MEASURING IT PERFORMANCE AND COMMUNICATING VALUE[1]

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Executive Summary

CIOs need effective approaches for measuring, monitoring, and communicating performance about the management and use of information technology in their firms. Traditional IT metrics such as IT budgets or IT spending as a percentage of revenue can foster a focus on reducing IT costs rather than emphasizing the business value of IT investments, their role in improving business processes, and their ability to enable business innovation. Based on interviews with CIOs and other senior managers from 23 organizations, we present a framework to guide CIOs in using IT, business process, and business unit metrics for communicating with CEOs, other senior business executives, and their own direct reports. Case examples are provided for five multi-metric domains that emerged from our data analysis. We also provide guidelines for how CIOs can develop a portfolio of measures that matter to business leaders and then evolve them to improve the value that IT brings to the overall organization.

INTRODUCTION

Measuring and communicating the value provided by the IT function continues to be a challenge for CIOs. First, traditional IT metrics such as IT budgets or IT spending as a percentage of revenue can foster a focus on reducing IT costs rather than maximizing the business value of IT investments. Second, it can be very difficult to show the link between IT function actions and firm-level financial metrics that enjoy a high level of credibility with business executives, such as revenue and profitability.[2] For example, important components of firm performance such as business process capabilities are IT-enabled but are one step removed from traditional firm-level financial metrics.[3]

Despite the difficulty of measuring IT value, metrics are essential to improving IT capabilities. To paraphrase an old adage, "You cannot manage what you do not measure." Metrics also play an important role in changing behaviors, motivating employees, and increasing performance.[4] Thus, over the years, numerous measurement methodologies, frameworks, and metrics have been developed.[5] Unfortunately, many of these frameworks can be highly complex, and, in our interviews, CIOs often expressed the need to move beyond detailed and rigid measurement schemes.

The need for business-oriented metrics has increased as IT has begun to play a stronger role in business performance. The CIO's role in many firms has changed from support staff to strategic partner, not only managing IT but also serving as business improvement facilitator or even as an innovation catalyst.[6] Yet, many other CIOs are frustrated by what they see as an unwillingness of business executives to entertain strategic possibilities from IT. They find themselves being asked to show the performance of the IT unit rather than having the opportunity to demonstrate how IT can transform business performance.

Thus a central dilemma facing CIOs is: *What are the appropriate metrics for monitoring, communicating, and improving IT management performance?* We interviewed 23 CIOs to understand how they communicate about IT performance and value. We found that, while metrics are important for improving IT unit performance, they play an equally important role in driving the IT value conversation with business executives. Effective CIOs use performance measures to focus decisions, improve relationships, and find new sources of value from IT.

Our analysis of the interview responses resulted in a comprehensive portfolio of IT metrics, organized into nine cells. However, we also found that effective CIOs strategically focus their communication around a subset of the cells in the portfolio that can most effectively garner the attention of their business colleagues and help drive business improvements. As they improve performance in these targeted areas and communicate that effectively to the CEO and their business peers, CIOs gain trust and credibility. They can then leverage this successful track record to strategically refocus their communications to new focal areas representing higher levels of contribution. That is, it's not just about the selection of performance metrics; it's about the conversations that CIOs drive with those metrics.

In the next section, we highlight the difference between IT performance and IT value. This distinction is important in understanding the logic behind our metrics framework. In the following section, we describe the 3x3 portfolio that captures and summarizes the metrics that CIOs in our case

organizations use to communicate with other business leaders. While this portfolio is comprehensive, CIOs often focus on a subset of these metrics, and we next describe the five different types of focus domains we observed. The article concludes with a description of practices for using metrics to measure IT performance and communicate value. A brief description of our research methods can be found in the Appendix.

COMMUNICATING IT PERFORMANCE AS IT VALUE

There are numerous dimensions of IT performance, including (but not limited to) IT spend performance, network performance, business process efficiency, capacity utilization, extent of usage, strategic value of projects, and customer satisfaction.[7] These dimensions vary in their levels of specificity, meaningfulness, and influence. Thus measuring and communicating performance along these numerous dimensions in ways that facilitate effective decisions is fraught with ambiguity. This is further complicated by the different purposes for which the CIO uses metrics with multiple stakeholders—for planning, communicating, reporting, and performance monitoring, and even changing stakeholder behavior.

A fundamental issue is the distinction between IT *performance* that can be measured and *value* from IT that can be communicated. When discussing IT, the IT organization's performance and value are often used interchangeably. However, many IT metrics measure performance and not value. For example, server availability, while an important performance metric for IT operations, is not a measure of value unless it can be translated to avoided cost of downtime in critical business processes. Project on-time and on-budget performance provides little value to the business unless projects that are delivered improve the business in significant ways. Indeed, a project on-budget may have much less value than a project that exceeds its budget if it requires the cancellation of features that would have high impact on the business. Yet, many CIOs report IT-specific performance

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6   Recent articles that examined the changing roles of the CIO include Preston, D. S., Leidner, D. E., and Chen, D. "CIO Leadership Profiles: Implications of Matching CIO Authority and Leadership Capability on IT Impact," *MIS Quarterly Executive* (7:2), 2008, pp. 57-69; Keen, P. and El Sawy, O. A. "Engaging in CIO-CxO Conversations That Matter: An Interview with Peter Keen," *MIS Quarterly Executive* (9:1), March 2010, pp. 61-64.

7   For examples of academic studies about IS performance measures that informed our own study, see Saunders, C. S. and Jones, J. W. "Measuring Performance of the Information Systems Function," *Journal of Management Information Systems* (8:4), 1992, pp. 63-82; Chang, J. C. and King, W. R. "Measuring the Performance of Information Systems: a Functional Scorecard," *Journal of Management Information Systems* (22:1), 2005, pp.85-115; DeLone, W. H. and McLean, E. R. "Information Systems Success: The quest for the dependent variable," *Information Systems Research* (3:1), 1992, pp. 60-95; Rai, A., Lang, S. S., and Welker, R. B. "Assessing the Validity of IS Success Models: An Empirical Test and Theoretical Analysis," *Information Systems Research* (13:1), 2002, pp.50-69.

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because these are traditional metrics that are easier to benchmark and relatively easy to produce.

Based on our interviews, we define IT value as follows:

IT value is measured by performance metrics on dimensions that stakeholders find important.

There are several implications of this definition.

1. The metric must be important to a stakeholder, or it does not communicate value. The performance dimension measured may be monetary, such as revenue or profit, or non-monetary, such as customer satisfaction or process reliability. Since value is in the eyes of the stakeholder, a performance metric communicated in IT language will not be valuable if stakeholders do not understand its relevance.

2. Perceptions of value may change as stakeholder requirements change. For example, growth-oriented metrics may be less important during recessionary times than efficiency metrics.

3. Even if a measure is perceived to be important, there is little value in improving it beyond what key stakeholders find acceptable. For example, in the case of business process
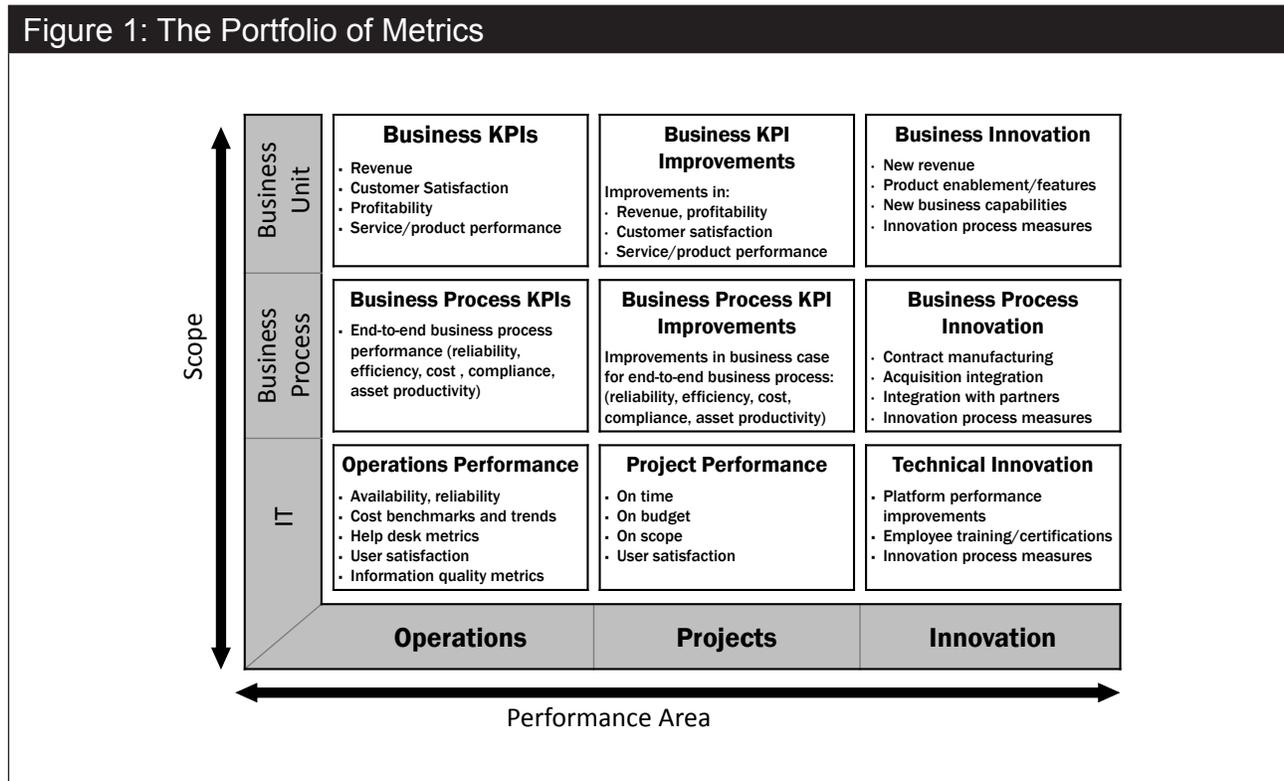
reliability or user satisfaction, "good enough" may indeed be good enough, and there may be no benefit in overspending to exceed stakeholder requirements.

4. Business executives want to know the value gained from *changes* in performance, not performance measures of current IT operations. According to one of the CIOs we interviewed, this is akin to asking the question: "What's the value of my heart to my body?" I can't live without it, so my heart is worth the whole value of my body."

In summary, business and IT leaders must develop an understanding of what performance measures matter to stakeholders and then compare initiatives based on how they will improve those measures.

THE CIO METRICS PORTFOLIO

Figure 1 shows the framework that emerged from our research. The framework provides a tool that CIOs can use to identify metrics to manage their organizational units as well as drive IT/business conversations. CIOs can also use the portfolio to clarify performance responsibilities and identify focal metrics for improvement. The columns of the portfolio represent three *performance areas* that are distinct in

Figure 1: The Portfolio of Metrics

		Operations	Projects	Innovation
Scope	**Business Unit**	**Business KPIs** · Revenue · Customer Satisfaction · Profitability · Service/product performance	**Business KPI Improvements** Improvements in: · Revenue, profitability · Customer satisfaction · Service/product performance	**Business Innovation** · New revenue · Product enablement/features · New business capabilities · Innovation process measures
	Business Process	**Business Process KPIs** · End-to-end business process performance (reliability, efficiency, cost , compliance, asset productivity)	**Business Process KPI Improvements** Improvements in business case for end-to-end business process: (reliability, efficiency, cost, compliance, asset productivity)	**Business Process Innovation** · Contract manufacturing · Acquisition integration · Integration with partners · Innovation process measures
	IT	**Operations Performance** · Availability, reliability · Cost benchmarks and trends · Help desk metrics · User satisfaction · Information quality metrics	**Project Performance** · On time · On budget · On scope · User satisfaction	**Technical Innovation** · Platform performance improvements · Employee training/certifications · Innovation process measures

Performance Area

terms of how they are managed and evaluated, and their underlying drivers of performance.

- *Operations metrics* capture the performance of existing infrastructure and business processes. These typically include reliability, cost, and quality of operational execution. Quality is measured in terms that are meaningful to stakeholders, such as defect rates, satisfaction, or willingness of customers to recommend a service to others. Value from operations typically comes from improving performance to acceptable levels.

- *Project metrics* capture the successful execution of change activities. Most companies aim to meet or exceed schedule and cost goals as well as the managerial expectations for value creation. While most IT departments measure whether projects were executed on time, budget, or scope, few have effective processes to assess the business value realized from the projects.

- *Innovation metrics* describe the enterprise's ability to pursue potentially valuable opportunities that it would not pursue through its traditional activities. The goal of innovation activities is to generate a broad set of ideas and help the most valuable ones take shape. Innovation process metrics typically include breadth of scanning, extent of employee involvement, and the number and potential benefits of investigated ideas. Other innovation metrics are firm specific, such as incorporating new technology in the IT infrastructure, enabling new business models, facilitating new product features, and transforming business processes.

In our interviews, performance metrics related to *operations* and *projects* were mentioned most often. While these are well-known traditional domains of IT value, some CIOs still considered them difficult to measure consistently as business value. *Innovation* metrics are in a different value domain. Nearly all of our interviewees expressed a desire to contribute to innovation performance, and the most strategic CIOs actively tracked their performance along this dimension.

The rows of the portfolio represent *metrics scope.* For each of the three performance areas (operations, project, and innovation), metrics can vary from IT-specific to business-specific measures.

- *IT metrics* describe technology service performance. Some, such as help desk performance, are specific to IT services. Many others, such as server availability, are actually lower-level technical proxies for business metrics like process reliability. The CIO has primary responsibility for IT metrics. However, in the words of one CIO, "Nobody else cares." IT performance is seen as the specialized domain of the CIO. Unless IT performance is poor, other business executives are not concerned with these performance metrics and prefer instead to focus on metrics that are more meaningful to their roles.

- *Business process metrics* focus on the performance of business processes, such as business process efficiency and quality. Although these metrics are traditionally the domain of business process owners, there are often direct links to IT since the performance of many business processes is significantly affected by the IT infrastructure. The CIO sometimes has shared responsibility for non-customer-facing business process performance and related metrics.

- *Business unit metrics* focus on overall business or business unit performance, as exhibited by financial and customer-facing measures. Although these metrics are ultimately the most important measures of business performance, the link to specific IT-related activities can be difficult to make. CIOs may own some areas of business performance, especially for digital activities related to e-business. However, in other areas, the CIO can only influence the measurement of business related metrics and have an indirect impact on their performance.

The three *performance areas* and three areas of *scope* result in a portfolio of metrics with nine cells, as shown in Figure 1. For each cell in this framework, we provide a subset of metrics found in practice. As we describe in the next section, CIOs can take charge of the value conversation by developing a portfolio of metrics that matter to key stakeholders, improving IT performance along these key metrics, and then adjusting the portfolio of metrics over time.

Firms *expect* their CIOs to own and deliver effectively in the two lower-left cells: IT-specific operations (such as server availability and call center satisfaction) and IT-specific project performance (such as on-time and on-scope performance). However, CIOs who communicate only on these dimensions find that their

impact on the business is perceived to be limited, while CIOs who have a higher impact are able to move the value conversation beyond the two IT-specific starting cells.

FIVE FOCUS DOMAINS WITHIN THE PORTFOLIO

While all nine areas of the portfolio are important for managing performance in any firm, we found that CIOs focused their communications upon a group of metrics.[8] The choice of focus reflected the prevailing views about the organizational role of IT, the strategic challenges in the management and use of IT, and the nature of the industry, as well as the senior management teams' expectations about IT performance. By focusing on specific performance areas, CIOs built credibility and improved IT performance more effectively.

We found five distinct combinations of metrics that the CIOs in our study are currently using to measure and communicate IT performance and value. The five specific focus domains are:

- *Internal IT Focus:* The CIO's focus is on IT-specific outcomes.

- *Project Focus:* The CIO's focus is on effective delivery of projects and their business benefits.

- *Business Operations Focus:* The CIO's focus is on reliability and efficiency of current business operations.

- *Business Process Focus:* The CIO's focus is on improving performance, either at the process or the overall business level.

- *Innovation Focus:* The CIO's focus is on the enablement of business innovation.

While CIOs typically had one primary focus domain, they also reported that they changed their focus over time in response to improvements in IT/business relationships and changing organizational priorities. In general, they moved from IT-specific to more business-focused domains, with many CIOs aspiring to increase their innovation focus over time.

Following, we present a case example for each of the five domains of focus. For each case example, we also describe the specific measures that were used by the

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8 Using multiple metrics to measure performance makes it harder to "game the numbers." See Likierman, A. "The Five Traps of Performance Measurement," *Harvard Business Review*, October 2009, for a more complete discussion.

CIO to document IT performance and to communicate IT value. Note that in the figures that accompany the case examples, we use: (a) dark shaded boxes to indicate primary focus areas, (b) un-shaded boxes with words to indicate secondary focus areas, and (c) light shaded boxes to indicate emerging focus areas for the CIO.

Internal IT Focus: A Pharmaceutical Company

PharmCo performs research, development, and commercialization of biotechnology-related pharmaceuticals. The company grew rapidly in the early 2000s, focused on profitability in the middle of the decade, and refocused on growth after it was acquired by another firm but retained as an independent entity. PharmCo had more than $500 million in revenue and 1,000 employees.

The role of IT at PharmCo is to support internal business units within the company. The CIO is responsible for IT unit performance (including operations and project delivery) and has no formal responsibilities beyond the IT organization. Senior business leaders in the company evaluate IT operations based on cost, quality, and level of usage by business units. IT is funded as a corporate cost, with no chargeback mechanism.

The CIO initially found that the internal IT focus was not effective at improving the management of the IT function. Lacking a chargeback mechanism, he found it difficult to engage business unit managers in discussing how to improve IT performance and utilization. While business units understood and appreciated improved service levels, cost discussions were more difficult because IT was a free resource. The CIO has instituted an IT services model, which subsequently became "a huge enabler for those discussions." Business executives could better engage in discussions of IT services rather than specific IT elements such as servers, networks, and mainframes. Subsequently, he was able to improve both the quality and cost of IT services.

As IT performance and business engagement improved, the CIO shifted his focus from IT-only performance to all three project performance cells. He established an IT review committee of business executives that paralleled the senior-level committee that reviews investments for drug research. In committee meetings, business sponsors present a business case for each project, including projected benefits and how performance will be measured.

The CIO is also implementing a process to revisit each project six months after completion to assess the realization of the projected benefits. Figure 2 summarizes the IT primary metrics (dark shaded) and the emerging project metrics (light shaded) at PharmCo.

Project Focus: Video Manufacturer

VidCo is a video equipment manufacturer with approximately $2 billion in revenue and 8,000 employees. VidCo has been recently acquired by a larger company with a broader range of products.

With a reliable IT infrastructure already in place, the CIO's primary focus has been on IT project delivery and the profitability impact of the projects (Business KPI Improvements). To strengthen this focus, over the past several years, the CIO has worked hard to establish partnerships with the business unit leaders. Believing that while IT can make a case for value, the business executives have to evaluate and vouch for the value, he asks every business unit (BU) leader: "What are your key measures of success, and how can I contribute?" For example, the BU leaders often emphasize internal business process improvements and metrics related to customer service, lead times, and inventory turns. Consequently, these metrics became the CIO's focus in discussions with the business units, and the IT group focuses its efforts on working with business unit heads to improve

performance along those measures. To improve credibility of the Business KPI improvement metrics, a post-implementation analysis of benefits from projects is performed by the Finance group instead of IT.

The CIO initially emphasized business profitability as the primary KPI targeted for improvements through projects. However, since the focus on business profitability (a business unit metric) could lead to an excessive cost-cutting focus in IT, the CIO is instead experimenting with metrics that are the key drivers of profitability, such as inventory turns and days of sales outstanding (Business Process KPI Improvements).

Partnership and communication with business units are critical for the CIO. Surveys of users are asked to rate the statement "I believe that IT partners with business units and adds significant value." The CIO also believes that marketing the IT group internally is crucial for long-term success. The CIO believes that it is important to "go back and tell the story when the project is done." In recent years, the CIO has also used external audit reports to highlight IT achievements.

As the project performance and business unit partnerships have improved, the CIO has begun to shift the focus of his communications. He sees potential in developing innovation-based measures that are focused on product enablement (e.g., improving the cost and speed of product distribution)

Figure 2: Transition from *Internal IT* to *Project Focus* at PharmCo
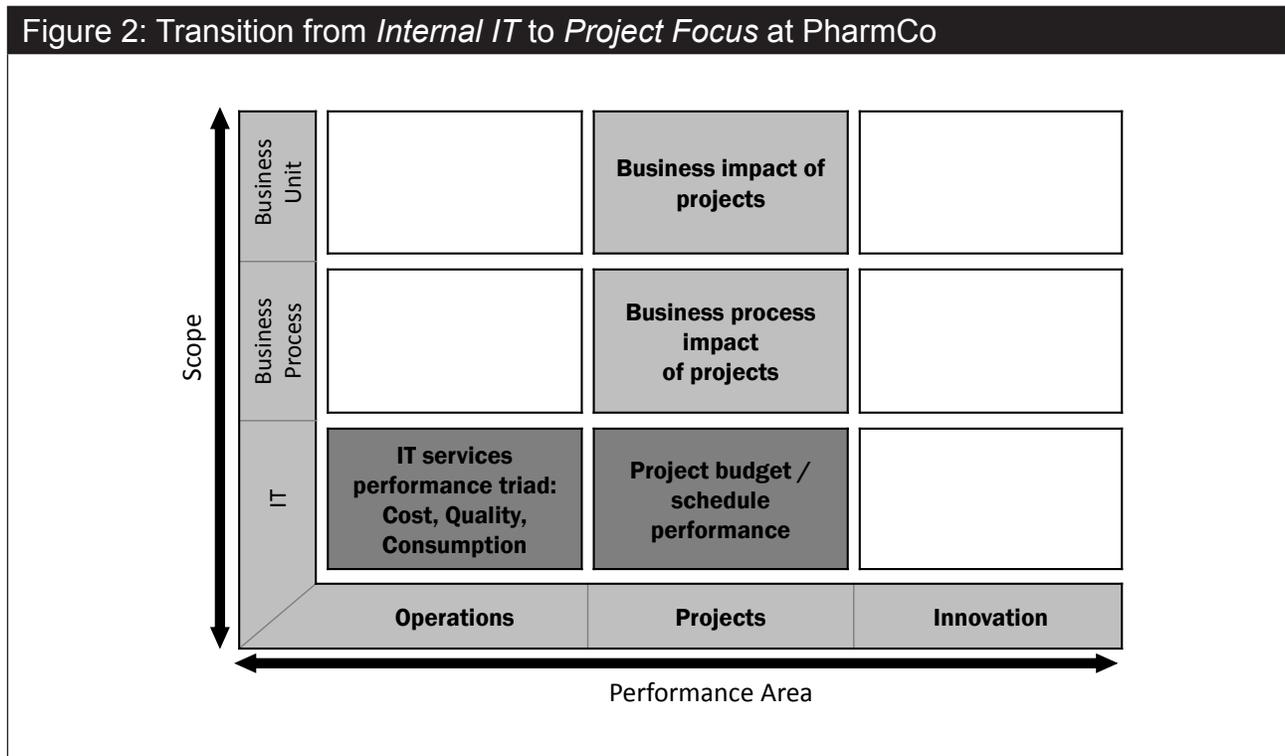
by partnering with the product development groups. The company has also been able to leverage the IT architecture in strategic ways such as creating new channels to customers, enabling contract manufacturing, and integrating processes (sales and order desk) with the acquiring company. However, consistent measures of the value of the IT architecture in enabling such innovation have been difficult to develop.

Consequently, the CIO is now measured on four dimensions that demonstrate a transition from the current project focus to a future innovation focus: (a) security, availability, and reliability of the IT infrastructure, (b) effective delivery of projects, partnership with business units, and demonstrating the business KPI improvements, (c) enabling new business capabilities such as integrating sales and order desk with the acquiring company and enabling contract manufacturing, and (d) partnership with product development groups for product enablement and quick new product introductions. Figure 3 shows the primary (dark shaded), secondary (un-shaded), and emerging (light shaded) metrics used at VidCo.

Business Operations Focus: Telecomm Manufacturer

PhoneCo is a telecomm device manufacturer with more than 30 million customers and 15,000 employees. The primary role of IT is to enable reliable, secure, and scalable service offerings to the company's customers. The company supports more than 400 carriers around the world with reliability requirements of 99.99% uptime. The CIO is responsible for the infrastructure supporting all handheld devices as well as for internal IT systems and support. Additional duties include managing the professional services organization and the company's business continuity operations. In all, the CIO's organization has over 4,000 employees.

Senior executives evaluate IT on multiple dimensions related to business operational efficiency: (a) meeting service level agreements with carriers, (b) service quality metrics such as uptime, reliability, and security, and (c) the ability of the IT infrastructure to handle customer and service growth. Since infrastructure disruptions can lead to significant negative publicity, the key metrics for the CIO are quality and reliability of the service provided to customers. The internal IT budget is "interesting but not critical."

The CIO maintains high levels of reliability for customer-facing IT infrastructure through four methods. First, the CIO and other PhoneCo executives reinforce a company culture where employees are passionate about service uptime and reliability through town hall meetings, storytelling, and reviewing key reliability metrics regularly. The CIO instills a sense of urgency to protect the IT

Figure 3: Transition from *Project Focus* to *Innovation Focus* at VidCo
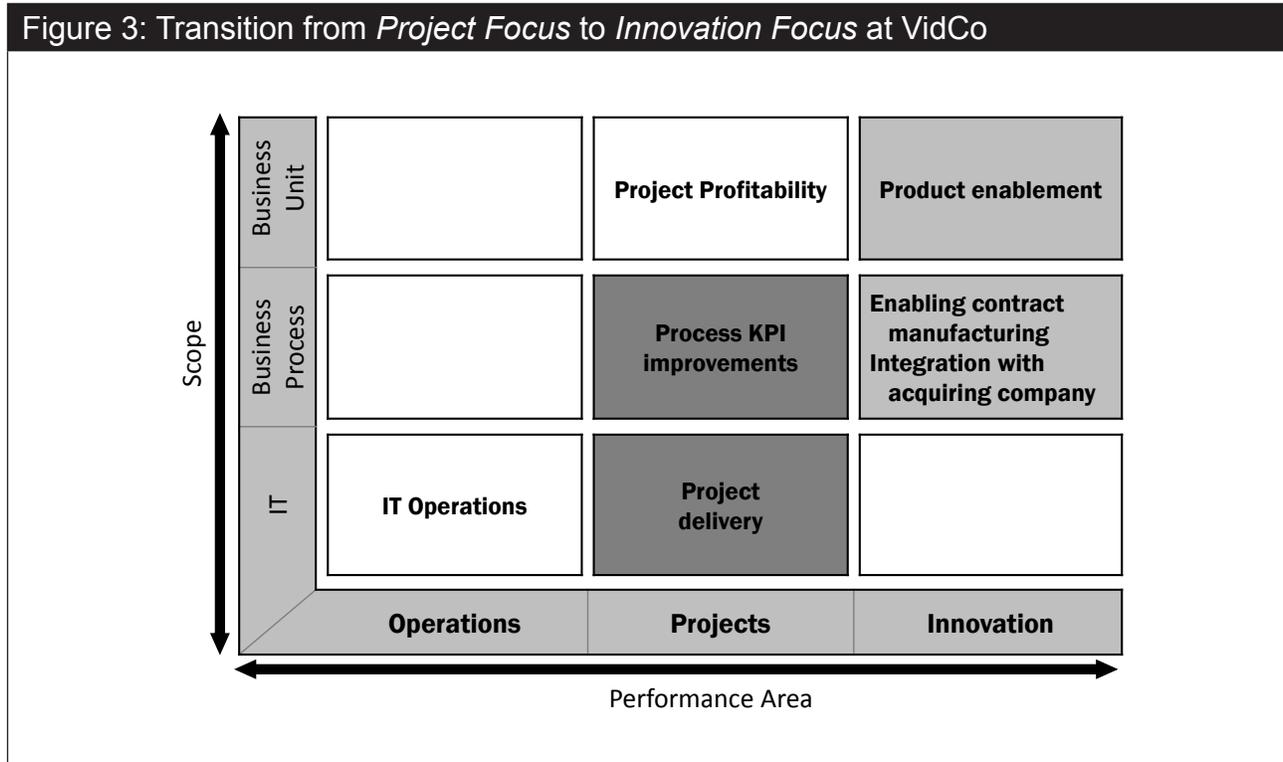
infrastructure at all costs, including a willingness to disable technology, carriers, and features when a problem is detected. Second, PhoneCo attempts to minimize manual systems and interventions, utilizing technology solutions to achieve instant failover methods with no human intervention. Software developers are told not to assume sunny day scenarios and to automatically failover in a controlled manner in case of unexpected problems. Third, PhoneCo has established stringent processes to control the deployment of changes to the infrastructure. The emphasis is on consistency and standardization over diversity in the infrastructure, and on review and testing rather than quick fixes. Fourth, the CIO is integrated with the sales and product development teams to ensure that any necessary changes to the infrastructure for new service deployments have adequate planning and development time.

The CIO believes that a business operations focus is appropriate for the IT unit, with no need to move to a business innovation focus. However, technological innovation that increases the reliability and security of the IT infrastructure and supports the business operations focus is important for the CIO. This single-minded focus on business operations has led to increased credibility with business executives and has enabled the CIO to gain additional responsibilities such as managing the professional service units. However, the company operates in

a highly competitive environment and plans to introduce several new services in the future to remain competitive. Consequently, the ability of the IT infrastructure to deploy new services efficiently and quickly is becoming a priority for the CIO. Figure 4 shows the primary (dark shaded), secondary (un-shaded), and emerging (light shaded) metrics used at PhoneCo.

Business Process Focus: Insurance Company

FinCo is a Fortune 500 Insurance company with more than 7,000 employees, $300 billion under management, 3 million covered members, and 25,000 insurance plans. The CIO, who reports to the CEO, also heads business operations. The company's business processes are highly IT-intensive, and nearly half of all employees in the company are in the IT organization. The primary role of IT is to enable faster service delivery to customers, provide better overall service to customers, increase customer self-service through direct access to their data when possible, and reduce overall company costs.

Over the years, the CIO has worked to change the focus of conversations with senior executives from IT specific metrics to metrics that are linked to overall business performance. The CIO has a detailed scorecard of business metrics such as transaction volumes, self-service statistics, and customer

Figure 4: A *Business Operations Focus* at PhoneCo
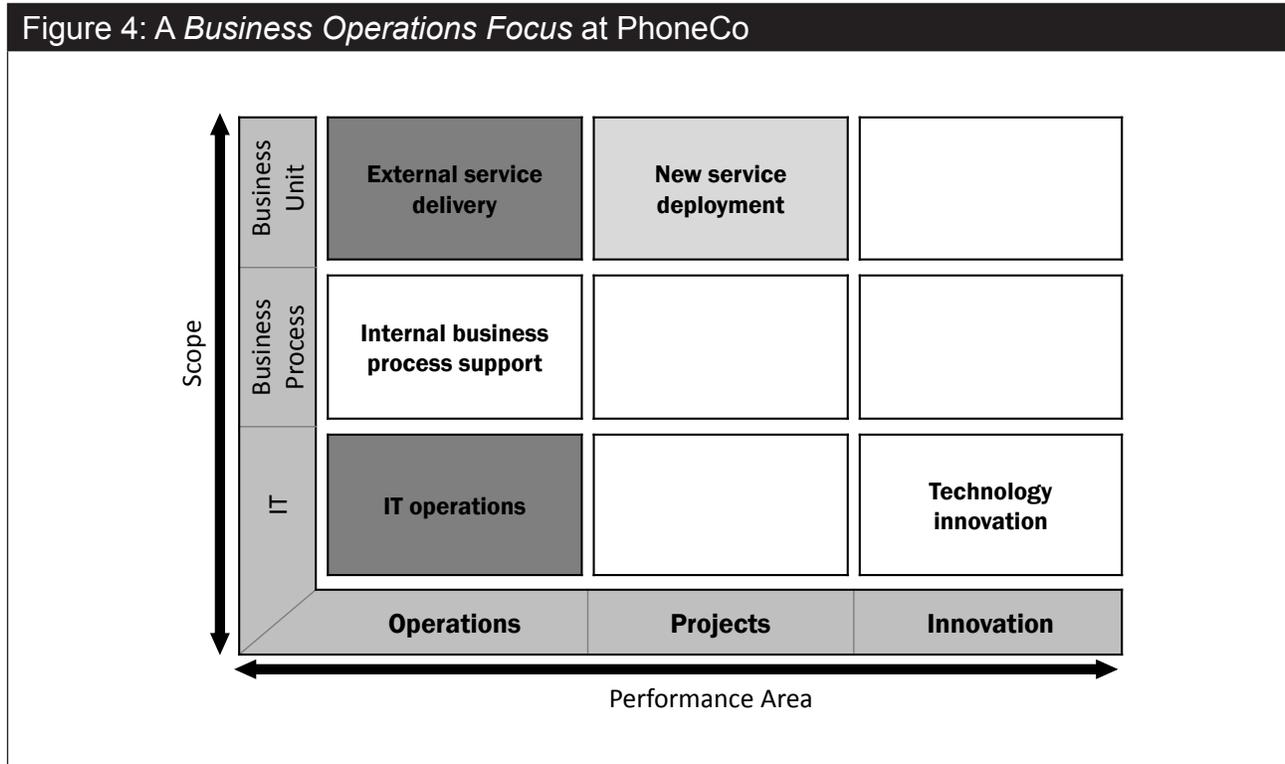
satisfaction as well as internal business process metrics such as process reliability, efficiency, and accuracy. The CIO also follows a similar discipline for project metrics that focus not only on project delivery performance but also on the realization of business benefits. For example, the CIO tracks whether a project has lowered variable costs for transactional processes or whether a project has led to improved customer satisfaction. The CIO regularly presents the executive team with detailed scorecards. These scorecards contain high-level information that can be compared across business units such as budgets and customer metrics as well as some business unit-specific metrics.

Senior executives evaluate IT on multiple criteria: (a) impact on customer service KPIs and year-to-year improvements, (b) impact on overall company costs and IT budget year-to-year trends, (c) project delivery measures such as on-time and on-budget performance, and (d) service availability, reliability, and transaction-processing statistics. The CIO also relies on non-quantifiable measures such as perceptions of other senior business executives and whether the CIO is asked to accompany the sales team on challenging bids. The CIO believes that metrics and measurement are critical to enhancing IT/business partnership since a discussion around metrics and performance helps to clarify potential decisions. The CIO plans to use metrics not only to improve business processes but also to drive changes that make the customer experience more consistent across channels and products. While the ultimate measures for the organization are customer service KPIs (a Business Unit measure), the CIO must improve business process measures (such as reliability and accuracy of the claims handling process) to achieve excellence in customer service KPIs. Figure 5 shows the primary (dark shaded), secondary (un-shaded), and emerging (light shaded) metrics used at FinCo.

Innovation Focus: Career Website

JobCo is a U.S.-based global career website company with more than 1 million job postings and 20 million visitors each month. The company also powers more than 9,000 job websites for corporate clients. The role of IT is to support internal business processes and to provide the infrastructure for all customer-facing services.

Because business operations were reliable and IT-enabled projects were seen as delivering value, the CIO was able to focus his conversations on innovation. Believing that many incremental innovations happen close to the customer, he located many IT employees in the business units, reporting directly to the business unit heads. Easy-to-use application program interfaces are provided for the centralized IT infrastructure so that the business units can develop their own services. Then, successful innovations from the business units are incorporated

Figure 5: A *Business Process Focus* at FinCo
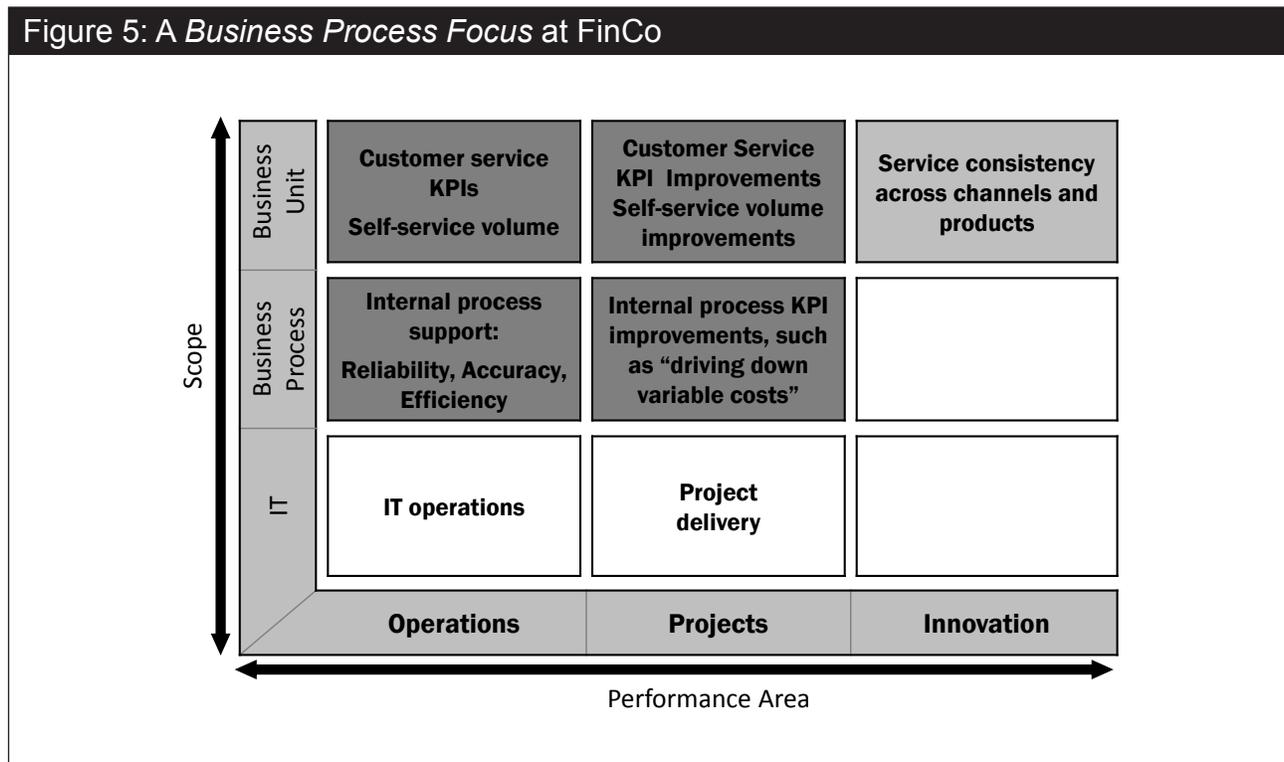
into the centralized infrastructure over time to enable scaling and larger customer reach.

To foster IT-related business innovation that is more radical, the company sponsors an internal business plan competition. Every year, approximately 60 proposals are winnowed to four finalists by the senior management team. The four finalists receive coaching to develop complete business plans. A single winning idea is chosen, and the employee behind the winning idea is given the resources to lead its implementation. The business plan competition has added significant value to the company by creating new revenue streams and motivating employees.

Senior executives evaluate IT on multiple dimensions. Quality of external service delivered through the IT infrastructure is important, as is its uptime and reliability because downtime leads to lost revenue for the company. A core metric that is used by everyone in the organization (including IT) is revenue per unique visitor to the website, and IT works to improve this metric through better website designs and technology innovations. Project delivery metrics include the typical on-time and on-budget measures. In addition to the above, the IT group is also measured informally on their ability to support new service deployment and innovation in business units. Is the IT infrastructure a bottleneck in introducing new services? Does it scale easily as the new service generates new customers and revenues? Further, new business and service ideas

generated by IT personnel through the business plan competition create positive word of mouth and reflect positively on the IT group. Figure 6 shows the primary (dark shaded), secondary (un-shaded), and emerging (light shaded) metrics used at JobCo.

Focus Domains Summary Based on All Case Studies

- Firms with an *Internal IT Focus* typically viewed IT as a support function with limited strategic implications. The evaluation of IT was based on IT specific outcomes such as infrastructure reliability and project delivery. While many CIOs began with this focus, none remained focused on this domain once IT performance reached acceptable levels, because of the growing importance of the IT infrastructure in enabling business performance.

- Firms with a *Project Focus* had multiple IT-based change initiatives in place to improve business process and business unit performance. The focus in these firms was on effective delivery of projects and, increasingly, on the realization of business benefits from project implementations.

- Firms with a *Business Operations Focus* relied on the efficiency and reliability of their current infrastructure to deliver essential

Figure 6: An *Innovation Focus* at JobCo
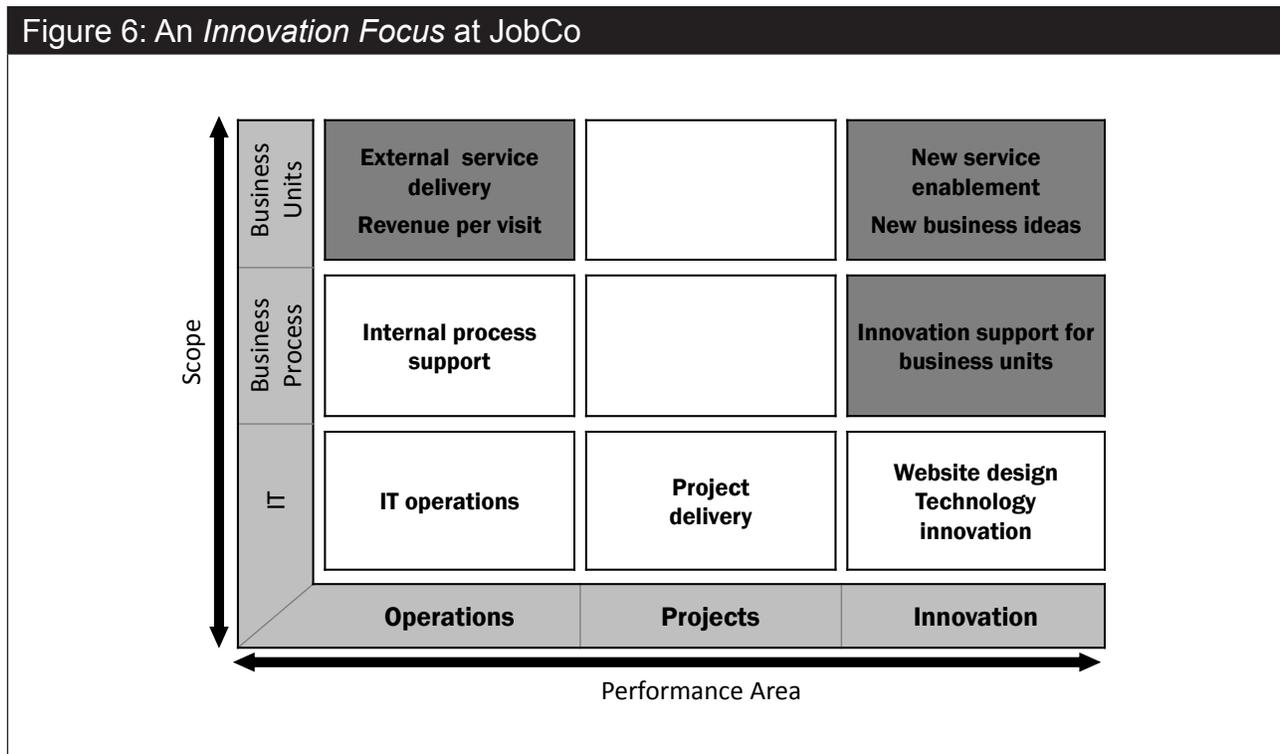
internal and external business services. The IT infrastructure was critical in such companies, and the focus of the CIO was often on maintaining high availability at high quality, while minimizing costs where possible.

- Firms with a *Business Process Focus* relied mostly on business process measures of performance and value rather than on IT-based measures. Improvements in business process reliability, efficiency, and quality were typical measures used by such companies to evaluate IT performance. These CIOs sometimes focused on business unit level measures as well, but the business process impact provided the most direct link with the IT infrastructure.

- In firms with an *Innovation Focus*, the emphasis is on the use of IT to support innovative business changes such as process improvements, new services, or even new business models. Where IT plays a support role in the innovation process, evaluation is often based on the perceptions of innovating business unit leaders, and the key metrics are whether IT is a bottleneck in introducing new services or whether the infrastructure scales easily as the new service generates new customers and revenues. In firms where IT plays a stronger role in innovation activities, metrics focus on measures such as idea generation, IP generation, employee involvement, and business value created.[9]

While we have emphasized the way that the CIOs focus their *upward communication* with business executives, metrics can also be a very effective tool to motivate IT staff and drive improvement efforts along important dimensions. Discussions with IT operations staff focus on IT operations metrics, while discussions with application development units may focus on IT project metrics. However, even when focusing on internal IT metrics, effective CIOs often make an effort to ensure that the IT staff understand and can discuss the link between their IT work and the business processes and functions they support.

Several CIOs pointed out in particular that expressing IT operations performance in business terms helps their IT personnel focus even more clearly on business value. For example, a bank CIO found that his data center staff were more motivated and performed

better once they knew what internal offices or external business customers were supported on each set of servers. Similarly, a retail CIO found that IT staff improved reliability and recovery time when he commissioned a dashboard to show how technical issues affected business process performance and sales volumes.

SUMMARY: USING METRICS TO IMPROVE IT PERFORMANCE

CIOs can improve IT organization credibility, IT/business relationships, and the strategic impact of IT on the business by building a portfolio of measures that matter to key stakeholders and then adjusting that portfolio over time. The portfolio of metrics described in the article is a useful guide for selecting metrics and focus domains.

Firms *expect* their CIOs to own and deliver effectively in the two lower-left cells: IT-specific operations (such as server availability and call center satisfaction) and IT-specific project performance (such as on-time and on-scope performance). However, CIOs who communicate only on these dimensions find that their impact on the business is perceived to be extremely limited; they are often discussing technical performance, not business value. CIOs who have a higher impact are able to move the value conversation beyond the two IT-specific starting cells.

We identified the following practices that CIOs used to extend discussions with business leaders toward business metrics and gradually steer the conversation to higher levels of strategic impact.

Be proactive in defining metrics. Business executives evaluate IT and CIO performance based on the formal and informal measures they have available. Lacking the right metrics, they pay attention to other signals such as complaints from business colleagues or their own impressions from dealing with IT personnel. CIOs can improve performance and enhance trust by creating transparency around performance. To focus on dimensions that are business relevant, CIOs may have to forego absolute precision for perceptual and indirect measures that are meaningful to business executives. Successful CIOs start by defining how different performance dimensions link to value in the eyes of stakeholders. What metrics matter in each cell for each business process or business unit? Who should own those metrics? How can IT help to improve each metric? Being proactive in defining metrics allows the CIO

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9   For an example of an IT unit playing a strong role in business innovation, see Westerman, G. and Curley, M. "Building IT-Enabled Innovation Capabilities at Intel," *MIS Quarterly Executive* (7:1), 2008, pp. 33-48.

to lead the IT value conversation and frame the change agenda. This can result not only in better IT performance but also a stronger strategic role for the CIO.

Discuss IT unit performance in business terms. Many business executives find it difficult to relate to IT-specific metrics, making it difficult for the CIO to make a case for change or new investments. Describing IT unit performance in business terms helps CIOs demonstrate that they are effective leaders of their units. CIOs increase their credibility by acknowledging performance issues and showing improvement. They can use metrics to make the case for additional investments where further improvements are needed. Metrics may also help business executives see where performance is actually better than assumed. The CIOs of PharmCo and a retail firm in our sample present IT service metrics in terms of their impact on unit costs, demand levels, and service quality. The CIOs of FinCo and PhoneCo focus on business process reliability instead of IT availability. Discussing IT metrics in business terms with IT staff also helps them see their impact more clearly, often leading to performance improvements from increased pride and customer focus.

Improve partnership by helping others improve their own areas. Metrics clarify decisions and improve credibility but do not substitute for non-quantifiable measures such as trust and partnership. Metrics cannot improve business value without relationships, but CIOs can use metrics to improve relationships. The process often starts by asking business unit executives what metrics matter to their annual compensation scheme. VidCo's CIO captured these directly: "I want to partner with you. What are your key measures of success and how can I contribute?" Helping executives improve their success metrics is a powerful way to improve relationships and to engage business colleagues in jointly creating value from IT investments.

Exercise influence beyond your scope of authority. Improving business processes provides far more potential value than improving IT activities. Although CIOs do not typically own business processes, they can improve IT's contribution to business value by ensuring business executives take responsibility for the realization of business benefits associated with completed IT projects. In this process, the CFO can often be the CIO's best friend: senior teams hold each other accountable, with the CFO acting as the arbiter of value. It is not important to separate IT value from business value; the CIOs we interviewed said that being recognized as a contributor to a joint effort is better than taking credit for IT performance.

Focus on a few strategically important improvement areas when communicating with senior executives. While all six business-related cells in the framework in Figure 1 could be a source of value and are likely to be monitored by others in the company, it is important to focus attention on a few strategic cells. CIOs can best communicate their performance and change perceptions if they have a clear and focused story. Once performance in a focal area is acceptable, CIOs can shift their focus upward and rightward in the matrix to more strategic cells, even beyond what they directly control. However, when shifting focus, the areas with acceptable performance levels that are no longer of primary importance should be delegated to competent IT leaders and managed by exception. Negative performance in these non-focal areas can quickly reverse a CIO's strategic progress.

CONCLUDING REMARKS

As the strategic role and importance of IT grows in most firms, CIOs are challenged with developing an effective strategy for managing and communicating metrics for IT performance. Their challenges are compounded by the existence of many internal IT metrics that vary in their specificity and relevance to business leaders. Based on data collected from 23 CIOs, we have developed a framework for identifying nine different types of metrics that vary in scope and the area of performance they measure. CIOs can use this framework, our case examples, and guidelines for evolving a portfolio of metrics to refocus their attention over time to areas of greater strategic potential.

APPENDIX: RESEARCH METHODS

Our analysis is primarily based on interviews with CIOs and other business leaders at 23 organizations spanning multiple industries. The industries represented in our sample include Financial Services (4), Insurance (4), Retail (3), Software (2), E-Commerce (2), Non-profit (2), Telecommunications and Electronic Manufacturing (2), Chemical (1), Entertainment (1), Automotive (1), and Pharmaceutical (1). In addition, we also drew extensively on prior interviews we have conducted on related topics with numerous other organizations.

The interviews conducted for this research focused on the following specific topics but were open-ended to allow the interviewees to bring up additional issues not explicitly covered by our questions.

1. *Initial Topics:* The role of IT in the organization, and the role and background of the CIO.

2. *Overall IT Evaluation:* How do the CEO and other senior business leaders at the organization evaluate the performance of the IT function and the CIO? How does the CIO communicate the value provided by the IT organization to other business leaders?

3. *Specific Metrics:* What specific metrics does the CIO use to monitor performance of the IT function? What specific metrics does the CIO use to communicate value provided by the IT function?

4. *Closing Topics:* How has the use of metrics and focus of the CIO changed in the last five years? What are the lessons learned in utilizing metrics, measuring performance, and communicating value?

The interviews led to the development of the Metrics Portfolio depicted in Figure 1 of the paper. Each interview was then coded to examine fit with the portfolio and to identify the five focus domains we observed in our research. While only 5 of the case studies are shown in the article, the summary of best practices is based on all 23 case studies conducted for this research.

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