Executive Summary

In the digital world, business executives have a heightened awareness of the strategic importance of information and information management to their companies’ value creation. This presents both leadership opportunities and challenges for CIOs. To prevent the CIO position from being marginalized and to enhance CIOs’ contribution to business value creation, they must move beyond being competent IT utility managers and play an active role in helping their companies build a strong information usage culture. The purpose of this article is to provide a better understanding of the leadership approaches that CIOs and business executives can adopt to improve their companies’ information orientation. Based on our findings from four case studies, we have created a four-quadrant leadership-positioning framework. This framework is constructed from the CIO’s perspective and indicates that a CIO may act as a leader, a follower or a non-player in developing the company’s information orientation to achieve its strategic focus. The article concludes with guidelines that CIOs can use to help position their leadership challenges in introducing or sustaining their companies’ information orientation initiatives and recommends specific leadership approaches depending on CIOs’ particular situations.

THE GROWING IMPORTANCE OF INFORMATION AS A BUSINESS RESOURCE

In today’s digital world, enabled by social media, cloud computing, sensor networks, online service offerings and big data applications, the volume, velocity and variety of data are growing at unprecedented rates as individuals are constantly producing, gathering and sharing information. Consumers, including the growing number of digital “natives,” demand information competence in their network-based communication. From a business perspective, IT and information are increasingly embedded in products, services and business processes, leading companies to collecting and managing ever greater amounts of data. Transforming the vast amount of data both inside and outside companies into relevant information offering business insights and helping companies improve efficiencies, seize opportunities and compete is a critical challenge in the dynamic digital business environment.

Today’s leading CEOs, CFOs and COOs understand this. They recognize that improving information management and leveraging the power of information and digitization throughout all aspects of their business is critical to the execution of their business strategies and their companies’ survival and prosperity. A growing number of these business leaders have turned their attention to building a strong information culture within the top management team and throughout their companies. For example, an information-oriented COO of a U.S. bank stated:

1 Elena Karahanna, Omar El Sawy and Varun Grover are the accepting senior editors for this article.
2 An earlier draft of this article was presented at the 2010 SIM Academic Workshop on New IS Leadership Roles for a Digital World in St. Louis, MO. The authors would like to acknowledge the valuable feedback from workshop participants. We are appreciative of the excellent guidance provided by Elena Karahanna and the other special issue editors and the anonymous reviewers.

The information that you provide drives the conversation that you have every day with both your customers and your fellow employees. And the conversation you have drives the culture of your organization. If there is a common language that is created in the company, it helps to not just achieve financial objectives or customer service objectives, but it also helps you establish a consistent culture in your organization.”

Some CIOs are in the forefront of leading efforts to transform the IT function from being more than just a reliable IT utility. They recognize the importance of exploiting the company’s information resource and of emphasizing the “I” in IT. These CIOs act as partners on the senior management team by formulating and executing information-enabled business strategies. In a recent Wall Street Journal article, Thomas Davenport writes: “CIOs are called ‘information officers’ for a reason: They’re supposed to provide information that informs corporate decisions and actions.” Unfortunately, some CIOs have not yet recognized the importance of exploiting information or are not in the leadership position to effect the needed movement toward improving their companies’ information capabilities to the level necessary in today’s digital world.

The fact that an increasing number of business executives have started emphasizing information management and usage to improve strategy execution presents CIOs with both leadership opportunities and challenges. To prevent the CIO position from being marginalized and to enhance their contribution to business value creation, CIOs must identify the leadership approach they can take in driving their companies’ efforts to better leverage information for superior business performance. The purpose of this article is to provide better understanding of the leadership approaches that CIOs and business executives may use to improve their firms’ information orientation (IO) in support of its business strategy. Our findings are derived from four case studies of companies in service and manufacturing industries (CEMEX, European Specialty Chemical Company, Citigroup CEEMEA [Central and Eastern Europe, Middle East and Africa] Sales and Trading Unit, and European Retail Bank). We observed the IO leadership approach used (or not used) by these firms’ CIOs, as well as their interactions with business executives. We observed that IO is important to each company and that the CIO may act as a leader, a follower or a non-player in the company’s information capability development to strengthen the company’s strategic focus. Based on the findings, we present a leadership-positioning framework from the CIO’s perspective. We conclude by providing managerial insights and guidelines that will help CIOs identify an appropriate leadership course of action in their companies’ informing efforts.

**DIMENSIONS OF INFORMATION ORIENTATION**

Information orientation is a managerial perspective that recognizes how effective use and management of information adds value to a firm’s strategic orientation and how investments of information technology practices, information management practices and information behaviors and values facilitate the development of the firm’s information capabilities. The extent to which an organization leads in developing and nurturing these three core information-oriented practices will largely determine its capabilities to use information effectively. The details of these three core dimensions of IO are presented in Table 1.

In today’s information-intensive organizations, these three core information-oriented practices are often adopted to support business strategies. Executing business strategies that focus on resource control, opportunity leveraging and knowledge creation has been a major preoccupation of CEOs and other non-IS senior executives. While the competitive context determines which of these three strategic foci is dominant in a specific company or industry, all three demand highly informed business practices. This is the reason that developing a strong information orientation has captured the attention of senior business executives.

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4 Leadership scholars such as Warren Bennis consider leadership as a function of being aware of yourself and your situation (sensemaking), having a vision that is well communicated (charting the map), building trust and influence among colleagues and subordinates, and taking effective action toward your vision (mobilizing).

INFORMATION ORIENTATION AS A CRITICAL ENABLER OF BUSINESS STRATEGY

The popular press has already highlighted that 95% of senior executives believe strong information management is critical for business strategy and value creation. In our conversations with senior executives from a variety of industries, they confirmed they had recognized the importance of information and information management to their businesses and business strategies:

“We adopt management by numbers or evidence-based management. Information forms the starting point for dialogs among people. It is a shared language to communicate with managers and front line specialists.”

(EVP, U.S. Claim Management Service Company)

Control-oriented business strategies, such as that followed by CEMEX, emphasize exploiting the company’s existing capabilities and resources and using the most efficient approach to optimize the business and maximize value created. When control-oriented executives are also information oriented, they can strengthen their control strategies by using timely and accurate information to measure and monitor both operational processes and management processes in a panoptic fashion, and institute continuous process improvements. Information transparency allows them to drill down and monitor the performance of divisions, teams and individuals. As a result, they can thrust responsibilities and decision rights down the organizational hierarchy and trust people will carry them out properly.

Opportunity-oriented business strategies, such as that followed by European Specialty Chemical Company, emphasize sensing market opportunities through alertness and taking advantage of these opportunities

<table>
<thead>
<tr>
<th>Dimensions of Information Orientation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Information Technology Practices</td>
<td>A company’s ability to manage information technology (i.e., hardware, software, application programs, networks and technical expertise) effectively for operational support, business process support, innovation support and management support.</td>
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<tr>
<td>Information Management Practices</td>
<td>A company’s ability to manage the use of information in support of coordination and control, tactical problem solving and strategic decision making. Information management practices involve sensing, collecting, organizing, processing and maintaining information to enhance decision making. These information management practices move beyond organizational-level databases to include personal, social media and customer information management.</td>
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<tr>
<td>Information Behaviors and Values</td>
<td>A company’s ability to instill in its people information-centric behaviors and values as information integrity, information transparency, information sharing, proactiveness in information sensemaking, understanding of others’ job goals and their information needs, and a willingness to use formal systems—all important for building and sustaining a strong information culture.</td>
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7 “Managing Information in the Enterprise: Perspectives for Business Leaders,” Forbes Insights, 2010, p.2. http://images.forbes.com/forbesinsights/StudyPDFs/SAP_InformationManagement_04_2010.pdf; also see: Wall Street Journal, op. cit., April 25, 2011. This article recommends five books that executives need to read if they want to be leaders to “… harness technology to make the most of information.” Thomas Davenport states that one of the books (Making the Invisible Visible: How Companies Win with the Right Information, People and IT) takes the “I” perspective and “… describes the concept of ‘information orientation’ and how it produces better organizational performance … Based on a substantial research study … the formula they advocate is right on, and any CIO would benefit from trying it.”

through agile responses to the needs of customers, partners and suppliers. When opportunity-oriented senior executives are also information oriented, they are able to assess market conditions and anticipate changes in the marketplace more accurately, track competitor and stakeholder responses to their strategic actions, evaluate the effectiveness of countermoves and make necessary adjustments.

People-oriented business strategies, such as that followed by Citigroup CEEMEA Sales and Trading Unit, focus on maximizing the knowledge contributions of employees and incorporating them into business processes and capabilities. When people-oriented executives have a strong information orientation, they often adopt information-based measurement tools to evaluate people’s knowledge-creating and -contributing behavior. They also create an open environment with a high degree of information transparency, strengthen the communication links among people so that information about knowledge holders can be easily located, and help individuals take ownership of and responsibility for their knowledge.

LEADERSHIP APPROACHES TO DEVELOPING AN INFORMATED BUSINESS STRATEGY

Establishing information orientation in support of a business strategy is a shared responsibility among senior executives. However, due to the variety of mindsets, motivations, experiences and strategic views among senior executives, business executives and CIOs may play different roles in leading this process.

Senior business executives’ increasing recognition of the role of information orientation in improving the company’s performance demands that CIOs must pay at least equal attention to developing IO. This means the CIO must be able to identify the approach he/she will adopt in leading the firm’s efforts to improve its information capabilities to support its strategic focus on control, opportunity or people. We conducted four case studies in which we examined the leadership approaches played by the CIOs in establishing IO and their interactions with business executives.

Ideally, the CIO and business executives would both recognize the value of establishing IO (including all three dimensions: IT practices, information management practices, and information behaviors and values) and act in partnership to co-lead the IO initiatives to achieve their strategic goals in a Participatory manner (as happened in CEMEX).

However, in companies where the CIO sees the IO potential but business executives are slower to make this connection, the CIO must act as a Transformational Leader to introduce and nurture IO initiatives until a senior executive coalition also sees the value of IO and further diffuses the IO concept throughout the company (this approach was used in European Specialty Chemical Company).

If the CIO does not immediately recognize the value of IO (possibly because of focusing only on IT practices and running an IT utility) or cannot immediately take the lead in IO initiatives (because of a lack of influence), business executives will drive the IO initiatives. In this situation the CIO must act as a follower and play a Servant Leader role if he/she wants to eventually earn a place of strategic influence on the senior management team (the Citigroup CEEMEA Sales and Trading case illustrates this approach).

When neither business executives nor the CIO recognizes the value of IO or takes the IO leadership reins, the firm may flounder and lose competitiveness. The situation may become so bad that the firm’s stakeholders responsible for corporate oversight may have to step in and replace the senior executives, including the CIO, with a new management team that can deliver value (as happened at European Retail Bank).

Based on these observations from the four case companies we have constructed the strategic leadership-positioning framework shown in Figure 1. Each of the four quadrants of the framework is described below and illustrated through the relevant case study.


11 A CIO’s IO leadership approach is the manner in which a CIO provides direction, implements plans and influences other senior executives and subordinates to improve the information orientation of the entire organization, including the IT practices, information management practices and information behaviors and values.
IO Initiative Led by a CIO/Business Executive Partnership

In the upper right quadrant of Figure 1, the CIO forms a partnership with business executives to lead IO efforts. With this IO leadership approach, the CIO must be a Participative Leader and ensure that he/she continues to provide strategic insights to develop informed business strategies. The CIO is a strong equal-value partner with information-savvy business executives who influences the business strategy while supporting the business with reliable and cost-effective IT resources and services. The CIO favors decision-making based on consultation with other senior managers. The CIO’s performance is evaluated not only on delivery of IT practices but also on the other two dimensions of IO, helping to create a strong information culture of effective information use driving strategy execution.

In CEMEX, both the CEO and the two consecutive CIOs recognized the value of information and information practices in continuously improving business processes and they acted as strategic partners in enhancing the company’s IO. The CIOs not only led the IT organization in delivering reliable and cost-effective IT services to support the company’s domestic growth and international expansion, but also used their business insights to act as key leaders in improving the information culture in support of business process improvements and post-merger integration. Through advocacy and dialogue with the business executive team, both CIOs pushed for process standardization and information-driven personal responsibility and control to effect their business strategies and were recognized as partners for doing so. The CEMEX case is described in the panel below.

IO Initiative Led by the CIO

This IO leadership approach is the lower right quadrant of Figure 1. It applies where the CIO recognizes the value of IO but business executives do not, which requires the CIO to garner support for IO initiatives by communicating a vision for how IO can contribute to business strategies and outlining an evolutionary path to developing IO. The CIO acts as a Transformational Leader who:

- Has a strong information mindset
- Raises business managers’ level of consciousness about the importance of developing IO
CEMEX: Business Executive and CIO Partnership Leading the IO Initiative

Headquartered in Monterrey, Mexico, CEMEX is a leading global building-materials company that produces, distributes and sells cement, ready-mix concrete, aggregates and other construction materials. Its business strategies and information orientation have been strongly influenced by CEO Lorenzo Zambrano in partnership with two consecutive CIOs and his senior business executive team.

CEMEX can best be categorized as following a control strategic focus, which is manifested by senior managers’ continuous efforts to increase efficiency and standardization to produce growth from the company’s existing portfolio of products and through mergers and acquisitions. Reflective of the control orientation is senior managers’ intense focus on process. Zambrano remarked:

“…CEMEX is committed to a continuous improvement process that produces a constant increase in productivity and efficiency ... CEMEX has implemented capital allocation and capital budgeting processes that are designed to assure the most efficient allocation of our investment dollars.”

From the beginning of his tenure as CEO, Zambrano recognized the value of information to his business, first as a necessity in competing domestically in Mexico and then as the key differentiator in competing internationally. He said:

“Information is your ally: you use it to detect quicker and get better faster, or [to] determine who is better and then you go and find out why. As we grow, we clearly need more information. I must admit that I want the information for myself. We want to keep innovating ... but we want to have that under control.”

Former CIO Gelacio Iniguez also recognized the importance of people’s beliefs about information and information-use behavior. Instead of overly focusing on IT practices, he emphasized the need to change people’s mindset about information:

“I personally don’t like to talk about technical issues ... I spent three years studying different philosophies of human behavior and have worked very hard to incorporate these philosophies into the CEMEX culture ... My role is to constantly challenge people in the businesses, to change their mindset, to help them think about things differently.”

Prior to 2000, the partnership between Zambrano and Iniguez focused on developing infrastructure in support of CEMEX’s control-oriented strategy. Based on a shared vision for strong information-usage behaviors and values, they improved the information practices adopted by the company’s employees and managers. With the infrastructure in place and the information culture established, Iniguez turned over the CIO reins to José Luis Luna. Both Luna and Zambrano continued emphasizing the need to further improve CEMEX’s information practices and information culture:

“We were a group of people within CEMEX driven by a vision of changing the culture and organization of the company.” José Luis Luna, CIO, CEMEX

The business executive team and Luna continued advancing their informed strategic focus through business process standardization and improving employees’ information-usage effectiveness, symbolically communicated as the “CEMEX Way.” Luna acted as a strategic partner who not only delivered reliable IT services but also used his business knowledge and strategic insight to actively promote the standardization of information systems and business processes in post-merger integrations. For example, in 2004, CEMEX announced its intention to acquire RMC group, the world’s largest ready-mix concrete producer with sites spread across many countries. In parallel with the organizational post-merger integration process, Luna and the rest of the IT organization played a key role in the CEMEX Way integration. Luna recalled a meeting he had with Zambrano and the Executive Committee in November 2004:

CIO and Business Executive Leadership Approaches to Establishing Company-Wide Information Orientation

- Has a clear vision about informed business strategies that inspires business managers
- Engages in information-related conversations that intellectually stimulate business managers
- Empowers business managers to accomplish more than what is usually expected of them.  

As a Transformational Leader in building IO in the organization, the CIO is aware of the risks involved, and not only clearly conveys that his/her vision for IO grows out of the needs of the company but also strives to establish an emotional commitment to achieving IO among business managers.

The Group CIO at European Specialty Chemical Company recognized that the firm’s opportunity-oriented strategy that focused on fulfilling customer needs for innovative products used a “pull” approach and identified the critical role of IO in achieving this strategic focus. Because business executives initially did not recognize the value of IO, he acted as a Transformational Leader in improving the company’s information capabilities and outline the evolutionary path to improve the company’s information capabilities.

Stimulated by the workshop discussions and inspired by the Group CIO’s vision, the management team of one BU stepped up and took the lead in formulating and implementing the IO initiatives in support of the BU’s customer-centric innovation strategy. The Group CIO, hoping to achieve transformational change in the company’s IO mindset, willingly gave up ownership of the project so he could secure this BU’s total commitment.

By demonstrating the business value of IO in this “pioneer” BU to the Corporate Group Level senior executives, the Group CIO emerged as a stronger business partner in the eyes of his corporate senior executive colleagues. The success of the pioneer BU’s informing initiatives provided a best practice example for the other BUs to learn from and emulate, gradually diffusing the IO concept throughout the group. Moreover, the pioneer BU was cited as a significant factor in the friendly acquisition of European Specialty Chemical Company. The full case study is described in the panel below.

**IO Initiative Led by Business Executives**

The upper left quadrant of Figure 1 is the case where business executives recognize the value of IO but the CIO does not. This can occur in one of two ways. Either business executives initiate efforts to build

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European Specialty Chemical Company: CIO Leading the IO Initiative

Through more than 30 acquisitions and divestitures in the previous 10 years, European Specialty Chemical Company (ESCC) had transformed itself from a commodity bulk chemical company into a specialty chemical company targeting innovative products for customers. The corporation had 20 business units (BUs) of varying sizes, innovation levels and profitability. The company prides itself on its ability to sense customers’ needs and co-create innovative products that met specialized demands across the 20 BUs:

“We are on a journey, but we are like 20 different ships [20 BUs] going at different speeds to our destination. Yes, we have made progress to acquire a portfolio of innovative product based companies, but we are quite diverse and decentralized. We have “speed boats” growing and innovating with customers for value-based pricing, and we have “tankers” still pushing more traditional products based on volume and price to business customers with low understanding and expectations of what we can do for them to make them more innovative and profitable in the use of our products.” ESCC Group Board Member

The Corporate Group Level CIO had corporate-wide responsibility for IT and information capability leadership but had to work within a decentralized structure where individual BUs’ CIOs and business executives had influence and autonomy. The Corporate Group Level CIO recognized that deployment of IT without an equal focus on how people use information in business transactions and decision making would not lead his company to optimize business performance. He believed that linking senior managers’ opportunity-seeking business strategy with an appropriate focus on improving the firm’s IO was critical to achieving performance impacts. Specifically, he believed that the company should move beyond merely IT infrastructure standardization to improved information usage for product and service innovation, as well as to accurate and timely information flows in value chain operations from R&D through to sales. The problem he faced was that few executives shared his vision. Although the Corporate Group Level executive team recognized the need for possible standardization and IT cost efficiencies, there was little initial recognition for the need to build a strong information orientation in support of the company’s strategy.

As an initial move to gain the confidence of the Corporate Group Level executive team and to achieve greater group synergies in a decentralized environment, the Corporate Group Level CIO convinced the group board that the company needed to first focus on IT standardization, reducing total costs of the IT infrastructure and investing in more customer-centric IT. The latter included, for example, CRM systems to gain better market intelligence in the chemical compound and scientific research communities. To support these aims, the CIO focused on ensuring that BUs ran the necessary IT with high levels of reliability while freeing capital resources for them to engage in deploying competitive IT applications in line with their transition to a more customer-centric innovation strategy. These initial efforts realized cost savings across the entire company and led to better conformance by the fleet of different BUs.

Next, the CIO determined he needed BU involvement in and eventually ownership of IO initiatives because the BUs possessed the customer relationships and had the unique insight on how information could best add value to each BU’s unique customer niches. He needed to get buy-in from BU managers and to reduce the potential perceptions of “a zero sum game” among the 20 BUs concerning corporate-wide IO development. To achieve this, he launched an educational program with the help of a European executive development institute. This program involved all senior BU managers (business and IT) and focused on how IO with a strong information culture can enhance BUs’ business strategies. This program also enabled the CIO to identify one particularly high performing BU—the Automotive Chemicals (AC) BU—whose management team stepped up and wanted to better implement a customer-centric business strategy through the deployment of IT and use of information.

While inspiring, nurturing and supporting this “pioneer” BU in developing its IO, the Corporate Group Level CIO decided that a more successful leadership strategy might be to let the BU management team take the lead in formulating and implementing the initiatives and take complete ownership for IO in their BU.

The AC BU had invested in CRM tools and databases to enhance sharing of customer and product knowledge between the sales, marketing, development and research functions. However, the BU’s president realized that the deployment of CRM, ERP and business intelligence tools alone would not make people share and use information effectively. As he put it:
European Specialty Chemical Company (cont.)

“We have an information-usage gap not only within functions like sales and marketing, but also across functions as well.”

The AC BU CIO developed an action plan for enhancing the use of the information in the CRM database and making it more usable for primary business users in sales, marketing and product development. Another team focused on improving information behaviors and information management practices in the BU. This team developed a new code of conduct for information use, a “CRM Cockpit” to enhance use and training in handling customer information, and an IO scorecard that would measure information-related performance and link IO efforts to specific business practices supporting the opportunity-seeking strategy. In the process of implementing all IO initiatives, the BU president and BU Management Board held themselves accountable for progress and made sure that the IO improvements were linked to business practices that improved customer focus, innovation and delivery of new products.

In 2007, ESCC was the target of a friendly acquisition by a natural resources company based in ESCC’s home country. ESCC’s senior executives recognized the IO success of the AC “pioneer” BU. To make ESCC a more attractive target for the acquisition, they therefore gave the Corporate Group Level CIO the go ahead to implement a group-wide IT strategy to standardize infrastructure and major applications. He was also asked to prepare group managers for improving information management practices through an IO initiative in all 19 remaining BUs.

In response to the AC IO improvement initiatives and the superior performance results, several other BUs quickly moved ahead with their own IO improvement programs. In 2008, the AC BU was cited by the acquiring firm as the most successful, growth-oriented and innovative unit among the 20 BUs and as a significant factor in the acquisition.

IO in support of the business strategy on their own without the counsel of the CIO, or business executives initially offer the CIO the opportunity to participate as a strategic partner but the CIO cannot break out of his/her comfort zone and sits back in the hope of continuing to run IT as a utility, leaving information usage and culture to the general business managers. In either case, a CIO who wants to catch up with IO-enlightened senior executives will likely adopt a Servant Leadership approach where he/she faithfully delivers on the strategic requests in an incremental fashion over time to win legitimacy from the business leaders. Such a CIO must emerge as a leader by becoming a servant, eschewing all credit for his/her efforts for the good of the cause—the focus is on leadership by meeting the needs of others first.18 Essentially, the CIO needs to build a reputation as a valued manager of IT resources and operations, who executes flawlessly and makes small but important contributions toward building IO in support of the business strategy. Over time as the CIO builds credibility and relevance, he/she may be invited more often to participate as a business leader in driving IO initiatives.

This IO leadership approach is illustrated by the Citigroup CEEMEA Sales and Trading Unit case. Senior business executives, led by the managing director, acted as the spearheads leading the improvement of IO throughout the unit. The head of the unit’s IT group was late to the game, so he adopted a servant’s posture, always demonstrating a good corporate citizenship style and fully supporting the strategic requests from the business executive team to improve IO. With the IT group successfully implementing key IT applications over time, the leadership team helped establish assessment tools to monitor and reward employees for their knowledge contributions as well as encouraged the recruitment and hiring of information-centric and team-oriented individuals. The unit’s IT group CIO hoped that by demonstrating strong servant leadership through high quality IT delivery, he might be invited more often to the “top table” and make contributions that would support IO development and ultimately support the unit’s business strategy. The full Citigroup CEEMEA Sales and Trading Unit case is described in the panel below.

**IO Leadership Void**

The lower left quadrant of Figure 1 describes the situation where neither the CIO nor business

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Citigroup CEEMEA Sales and Trading Unit: Business Executives Leading IO Initiatives

The CEEMEA [Central and Eastern Europe, Middle East and Africa] Sales and Trading Unit at Citigroup generates revenue from two sources: (1) trading financial instruments and (2) spread revenue, providing customers with hedges for their exposures. The CEEMEA region covers 31 countries that are diverse in size, geographies, languages, religions, culture, risk, financial market development, regulatory regime and corporate governance.

On his appointment, the CEEMEA Sales and Trading Unit Manager Director, Suneel Bakhshi, found that country organizations were managed in a decentralized way and were only loosely linked to the central trading hub in London. Bakhshi identified the need to pursue a people-oriented business strategy and develop a new business model with much stronger relationships between the London hub and the country organizations so that customer and risk information could be shared throughout the region. Bakhshi understood that people and information were crucial for the unit’s success as the unit depended on the knowledge of individual traders, who used their financial expertise to develop creative financial products tailored to the local risk environment. The unit’s products and services are information based; traders need to have smart trading ideas and real-time information about changes in the market environments. As Bakhshi put it,

“Infocentricity [IO] cannot be compromised. I can negotiate on other things. But not this one!”

Bakhshi took the leadership role in forming a new, information-centric business executive team, successfully diffusing the concept of IO throughout the unit, and undertaking a strategic intervention that focused on improving the unit’s IO (Bakhshi used the term Infocentricity). Driven by the recognition that he needed to extract the tacit knowledge of his star traders, he instituted an IO improvement initiative driven initially by business executives, without the strategic involvement of IT or a CIO. His business management team initially relied on the unit’s functional/systems skills and outsourcing, and Citigroup’s corporate IT back office to develop the necessary IT platform support. To encourage information behavioral changes, Bakhshi used his business management team to develop a unit-wide IO scorecard with specific measures of how information was being sensed, shared and used at the individual, team and organization levels. Incentives and bonuses were put in place to reward traders for information entered into the system that resulted in sales by other traders.

Once these IO initiatives were well under way, Bakhshi appointed Umesh Jagtiani as regional head of the eCommerce unit because of his business background, a similar Infocentricity mindset and his outsourcing skills, which were needed to further improve and institutionalize the IT practices in support of the IO initiatives. Jagtiani recognized that he had been late coming into the game and was not empowered with high level leadership authority for the IO initiative. He was appointed to ensure that he successfully facilitated the implementation of several IT applications and their roll-outs. His attitude was that if the business executive team wanted to roll out the applications incrementally in the various countries in the CEEMEA region, he would do exactly what the executive team asked him to do. He did not try to pretend that he knew better than the business executives how to implement IT.

In addition to rolling out Treasury products to clients, Jagtiani and his IT team helped build a robust intranet platform for reporting, risk and credit management, trading information flow management and a fully functional client relationship management application. The change management strategy Jagtiani followed comprised improving IO in terms of operating culture and behaviors, the scorecards and other IO initiatives that were identified by the business executive team. Over time, he built a reputation for providing successful and reliable IT services to the unit and for fulfilling the business needs and strategic requests. As he delivered IT applications and services with great care, he gradually began to convey messages about good information behavior to signal to the entire organization that he possessed a similar IO mindset as the remainder of the executive team and regional business managers. For example, he stated:

“In the past, traders saw information as proprietary ... Today, this information is no longer ‘personally’ owned. A culture of transparency has transformed the way business is managed. Both good and bad results are shared within the team, and overall, the impact on business has been extremely positive.”
executives recognize the value of IO. Because neither is willing to take a leadership position in driving the development of IO, the company will probably fail, given the criticality of information in today’s digital world. Hopefully, in this situation and before the firm faces serious financial distress, the oversight stakeholders will step in and replace both the business and IT executives with a management team that shares a mindset about the role of IO in support of the business strategy and is capable of delivering value. This requires decisive leadership at a stakeholder level.

The European Retail Bank case (see panel below) demonstrates the consequence of an IO leadership void. After acquiring one of its largest competitors without conducting sufficient IT or informational due diligence, ERB’s senior management team focused on cutting operational costs instead of growing the business. This cost cutting disregarded the importance of integrated information for effective operations and customer service. Due to a bureaucratic cultural mentality, business executives and the CIO were both occupied with several initiatives and did not recognize the value of improving the merged firm’s IO to support the business strategy. After the merger, ERB continued to shift between growth strategies and cost-efficiency control strategies; there was an “information void” in the mindsets of business managers and the CIO. The lack of recognition of the value of IO and the lack of leadership in developing IO from both the IT and business sides led to poor business performance, which eventually caused the group board of the holding company to step in and replace the entire senior management team, including the CIO.

CIO GUIDELINES FOR CHOOSING AN IO LEADERSHIP APPROACH

In many companies, because of the different views, experiences and mindsets among senior management team members, CIOs can adopt different IO leadership approaches depending on the specific situations they are in relative to business executives. To help CIOs position themselves in relation to business executives and identify which approach to adopt to improve the company’s IO, we offer the following guidelines, grouped under sensemaking and mapping a course, and mobilizing.

Guidelines for Sensemaking and Mapping a Course

1. Assess Where the Company Currently is in Terms of IO

Before a CIO can position himself/herself in the IO improvement efforts and decide what to do next, he/she needs to make sense of “where are we now,” focusing especially on the company’s IO capabilities and their relationship to its business strategies. Specifically, the CIO needs to:

- Identify how information is embedded in the way business is done
- Understand the information content and needs of the various business practices
- Assess how information is being used and managed by evaluating a representative cohort of managers and professionals
- Recognize how improving the company’s IO can enhance the business strategy.

Furthermore, it is necessary for the CIO to assess the extent to which business executives recognize the value of information and information management. For example, in the ESCC case, the Group Level CIO saw the potential for using information to drive innovation and co-created customer responses, but the Group Level business executives initially viewed IT

European Retail Bank: IO Leadership Void Leads to Failure

European Retail Bank (ERB) was an established national bank operating in a Western European country within a mature banking market. The bank had over 1,300 branches and operated nearly 700 ATMs. In terms of assets, the bank was second in the country and comprised 14% of the overall banking group’s assets. ERB’s senior business executives decided to expand its capital assets, customer base and volume of transactions by acquiring another large retail bank in the same country and becoming the largest retail bank in the country.

To achieve the integration of the two merged banks, ERB’s senior business executives decided to first focus on restructuring, capturing cost synergies and streamlining operations between the two merged banks. However, neither IT nor a CIO was actively involved in the pre-merger due-diligence process or consulted in advance on comprehensive post-merger integration planning. As a result, there was post-merger bureaucratic wrangling between IT and business people from the two relatively equal merged entities. After two years, the integration had not progressed, and ERB launched another initiative called VIVA, which had two phases.

In the first phase, the bank focused on further cost-cutting and achieving efficiencies by improving risk and credit management and hoped to turn the branch and ATM networks of the combined bank into a more efficient and unified product distribution system. Despite these front-office changes, back-office integration issues continued to keep ERB from moving into more lucrative customer-centric niches and cross-selling.

A main reason for the unsuccessful back office integration was the lack of information focus throughout ERB by both the business and the IT sides. Prior to the merger, ERB had been managed with a traditional and strictly hierarchical information structure and style. The IT organization operated as an IT utility provider. The strong bureaucratic culture mandated transaction verification and authorization by top management of just about all business decisions. Such a bureaucratic culture led to a complicated and slow decision-making process in the management ranks. Employees had a “let’s wait and see” attitude toward customers. Information sharing that occurred only through traditional reporting was supported by an outdated legacy computer network running as a cost-based operational utility. The people culture was one of low trust because the authorization process, coupled with legacy transaction systems and large amounts of internal paperwork, created a climate of suspicion and doubt about communications up and down the hierarchy.

Due to the lack of an IO mindset, sales activities were product-focused and reactive to customer needs. Customer segmentation was very simple, almost simplistic. An unfocused customer strategy had resulted in a complex product line with too many offerings. When a customer visited a branch, the branch representative could not identify the customer’s profile because the IT system did not provide accurate information on customer behavior or product portfolios. Customer transaction reports, new customer profiles and asset targets for relationship managers were only available on a quarterly basis. A centralized customer account system only recorded sales volumes and customer/sales ratios—useful for senior managers, but not for customer relationship managers.

The CIO also failed to recognize the importance of developing IO. IT operations focused primarily on technically unifying the two IT platforms and data centers instead of improving the use and management of information throughout the now merged branch structure and ATM service network. The acquisition created considerable challenges for the IT systems in the combined bank. To deal with the merger, the IT organization attempted to unify two banking systems by cloning ERB’s IBM platform and copying the system of the acquired bank onto this clone. However, due to the two banks’ different operations and products, the copied system could not be easily merged. The CIO noted: “Instead of ending up with one merged system, we ended up with two separate platforms and data centers.” As a result, branch employees had to switch from one system to the other, depending on which bank the customer had originally opened the account with. When ERB implemented Internet banking, information sharing was not possible between the Internet banking operations, with the older ERB IT systems being used while the entire back office was being redesigned for merged operations. Existing ERB customers could not easily perform Internet banking transactions with their branch banking. This channel conflict resulted in poor customer service and customer defection.
as a utility whose costs needed to be better controlled. And in the CEMEX case, the former CIO and the CEO both recognized their company’s weaknesses and identified a need to use information to establish a greater reach and range of control by making information transparent and useful throughout the company. In both cases, the CIOs made sense of their unique situation by gaining greater understanding of how effective management and use of information could facilitate the business practices and support the business strategies. It is also important for the CIO to determine the extent to which business executives have already initiated IO improvement efforts and have assumed a leading role.

2. Decide Whether You Want to Be a Leader

The CIO must realize that improving the company’s IO and leaving a positive information legacy requires careful planning and execution as well as changing people’s mindset and behavior throughout the company. Even though business executives may recognize that information management capability plays a key role in their company, it is possible that improving IO may not rise to the top of their priorities given other pressing business demands. In such a situation, a CIO who recognizes the criticality of IO will need to make a conscious decision on whether to rise to the occasion and take over the reins of IO leadership. Taking on the IO leadership role is not fail-safe and risk-free. The CIO may find it challenging to break out of his/her technical comfort zone, engage with general managers on changing the company’s information culture, and take on responsibilities for people’s information behaviors and values in business activities. A lack of perceived control and confidence in the CIO’s ability to become actively involved in the business domain often creates inertia that prevents the CIO from making the move toward leading IO efforts.

Questions that have to be answered include:

- Is the CIO willing to take risks, experiment, learn from both successes and mistakes and—more importantly—encourage others to do the same on an IO improvement journey?
- Is the CIO confident that he/she is capable of defining an inspiring vision for IO and sharing it with business executives as well as the rest of the company?
- Does the CIO believe he/she can build relationships with and gain commitment from people throughout the company, especially from business leaders, and work with them continuously to overcome the challenges on the IO journey?

If the answer is yes to these questions, then the CIO must select an appropriate leadership approach.

3. Select a Leadership Approach

Based on the outcome of the sensemaking activity (Guideline 1), the CIO can then map his/her leadership position in our framework (Figure 1). If the CIO and business executives both recognize the importance of IO, and are willing to lead their company on an IO journey but have not initiated IO efforts, the CIO can adopt the Participative Leadership approach and become a key player in the IO initiatives (upper right quadrant of the framework).

If business executives have already recognized the importance of IO and initiated efforts to improve IO, but the CIO has not been involved as a key player,
the CIO can adopt the **Servant Leadership** approach (upper left quadrant of the framework). The lack of involvement by the CIO may be due either to he/she being appointed after the IO initiatives are under way or because he/she cannot break out of the conventional IT comfort zone to take responsibilities for business people’s information usage and culture.

If business executives have not recognized the value of IO and the CIO has the vision to lead the company along an evolutionary path to develop IO, the CIO can adopt the **Transformational Leadership** approach (lower right quadrant of the framework).

If the IO concept has not gained traction among business executives and the CIO is content with only managing IT resources and operations as a utility, he/she should be forewarned that this could result in **Stakeholder Leadership** intervention (lower left quadrant of the framework). When the current management team, including the CIO, fails to recognize the value of IO, this can lead to ineffective business strategies and unsatisfactory business performance. In this situation, the entire team is in danger of being replaced by a new management team that is willing to develop information capabilities and an information culture that will support the company’s business strategy.

**Guidelines for Mobilizing Resources for IO Improvement**

Based on the CIO’s leadership positioning relative to business executives (Guideline 3), the CIO needs to identify how to effectively mobilize people and resources toward IO improvement.

4. Mobilizing with the Participative Leadership Approach

The CIO adopting the **Participative Leadership** approach partners with like-minded business executives, acts as both an IT leader and, more importantly, as an information-savvy business leader. As such, the CIO shares the IO leadership responsibilities, pursues the same strategic direction, maximizes business and technical synergies, and improves company/BU performance over time. The shared information mindset also promotes a shared commitment to mutual risk taking among the business executives and the CIO. The CIO needs to continuously improve the information capabilities that can enhance business practices by focusing on all three IO dimensions (IT practices, information management practices, and people’s information values and behaviors).

The participative leader also needs to improve the IT unit’s IO, help IT people develop business acumen and knowledge, and push for IT personnel performance evaluations based on the success of both IO efforts and business execution efforts. In CEMEX, for example, the CEO and the two successive CIOs were “on the same page” concerning the value of information and information practices and the need to continuously improve business processes. As information orientation know-how was accumulated over time, it was institutionalized in waves of symbolically represented management initiatives such as the “CEMEX Way” to maintain people’s enthusiasm for effective information use.

5. Mobilizing with the Servant Leadership Approach

A CIO who adopts the **Servant Leadership** approach because he/she was appointed after business executives have initiated the efforts to improve IO first needs to demonstrate his/her value to the business executives as a reliable technology provider. With this approach, the CIO gains credibility by managing IT resources and delivering IT services effectively and efficiently, meeting and exceeding the expectation of business executives. As the CIO builds a reputation as a valued IT provider who faithfully delivers on the strategic requests from business executives, he/she then builds business credibility by becoming more knowledgeable about IT-enabled business processes and the information requirements of business processes.

A CIO who adopts the Servant Leadership approach because he/she was initially content with running an IT utility and could not break out of his/her comfort zone needs to incrementally develop an information mindset and gain business knowledge through close interactions with information-oriented business people. With this approach, a CIO can over time demonstrate to business executives his/her acquired information perspective and strategic business acumen, gradually developing a shared language and goals.\(^\text{20}\)

With sufficient credibility and relevance, the CIO following the Servant Leadership approach will be invited to the “top table” more often and asked to deliver innovative business solutions enabled by IO and eventually be recognized as a genuine player on

the IO leadership team. For example, in Citigroup’s CEEMEA Sales and Trading Unit, the regional head of the eCommerce unit recognized that he had been late coming to IO activities and did not have sufficient leadership authority to design the IO initiative. Rather, he had been appointed to ensure the successful implementation of IT applications supporting the IO initiative. However, by conveying that he possessed a similar belief in the Infocentricity [IO] philosophy of the CEO and by his deference to the business executive team taking ownership of his flawlessly executed information solutions, he hoped to earn a place on the senior executive team.

6. Mobilizing with the Transformational Leadership Approach

A CIO who adopts the Transformational Leadership approach to help business executives develop a shared information mindset and gain their commitment in the hope that he/she will establish a partnership needs to demonstrate the value of IO to the business executives. The CIO needs to proceed deliberately at first to prevent or reduce potential resistance from business executives. He/she may need to communicate the vision for IO to business managers and help them identify opportunities for improving both information capabilities and business performance. One technique to further this aim is to build a common IO mindset by launching a company-wide educational program as well as local evangelizing. Consultants might also be brought in to conduct benchmarking to shock and/or cajole business executives to move from their current position toward an IO mindset.

Next, the CIO needs to identify a subset of the company (such as a business unit or functional area) where a strong IO can yield high payoffs. This pioneer unit is often one of the top-performing units of the company with a highly motivated management team eager to achieve even greater success. The Transformational Leader can build a positive legacy by delivering high IO value in the pioneer unit. In the ESCC case, for example, the Group Level CIO identified such a business unit through his interactions with BU managers in the IO awareness-building training programs. This pioneer unit was performing reasonably well but the unit’s management team saw the need for richer customer information to be gained at all touch points so it could co-create unique specialty chemical products tailored to automotive customer needs. Subsequently, the Group Level CIO let the unit’s leadership team take the IO lead and ownership. Gradually, the success of this unit in developing IO provided a best practice example, and the IO concept gained buy-in from more business executives, eventually spreading throughout the company.

Summary of IO Leadership Approaches and Guidelines

Table 2 summarizes the three CIO IO leadership approaches and the guidelines that CIOs may adopt in driving information orientation in their companies.

CONCLUDING COMMENTS

To safeguard, expand, or even transform the CIO’s role in the IT-embedded and information-driven company, the CIO needs to focus more on the “I” of “IT” and break out of the comfort zone of running an IT utility. Our four-quadrant framework helps CIOs identify their leadership approach to IO efforts and informs our recommendations for IO leadership actions. While CIOs need to continue acting as valued managers of IT resources and operations, they must also be perceived as in-house experts on how information is used across their companies’ business processes.

To lead as the corporate information steward is a lofty goal and requires a close working relationship with business managers and employees to learn how information is embedded in business practices. CIOs will have to take more responsibility for leading the information cultural change necessary among general managers if companies are to achieve more acute information sensing and widespread sharing of valuable information. A company’s CIO must work closely with HR to devise performance evaluation metrics including IO scorecards that reward people for effective use and management of information. A strong information focus and extensive business knowledge will enable the CIO to identify opportunities where information management and use can help improve the company’s strategic focus and will help the CIO to become a strategic leader.
Table 2. Summary of CIOs’ Leadership Approaches in Driving Information Orientation

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<th>CIO’s Leadership Approach in Driving IO</th>
<th>Focus</th>
<th>Recommendations</th>
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| Partner with Business Executives as a Participative Leader | • Understand business executives’ perspectives, strategic focus and the business practices associated with the strategic focus through close collaboration with business executives.  
• Clearly understand the information requirements (e.g., product information, customer information, market information) of these business practices.  
• Continuously improve the information capabilities that can enable business practices by focusing on all three IO dimensions (technology, information management and people’s values and behaviors).  
• Enhance the IO within the IT unit by educating IT people on the IO concept; help IT people develop business acumen and knowledge.  
• Push for performance evaluation at all levels of the company that is based on both the success of IO efforts and the success of strategic business efforts. | The CIO should pay particular attention to people’s information-usage behavior since putting the technology in place does not guarantee people will effectively use the information delivered by the technology. In collaborations with business managers, the CIO may focus on:  
1. Providing training to business users to enhance their handling of information  
2. Providing activity-based and result-based coaching and feedback sessions for people at various levels of the company  
3. Building a strong information culture by not only making information available but also holding people accountable for their information behavior  
4. Adopting a scorecard that measures individual and group information behavior and performance  
5. Building information-usage behavior into business processes and creating a standard template for information-usage behavior. |
| Lead as a Transformational Leader | • Promote the IO concept to business executives through training programs.  
• Help business executives identify opportunities for improving both business performance and information management; prevent or reduce the perception of improving IO as a zero-sum game.  
• Create and communicate a vision for IO that emerges from the company’s needs.  
• Identify a subset of the company with good performance and willing to be the IO pioneer unit; reach a common understanding with that unit’s business leaders.  
• Continue to be an IO inspirer and supporter but hand over the ownership and leadership of IO efforts to the pioneer unit’s management team. | The CIO needs to first raise business executives’ level of IO recognition in a natural way (e.g., with help from external parties such as a consulting firm or an educational institute). Doing this will mean that business executives perceive the CIO as trying to help them achieve better business performance instead of trying to shift power away from them and toward the CIO.  
Once a pioneer unit for the IO initiative has been identified, the CIO needs to empower that unit by handing over IO ownership with little demand for credit. But at the same time, the CIO has to be aware of the IO progress in the unit and be willing to help and support whenever needed.  
Throughout the whole process, the CIO needs to possess self-awareness of his/her transformational approach and the risks involved. |
APPENDIX: RESEARCH METHODOLOGY

We selected four companies that operate in different industries. Two (European Specialty Chemical Company and Citigroup CEEMEA Sales and Trading Unit) operate in more knowledge-intensive industries and have a stronger emphasis on people’s knowledge creation than the other two (CEMEX and European Retail Bank). All four would benefit from being more competent in their use of information at all levels of the company and across processes. In essence, all the companies could benefit from not only better IT practices but also better information management practices and an improved information culture. For example, in CEMEX (a cement commodity company), truck drivers, who are not knowledge workers, have to interact with customers at delivery sites, capturing their satisfaction information and entering it into an IT system. This information is in turn used to customize the next truck driver’s interaction with that customer to further improve overall customer satisfaction with the company.

Our research data was collected primarily from in-depth face-to-face interviews, diagnostic surveys, action learning and interventions that members of our research team conducted with over 200 senior business managers and IT managers from the four case companies. These managers were asked about their IO leadership approaches and about the development of IO that supported their companies’ business strategies. The interviews were conducted as part of preparing written cases studies for use as teaching tools and as ad hoc conversations with executives during and after professional training workshops and executive education sessions at IMD. Two members of our research team recorded and further discussed the key points of these interviews as they prepared cases and collaborated on research projects.

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