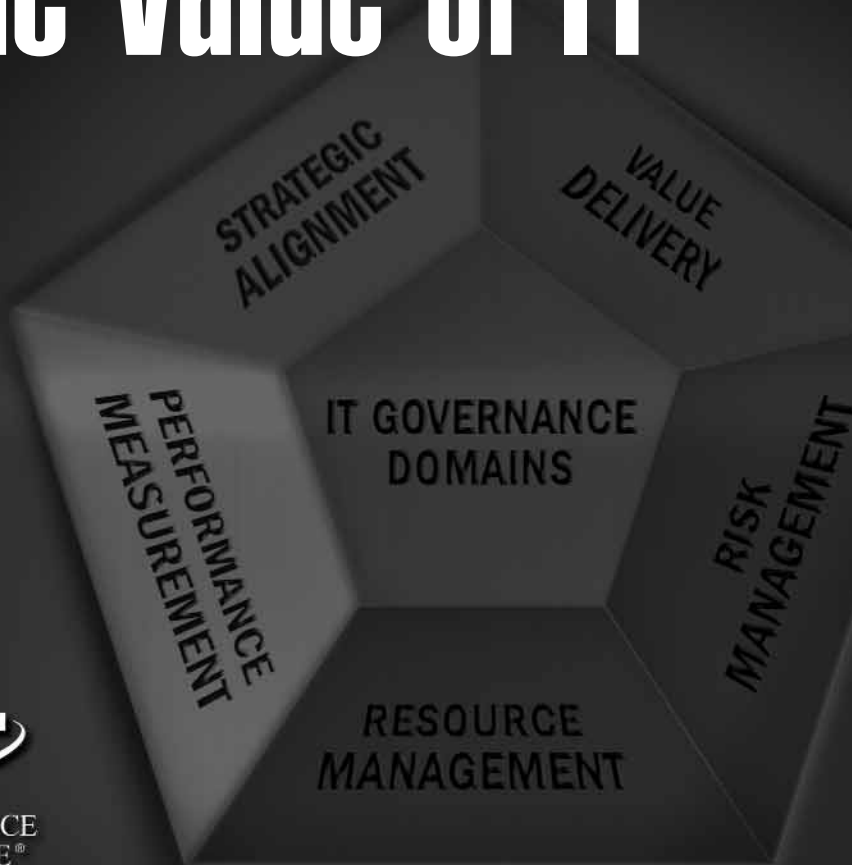


Measuring and Demonstrating the Value of IT



Measuring and Demonstrating the Value of IT



The IT Governance Institute*

The IT Governance Institute (ITGI) (www.itgi.org) was established in 1998 to advance international thinking and standards in directing and controlling an enterprise's information technology. Effective IT governance helps ensure that IT supports business goals, optimises business investment in IT, and appropriately manages IT-related risks and opportunities. The IT Governance Institute offers original research, electronic resources and case studies to assist enterprise leaders and boards of directors in their IT governance responsibilities.

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Information Risks: Whose Business Are They?
Optimising Value Creation from IT Investments
Measuring and Demonstrating the Value of IT
Governance of Outsourcing
IT Alignment—IT Strategy Committees

1. Executive Summary

Measuring IT performance should be a key concern of business and IT executives as it demonstrates the effectiveness and added business value of IT. Many methods, tools and best practices exist to support these executives with the performance management responsibilities. Traditional performance methods such as return on investment (ROI) capture the financial worth of IT projects and systems, but reflect only a limited (tangible) part of the value that can be delivered by IT. The more sophisticated IT balanced scorecard (BSC) is an evaluation method that incorporates tangible and intangible values. It can be leveraged as a management system to enable fusion between IT and the business, and can also be an effective means for IT management to communicate with and report to the board and executive management about the business value of IT. Combining these practices with good IT portfolio management, which helps in achieving an optimal mix of projects, creates a solid foundation for a balanced IT governance approach in the organisation.

This briefing addresses the governance importance of IT performance management, discusses some methods, tools and best practices to support this, and provides benchmark data and insights into future trends.

Measuring IT performance should be a key concern of business and IT executives as it demonstrates the effectiveness and added business value of IT.

2. Governance Importance of IT Performance Management

Getting business value from IT and measuring that value are, therefore, important governance domains.

Investments in IT are growing extensively, and business managers often worry that the benefits of IT investments might not be as high as expected. The same worry applies to the perceived ever-increasing total cost of the IT department, without clear evidence of the value derived from it. This phenomenon is called the 'IT black hole': large sums go in, but no returns (seem to) come out.

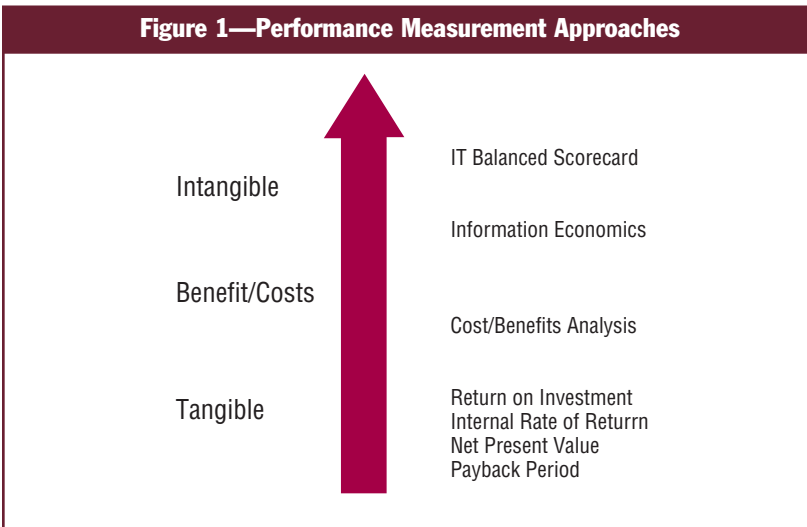
Getting business value from IT and measuring that value are, therefore, important governance domains.

They are responsibilities of the business and IT and should take both tangible and intangible costs and benefits into account. In this way, good IT performance management should enable the business and IT to fully understand how IT is contributing to the achievement of business goals, in the past and in the future. Or, in other words, measuring and managing IT performance should provide answers to questions such as:

- If I spend extra funds on IT, what do I get back?
- How does my IT benchmark against competitors?
- Do I get back from IT what was promised?
- How do I learn from past performance to optimise my organisation?
- Is my IT implementing its strategy in line with the business strategy?

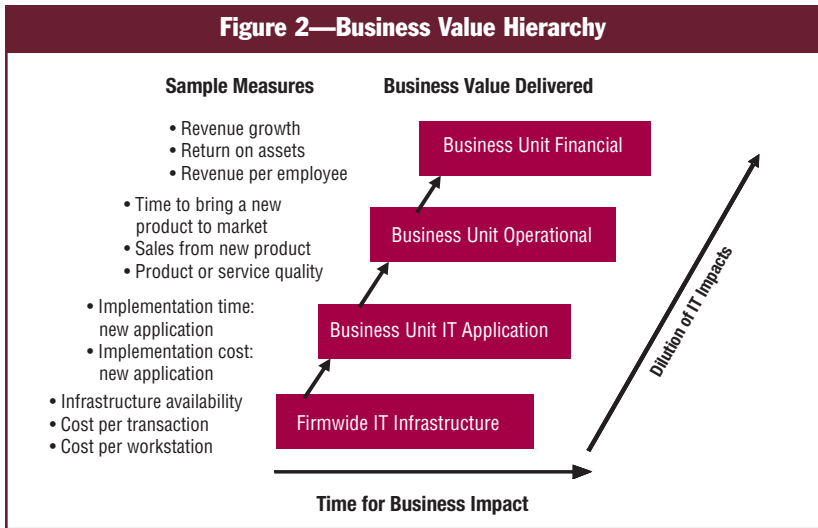
3. Current IT Performance Management Governance Approaches

IT performance management is aimed at identifying and quantifying IT costs and IT benefits. There are different monitoring instruments available, depending on the features of the costs and benefits. When costs and benefits can be easily quantified and assigned a monetary value, traditional performance measures such as ROI, net present value, internal rate of return and payback method work well (**figure 1**).



Because the traditional methods need monetary values, problems emerge when they are applied to information systems, which often generate intangible benefits such as better customer service. Moreover, different levels of management and users perceive the value of IT differently. Marianne Broadbent and Peter Weill refer in this context to the ‘business value hierarchy’ (**figure 2**).¹ Very successful investments in IT have a positive impact on all levels of the business value hierarchy. Less successful investments are not strong enough to impact the higher levels and consequently influence only the lower levels. The higher one goes in the measurement hierarchy, the more dilution that occurs from factors such as pricing decisions and competitors’ moves. This dilution means that measuring the impact of an IT investment is much easier at the bottom of the hierarchy than at the top.

¹ Broadbent, M.; P. Weill; *Leveraging the New Infrastructure—How Market Leaders Capitalise on Information Technology*, Harvard Business School Press, 1998



Multicriteria measurement methods may solve this problem because they account for tangible and intangible impacts, where the latter are more typical for the higher business value hierarchies. One of the best known multicriteria methods is information economics (IE), which in essence is a scoring technique whereby a mix of tangible benefits (typically ROI) and intangible benefits are scored.

The aforementioned performance measurement methods are measurement instruments for individual IT projects and investments. A broader performance measurement technique is the BSC, which can be applied to IT projects, investments and even entire IT departments. The BSC, initially developed on the enterprise level by David Kaplan and Robert Norton,² is a performance management system that enables businesses to drive strategies based on measurement and follow-up. The idea behind the BSC is that the evaluation of a firm should not be restricted to the traditional financial measures but should be supplemented with a mission, objectives and measures regarding customer satisfaction, internal processes, and the ability to innovate and prepare for the future. Results achieved within the additional perspectives should assure financial results. The objectives and measures of a BSC can be used as a cornerstone of a management system that uncovers and communicates strategies, establishes long-term strategic targets, aligns initiatives, allocates long- and short-term resources and finally provides feedback and learning about the strategies.

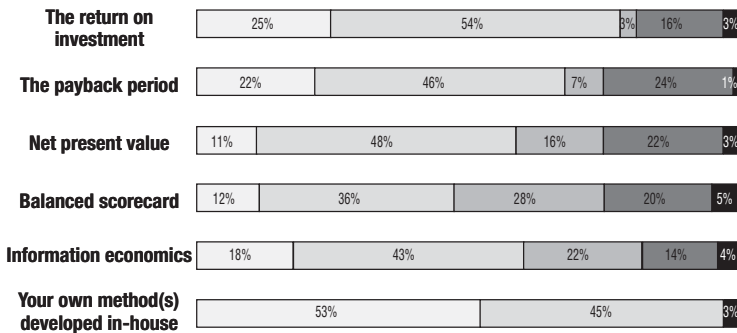
² Kaplan, R.; D. Norton; *The Balanced Scorecard: Translating Strategy Into Action*, Harvard Business School Press, 1996

In 2004, the IT Governance Institute, in conjunction with Lighthouse Global, surveyed 200 IT professionals from 14 countries in the Americas, Asia-Pacific and Europe. The respondents included chief information officers (CIOs), IT directors and IT managers from companies with a turnover in excess of US \$50 million. Benchmarking the aforementioned best practices against the results of this survey reveals some interesting facts. When the interviewees were asked what techniques they perceive as most effective for measuring IT projects and investments (**figure 3**), they categorised financial-oriented techniques such as ROI (79 percent) and the closely related payback period (68 percent) as very to fairly effective. On the other hand, broader approaches incorporating financial and nonfinancial domains, such as the BSC and IE, were perceived by only 48 percent and 61 percent, respectively, as very effective to fairly effective. It also appears that most value is assigned to methods developed in-house, which 98 percent indicated as very to fairly effective. In line with these results, **figure 4** shows that ROI (62 percent) and payback period (49 percent) are used primarily as measurement techniques for projects and investments.

Figure 3—Perceived Effectiveness of Performance Measurement Techniques for IT Projects and Investments

Q27: In your view, how effective are each of these methods of measuring the value of IT projects and investments?

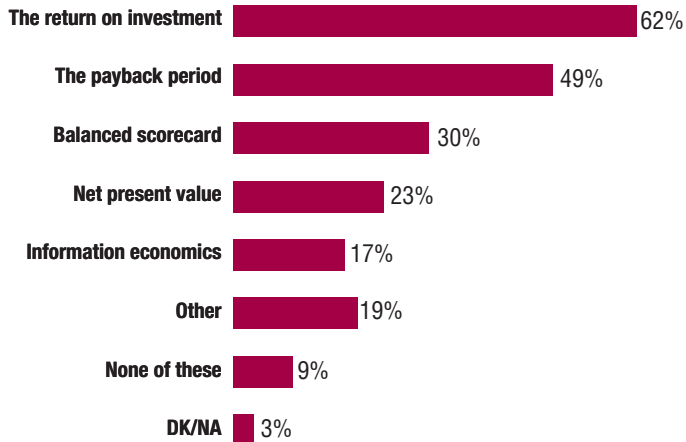
Very effective Fairly effective DK/NA Not very effective Not all effective



Base: All randomly selected respondents to answer this part of the questionnaire—
Section 3 Measurement (160)

Figure 4—Use of Performance Measurement Techniques for IT Projects and Investments

Q28: And which of these methods are you yourselves using to measure the value of your IT projects and investments?



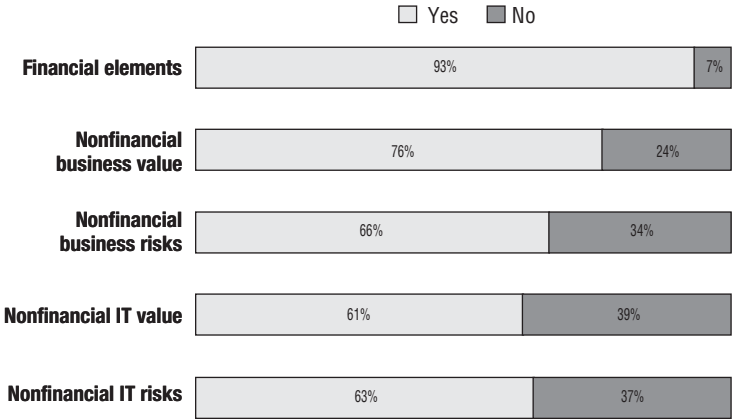
Base: All randomly selected respondents to answer this part of the questionnaire—
Section 3 Measurement (160)

The results shown in **figure 4** contradict slightly the results shown in **figure 5**, which illustrates whether the performance of IT projects and investments is measured in financial and/or nonfinancial terms. Although there appears to be a clear focus on financial metrics, displayed in **figure 4**, more than 75 percent of the respondents also claimed to be incorporating nonfinancial business value metrics. More than 60 percent indicated they are using nonfinancial business risk metrics and nonfinancial IT value and risk metrics. Of course, it may be that the most popular methods, the ones developed in-house (see **figure 3**), integrate the financial and nonfinancial elements. Very often, in-house methods are adaptations from generic measurement methods such as the BSC or IE.

The previous statistics (**figures 3 to 5**) focus on measuring the performance of IT projects and investments. For measuring the performance of the IT department, the results change (**figure 6**). Thirty-five percent of the respondents indicated that they use a methodology developed in-house and 31 percent leverage the BSC as a measurement technique. Only 29 percent focus on financial elements when measuring the IT department's performance. A surprising 21 percent of the interviewees are not using any performance measurement technique or are not aware of any.

Figure 5—Financial and Nonfinancial Elements in Measuring Performance of IT Projects and Investments

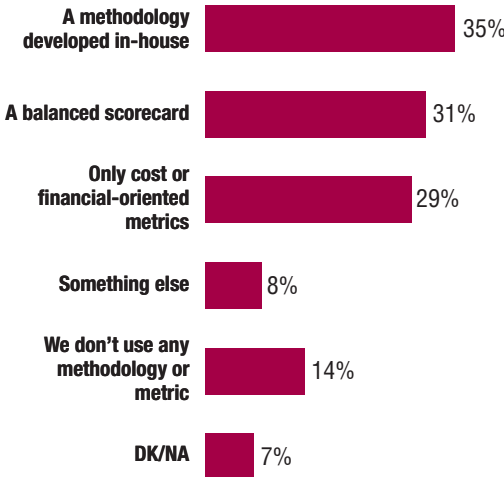
Q29: When measuring the value of IT projects, which of these elements do you take into account?



Base: All randomly selected respondents to answer this part of the questionnaire—Section 3 Measurement (160)

Figure 6—Measurement Techniques for the IT Department

Q32: What methodologies or metrics do you use to measure the performance of your IT department?



Base: All randomly selected respondents to answer this part of the questionnaire—Section 3 Measurement (160)

4. Best Practices for IT Performance Management

The cause-and-effect relationships between measures are essential components of the IT BSC.

‘Use of an IT balanced scorecard is one of the most effective means to aid board and management to achieve IT and business alignment’.³ In these words, the IT Governance Institute promotes the IT BSC as a best practice for performance measurement and alignment. This is supported by testimonials of several executives, such as:

The major advantage of the IT BSC is that it provides a systematic translation of the strategy into critical success factors and metrics, which materialises the strategy. (CIO of a financial organisation)⁴

The balanced scorecard gives a balanced view of the total value delivery of IT to the business. It provides a snapshot of where your IT organization is at a certain point in time. Most executives, like me, do not have the time to drill down into the large amount of information. (Vice president of an insurance organisation)⁵

To apply this best practice to the IT function as an internal service provider, the four perspectives of the generic BSC should be changed accordingly. In **figure 7**, a generic IT BSC for an IT department is shown.⁵ The user orientation perspective represents the user evaluation of IT. The operational excellence perspective represents the IT processes employed to develop and deliver the applications. The future orientation perspective represents the human and technology resources needed by IT to deliver its services over time. The business contribution perspective captures the business value created from the IT investments.

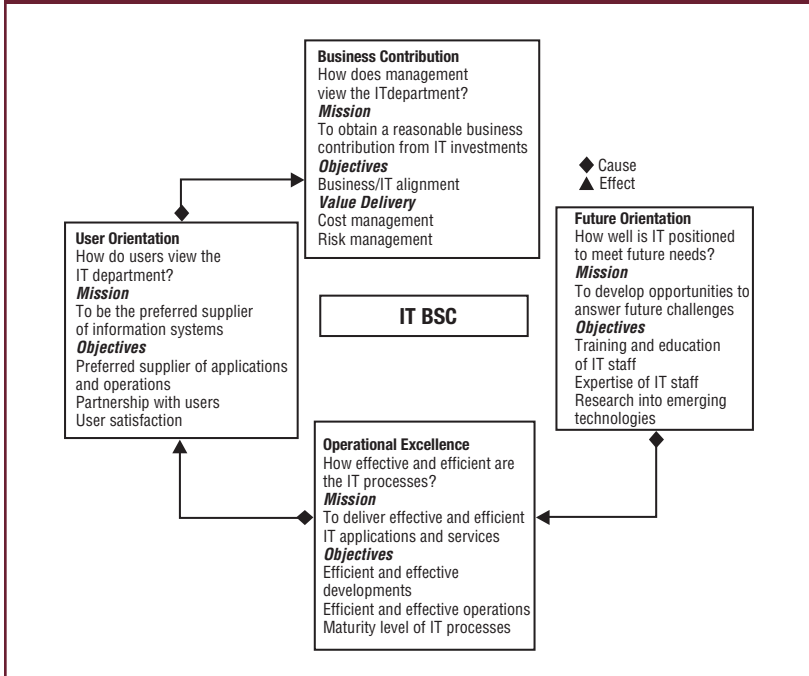
Each of these perspectives must be translated into corresponding metrics and measures that assess the current situation. As noted previously, the cause-and-effect relationships between measures are essential components of the IT BSC, and these relationships are articulated by two types of measures: outcome measures and performance drivers. Outcome measures, such as programmers’ productivity (e.g., number of function points per person per month), need performance drivers, such as IT staff education (e.g., number of education days per person per year), to communicate how the outcomes are to be achieved. Performance drivers need outcome measures to ensure a way to

³ IT Governance Institute, *Board Briefing on IT Governance, 2nd Edition*, 2003, www.itgi.org

⁴ De Haes, S.; W. Van Grembergen; ‘IT Governance Structures, Processes and Relational Mechanisms: Achieving IT/Business Alignment in a Major Belgian Financial Group’, in proceedings of the Hawaii International Conference on System Sciences (HICSS), 2005

⁵ Van Grembergen, W.; R. Saull; S. De Haes; ‘Linking the IT Balanced Scorecard to the Business Objectives at a Major Canadian Financial Group’, *Journal of Information Technology Cases and Applications*, 2003

Figure 7—Generic IT Balanced Scorecard



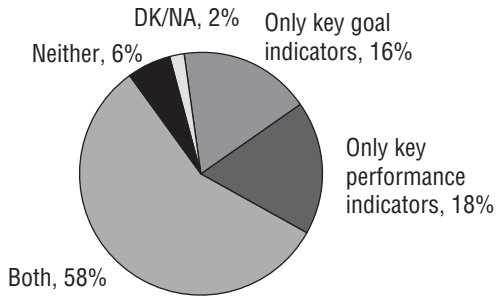
determine whether the chosen strategy is effective, especially important in cases where a significant investment is made. These cause-and-effect relationships must be defined throughout the whole scorecard: more and better education of IT staff (future orientation) is an enabler (performance driver) for a better quality of developed systems (operational excellence perspective) that in turn is an enabler for increased user satisfaction (user perspective) that eventually will lead to higher business value of IT (business contribution).

The ITGI survey results reveal that 58 percent of the respondents that are using the IT BSC have both outcome measures and performance drivers defined (**figure 8**). From this group, 69 percent reported that they have defined causal relationships between those metrics (**figure 9**).

The proposed IT BSC shown in **figure 7** links with business through the business contribution perspective (business/IT alignment, value delivery, cost management and risk management). The relationship between IT and business can be more explicitly expressed through a cascade of BSCs. In **figure 10**, the relationship between IT scorecards and the business scorecard is illustrated. The IT development BSC and the IT operational BSC are both enablers of the IT strategic BSC, which in turn is the enabler of the business BSC. This cascade of scorecards becomes a linked set of measures that will be instrumental in achieving IT governance through aligning IT and business strategy and showing how business value is created through information technology.

Figure 8—Outcome Measures and Performance Drivers in the IT BSC

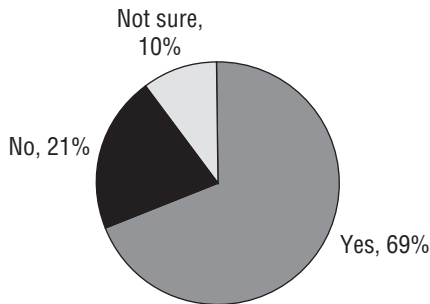
Q33: Does your balanced scorecard incorporate the two types of metrics, i.e., key goal indicators (outcome measures), key performance indicators (performance drivers), both or neither?



Base: All using a balanced scorecard to measure the performance of their IT dept (50)

Figure 9—Causal Relationships Between Outcome Measures and Performance Drivers in the IT BSC

Q34: Do you define the causal relationships between your key goal indicators (outcome measures) and key performance indicators (performance drivers)?



Base: All those who use key goal indicators and key performance indicators to measure the performance of their IT dept (29)

In practice, the ITGI survey reveals that 70 percent of the organisations that use an IT BSC link it to the business BSC (**figure 11**). Nearly two-thirds (64 percent) of the group link to more detailed scorecards that support, for example, IT operations or the help desk. Remuneration schemes also appear to be linked in many cases to the performance measured in the BSC.

Figure 10—Cascade of Scorecards

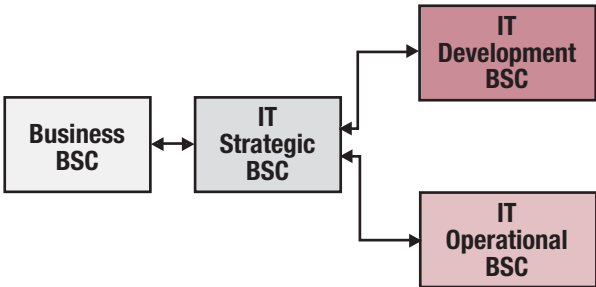
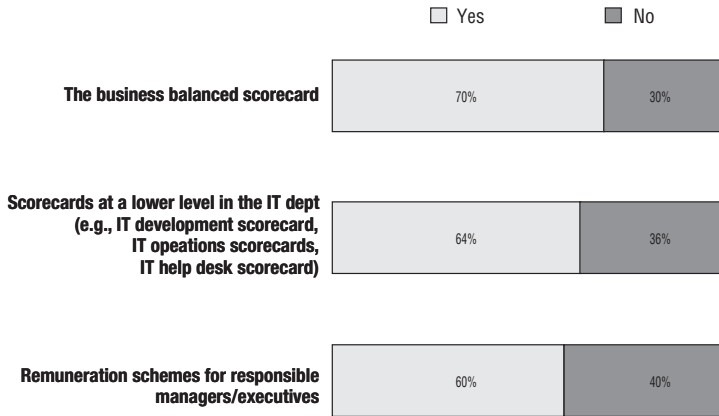


Figure 11—Linking IT BSC to Business BSC

Q36: Is the balanced scorecard of your IT department linked to...?



Base: All using a balanced scorecard to measure the performance of their IT dept (50)

5. IT Governance Roles, Responsibilities and Activities Relating to IT Performance Management

It is the responsibility of the board and executive management to define and monitor performance measures that assess the business value of IT. If an IT BSC is used, the board and executive management must identify which specific IT metrics they need and/or would like to import into the business scorecard. It is also their responsibility to ensure that the IT project risks are in balance and the IT budget is realistic. Executive management is particularly responsible for integrating the IT budget into the overall financial plan. The CIO is responsible for managing the IT budget and the IT investments. He/she is also responsible for providing an IT performance monitoring system (such as the BSC) that includes objectives and metrics that can be directly linked to business goals and/or the business BSC. **Figure 12** displays in more detail the board's, CEO's and CIO's responsibilities concerning IT performance management.⁶

Figure 12—IT Performance Management Responsibilities		
Board Responsibility	CEO Responsibility	CIO Responsibility
The board is responsible for ensuring that IT delivers on the promise of related strategies through clear expectations and measurement. The board must work with the CEO to define and monitor performance measures. It is also the board's responsibility to ensure that IT investments represent a balance of risk and benefit, and budgets are acceptable and reflect the overall organisation's financial direction.	The CEO is responsible for ensuring strong links between business objectives and performance measures. It is the CEO's responsibility to develop an appropriate incentive scheme to drive adherence to the performance measures. The CEO is responsible for integrating the IT budget and investment plan into the overall financial plan, ensuring that it is realistic, balanced and achievable. The CEO is then responsible for reporting progress to the board on a regular basis.	The CIO is responsible for developing and managing the IT budget, including short-term and long-term investment strategies. The CIO is responsible for developing a realistic IT performance measurement plan, along with appropriate metrics. In conjunction with the CEO, it is the CIO's responsibility to implement and manage a performance measurement scheme. The metrics used by the CIO should be linked directly to achievement of business goals and, wherever possible, assigned a financial value.

⁶ Duffy, J.; *IT Governance and Business Value, Part 2: Who's Responsible for What?*, IDC document # 27807, 2002

The co-responsibility of business and IT to measure IT value delivery from projects and investments is established in 43 percent of the organisations interviewed by ITGI (**figure 13**). Twenty-one percent of the surveyed organisations assign the responsibility only to the business and 15 percent assign the responsibility only to IT. **Figure 14** shows that 36 percent of the surveyed organisations have business/IT co-responsibility for measuring the value of the whole IT department, which, as can be expected, is lower than the percentage assigning co-responsibility to measure IT investments and projects. Twenty-eight percent of the organisations have the IT department responsible for measuring its own performance. In only 13 percent of the responding organisations is the business responsible for measuring the IT department’s performance. Linking the accountability of achieving business value to executive reward schemes is done in 41 percent of the interviewed organisations (**figure 15**).

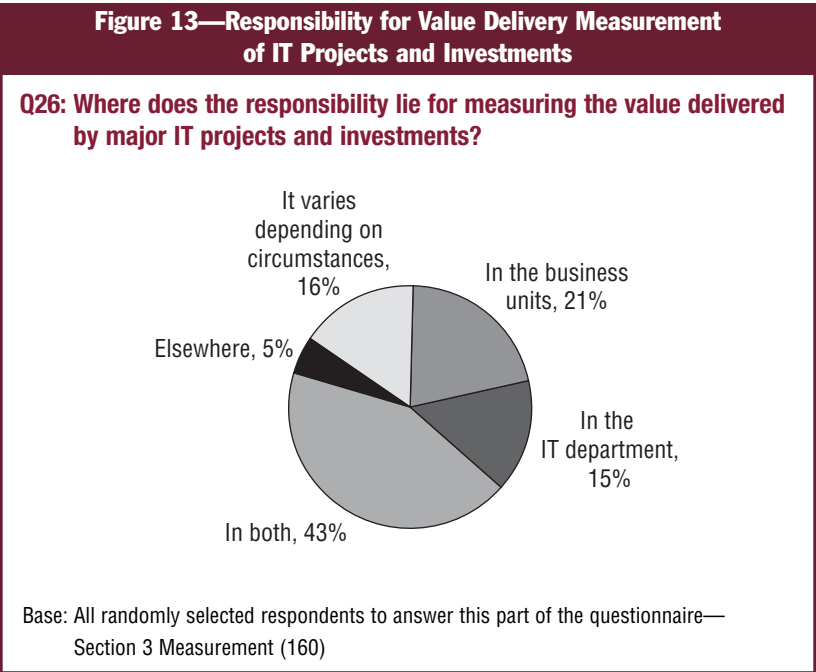
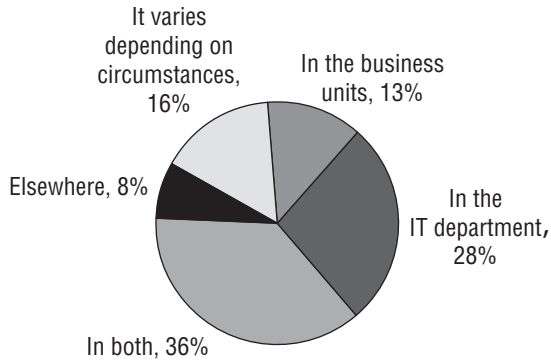


Figure 14—Responsibility for Value Delivery of IT Department

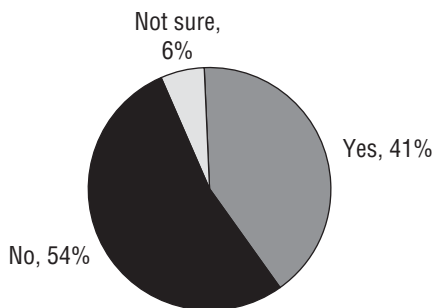
Q30: Where does the responsibility lie for measuring the performance of the IT department as a whole?



Base: All randomly selected respondents to answer this part of the questionnaire—
Section 3 Measurement (160)

Figure 15—IT Value Linked to Reward Schemes

Q31: Do your executive reward schemes incorporate any accountability for the success or failure of IT-related business investments, or not?

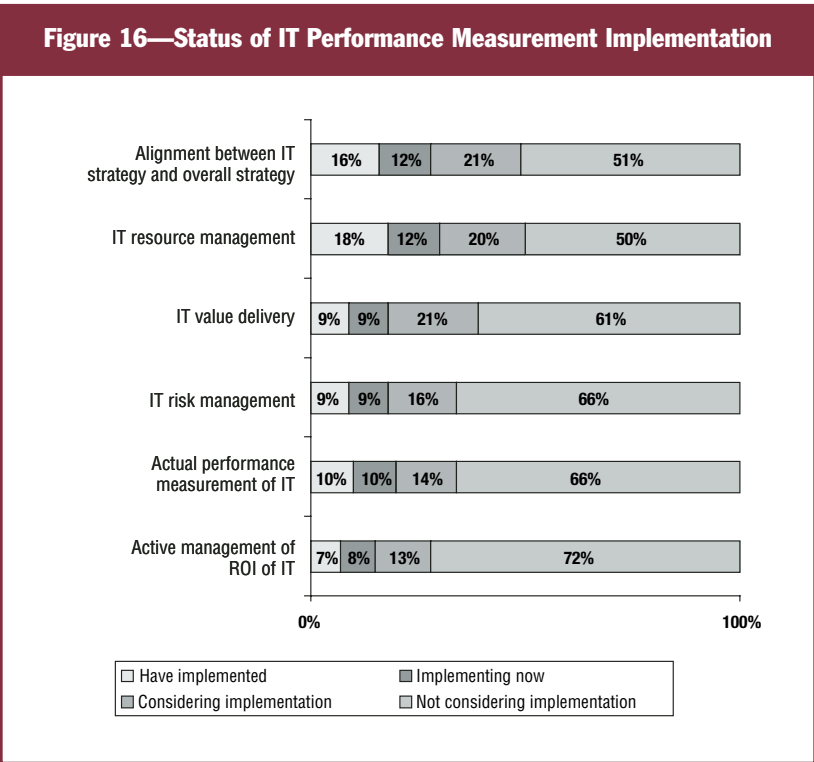


Base: All randomly selected respondents to answer this part of the questionnaire—
Section 3 Measurement (160)

6. Likely Future Trends

IT performance management is an important domain within IT governance best practices. A number of well-established methods are available in the market to support IT performance management, from financial-oriented approaches such as ROI to broader methods such as the BSC and IE.

Although these practices themselves are very mature, openly available and clearly described in literature, they are not necessarily being widely adopted. **Figure 16⁷** shows that 66 percent of organisations are not considering implementing actual performance measurement of IT and 72 percent are not considering active management of IT ROI. This implies that in many organisations the awareness phase is yet to be initiated, and there is a lot of room for improvement in the IT performance management domain.



⁷ From *IT Governance Global Status Report*, IT Governance Institute, 2004, www.itgi.org

**Computing the
value of
IT investments
is not a
technology
issue—it is
a business
issue.**

Raising awareness of the need for performance management should start within IT, but it should also find strong support within the business.

The CEOs and other senior executives who are asking their CIOs to compute the value of IT investments are asking the wrong person. They should instead take a hard look in the mirror. This is not a technology issue—it is a business issue. Not only CEOs but all business managers should indeed be asking tough questions, but, more importantly, they must recognise and step up to their responsibility in answering those questions—failure to do so is nothing less than an abdication of their responsibility.⁸

⁸ Thorp, J.; 'Benefits Realisation Approach', *Information Technology Evaluation Methods and Management*, ed. Van Grembergen, 2001

7. Recommended Generic Steps Organisations Should Take

Governance-focused CIOs use IT performance management approaches to improve their understanding of what the business wants from IT and consequently what IT has to deliver. Traditional methods such as ROI can demonstrate the business value of a project.

The appraisal of IT projects needs governance structures and processes that establish how IT investments will be made and particularly how the different management levels—board, executive management and operational management—will be involved.

Mechanisms such as an IT strategy committee and IT steering committees can be especially effective for this purpose. IT portfolio management may help in achieving an optimal mix of projects, taking into account alignment, benefits, risks and dependencies among different investments. Another important governance structure/process is the BSC. This approach not only captures financial metrics on IT projects but also includes user, operational and innovation evaluations. The IT scorecard method can build a relationship between IT and the business by demonstrating IT's added value to the business and its users. This can be done through rolling up and/or aggregating crucial IT metrics and importing them into the business BSC.

This publication proposes a two-way approach, using IT portfolio management and the BSC concepts.

Implementing IT portfolio management⁹ as a best practice for IT governance calls for the following generic steps:

- Align IT with business goals using structures such as an IT strategy committee and IT steering committees.
- Define clear business cases for projects and evaluate them through a variety of metrics depending on the nature of the project (ROI, payback period, IE, BSC).
- Raise the portfolio issue by taking into account the risk profile of projects and the dependencies among different projects.

The appraisal of IT projects needs governance structures and processes.

⁹ Ferrara, L.; A. Stochniol; *Using IT Portfolio Management to Improve the IT Contribution to the Business*, CSC Research and Advisory Services, 2004

To build and implement BSCs as a best practice for IT governance, the following generic steps are suggested:

- Present the IT BSC concept to the board and executive management to demonstrate its relevance as an IT governance mechanism and encourage their involvement.
- Establish a project team for the development of the IT BSCs (IT strategy scorecard and underlying scorecards for IT processes).
- Collect information on corporate and IT strategy, the business BSC (if it is already implemented) and IT metrics already in use for performance measurement of IT processes.
- Build in sufficient outcome measures (key goal indicators) to monitor whether the chosen strategy is successful.
- Include sufficient performance drivers (key performance indicators) so it is possible to visualise how the IT strategy will be achieved.
- Clarify the cause-and-effect relationships between outcome measures and performance drivers.
- Implement the IT scorecard as a strategic management system by linking it to business objectives and/or the business BSC to show how IT strategy is improving the organisation's performance.
- Roll up and aggregate metrics as a linking method between the IT strategic and business scorecards, and between the IT strategic scorecard and its underlying scorecards.
- Define targets that are realistic and devise strategic initiatives to achieve the targets.
- Link priority settings for IT investment projects to the IT BSC.
- Link individual objectives of IT teams and IT employees to the IT BSC.
- Act upon the measurement results.

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