



An Executive View of IT Governance

IT Governance Institute®

The IT Governance Institute (ITGI™) (www.itgi.org) is a non-profit, independent research entity that provides guidance for the global business community on issues related to the governance of IT assets. ITGI was established by the non-profit membership association ISACA in 1998 to help executives and IT professionals ensure that IT delivers value and its risks are mitigated through alignment with enterprise objectives, IT resources are properly allocated, and IT performance is measured. ITGI developed *Control Objectives for Information and related Technology* (COBIT®) and Val IT™, and offers original research and case studies to help enterprise leaders and boards of directors fulfil their IT governance responsibilities and help IT professionals deliver value-adding services.

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Executive Summary

Information technology (IT) governance is, or should be, an integral part of enterprise governance. It provides the direction and control to help ensure that the significant investments made in IT bring value to the enterprise, IT's resources are used responsibly and its risks are mitigated. Given IT's potential contribution to business success, it would be reasonable to assume that senior executives have strong opinions about it. That is the reason this research was conducted: to target top non-IT executives and ascertain their views on IT's contribution to the business and identify ways their enterprises are governing IT.

The survey whose results form the basis of this publication was commissioned by the IT Governance Institute (ITGI) and conducted on ITGI's behalf by PricewaterhouseCoopers (PwC) Belgium and the PwC International Survey Unit (ISU). During May – August 2008, more than 250 interviews were conducted in 22 countries with executives of both large and small companies in a variety of industry sectors.

The general topics covered by the questions included:

- Importance of IT
- Outcome of IT
- IT accountability
- Effectiveness of IT governance

The results revealed how important executives believe IT is to their enterprise, and where its major contribution lies. While there was agreement that IT investments have created and continue to create value, most of the respondents indicated that there are barriers that tend to restrict realisation of full value from those investments.

In their responses, executives revealed their opinions about whether IT is performing according to their expectations, and identified who they perceive to be responsible for IT governance within their enterprise. In addition, executives pointed to the sources they rely on for guidance on IT—not necessarily those who are responsible for it.

Ultimately, the responding executives affirmed their belief in the need for IT governance, discussed its relationship to enterprise governance, and indicated how well they are achieving one of the cornerstones of IT governance: alignment of business and IT strategy.

The publication concludes with an additional layer of analysis, assigning index scoring to clusters of similar data sets. The analysis was focused on determining perceptions of the importance of IT to the business, the effectiveness of IT governance and the outcome of IT. The results reveal correlations among the importance placed on IT within the enterprise, the strength of the enterprise's IT governance practices, and the level of enterprise satisfaction with IT's contribution to the business.

The key messages to be taken away from this survey by executive management:

- Take ownership of IT governance and assume overall accountability over IT
- Make the CIO reporting line as direct as possible to the top executive decision body
- Pay more attention to the potential for innovation IT can offer
- Start measuring the value IT brings (or does not bring) to the enterprise
- Use external advisors as the most effective source of knowledge and guidance in relation to IT governance

Chapter 1—Background



As its name suggests, the IT Governance Institute (ITGI) is interested in all things relating to IT governance. Upon its establishment in 1998, ITGI found itself ahead of the curve on general acceptance of information technology (IT) governance as a powerful contributor to enterprise success. Unable to locate benchmarks on how, why and by whom IT governance was being adopted globally, ITGI began to develop a database of opinions, facts and statistics on IT governance, in addition to the groundbreaking research it had already conducted.

The first foray into global research occurred in 2003, when more than 300 IT and non-IT executives and managers were interviewed on an array of issues relating to IT governance. This survey was repeated in 2005 and again in 2008. In each new iteration of the survey, some of the questions from the prior survey(s) were repeated, to track trends, and new ones were added, to respond to changes in business and technology. The sample size was increased in 2005 and 2008, so that more than 600 global enterprise leaders were interviewed. PricewaterhouseCoopers (PwC) and its International Survey Unit (ISU) conducted the research on ITGI's behalf.

In 2008, the vast majority of the responses came from IT executives and managers.¹ While this provided interesting and pertinent information, it was ITGI's express hope to find out what CEOs and other non-IT senior executives thought about IT and IT governance: the view from outside *and* from the top.

That is the reason this piece of research was conducted: to target top non-IT executives and ascertain their opinions on IT's contribution to the business and the ways their enterprises are governing IT. ITGI felt certain these executives would have strong and interesting opinions on IT—or, for that matter, on *any* topic that calls for such a significant annual investment and can generate such massive returns on that investment. PricewaterhouseCoopers and the International Survey Unit again conducted the research for ITGI.

Logistics

The target for the survey was 250 telephone interviews, conducted with non-IT CEOs or other executives. Ultimately 255 interviews were conducted—slightly more than the targeted number. Interviewees represented 22 countries, covering Asia-Pacific, Europe, North America and South America. Each interview was conducted by phone in the interviewee's preferred language; in total, eight languages were used.

Nearly half were in manufacturing, and 14 percent were in professional services. The remaining interviewees were split approximately equally amongst IT/telecoms, financial services, retail, transportation and other.

An effort was made to split the respondents equally with regard to size of enterprise, with half from small firms (defined as having 100-500 employees) and large firms (more than 500 employees). Firms smaller than 100 employees were not deemed suitable targets for this research; governance—certainly IT governance—in smaller entities is usually a more informal process not lending itself to discovery via large-scale surveying.

No single business approach characterised the total group of enterprises interviewed. When asked to describe their enterprise's business strategy, the respondents were split almost equally amongst conservative (focused on reducing costs and maximising efficiency), prospective (innovative, with a propensity to act quickly on new technologies) and analytical (inclined to watch competitors for indicators and to make changes only after thorough research and consideration), with only a very slight edge to the prospective camp.

They also implemented IT governance for roughly the same reasons. Since risk management and value delivery are often indicated as leading motivators for implementing IT governance within an enterprise, they were asked to name the main driver for IT governance within their own organisation. More than half responded that risk management and value delivery were equal drivers. (Of those who chose only one, value delivery had the clear upper hand, with 32 percent of respondents, as compared to 12 percent for risk management.)

¹ The results of the 2008 survey are available for free download from the ITGI web site, www.itgi.org.



Chapter 1—Background

The interviews were conducted from May through August 2008, and analysis of the data took place in September 2008.

Topics Covered

The goal was to develop a survey that covered the topic adequately, yet could be concluded in roughly 20 minutes, knowing that senior executives' time is in limited supply. As before, the intent was to repeat some of the questions from the previous surveys, yet also include some new questions designed to elicit the unique view that only CEOs and other senior executives can provide.

The general topics covered included:

- Importance of IT
 - How important is IT for your enterprise, and why?
 - What is the contribution you expect from IT to the overall business?
- IT performance
 - How satisfied are you with the current contribution of IT to your business?
- IT accountability
 - What is the role of the different stakeholders—business and IT—in governing IT?
 - Where does the CEO look for IT leadership (or leadership over IT)?
 - Are accountabilities really defined and accepted?
- Effectiveness of IT governance
 - Are IT governance efforts integrated with overall enterprise governance arrangements in your enterprise?
 - How effective are IT governance arrangements within your enterprise?

The remaining chapters discuss the responses correlated to these general topics and include the statistics backing up the conclusions reached.

General Results

Overall, the final 'lessons learned' from the results follow:

1. IT is very important to the enterprise.²
 - a. Half of the respondents indicate that **IT is very important to the enterprise**, and three-quarters align IT and business strategies. Yet IT matters are discussed **predominantly on an *ad hoc* basis** at the board level.
 - b. Three-quarters of the respondents affirm that **IT investments have created value**.
2. The potential of IT as a value-enhancing strategic enterprise asset is not fully exploited.
 - a. **IT's contribution to efficiency and effectiveness is deemed more important than its innovative value**, which is reflected in the content of board discussions on IT; operational performance is the key topic.
 - b. Three-quarters of enterprises believe there are **barriers that prevent full returns from IT investments**. IT is 'failing', especially on the application delivery level. In addition, the organisation culture is often not conducive to enabling full return on investment.
3. Governance practices need to be further improved.
 - a. Three-quarters of businesses consider **IT governance to be an integral part of enterprise governance**, but the overall maturity is still relatively low.
 - b. Most respondents acknowledge that **executive management is accountable for IT governance** within the enterprise, but they also delegate a significant portion of the governance activities, some of which are not assumed to the full extent. On a related note, in 40 percent of organisations, the CIO is not a member of the executive team.
 - c. **Almost half of the respondents do not measure value** created by IT investments.
4. IT governance practices and IT outcome are correlated.
 - a. **Stronger IT governance practices correlate positively with better IT outcome**, i.e., IT governance is more often found in organisations where IT is a significant contributor to (business) value.
 - b. The majority of the respondents feel that **IT is performing in line with expectations**; however, a significant minority report that IT performance is lower than their expectations.

² In summarising the main messages from the survey for this introduction, results from several areas of the survey have been combined. The detailed survey results are presented and described further within the subsequent chapters of this report.

Chapter 1—Background



When comparing the results of this survey with the 2008 general survey, it can be observed that, in general, the non-IT executives surveyed in this research are less satisfied with their enterprise's IT than was the IT management population who participated in the 2008 general survey. For example:

- Value provided by IT is reported at a generally lower level in this survey, indicating a less favorable view of IT performance
- IT is seen as strategically important, but not to the same extent as reported by IT managers in the previous survey
- Those in IT management believe they provide the business side of the enterprise with frequent information about new technology opportunities, but the business side does not seem to receive this information.

In relation to the last observation, there may be a need for management to close the apparent communication gap on how to transform new technology into business value.

Based on the findings of this survey, it is clear that there is a need for executive management to act. As a good starting point, executive management should:

- Take ownership of IT governance and assume overall accountability over IT
- Make the CIO reporting line as direct as possible to the top executive decision body
- Pay more attention to the potential for innovation IT can offer
- Start measuring the value IT brings (or does not bring) to the enterprise

In addition, the use of external advisors should be considered the most effective source of knowledge and guidance in relation to IT governance.



Chapter 2—Importance of IT

Key Questions

- How important is IT for your enterprise, and why?
- What is the contribution you expect from IT to the overall business?

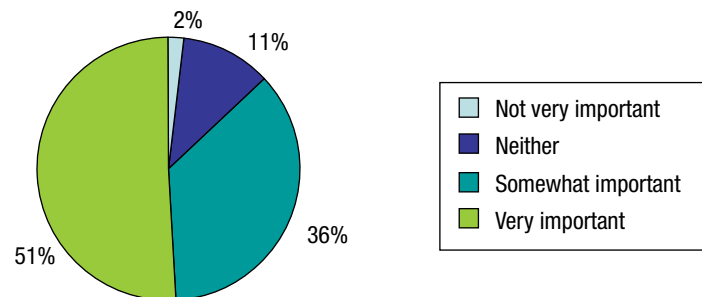
Lessons Learned

- Half of respondents feel that IT is very important to the enterprise.
- IT's contribution to business effectiveness and efficiency is deemed more important than its innovative value.

2-1. Thinking about your overall business strategy or vision, how important do you consider IT to be to the successful delivery of this strategy or vision?

More than one-half consider IT very important to the enterprise's ability to achieve its strategy or vision. An additional one-third noted a somewhat important contribution from IT toward strategy realisation (**figure 1**).

Figure 1—Contribution of IT to Delivery of Business Strategy



2-2. Rate the importance of the role IT plays in relation to the innovation, efficiency, and effectiveness of your enterprise.

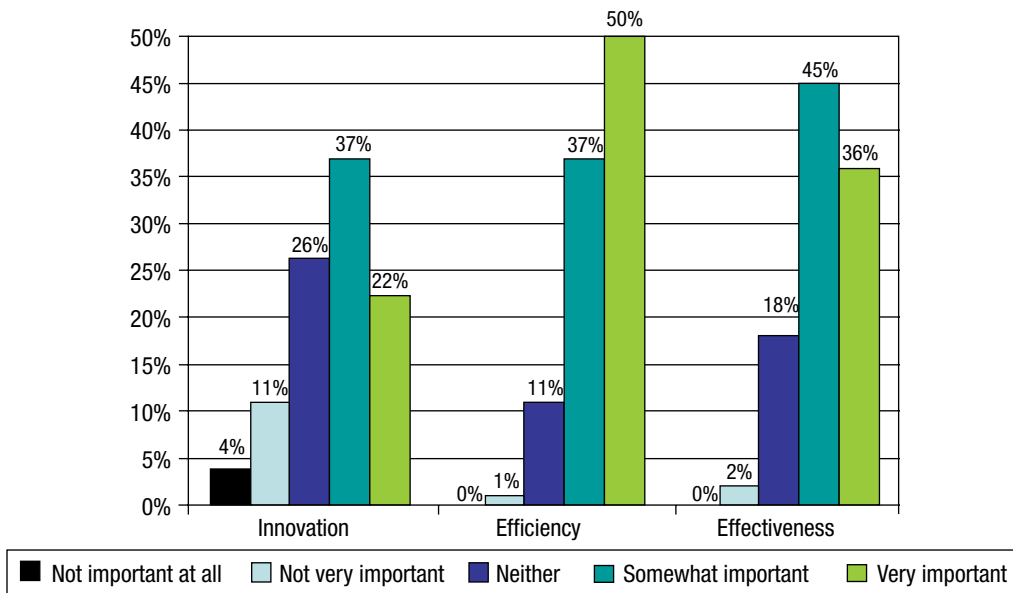
Half the respondents indicated that IT is very important to the enterprise's efficiency efforts. A further 37 percent put IT's contribution to efficiency at the 'somewhat important' level. There was roughly an equal level of enthusiasm about IT's role in making the enterprise effective: a combined total of 81 percent considered IT very or somewhat important to enterprise effectiveness.

The respondents were less convinced of IT's contribution to innovation, however. Less than one-quarter considered IT very important to the enterprise's innovation programme, and 37 percent considered it somewhat important (**figure 2**).

Chapter 2—Importance of IT



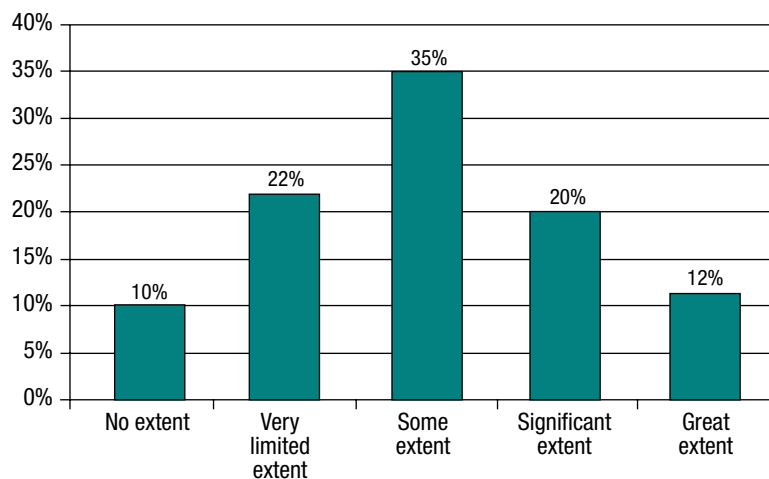
Figure 2—IT's Contribution to Innovation, Efficiency and Effectiveness



2-3. To what extent does your IT function inform the enterprise about potential business opportunities enabled by new technologies?

Perhaps the less enthusiastic opinion of IT's contribution to innovation (question 2-2) is explained by **figure 3**. One-third of the respondents relayed that their IT function does not inform the enterprise of new business opportunities made possible by new technologies, or does so only to a limited extent. Another third indicated that such communication occurs only to some extent. Only one-third of enterprises can count on their IT department to provide this type of information—information that could create a competitive advantage. Implied in this is a call to action for IT management to better communicate and align IT's capabilities to enhance business growth through innovation.

Figure 3—Frequency With Which IT Informs the Business on New Technologies





Chapter 3—IT Performance

Key Question

- How satisfied are you with the current contribution of IT to your business?

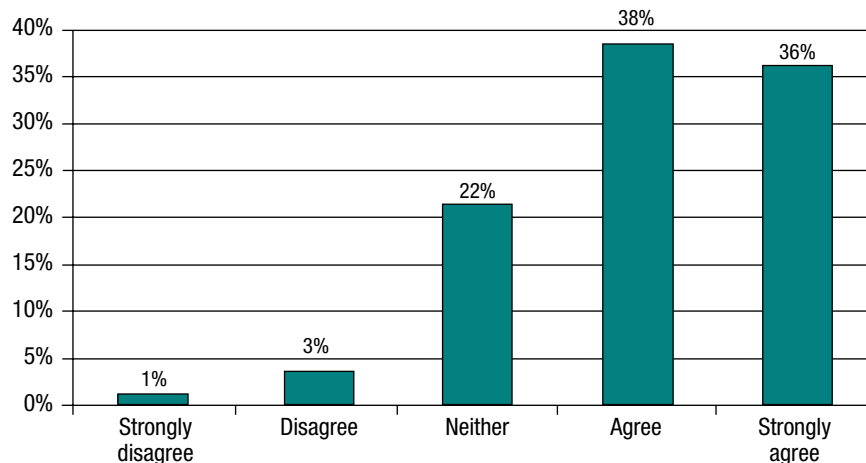
Lessons Learned

- Three-quarters of the respondents affirm that IT investments have created value.
- The majority of the respondents feel that IT is performing in line with expectations.

3-1. To what extent would you agree or disagree that IT investments have created value for your enterprise?

Three-quarters of respondents agreed (or strongly agreed) that their investments in IT have generated value for the enterprise. Surprisingly, nearly one-quarter have no opinion on the value of IT investments—unusual, in that the size of IT investments generally would tend to require firm belief in positive return before proceeding (figure 4).

Figure 4—Creation of Value From IT Investments



Or, perhaps the 22 percent who have no opinion do not have the information necessary to form an opinion. The survey indicated that a surprising number of enterprises do not measure the value of their IT investments after the fact. Just slightly more than half of the respondents—56 percent—indicated that their enterprise does measure the value of IT investments, and 43 percent said no such measurement is made. Although executive management is generally convinced of the value of IT investments, it is unclear how 43 percent determine whether the expected value has been achieved. Those who do measure the value of IT investments rely primarily on profit and loss calculation (42 percent).

3-2. Are there any barriers that are preventing your enterprise from realising the full value from IT investments?

Half³ of the respondents believe there are barriers that prevent their enterprise from realising the full value from the investments made in IT (figure 5). Difficulty in implementing applications and culture of the organisation were top amongst the barriers identified (figure 6, multiple responses allowed).

³ The survey question asked whether there were barriers to realising full value on IT investments. A significant group reported 'budget constraints', which is in itself probably a valid issue, but is not a relevant reply to this question; those answers were discarded. Another group reported barriers, but could not name them. Those answers were discarded as well.

Chapter 3—IT Performance



Figure 5—Barriers Preventing Full Return on IT Investments

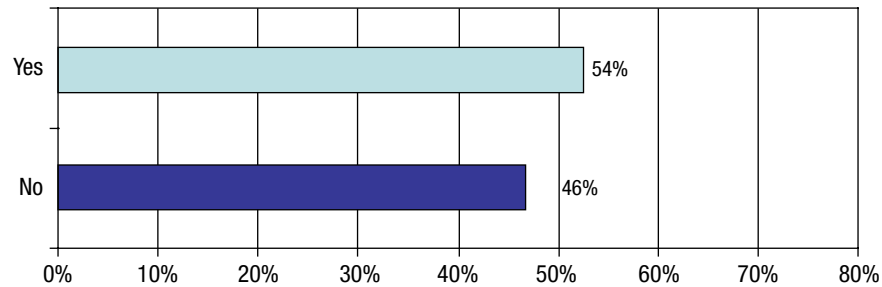
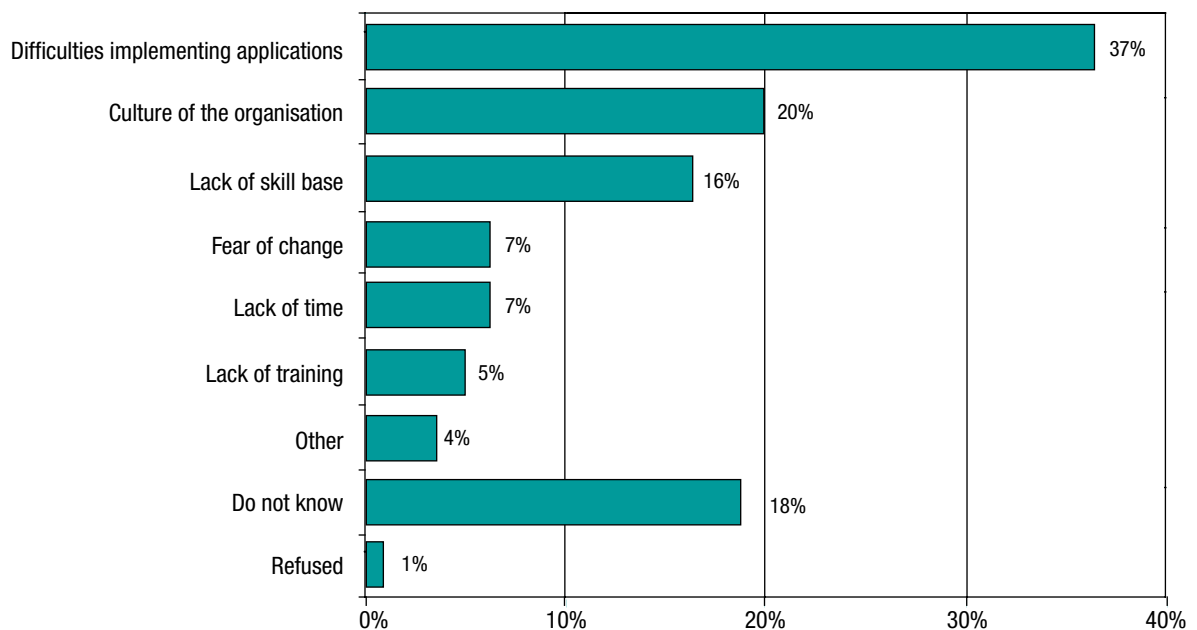


Figure 6—Barriers Identified



Combining the results of this question and the previous question creates a situation that must constitute a point of real frustration for senior executives: they are convinced that IT investments create value, yet they are hampered by conditions that prevent attainment of full value. The same senior executive group should, however, feel some sense of control over several of the barriers identified. In their position, these executives can ensure that time and training are made available to their employees. Appropriate amounts of both should affect the ‘lack of training’ barrier, and possibly the ‘lack of skill base’ and some of the ‘difficulties implementing applications’ barriers. And, with regard to the culture of the organisation, as the individuals who set the ‘tone at the top’, they should be able to effect significant change in that culture.

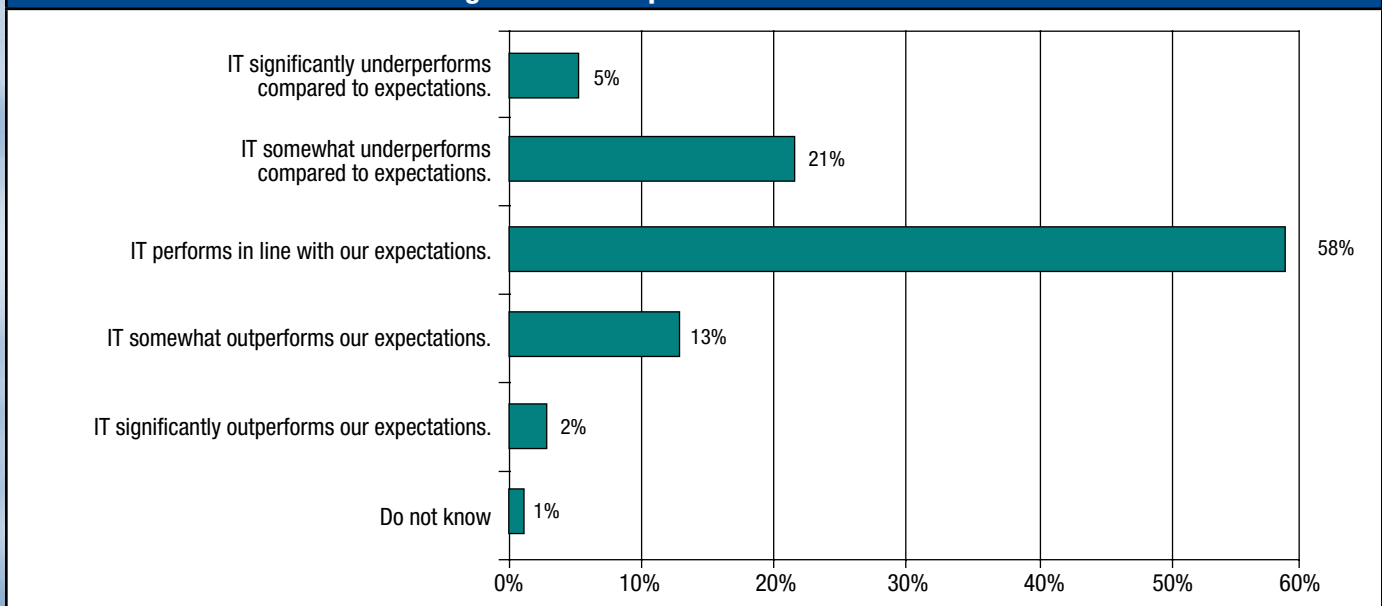


Chapter 3—IT Performance

3-3. Which statement relates most closely to the performance of IT in your enterprise?

The response to this question mirrors the typical bell curve (**figure 7**). The vast majority of responses are reflected in the ‘middle’ option: IT performs in line with our expectations. At the next level of the curve, somewhat more perceive IT as underperforming as compared to expectations (26 percent) than outperforming expectations (15 percent). This result is somewhat counterintuitive, after the expression of strong feeling that IT investments provide value to the enterprise (question 3-1). Given the apparently firm belief in the value of IT investments, a more ‘enthusiastic’ response might have been expected from this question; in other words, one might expect to see higher numbers in the two outperforming options (perhaps the barriers described in question 3-2 have a role here). Or, it may simply indicate that senior executives expect a lot out of IT—that is why they invest a lot in it—and they get ‘the lot’ they expect.

Figure 7—Perception of IT Performance



Chapter 4—IT Accountability



Key Questions

- What is the role of the different stakeholders—business and IT—in governing IT?
- Where does the CEO look for IT leadership (or leadership over IT)?
- Are accountabilities really defined and accepted?

Lessons Learned

- Executive management is accountable for IT governance within the enterprise, but is not its only champion.

4-1. Who is ultimately accountable for IT governance in your enterprise? Who are the key champions of IT governance in your enterprise?

Executive management was clearly identified as the group accountable for IT governance in 71 percent of the enterprises represented by the respondents (**figure 8**). However, they are not alone in the task of building enthusiasm and support for IT governance; they share the role of key champions with non-executive management—executive management handling 55 percent of the responsibility and non-executive management picking up the other 45 percent (**figure 9**).

Figure 8—Accountable for IT Governance

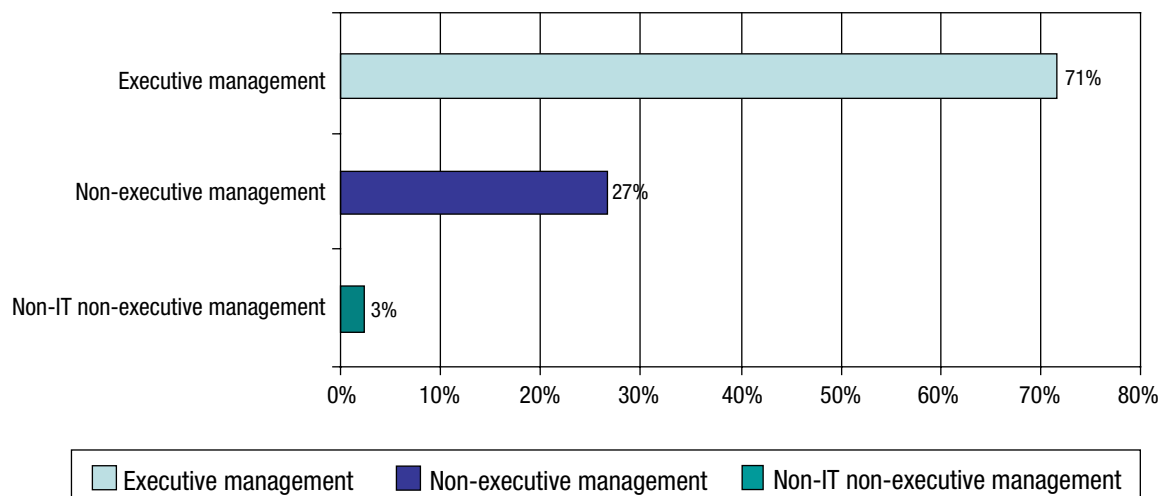
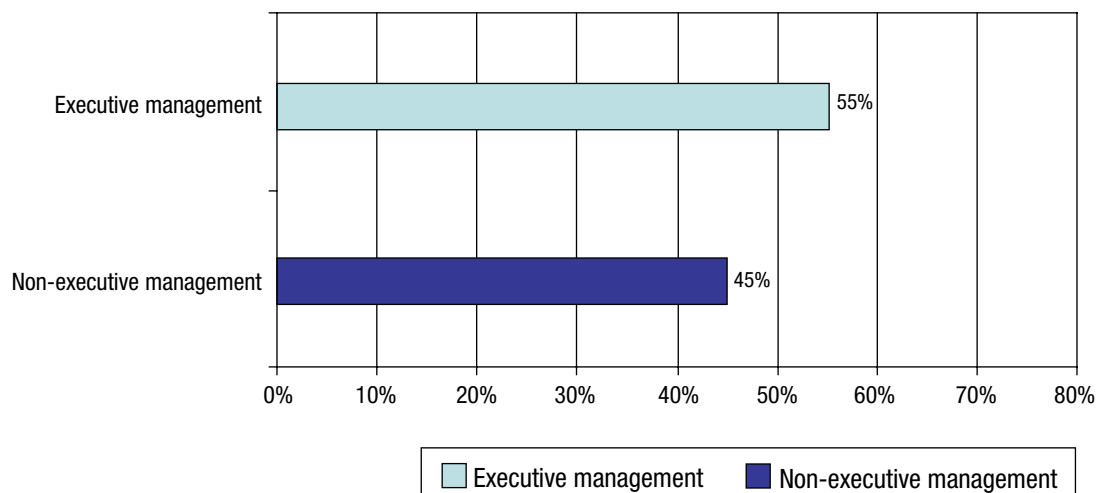


Figure 9—Key Champions for IT Governance





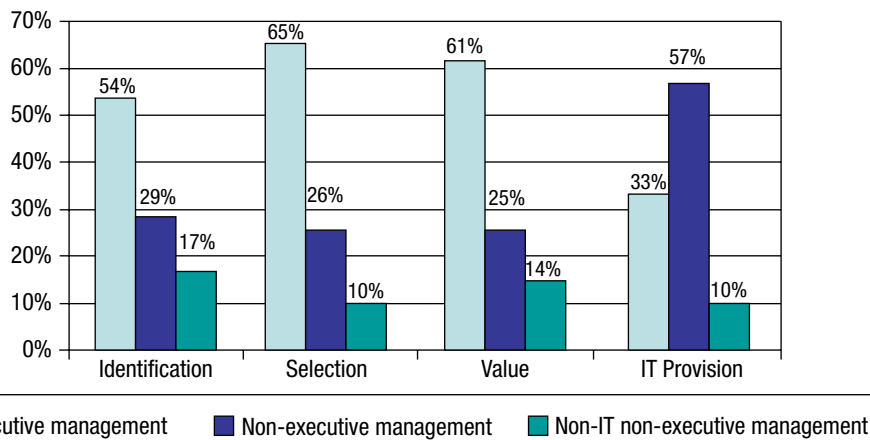
Chapter 4—IT Accountability

4-2. Indicate which function is accountable for the listed IT governance-related activities within your enterprise.

This question drills deeper into the ‘accountability’ issue. The previous question showed that nearly three-quarters of respondents pointed to executive management as the group accountable for IT governance in general. In this question, selected IT governance activities were more specifically described, and the respondents assigned accountability for each specific task. In the labels on the horizontal axis, ‘identification’ refers to identification of potential investment opportunities involving IT. ‘Selection’ denotes selection of investments involving IT. ‘Value’ indicates the realisation of value from investments involving IT, and ‘IT provision’ refers to providing adequate IT operations.

While executive management is accountable for IT governance in an overall sense, that accountability appears to be focused solely on the investment side, as that group was identified as accountable for identifying, selecting and realising value from IT investments. The only area in which non-executive management is more accountable than executive management is providing adequate IT operations (**figure 10**). This might connote that investment responsibilities are considered more ‘strategic’ while IT operations are perceived as more ‘tactical’.

Figure 10—Accountability for IT Governance Activities



4-3. Is the CIO part of the executive team? Does his/her opinion carry equal weight compared to the other members of the executive team? To whom does he/she report? If he/she is not part of the executive team, why not?

Possibly no other IT-related position has undergone as much scrutiny and change as the chief information officer. A review of publicly prognosticated CIO trends for 2008 revealed expectations ranging from the CIO growing in stature to the CIO moving down the organisation chart.⁴ The respondents to this survey had no such diversity of views: more than half placed their CIO on the executive team (**figure 11**) and, of that number, a strong majority—86 percent—consider their CIO’s opinions of equal weight and value to those of any other member of the executive team (**figure 12**).

⁴ From surveys by *CIO Insight* and Society of Information Management

Chapter 4—IT Accountability



Figure 11—CIO as Member of Executive Team

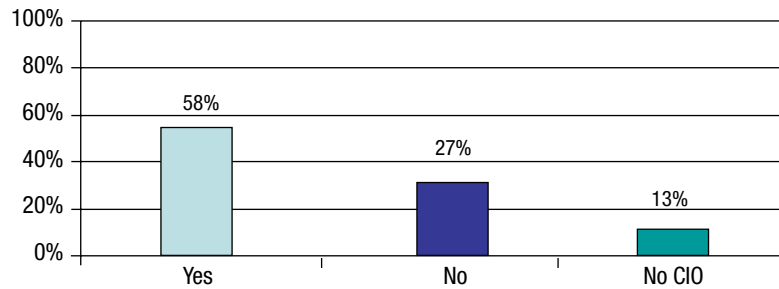
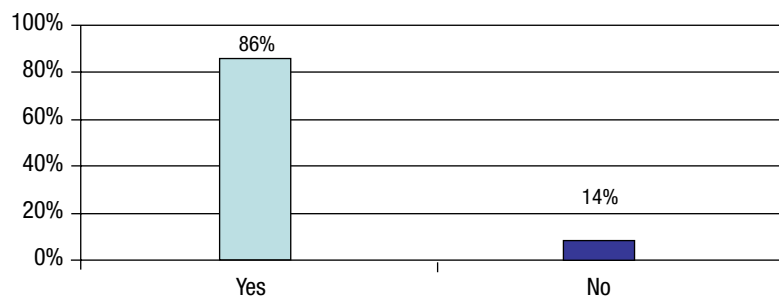
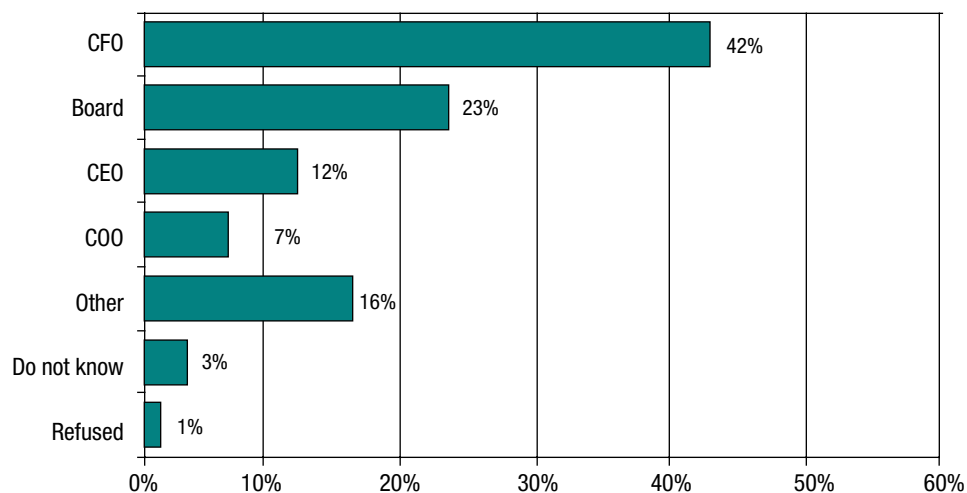


Figure 12—Equality of CIO's Views With Others on Executive Team



Diversity does arise, however, in the position to which the CIO reports. Slightly more than 40 percent of CIOs report to the CFO, almost one-quarter report to the board, 12 percent report to the CEO and 7 percent report to the COO (**figure 13**). Further, 16 percent report to 'other'. Among the positions specified for this response were president, general director and director of administration, which are often local names for the CEO position.

Figure 13—CIO Reporting

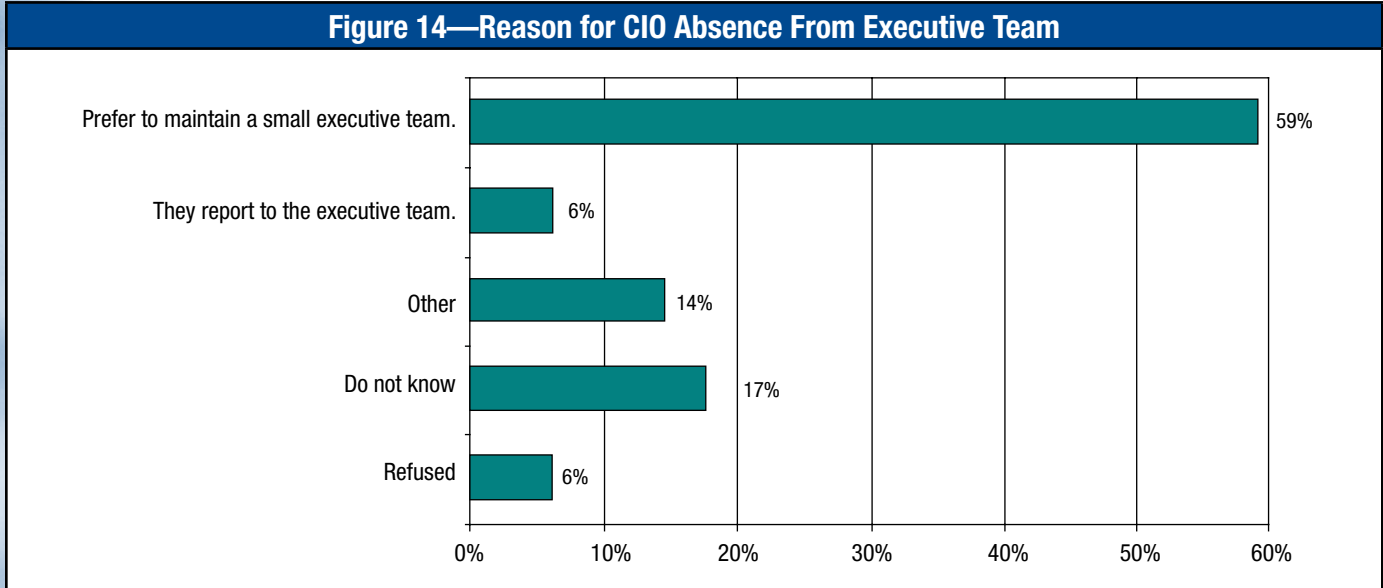




Chapter 4—IT Accountability

As noted in **figure 11**, slightly more than one-quarter of the respondents indicated that their CIO is not on the executive team. Those individuals were asked for the reason for the CIO's exclusion; the vast majority—59 percent—reported that their enterprise prefers to maintain a small executive team (**figure 14**). This could also be perceived as if it is not relevant to have a CIO on the executive committee.

Figure 14—Reason for CIO Absence From Executive Team



Chapter 5—Effectiveness of IT Governance



Key Questions

- Are IT governance efforts integrated with overall enterprise governance arrangements in your enterprise?
- How effective are IT governance arrangements within your enterprise?

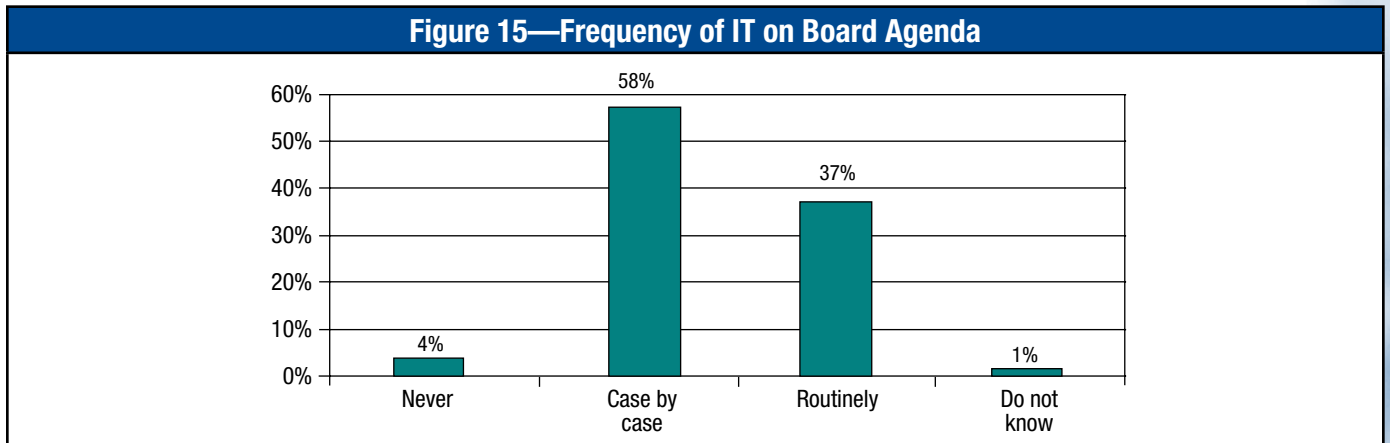
Lessons Learned

- IT is discussed predominantly on an *ad hoc* basis at the board level.
- Three-quarters of businesses align IT strategy to business strategy.
- Three-quarters of businesses consider IT governance to be an integral part of enterprise governance.
- Half of businesses look to external consultants for guidance on IT.

5-1. How frequently is IT included on your enterprise's board agenda? What is the typical focus of board discussions about IT?

Only 4 percent of boards never talk about IT. The vast majority—95 percent—do, although they differ in the frequency with which they address it. Slightly more than one-third of boards talk about it routinely, while 58 percent deal with it on a case-by-case basis (*ad hoc*) (figure 15).

Figure 15—Frequency of IT on Board Agenda



When boards do talk about IT, what do they focus on? Operational performance is top on their list, with 59 percent discussing it at the board level (figure 16). It is surprising that the board's top topic is the improvement of IT operational performance, which is a typical 'care and keeping' activity for which accountability generally resides with non-executives, as shown in figure 10. One could surmise that lackluster IT operations/delivery performance weighs heavily on board agendas when it comes to IT.

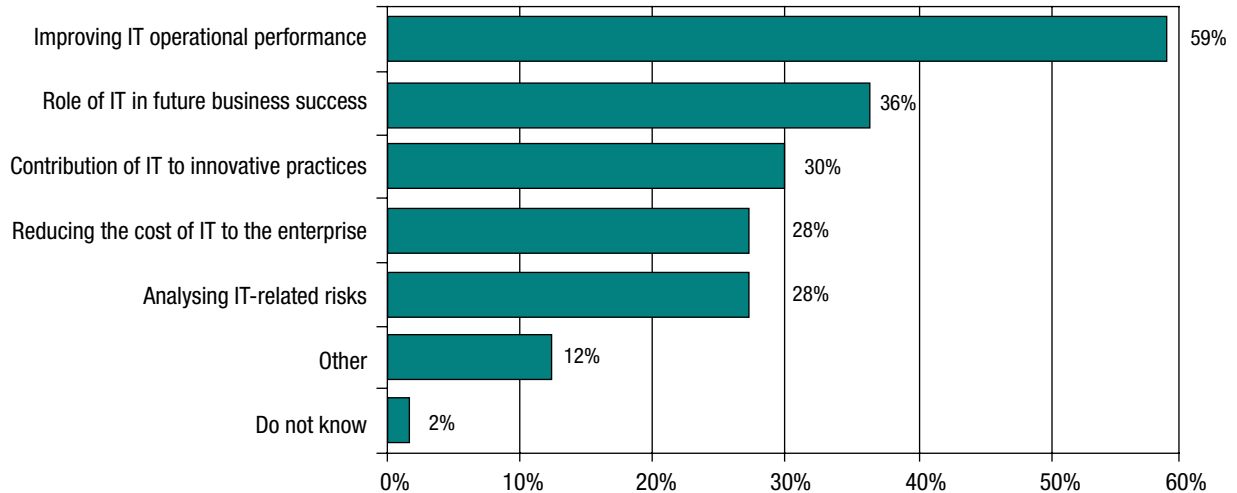
Thirty-six percent of respondents indicated that the board discusses the role of IT in future business success, and 30 percent point to the contribution of IT to innovation as a discussion topic. It is interesting to compare this with figure 2, which shows that the respondents are less convinced of IT's contribution to innovation, as opposed to efficiency and effectiveness.

Slightly more than one-quarter of boards concern themselves with IT cost and IT risk.



Chapter 5—Effectiveness of IT Governance

Figure 16—IT Topics Discussed by Board

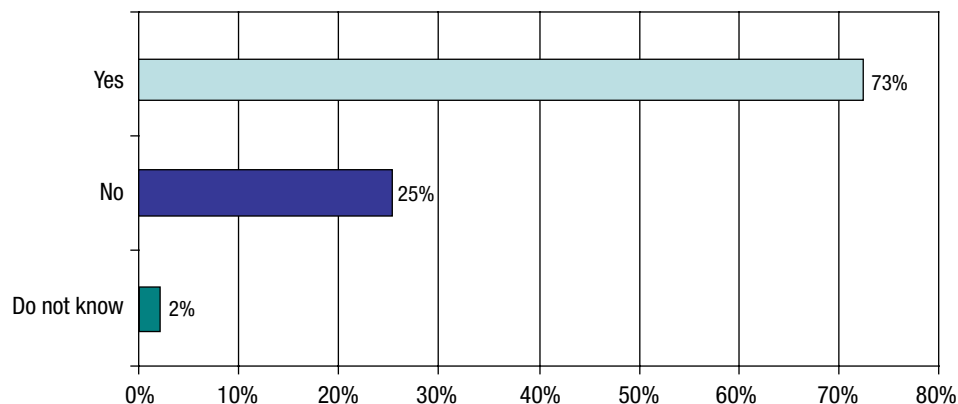


5-2. Does your enterprise establish and maintain alignment between business and IT strategy? If so, how?

Alignment between business and IT strategy is a basic tenet of IT governance; indeed, ITGI identifies alignment as one of the five focus areas of IT governance (along with risk management, resource management, value delivery and performance measurement). According to ITGI, and supported by generally accepted good practices, amongst the ways IT can contribute to achievement of business strategy are adding value to products and services, assisting in competitive positioning, containing costs and improving administrative efficiency, and increasing managerial effectiveness.⁵

Nearly three-quarters of the survey respondents indicated that their business and IT strategies are in alignment (**figure 17**). Because achieving alignment is not an easy task, as ITGI concedes,⁶ it is interesting to see how these enterprises accomplished it. Slightly more than half involve business management in IT decisions; another 43 percent hold regular leadership meetings on IT. Roughly one-third and one-fourth rely on a formal committee structure: an IT strategy committee and an IT alignment committee, respectively. Another 25 percent look to the outside marketplace for help in this area, counting on assistance through regular external reviews and consulting (**figure 18**, multiple responses allowed).

Figure 17—Alignment of IT and Business Strategy



⁵ IT Governance Institute, *Board Briefing on IT Governance, 2nd Edition*, 2003, www.itgi.org

⁶ '(IT alignment) is complex, multifaceted and never completely achieved. It is about continuing to move in the right direction and being better aligned than competitors. This may not be attainable for many enterprises because enterprise goals change too quickly, but it is nevertheless a worthwhile ambition because there is real concern about the value of IT investment'.—*Board Briefing on IT Governance, 2nd Edition*

Chapter 5—Effectiveness of IT Governance



It is surprising that the reliance on external counsel depicted in **figure 18** is relatively low, when the response to another question reveals that external advisors are by far and away the respondents' leading source of IT governance guidance (**figure 19**). The survey question was 'Where would your enterprise go for IT governance guidance, advice and solutions?' Fifteen percent staunchly rejected the idea of using external advisors for this purpose, and the remainder were divided among various sources: the IT manager or team, legal counsel or the audit function, the parent company, or the accounting/finance function. This may point to misperceptions by the 15 percent who rejected using external advisors that IT governance is not integral and closely linked to enterprise governance.⁷

Figure 18—Methods of Aligning IT and Business Strategy

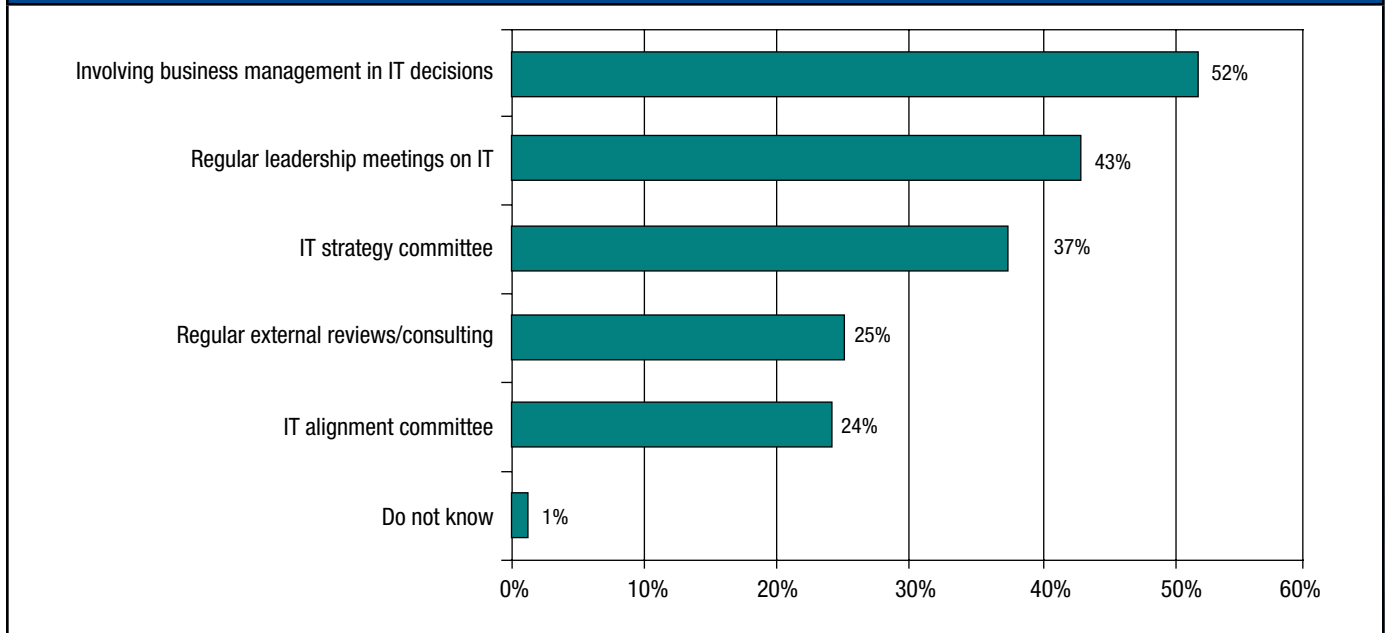
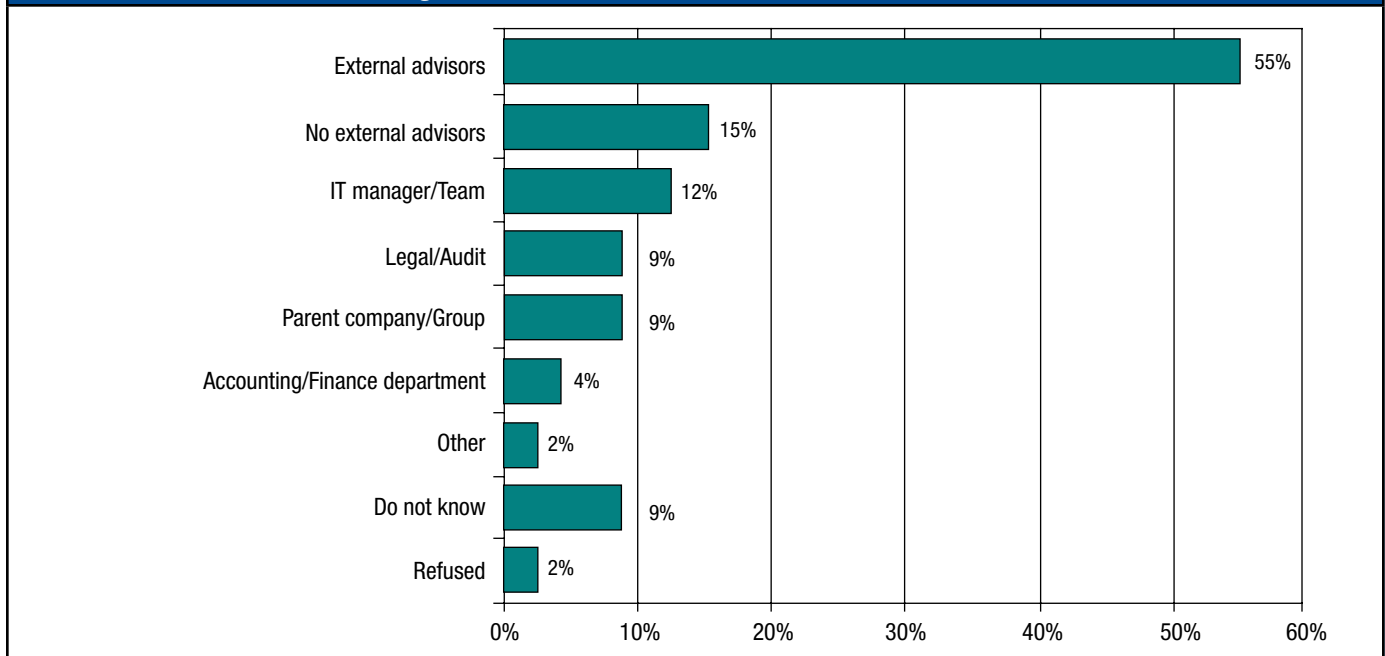


Figure 19—Sources of IT Governance Guidance



⁷ IT Governance Institute, *Unlocking Value: An Executive Primer on the Critical Role of IT Governance*, 2008, www.itgi.org.



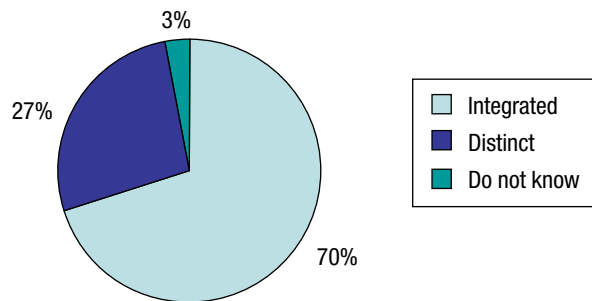
Chapter 5—Effectiveness of IT Governance

Supporting the need for outside expertise is the fact that 57 percent of the respondents indicated that they were not familiar with any kind of standard or framework they could look to for assistance/guidance in governing IT. The 43 percent who did know of some appropriate guidance were asked to name those they were familiar with. About one-third pointed to an international framework such as International Organisation for Standardisation (ISO) standards, IT Infrastructure Library (ITIL®) or *Control Objectives for Information and related Technology* (COBIT®); an equal number referred to their own corporate or internal framework. Since internal frameworks are often built on pieces of existing, publicly available frameworks, it is likely that ISO, ITIL and/or COBIT may be reflected there as well.

5-3. In your enterprise, is IT governance an integrated part of the overall enterprise governance arrangements or an effort distinct from enterprise governance?

ITGI defines enterprise governance as ‘a set of responsibilities and practices exercised by the board and executive management with the goal of providing strategic direction, ensuring that objectives are achieved, ascertaining that risks are managed appropriately and verifying that the enterprise’s resources are used responsibly’.⁸ With this definition in mind, it is easy to see how IT governance—with its focus on alignment, value and risk management—complements good enterprise governance so well. Seventy percent of respondents consider IT governance an integrated part of their enterprise governance; another 27 percent recognise IT governance as a discipline, but see it as separate and distinct from their enterprise governance activities (figure 20).

Figure 20—Relationship of IT Governance to Enterprise Governance



5-4. Which of the following statements is closest to the perception of IT governance within your enterprise?

Although different words were used in this survey question, its purpose was to measure the maturity of IT governance in the respondents’ enterprises. Maturity levels were developed by Carnegie Mellon’s Software Engineering Institute (SEI) to express the maturity of software development capability. SEI’s model was later adapted by ITGI for its COBIT framework. As defined in COBIT, there are six levels of maturity, which, in generic form, can be applied to virtually any discipline. The levels of the generic maturity model follow:

- **0 Non-existent**—Complete lack of any recognisable processes. The enterprise has not even recognised that there is an issue to be addressed.
- **1 Initial/Ad Hoc**—There is evidence that the enterprise has recognised that the issues exist and need to be addressed. There are, however, no standardised processes; instead, there are *ad hoc* approaches that tend to be applied on an individual or case-by-case basis. The overall approach to management is disorganised.
- **2 Repeatable but Intuitive**—Processes have developed to the stage where similar procedures are followed by different people undertaking the same task. There is no formal training or communication of standard procedures, and responsibility is left to the individual. There is a high degree of reliance on the knowledge of individuals and, therefore, errors are likely.
- **3 Defined Process**—Procedures have been standardised and documented, and communicated through training. It is mandated that these processes should be followed; however, it is unlikely that deviations will be detected. The procedures themselves are not sophisticated but are the formalisation of existing practices.

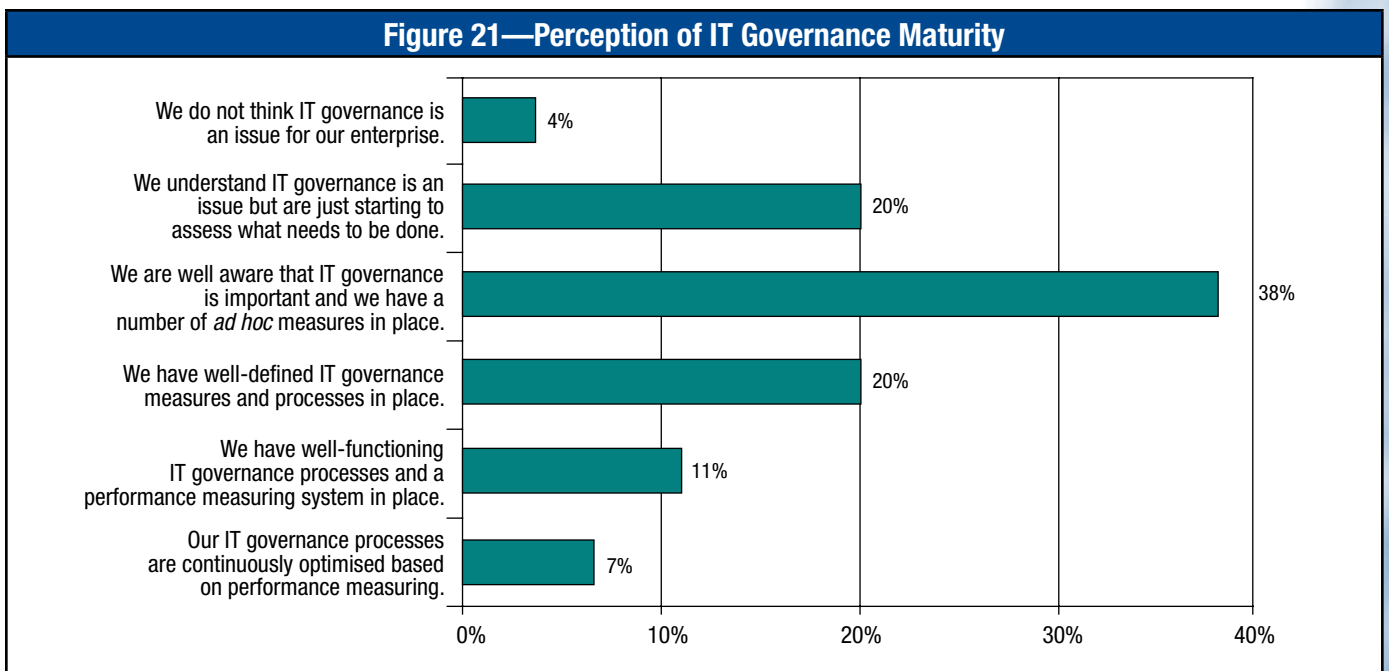
⁸ Op cit, IT Governance Institute, *Board Briefing on IT Governance, 2nd Edition*

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- **4 Managed and Measurable**—Management monitors and measures compliance with procedures and takes action where processes appear not to be working effectively. Processes are under constant improvement and provide good practice. Automation and tools are used in a limited or fragmented way.
- **5 Optimised**—Processes have been refined to a level of good practice, based on the results of continuous improvement and maturity modeling with other enterprises. IT is used in an integrated way to automate the workflow, providing tools to improve quality and effectiveness, making the enterprise quick to adapt.⁹

The responses in **figure 21** correspond roughly to this scale, with the least favourable response, ‘We do not think IT governance is an issue for our enterprise’, getting a 0 (nonexistent) rating, and the most favourable response getting a 5 (optimised). It should be noted that it is not necessary for every enterprise to achieve a 5 in everything it does; each enterprise should determine for itself what level is reasonable and appropriate, given its resources, industry and strategic priorities.



⁹ IT Governance Institute, COBIT® 4.1 (**figure 13**), 2008, www.itgi.org/cobit. For the maturity levels worded specifically for IT governance, see the appendix.



Chapter 6—Cluster Analysis of Data

Methodology

Clustering, as the name implies, is the classification of objects into groups. In statistical analysis, one way of clustering objects for classification is the grouping together of data sets that share similar traits. Each cluster is distinguishable from every other cluster.

For this survey, a cluster analysis was performed using the following dimensions:

- IT importance, grouping together a number of questions on the importance of IT, specifically those covering:
 - Overall importance of IT for business strategy or vision
 - Actual role and importance of IT in terms of innovation, efficiency and effectiveness
 - Importance of IT objectives around business benefits realisation, risk management and cost containment
- IT governance status, grouping a number of questions that, when combined, provide a view on the enterprise's overall state of advancement in IT governance. The questions covered:
 - Frequency with which IT is included on the enterprise's board agenda
 - Whether the value of IT investment is measured
 - The extent to which the IT function informs the business about potential business opportunities enabled by new technology
 - Whether the enterprise establishes and maintains alignment between business and IT strategy
 - The integration of IT governance with overall enterprise governance
 - A general self-assessment of IT governance maturity level
 - The respondent's awareness of any framework or standard addressing the governance of IT
- IT outcome, combining the results of the questions on satisfaction and value generation of IT, specifically:
 - The extent to which IT investments create value in the enterprise
 - The degree to which IT performs against expectations

For each of the three dimensions—IT importance, IT governance status and IT outcome—an index was calculated based on the answers to the individual questions. The index calculation method was chosen favouring positive responses over average responses. A high index would generally indicate a high importance of IT, or a set of advanced IT governance measures, or a high IT outcome.

Main Findings

The analysis of these indices leads to the following important conclusions:

1. There is a statistical correlation between the actual state of advancement of IT governance practices and the outcome of IT, i.e., when the index score for IT governance practices is relatively higher, the score for IT outcome is equally higher, or *vice versa*.
2. There are two distinct groups (or clusters) in the respondent population, which have been characterised as strategists and operators.

Detailed Findings

Further exploration of the main findings reveals the following observations:

1. IT governance is positively correlated to IT outcome. Analysis of the calculated indices shows a correlation between IT governance performance (IT governance index) and IT outcome (IT outcome index) (**figure 22**).

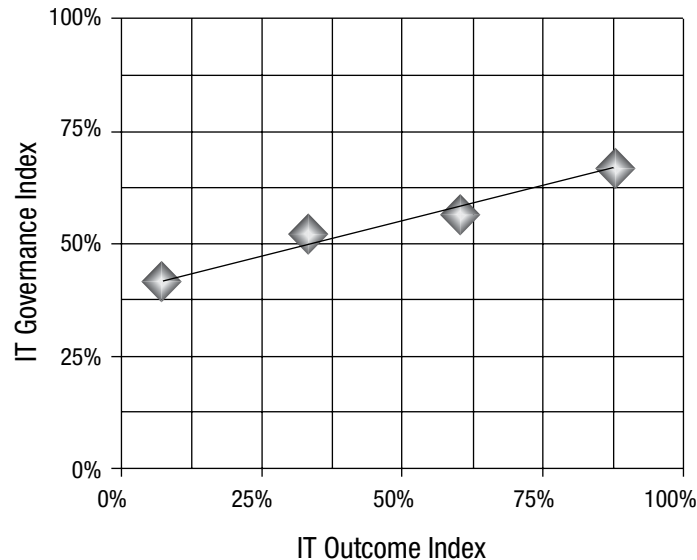
The graph shows a direct link in that higher IT governance practice index scores accompany better IT outcome scores, and lower IT outcomes are associated with weaker IT governance practices, although the low gradient of the graph indicates that the correlation, while positive, is relatively weak. The data points represent the average values of the indices with the overall population split in four groups, based on the value of the IT outcome index. Also with regard to **figure 22**:

- The spread of data points in the different groups is important: high dispersion within the sample data shows that, in some instances, low IT governance practices may go together with well-perceived IT outcomes.
- The graph line does not start at 0 nor does it end at 100.

Chapter 6—Cluster Analysis of Data



Figure 22—Correlation Between IT Governance and IT Outcome



These observations indicate that IT governance is not the only factor contributing to the positive IT outcome recorded—other factors also affect the IT outcome and these need to be identified and studied. Further research is needed to refine the measuring instruments and clarify the factors affecting the trends observed in this survey’s results.

Including the IT importance index scores results in some interesting findings, as illustrated in **figure 23**:

- The less strategically important IT is considered to be for the enterprise, the lower the IT outcome is perceived to be (low importance and low governance result in an average outcome index score of 19). This is possibly the case because something less important may be more likely to be perceived as providing a low outcome.
- However, even with a perceived low or medium IT importance score, the outcome improves with better IT governance practices, showing that IT governance practices do have a positive effect on the outcome of IT.
- Higher-scoring IT governance practices generally accompany a higher IT outcome (high importance and high governance result in the highest observed outcome index score of 61).

Based on this analysis, there appears to be strong indications that better IT governance practices lead to improved IT outcomes.

Figure 23—Average IT Outcome Index

	Low Governance	Medium Governance	High Governance
Low Importance	19	31	
Medium Importance	27	39	47
High Importance	41	44	61

Legend: Light blue indicates very low IT outcome; dark blue indicates low IT outcome; teal is medium IT outcome; green is relatively higher IT outcome; and gray indicates high IT outcome.



Chapter 6—Cluster Analysis of Data

2. The respondent population consists of strategists and operators.

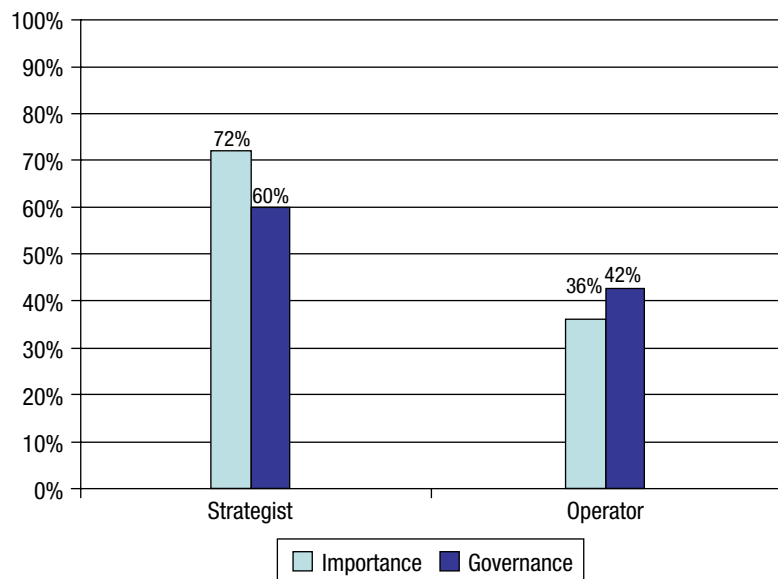
The cluster analysis of the calculated indices revealed the existence of two dominant groups within the data, which have been labelled:

- Strategists, who embrace the strategic value that IT brings to the enterprise and utilise IT as a tool to drive the business forward
- Operators, who are more concerned with the operational quality of IT than its strategic value to the enterprise

Strategists were revealed to have an index score of 72 (maximum = 100) for importance of IT to the business and 60 (maximum = 100) for the effectiveness of IT governance within the enterprise. Those two added together produce the IT score: 132 (**figure 24**).

Operators, on the other hand, reflected a 36 index score for the importance of IT and a 42 for the effectiveness of IT governance within the enterprise. The combination of these two produces an IT score of 78 (**figure 24**).

Figure 24—IT Importance and IT Governance Indices for Strategists and Operators



The IT outcome indices in these two groups were then evaluated to determine whether there was a difference in IT outcome between the two groups. There is indeed a difference (**figure 25**), in line with the previous findings.

While it can be risky to draw too many hard-and-fast conclusions from statistical data, these results seem to suggest again that placing more emphasis on the importance of IT and ensuring that IT practices are more effectively governed deliver a higher IT outcome.

Although this analysis illustrates that importance and governance are both important contributors to IT outcome, they are not the only ones. As previously noted, other factors can have a significant impact on IT outcome, but more research is needed to identify the exact factors and the degree of their significance.

Figure 26 summarises the findings on the two clusters.

Chapter 6—Cluster Analysis of Data



Figure 25—IT Outcome for Strategists and Operators

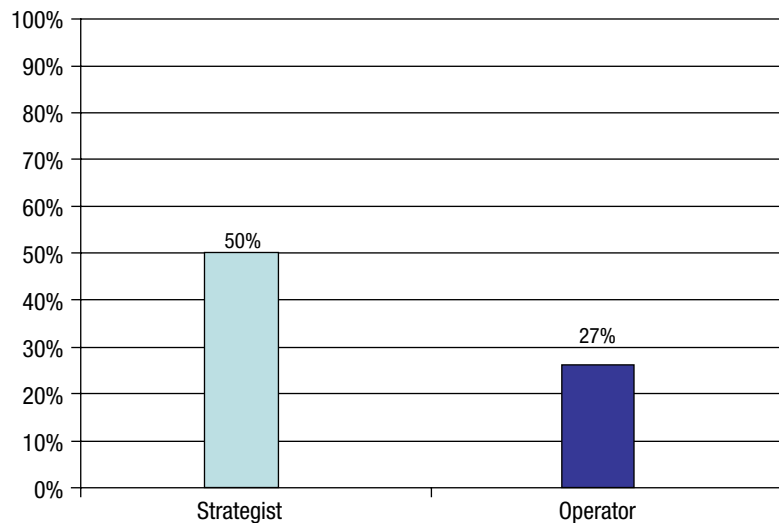
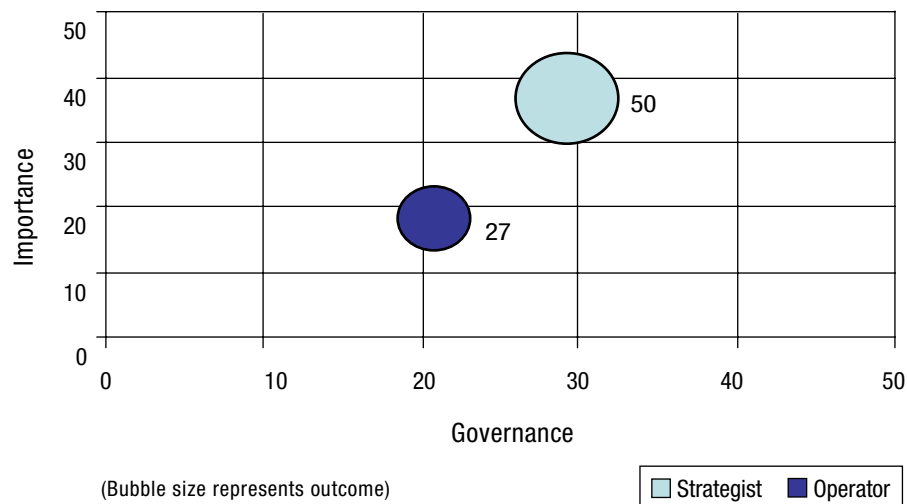


Figure 26—Impact of IT Importance and IT Governance on Outcome



Profiles and Behaviours of Strategists and Operators

Analysis of the responses of the two groups (strategists and operators) to the rest of the key questions illuminates some differences in the profiles and behaviours of strategists and operators. One of the most striking differences is the perceived maturity of IT governance in their enterprise. (See question 5-4 and **figure 21** for a description of the purpose and definitions of maturity levels, and the results of the overall group.)

Generally speaking, and in keeping with expectations, operators assessed themselves to be at a lower level of maturity (primarily levels 1 and 2) than do strategists (primarily levels 3, 4 and 5) (**figure 27**).

Figure 28 describes further the observed differences between the profiles and behaviours of strategists and operators.



Chapter 6—Cluster Analysis of Data

Figure 27—Strategist and Operator Perceptions of IT Governance Maturity

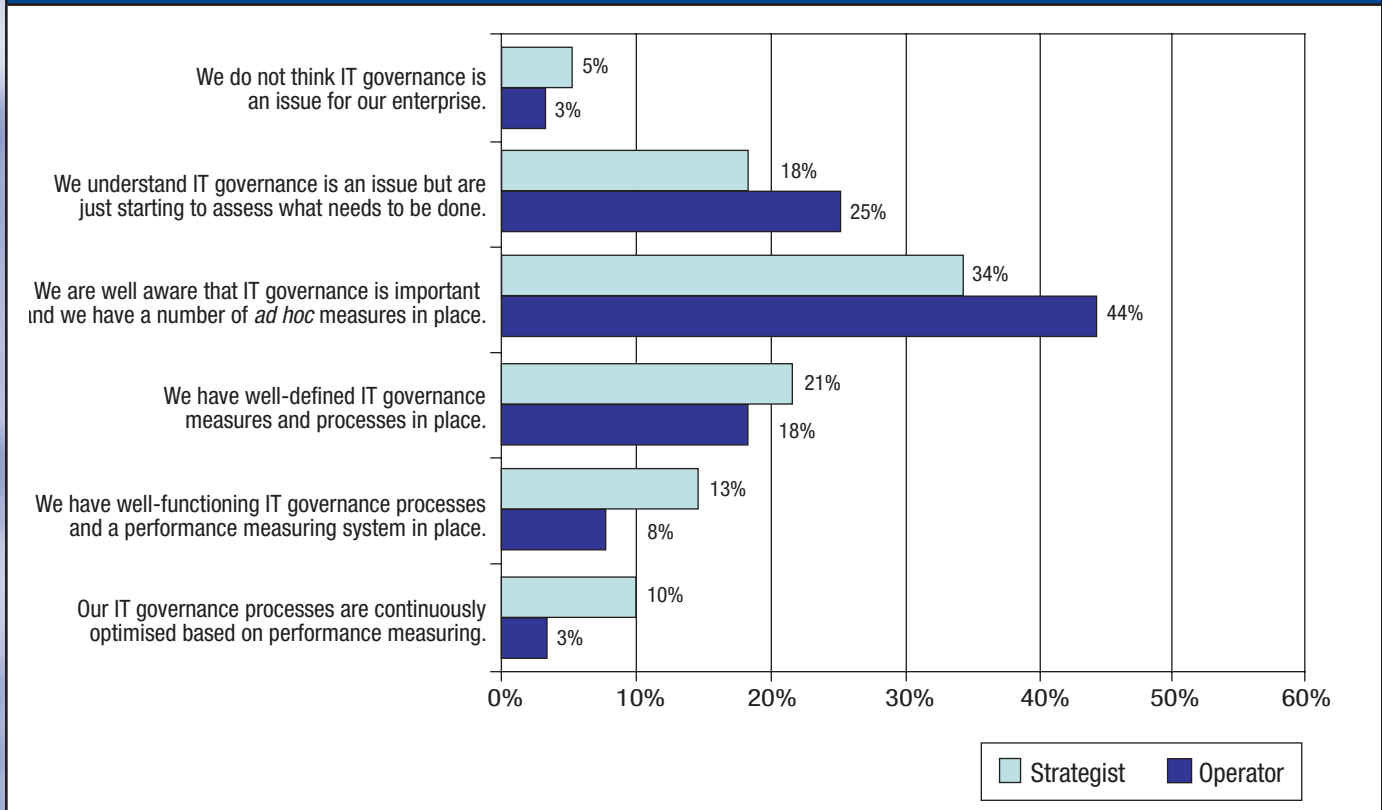


Figure 28—Profiles and Behaviours of Strategists and Operators

	Strategist	Operator
Who are they?		
Size of company	Size not a factor	Size not a factor
Region	More likely to be based in Europe	More likely to be based in North America and Asia
What defines them?		
Perception of IT governance maturity	More likely to have implemented IT governance	Tend to still be at the initial stage
Appearance of IT on board agenda	Twice as likely to have IT routinely on board agenda	Not as likely to have IT routinely on board agenda
Focus of board discussions on IT	Twice as likely to be concerned about risk	Not as likely to appreciate the risk involved with IT
Champions for IT governance	More likely to have board or C-suite championing IT governance	Less likely to have board or C-suite championing IT governance
Accountability for IT investments	More likely to have executive management identifying investment opportunities and selecting investments	Not as likely to have executive management identifying investment opportunities and selecting investments
Barriers to realising full value from IT investments	Less likely to have difficulty in implementing applications	More likely to have difficulty in implementing applications
Inclusion of CIO on executive team	CIO more likely to be on executive team	CIO is less likely to be on executive team
Awareness of IT governance frameworks or standards	More likely to be aware of frameworks for IT governance	Less likely to be aware of frameworks for IT governance
Source of IT governance advice and solutions	More likely to look outside the enterprise for IT governance advice and solutions	More inclined to be inward-looking for IT governance solutions

Appendix—Maturity Levels for IT Governance

The following wording is taken from COBIT 4.1. It is the maturity level wording specific to process *ME 4 Provide IT governance*.

Management of the process of *Provide IT governance that satisfies the business requirement for IT of integrating IT governance with corporate governance objectives and complying with laws and regulations* is:

0 Non-existent when

There is a complete lack of any recognisable IT governance process. The organisation does not even recognise that there is an issue to be addressed; hence, there is no communication about the issue.

1 Initial/Ad Hoc when

There is recognition that IT governance issues exist and need to be addressed. There are *ad hoc* approaches applied on an individual or case-by-case basis. Management's approach is reactive, and there is only sporadic, inconsistent communication on issues and approaches to address them. Management has only an approximate indication of how IT contributes to business performance. Management only reactively responds to an incident that has caused some loss or embarrassment to the organisation.

2 Repeatable but Intuitive when

There is awareness of IT governance issues. IT governance activities and performance indicators, which include IT planning, delivery and monitoring processes, are under development. Selected IT processes are identified for improvement based on individuals' decisions. Management identifies basic IT governance measurements and assessment methods and techniques; however, the process is not adopted across the organisation. Communication on governance standards and responsibilities is left to the individual. Individuals drive the governance processes within various IT projects and processes. The processes, tools and metrics to measure IT governance are limited and may not be used to their full capacity due to a lack of expertise in their functionality.

3 Defined when

The importance of and need for IT governance are understood by management and communicated to the organisation. A baseline set of IT governance indicators is developed where linkages between outcome measures and performance indicators are defined and documented. Procedures are standardised and documented. Management communicates standardised procedures, and training is established. Tools are identified to assist with overseeing IT governance. Dashboards are defined as part of the IT balanced business scorecard. However, it is left to the individual to get training, follow the standards and apply them. Processes may be monitored, but deviations, while mostly being acted upon by individual initiative, are unlikely to be detected by management.

4 Managed and Measurable when

There is full understanding of IT governance issues at all levels. There is a clear understanding of who the customer is, and responsibilities are defined and monitored through SLAs. Responsibilities are clear and process ownership is established. IT processes and IT governance are aligned with and integrated into the business and the IT strategy. Improvement in IT processes is based primarily upon a quantitative understanding, and it is possible to monitor and measure compliance with procedures and process metrics. All process stakeholders are aware of risks, the importance of IT and the opportunities it can offer. Management defines tolerances under which processes must operate. There is limited, primarily tactical, use of technology, based on mature techniques and enforced standard tools. IT governance has been integrated into strategic and operational planning and monitoring processes. Performance indicators over all IT governance activities are being recorded and tracked, leading to enterprise-wide improvements. Overall accountability of key process performance is clear, and management is rewarded based on key performance measures.

Appendix—Maturity Levels for IT Governance

5 Optimised when

There is an advanced and forward-looking understanding of IT governance issues and solutions. Training and communication are supported by leading-edge concepts and techniques. Processes are refined to a level of industry good practice, based on results of continuous improvement and maturity modeling with other organisations. The implementation of IT policies leads to an organisation, people and processes that are quick to adapt and fully support IT governance requirements. All problems and deviations are root cause analysed, and efficient action is expediently identified and initiated. IT is used in an extensive, integrated and optimised manner to automate the workflow and provide tools to improve quality and effectiveness. The risks and returns of the IT processes are defined, balanced and communicated across the enterprise. External experts are leveraged and benchmarks are used for guidance. Monitoring, self-assessment and communication about governance expectations are pervasive within the organisation, and there is optimal use of technology to support measurement, analysis, communication and training. Enterprise governance and IT governance are strategically linked, leveraging technology and human and financial resources to increase the competitive advantage of the enterprise. IT governance activities are integrated with the enterprise governance process.

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