate the profit within the market?
- Which customers should be prioritised for vehicles in short supply?
- Which types of incentives work best?

The tool is also being used in the planning of the next generation of Ford vehicles. For the first time, the difference in the profitability of different business channels is becoming clear. In planning for its next generation of models, Ford can consider its future participation in the lower margin channels and better understand the trade-offs between higher revenues per car and numbers of vehicles sold.

The Data Mining tool is an exciting development for the Finance team at Ford of Europe and will be implemented across all regions within Ford – Ford of Canada will be the first non-European location to launch in 2012. By giving the operations financial data at this level of speed and granularity it should help lead to better, faster decisions. It embeds the Finance team into these decisions as they happen and enhances its already strong partnership role within Ford.

SOURCE: Ford of Europe

5. CONCLUSION

BI, if properly designed, implemented and managed, will inform better decision making in business. Everyone in management needs to be alert to this opportunity and the threat that early adopters may achieve a competitive advantage. But BI is only a technology enabler. Management accountants have important roles to play if BI is to be of value. The necessary changes would have to be implemented properly. People would have to use BI tools to produce information and that information would still have to be applied in decision making, and, for those decisions to be effective, they would have to be managed through to impact.

The accounting and finance function has been transforming. Statutory reporting has become more specialised and requires additional narrative reporting informed by management information. Accounting operations are using streamlined and standardised processes, structures and automation to produce better information ever more efficiently. Employers now need more finance personnel to support decision making across the business and help manage performance. Developing accountants to take on these broader roles is work in progress. Meanwhile, many management accountants are still too occupied in the reporting cycle of producing more traditional financial information to progress to these new roles.

The nature of the management information and analysis required by business has expanded. The range of data to be considered now includes non-financial and external information. The emphasis has shifted from reporting the past through monitoring current operations to providing forward looking information and analysis as appropriate to users' roles. These users may be strategic managers, knowledge workers, people in operational and customer-facing roles, or external stakeholders and regulators.

Business intelligence is evolving to meet these information needs. It now encompasses the reporting and analysis tools used for performance management by accountants. Advances in data management and better integration of systems will enable BI to provide better management information to inform decision making.

Management accountants should be champions of BI, even though it may threaten their traditional role in producing financial and management information. There can be no long-term future in holding back the tide of progress. While there will be opportunities for some management accountants to become experts in using business intelligence and conducting more advanced analysis, for many more BI presents an opportunity to take on financial management or business partnering roles. The future for these accountants may not be in accounts but in finance, with wider career prospects, as players on the team rather than as scorekeepers on the sideline.

Business leaders and management accountants need to be alert to the developments in BI and what it means for them. As always, new IT looks promising but there are dangers.

- Some early converts may find that they are not at the leading edge but at the 'bleeding edge'. This is the term used wryly in IT to describe the vendors' learning experience with users of early release versions of new software.

- Some business users will fall for a BI application, usually with fancy graphics, that promises to meet their own department's requirements. This may seem satisfactory at first but could prove to be inflexible later. It could form another information silo if it cannot be integrated with a company-wide BI system.

- A fragmented market is consolidating. Many products will have new owners. Some of these may no longer be supported and upgraded. The provider's strategy may not be to support and develop the product acquired but to migrate the customers acquired to its own product or cross-sell further products.

- Following the feeding frenzy of 2007, some acquired subsidiaries' products are still being digested by the major vendors. Sales people may unwittingly over-promise these applications' ease of connectivity with other systems, future support or ease of implementation.

- Good enough may be good enough. It may suffice to ensure that the data behind key performance indicators is correct. Real time access to all data may not be necessary.

- BI applications can already offer much more functionality than the users currently require. If they pay for functionality and do not learn to use it, they may not realise the benefits that underpinned the business case.

- The potential for BI should be considered. Organisations may decide that BI is not appropriate for their business at this stage but they should consider developing IT investment policies that would enable rather than hinder a BI strategy in the future.

- A prudent investment in an ideal system could fail to meet expectations due to difficulties with change and project management during implementation. Leadership and cultural change are required.

SOURCE: CIMA August (2008)

Glossary

Analytics	Advanced analysis techniques usually requiring computers such as artificial intelligence, operations research, data mining, simulation, econometric or predictive modelling are sometimes referred to as analytics.
Benefits dependency network	Framework for explicitly linking the overall investment objectives and the requisite benefits with the business changes needed to deliver these benefits along with the essential IT functionality required.
Business process management	Systematic approach using business practices, techniques and methods to create and improve an organisation's business processes.
Cloud computing	The delivery of a service, whereby shared resources, software and information are provided to computers and other devices as a utility (like the electricity grid) over a network (typically the internet).
Cube	A cube is a multi dimensional assembly of data in a form which will allow it to be analysed readily. Data in a cube might be analysed from different angles by pivoting the data to present the data differently for example, by customer segment or delivery channel.
Customer data integration	Consolidates and manages customer information from all available sources, such as customer contact details and is an essential element of customer relationship management.
Data mart	Central repository of a sub set of data gathered from operational data and other sources, designed to address specific functions of a department's needs.
Data mining	The process of discovering new patterns from large data sets involving methods from statistics and artificial intelligence but also database management.
Data warehouse	Central repository of data, collected from various business systems, designed to support management decision making and to address the needs of the organisation from an enterprise perspective.
Database management system	Complex set of software programmes that enable the organisation, storage, retrieval and manipulation of information within a database. It also ensures the integrity and security of data within these databases.
Decision support systems	Computer based information systems, including knowledge based systems, which support business and organisational decision making activities.
Enterprise information systems	Computer system that collects large volumes of data from across the entire enterprise so that it can be reported on.
Enterprise resource planning (ERP)	ERP systems are the operational systems that are used to manage and coordinate all the resources, information, and functions of a business. They are a core source of operational data.

Extract, transform, load (ETL)	Three separate functions combined into one tool that pulls data out of one source and places it into another source which is usually a database: • Extract – reads the data from the specified source and extracts what is required. • Transform – converts the extracted data, using rules or look-up tables or by combining data, into a set form so that it can be placed into another database. • Load – writes the resulting transformed data into the target database.
Fuzzy logic	Problem solving control system methodology that provides a simple way to arrive at a definite conclusion based on vague, ambiguous, imprecise and missing input information.
In-memory processing	In-memory processing allows data to be accessed directly from source systems and processed in random access memory (RAM) rather than extracted and stored in a data base to be retrieved and accessed for analysis.
LAN	Group of computers or devices that share a common communications line or wireless link; typically within a small geographic area, such as an office building.
Management accounting	The application of the principles of accounting and financial management to create, protect, preserve and increase value for the stakeholders of organisations in all sectors.
Master data management	Set of processes and tools which allow organisations to define and manage master data (non-transactional data entities, such as customers, products, accounts).
Management information systems (MIS)	Subset of systems covering the application of people, ideas, technologies and procedures which provide management with up-to-date information on an organisation's performance.
Network attached storage	Hard disk computer storage system that is self-contained and connected to the network with the sole purpose of supplying file-based storage services to other devices on the network.
OLAP	Category of software that enables the analysis of data stored in a database. It enables users to analyse different dimensions of multidimensional data according to user-defined or pre-defined functions, so that patterns, trends and exceptions can be identified. It is often used for data mining.
Return on investment (RoI)	RoI usually calculated as: profit before interest and tax/average capital employed; often used to assess managers' performance. Managers are responsible for all assets (normally defined as non-current assets plus net current assets).

Software as a service	Software distribution model where applications are hosted by a vendor or service provider and made available to customers over a network, such as the internet.
Service oriented architecture	Software architecture grouped around business processes and packaged as interoperable services. It defines how distinct units, or services, are made accessible over a network so that they can interact in such a way to enable one entity to perform a unit of work on behalf of another entity. These services communicate with each other by passing data from one service to another. Each interaction is self-contained and loosely coupled, so that each interaction is independent of any other interaction.
Structured query language (SQL)	SQL which enables data retrieval and analysis.
Storage area networks	Architecture which allows all remote computer storage devices to be available to all servers on a LAN or WAN.
Sustainability	Sustainability is about ensuring the long-term economic success of an organisation by balancing current and longer term objectives so as to maximise shareholder value. This can mean taking an enlightened self interest approach to long-term risks or stakeholders' concerns about business ethics or the societal and environmental impact of the organisation.
User mapped (mash up)	A web application that combines data and/or functionality from more than one source.
Virtualisation	Consolidation of hardware devices onto 'virtual machines' that run side by side on the same hardware.
Visualisation	The static or animated 2D or 3D visual representation of information about software systems based on their structure, size, history or behaviour.. Typically, the information used for visualisation is software metric data from measurement activities or from reverse engineering. Visualisation is inherently not a method for software quality assurance but can be used to manually discover anomalies similar to the process of visual data mining.
Wide area network (WAN)	Computer network that covers a broad geographical area. Typically consists of two or more local area networks, such as the internet.
Extensive business reporting language (XBRL)	XBRL is a language which allows financial reports to be published in a consistent format to meet the needs of a regulator, tax authority or analysts.

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Footnotes

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