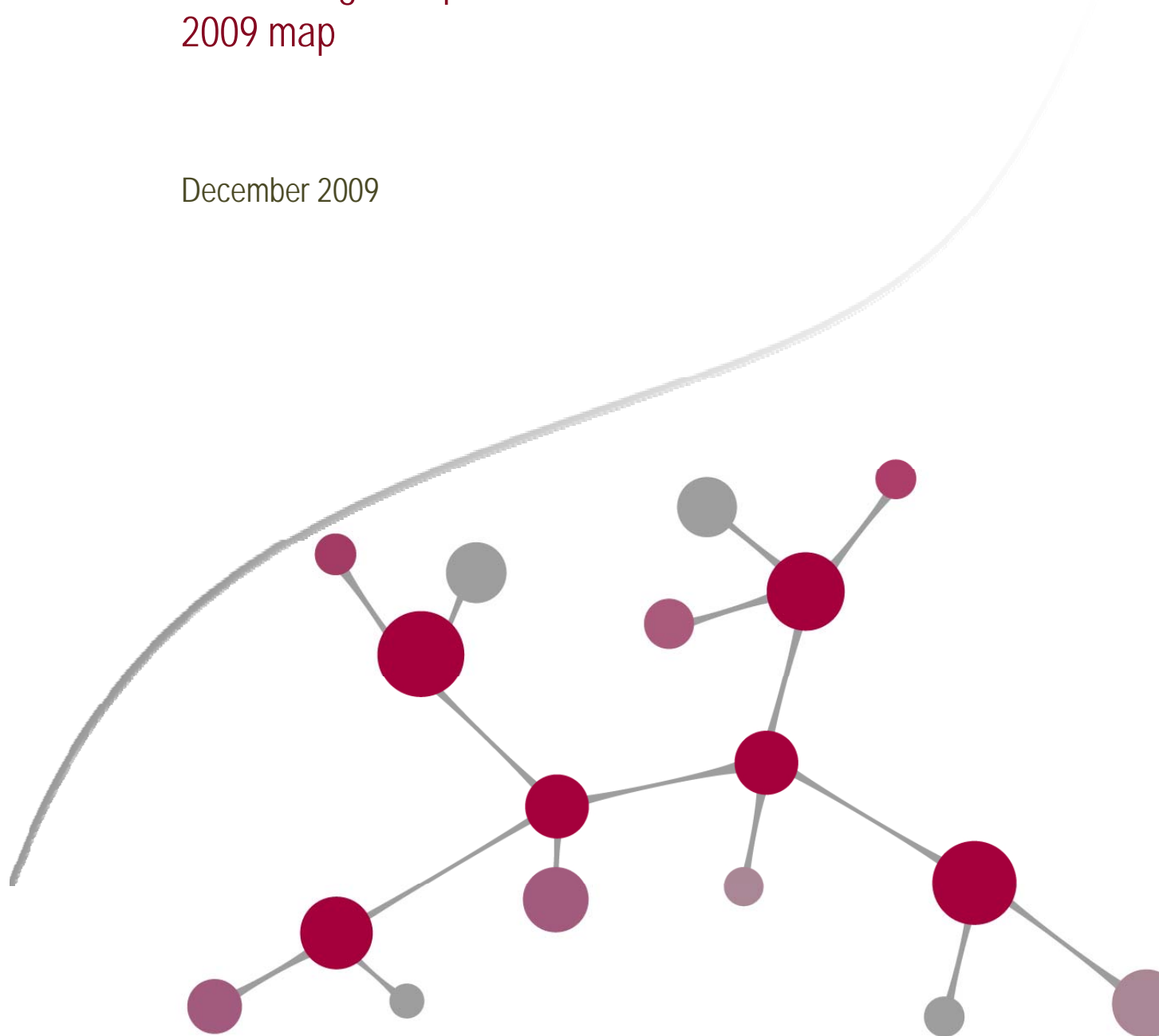
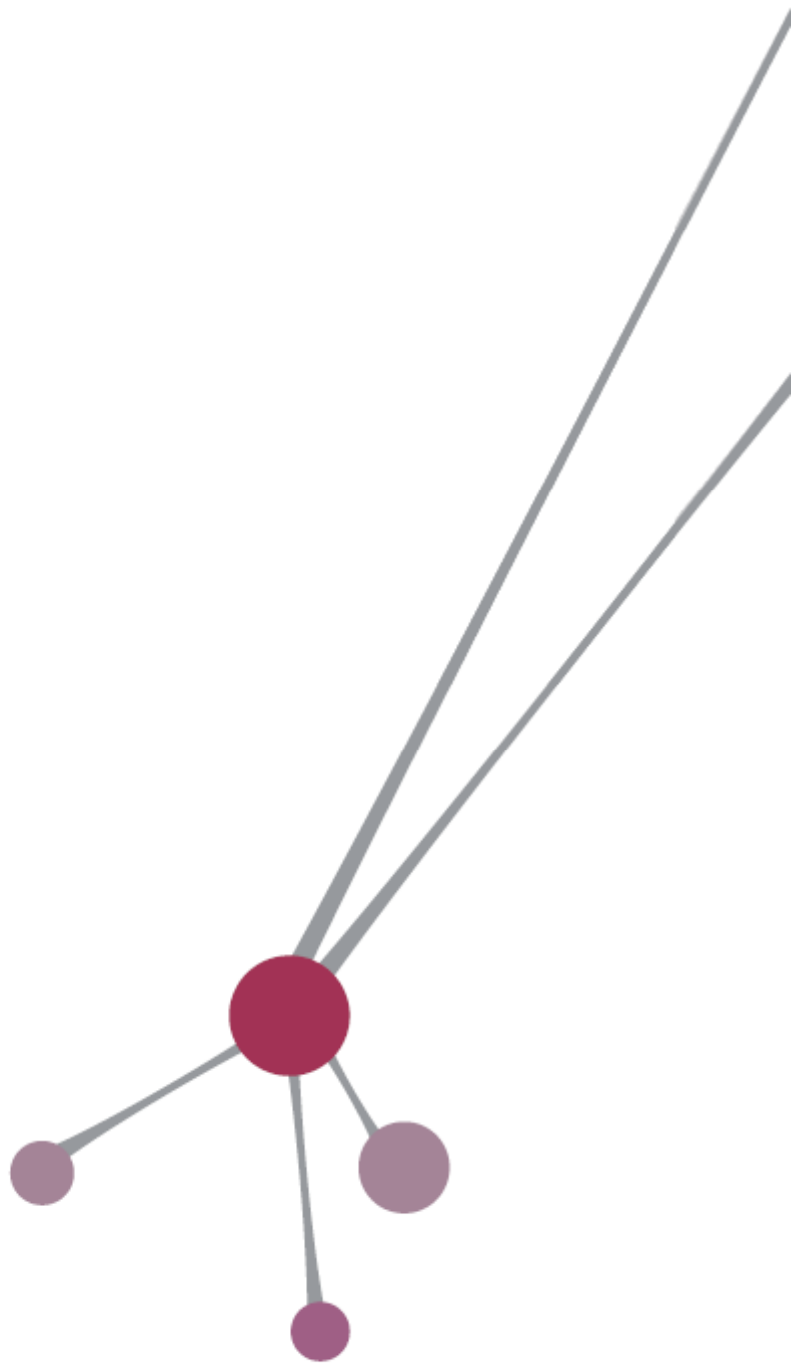


Information: the next big challenge for business

Harnessing best practice in IS-driven value creation:
2009 map

December 2009







About CIGREF

An association of companies founded in 1970, CIGREF's mission is to "*promote the use of information systems as a driver of value creation and a source of innovation for the enterprise*". CIGREF has been headed by Bruno Ménard (VP, IS Sanofi-Aventis) since 9 October 2008; Jean-François Pepin has been General Delegate since July 2001.

For more information, visit: www.cigref.fr

About Capgemini Consulting

Capgemini Consulting is the strategy and transformation consulting brand of the Capgemini Group, specializing in advising and supporting clients in their transformation projects, from the development of innovative strategy through to execution, with a consistent focus on growth and competitiveness. Capgemini Consulting provides companies from every economic sector with a fresh approach that combines innovative methods, technology and the talents of over 4,000 consultants world-wide.

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Foreword

As we look at our current social, economic and environmental difficulties, there can be no doubt that the challenge before us now is nothing less than how to transform the world. In this context, information and communication technologies have a decisive role to play in moving business and society forward.

Companies are taking an ever closer interest in the way information systems are used. Traditionally designed and deployed to automate operations and obtain scale effects, information systems have now established themselves at the core of the enterprise. In addition to the absolute necessity of ensuring uninterrupted operation, this situation opens up new possibilities. The near-omnipresence of Internet technologies and mobile communication solutions enables companies today to invent new business models, launch innovative product and service offerings, and adopt cooperative, distributed ways of working that engage all of the actors in their value chains.

The work conducted in 2009 by CIGREF, in collaboration with Capgemini Consulting, sought principally to draw up a map representing the degree of implementation, within companies, of a set of practices that leverage information systems to create value. To this end, Capgemini Consulting conducted a survey, within the framework of its annual Global CIO Report, that garnered contributions from almost 500 CIOs world-wide between June and October 2009, of whom 90 are based in France, including more than 60 CIGREF members.

This exercise had two main objectives: firstly, to validate, across a broad sample of companies, the pertinence of the reference framework and practices defined during an earlier CIGREF study on the "Dynamics of IS-driven value creation" (White Paper 2008). Secondly, to look beyond information systems as containers and focus on their content, the information itself. CIGREF and Capgemini Consulting also wanted to assess the impact of the economic context of 2009 on the IT function.

The publication of our findings reflects CIGREF's continued determination to share its thinking – on which it has been building for nearly a decade – about the opportunities for creating ever more value through the use of information systems. The ultimate aim is to build a knowledge base that will enable companies to keep making steady progress in this field.

Pascal Buffard

CIGREF
Vice-President

Patrick Ferraris

Capgemini Consulting
Technology Transformation Global Leader

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Executive summary

The link between a company's performance, the effectiveness with which it uses information, and the maturity of its IT function has been clearly established.

This CIGREF-Cappgemini Consulting study, which draws partly on the work of Professor Donald Marchand from the IMD in Lausanne (one of Europe's foremost executive development institutes and business schools) and partly on interviews with 490 CIOs from around the world, demonstrates the reality of the link between the maturity of the IT function, the efficiency with which the company uses its information, and its performance in terms of market share, profitability, innovation and reputation.

However, only 37% of companies think that the way they use their information, and their information systems, represents a competitive advantage. These are the companies where the IT function has reached a certain degree of maturity – one that enables it to look beyond the support function role and position itself as a partner to the firm's business units.

The IT functions of these companies, whose status we have categorized as "Business Technology", have adopted practices in line with their level of industrialization. They are also differentiated by their strong involvement in company strategy and in innovation. Indeed, in 71% of cases, the companies concerned say that they integrate the potential of the IS into the innovation process. These IT functions have structured themselves so that they can identify and implement the technological and organizational innovations that create more value for the company.

Finally, and this is their biggest strength, these companies have broken through the first barrier in the utilization of the company's information capital. They have acknowledged the need for a style of management that encourages behaviors centered on collecting, sharing and updating information. They measure their performance using indicators that gauge the efficiency of their business processes. They have improved their ability to identify and promote managers and employees who have IT as well as operational skills.

The other companies' IT functions are at intermediate stages of evolution.

Two other levels of maturity have been identified in the study. The "Service Center" IT functions, which represent 39% of the global sample (44% in France), are characterized by a customer-provider relationship between the operational staff and IT, with the latter delivering IT services according to specifications defined with the business units. These IT functions use technological innovation as a lever to develop their capacity as a service provider.



At the least advanced stage, the "Technology Utility" IT functions represent 24% of the global sample (16% in France). These derive the main part of their value from good resource management. The study also demonstrates the existence of an evolutionary pathway by which the IT function progresses, step by step, from one stage of maturity to the next: from "Technology Utility" to "Service Center" and ultimately to the status of "Business Technology".

Value creation for the enterprise depends on integrated governance of information and information systems.

More than ever, it is essential for companies to look beyond the traditional IT management framework to take account of all the factors involved in the effective use of information. Making progress solely on the IT front will not produce the desired effects on corporate performance and will only aggravate the under-utilization of IT potential.

Current forms of IT governance must evolve to explicitly encompass information usage. CIOs must become the ambassadors of this reform.

In the present economic context, the CIOs who have developed their function's maturity stand out as the ones who are able to capture opportunities for their companies.

Budgets may have been reviewed downwards, but expectations continue to rise: 82% of private sector firms have been affected by an IT cost-cutting plan. However, unlike during the economic crisis of 2001-2002, CIOs are seizing the opportunity to underline the contribution that their function makes and to develop its maturity within the company.

The most mature IT functions – those with "Business Technology" status – have managed, despite optimizing their costs, to maintain investments in strategic priorities, through faster execution of the decisions taken, and a real ability to accelerate high-impact projects or initiate new projects to capture opportunities for the company.

At a time when many companies are extending and reinforcing their business model, they must also energize their information capital by leveraging their IT function: *information matters!*

Putting information to effective use: that, clearly, is the next big challenge for business.



Models for analyzing the usage-value of information and information systems

Studies carried out by CIGREF have defined a reference framework of IT practices that contribute towards a dynamic of IS-driven value creation. The "Information Orientation" model developed by IMD business school looks beyond the specific context of each company to evaluate its ability to use information as a performance lever.

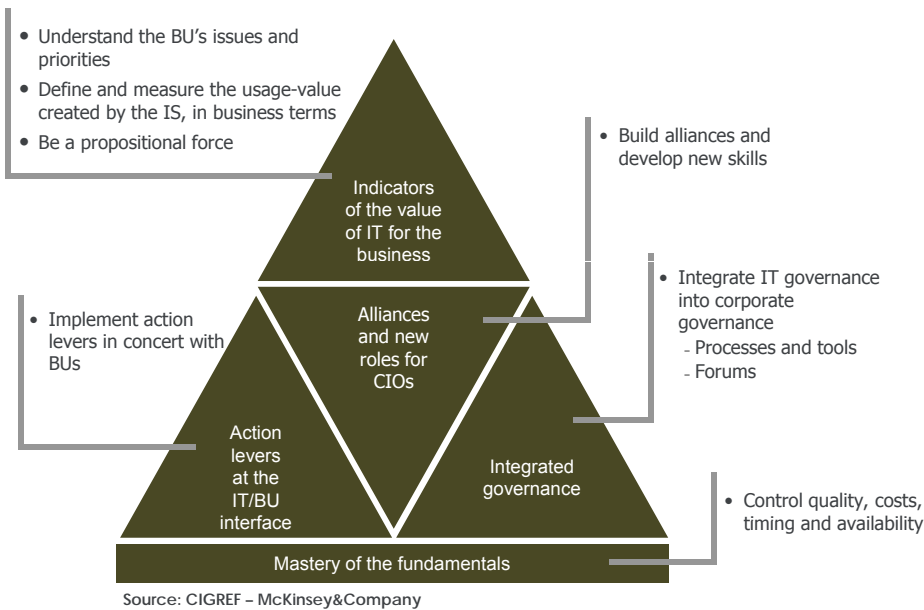
The dynamics of IS-driven value creation center around five domains of practice in the IT function

In 2002, CIGREF began a series of studies on how information systems are used to create value. In March 2008, it published "Dynamics of IS-driven value creation – A responsibility shared by the senior management of corporations". This report presented a reference framework developed by observing good practices in application within a group of eleven companies, from very different sectors, that are notable for the competitive advantage they derive from their information systems. It clearly established that the asset value of IT investments (hardware, software, and IT expertise) is one thing, but what really influences a company's performance is their "usage-value" or value-in-use. The reference framework put forward to understand the dynamics of IS-driven value creation identifies five domains of practice within the IT function (see diagram 1):

- Firstly, the IT function must be unimpeachable on the technical fundamentals, mastering quality, costs, lead times and availability.
- Secondly, the development of usage-value relies on action levers that lie at the interface between the IT function and the BUs, such as investment allocation, enterprise architecture, project control, process redesign or change management.
- Activating these levers calls for alliances between the CIO, the CEO and BU managers. In addition to these alliances, the CIO may be given a wider role in facilitating the management of such levers.
- The greater the strategic importance of the information system – i.e. the more potential value it has – the more it is integrated into the agenda of the executive committee, and IT governance becomes an integral part of corporate governance.
- Finally, the usage-value of the IS is more easily perceived when it integrates the goals and priorities of the company's business units and is expressed through business-specific performance indicators.



Figure 1 - Dynamics of IS-driven value creation: the reference framework of best practice



//
Beyond the asset value of IT investments (software, hardware and the know-how of IT personnel), it is their usage-value that truly influences enterprise performance. This usage-value is quantified by business indicators that will depend on the company's context and priorities: higher productivity, increased sales, and shorter cycle times."

**Renaud de Barbuat,
 Vice-President of CIGREF**

(From the press release for the CIGREF-McKinsey White Paper "Dynamics of IS-driven value creation", 2008)

IT practices reflect the positioning of the IT function

Against this context, we set out to calibrate the reference framework and produce an inventory of the current state of IT practices in the enterprise. To do so, we developed a questionnaire to assess – through face-to-face interviews with CIOs – the prevalence of practices corresponding to the five reference domains (for details on the methodology and the analytical tools implemented, see annex).

A company's IT practices partly reflect the positioning of the IT function with regard to the expectations of the BUs and central management.

For this reason, we asked the respondent CIOs to define the status of the IT function in their company, so that we could evaluate the company's practices in the light of that positioning.

And yet, as the 2008 report underlined, usage-value is not easy to characterize. It takes different contours depending on the prevailing context within the enterprise. Business priorities differ widely from one company to another, and the "usage-values" associated with information systems are therefore highly heterogeneous.

Moreover, the IT department cannot single-handedly generate usage-value from a set of IT practices, however good they may be. That responsibility is shared with the BUs and central management.

For a more rounded picture of IS-driven value creation and how companies can control it, we need an analytical model that looks beyond the priorities of individual firms and integrates the sharing of responsibility within management teams.

The “Information Orientation” model reveals a causal link between a company’s performance and its maturity in terms of information orientation

Following an ambitious program of “field” research – involving more than 1200 managers in more than 100 companies across 26 economic sectors and 40 countries – Professor Donald Marchand from the IMD in Lausanne, one of Europe’s top executive development institutes and business schools, has scientifically demonstrated a causal link between a company’s performance and its maturity with regard to its “information orientation” (IO).

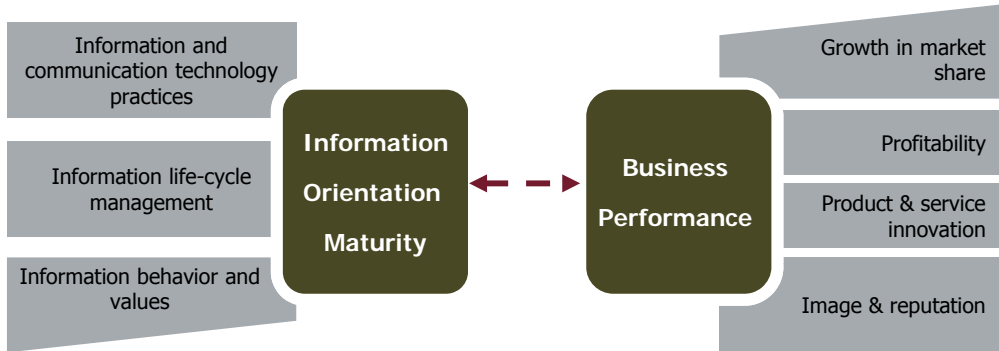
A companies’ IO maturity is determined by three disciplines:

- Information and communication technology practices;
- Information life cycle management;
- Information behaviors and values.

For research purposes, company performance was defined on the basis of a five-year analysis of a set of factors that represent longer-term potential as well as short-term performance:

- Growth in market share;
- Profitability;
- Innovation in products and services;
- Image and reputation.

Figure 2 - Relationships highlighted by the "Information Orientation" model



Source: Donald A. Marchand, William J. Kettinger and John D. Rollins, *Information Orientation – The Link to Business Performance*



The “Information Orientation” maturity model comprises three disciplines

More precisely, the “IO” maturity of a company centers on three sets of disciplines:

- Information and communication technology practices, corresponding to IT applications of increasing sophistication depending on the domain:
 - the operational domain, encompassing transactional systems and their control;
 - the horizontal process automation domain, where most ERP and CRM applications are deployed;
 - the applications that underpin the product and service development cycle;
 - and finally, the decision support systems used at top management level.
- Information life cycle management practices within the company, covering the information processing chain end-to-end, i.e.:
 - Collecting information on the basis of identified needs and available sources of information;
 - Organizing: the classification and indexing of the information collected;
 - Maintaining: ensuring that the information stored is updated at the appropriate periodicity;
 - Processing: covering access to, and analysis, of all relevant information;
 - Sensing: to identify new needs and capture new information-related opportunities.

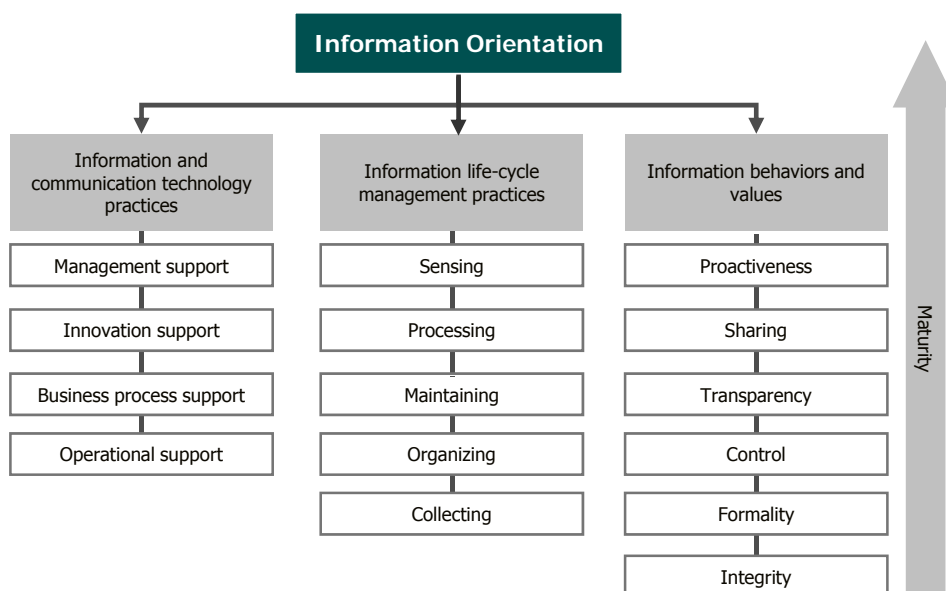


The research we conducted at IMD mobilized a ten-person team for almost three years. We tested its scientific validity on more than 300 managers of a major financial institution. To date, we have accumulated, in our benchmark database, results from more than 460 management teams – more than 3,400 managers – covering 27 economic sectors and 66 different countries.”

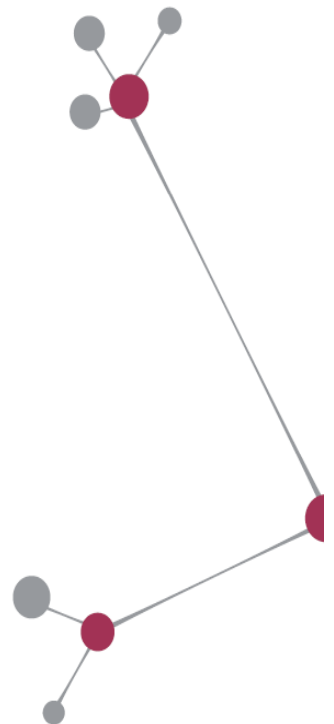
Professor Donald Marchand

- Information behaviors and values that contribute to the effective use of information within the company:
 - Integrity, aimed at preventing the manipulation of information (retention, production of erroneous information, etc.);
 - Formality, to improve the quality of – and trust in – “official” sources of information;
 - Control over the dissemination of information, as an effective lever for managing individual and overall performance;
 - Transparency, enabling the members of an organization to freely discuss their experiences, even negative ones, in order to learn as a group;
 - Sharing useful information within teams, between units of the same company, and outside the company, with customers and suppliers;
 - Proactiveness, looking for low-level signals that herald change, and instilling a sense of shared responsibility, for example, for the improvement of products and services.

Figure 3 - The IO maturity model



Source: Donald A. Marchand, William J. Kettinger and John D. Rollins. *Making the Invisible Visible: How Companies Win with the Right Information, People and IT.*



The maturity of IT function practices is determined by three types of clusters

The IT function evolves, along a logical path, through a series of cluster formations within the company that reflect the company's changing levels of IT maturity. This chapter also shows that the evolution of the IT function is independent of the company's economic sector.

Three types of IT functional "clusters" emerged from our segmentation of the CIOs' responses

To factor in the context of the IT function within the company, we asked every CIO to evaluate their company's IT function relative to the five typical profiles presented in the table below. Each CIO was asked to indicate the degree of correspondence with each profile, and the direction in which practices seemed to be heading.

Figure 4 - The five typical profiles of the IT function within the company

	Position of the IT function within the company	Asset value: illustration	Usage-value: illustration
IT function profile: "Utility"	The IT function has no particular profile, or does not exist as an identified function in the company	The IT assets are seen as a utility resource	The usage-value depends mainly on the cost providing services, and their availability
IT function profile: "Technological"	The IT function is a center of technological expertise that pushes technical solutions towards the BUs	The IT assets are seen as a technological tool, with responsibility for selecting the right tool being entrusted to experts	The usage-value derives from the business lever effect combined with the range of technological innovations proposed by the IT department
IT function profile: "Service Center"	The IT function is a service center, delivering solutions to the BUs in accordance with their specifications	The IT assets are perceived through the provision of associated services	The usage-value is the responsibility of the project owners, who express the business needs
IT function profile: "Business Partner"	The IT function is a key partner for the BUs and co-develops business services with them	The IT assets are a type of business asset in a category of their own	The usage-value is seen from the angle of business unit performance
IT function profile: "Core Business"	The IT function is one of the company's differentiating assets and is part of its core business expertise	The IT assets are part of the company's proprietary assets	The usage-value is seen from the angle of company performance

Source: CIGREF - Capgemini Consulting - Donald A. Marchand



Statistical analysis of the segmentation of the CIOs' responses pointed to three types of IT functional "clusters" (see diagram 5):

- For 24 % world-wide (16% in France), the IT function is strongly marked as "Utility" or "Technological", and to a lesser extent as "Service Center". We have called this the "Technology Utility" cluster;
- For 39% world-wide (44% in France), the IT function has distinct "Service Center" characteristics and to a lesser extent "Utility" and "Business Partner" characteristics. This what we call the "Service Center" cluster;
- Finally, for 37 % of CIOs world-wide (40% in France), the IT function is heavily centered on "Business Partner" and "Core Business" characteristics and moderately on "Service Center" characteristics. We call this the "Business Technology" cluster.

Figure 5 - The three clusters that determine IT function practices

		Type of cluster	Total CIOs 490	France CIOs 90
IT function: "Utility"	High	Technology Utility	24%	16%
IT function: "Technological"	High			
IT function: "Service Center"	Medium			
IT function: "Utility"	Medium	Service Center	39%	44%
IT function: "Service Center"	High			
IT function: "Business Partner"	Medium			
IT function: "Service Center"	Medium	Business Technology	37%	40%
IT function: "Business Partner"	High			
IT function: "Core Business"	High			

The IT function evolves, step by step, from one stage of maturity to the next

The CIOs' responses to the questions about the direction of change in their companies contain valuable insights into the interactions between the three types of cluster:

- The "Technology Utility" IT function aims above all to evolve towards a "Service Center" cluster;
- The "Service Center" IT function seeks to consolidate their "Business Partner" profile, thereby becoming a "Business Technology";
- The IT function "Business Technology" strives to reinforce their "Business Partner" and "Core Business" dimensions.

There is therefore a logical path of development by which the IT function evolves through a series of clusters within the company, which reflect the company's changing levels of IT maturity:

- The proposal power of the "Technological" role provides the lever that enables the IT function to break away from Utility status – a status not particularly conducive to value creation – as businesses come to value a degree of technological innovation, rather than simply low IT costs;



The launch of a pilot 2.0 collaborative platform was a turning-point: for first time, business managers clearly saw that IT could provide them with tools that enabled them to be more efficient."

The CIO of a global industrial group

- This purely technological value proposition then gives way to the provision of IT services in accordance with specifications defined conjointly with the BUs, and technological innovation becomes just one of the levers used by the IT function to develop its capacity to deliver services;



We reorganized our various development and production centers all over France: this allowed us to specialize some and to pool the capacities of the others. We gained in productivity as well as efficiency. Of course, we had to coach the BUs to stop calling up such and such a center directly, but the project owners were behind us, and were very helpful."

The CIO of a nationwide mutual insurance firm

- The positioning of the IT function as a Business Partner reflects an important shift in relations with the BUs, going outside the framework of the “customer-provider” relationship characteristic of the “Service Center” to attain a degree of equality and greater trust. The main purpose of the IT function is now to develop and improve business products and services, working alongside the BUs;



My domain managers, sometimes even my architects, participate directly in brainstorming sessions in the sales and marketing departments: they start out by discussing what they can do, and in what sort of timeframe, and only then do the management committees start looking at how to organize the financing.”

The CIO of a retail group

- Once the credibility of the IT function has been established as a partner to the BUs in its own right, the information systems are increasingly seen as strategic assets of the company, and become one of the components of the core business.



Following the successful rollout of our ERP platform and the standardized process architecture it supports, my CEO reckons we have achieved a level of agility in advance of our competitors. He raises certain organizational change issues with me, even before he mentions them to the business managers.”

The group CIO of a global consumer product corporation

This evolution in the status of the IT function is possible only if it is supported by the company management. As several CIOs pointed out to us, a change of CEO can mean a step back, if the newcomer does not share the experience or the vision of his or her predecessor.



The progression from one cluster to another is reflected by the change in IT practices

Across all of the domains of practice in the reference model published by CIGREF and McKinsey in 2008 (on the dynamics of IS-driven value creation), the level of deployment progresses significantly from "Technology Utility" cluster to "Service Center" cluster, and, even more so to the "Business Technology" cluster.

If we select, as an indicator, the percentage of CIOs describing the level of deployment as "regular" or "systematic", the IT functions with "Business Technology" status present the highest deployment level for 90% of the 87 practices listed in the questionnaire.

Below are some examples of the progression in practices, following the categorization used in the reference model (see page 8).



Figure 6 - Domain of practice: "Mastery of the fundamentals"
(% of CIOs who answered "Regularly" or "Systematically")

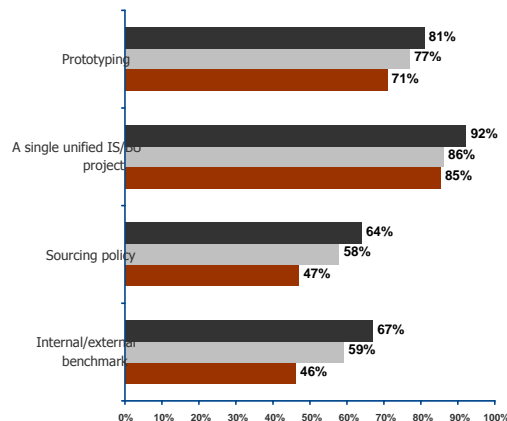
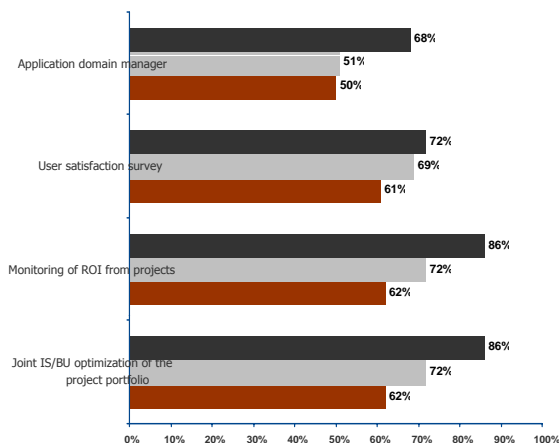


Figure 7 - Domain of practice: "Action levers at the IT/BU interface"
(% of CIOs who answered "Regularly" or "Systematically")



Business Technology
 Service Center
 Technology Utility



Figure 8 - Domain of practice: “Alliances and new roles for the CIO”
 (% of CIOs who answered “Regularly” or “Systematically”)

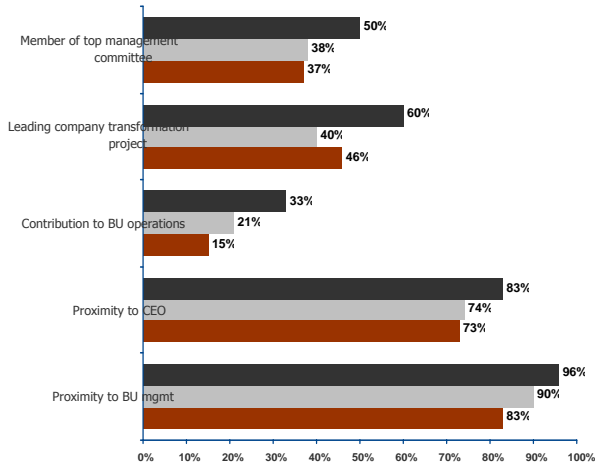


Figure 9 - Domain of practice: “Governance”
 (% of CIOs who answered “Regularly” or “Systematically”)

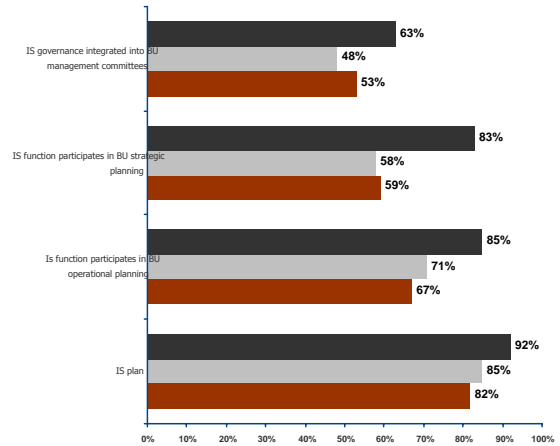
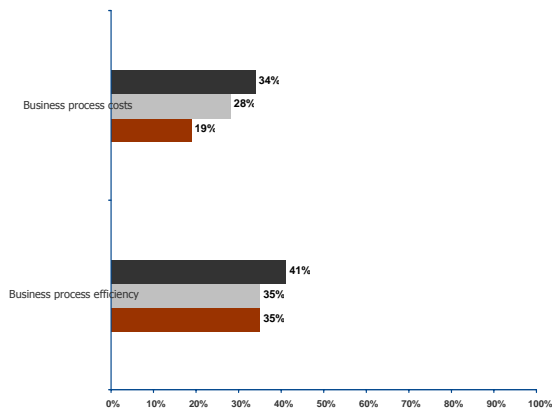


Figure 10 - Domain of practice: “Business performance indicators”
 (% of CIOs who answered “Regularly” or “Systematically”)



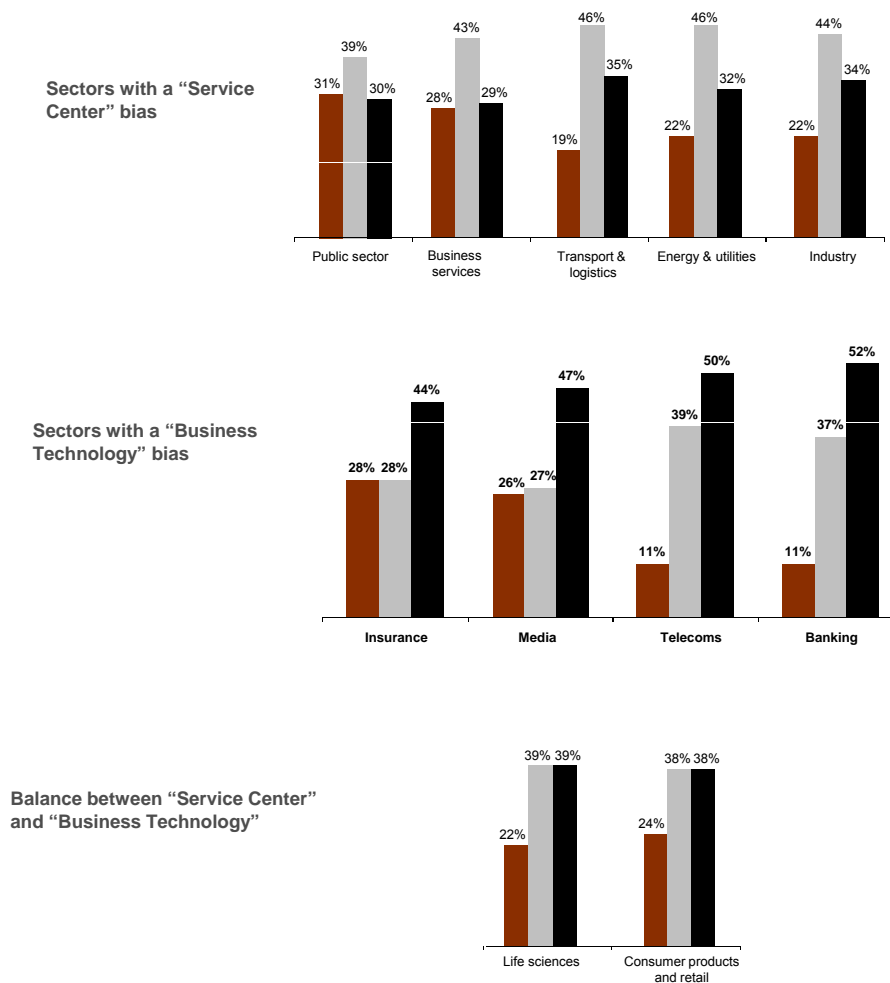
“When we became an independent company, the newly appointed CEO was quick to realize that the information system was key for operational excellence and for the development of new services. And when we grew rapidly through a series of acquisitions, I quickly become one of the circle of managers involved well upstream of any potential deal.”
The CIO of a logistics and distribution company

Business Technology
 Service Center
 Technology Utility

The industry sector is not a barrier to the IT function’s evolution

Our sector analysis shows that economic context in which a company operates is not an obstacle to the IT function developing into a business partner. The “Business Technology” cluster is not restricted to those sectors where information is the company’s basic raw material.

Figure 11 - Sector analysis of IT function clusters



Business Technology
 Service Center
 Technology Utility

IT joint ventures: the archetypal "Service Center"?

Although the way that IT joint ventures operate puts them, almost by definition, in the "Service Center" bracket, our analysis of the ten French "Economic Interest Groups" (GIEs) that took part in the study suggests that evolution is possible: while 60% do indeed correspond to the Service Center cluster, 20% fit into the "Technology Utility" category and the other 20% into the "Business Technology" category. Being organized as an IT joint venture allows the IT function to adopt Business Partner status.

Is the project ownership / project management model still relevant?

Discussions with French CIOs revealed widespread questioning of France's "MOA-MOE" (project owner/project manager) model for a variety of reasons:

- The difficulty of generalizing the model to international companies;
- The difficulty of developing a critical mass of project ownership expertise when dealing with highly distributed business structures;
- The movement towards the project management side of business process expertise, as operations become increasingly IT-intensive;
- Incompatibility with "agile" project management approaches;
- The search for greater efficiency by reducing the overlapping of responsibility between BUs, project owners, and project managers.

This questioning usually culminates in project ownership know-how being incorporated into the IT department, while the roles and responsibilities are reallocated between the BUs and IT. At the same time, the whole "project owner/project manager" vocabulary is frequently abandoned.

For many CIOs, this change is an essential pre-condition for establishing a partner relationship with the BUs.

For more details about the rethinking of the "MOE-MOA" model, CIGREF published a report on IT-BU relations in 2009 (French only):

www.cigref.fr

Information usage: uncharted territory

There is an established correlation between the maturity of the IT function in terms of IT practices and the ability of the company to take advantage of its information. Companies are faced with a real need to transform if they are to develop their capacity for using information to create value.

More than 120 CIOs responded spontaneously to the IO online questionnaire, enabling us to diagnose the IO maturity™ of their companies on the basis of their answers.

From the total of 490 CIOs who participated in face-to-face interviews based on the IT practices questionnaire, this subset of 123 CIOs who subsequently took part in the IO on-line survey is a representative cross-section both in terms of IT functional status ("Technology Utility", "Service Center" or "Business Technology") and in terms of industry sector (for details, see annex).

The results of the IO diagnostic™ confirm the evolution of IT functional clusters

The results of the IO diagnostic™ show not only that the "Technology Utility", "Service Center" and "Business Technology" clusters represent a natural chain of progression for IT practices (as we saw in Chapter 2), but also that this progression is reflected in terms of IO maturity, and therefore in terms of value creation through information usage.

The IO analysis reveals that the IO level of the "Business Technology" cluster is very good, whereas that of the "Service Center" cluster is average, and that of the "Technology Utility" cluster weak.



The IO maturity diagnostic™ is based on a comparative scale (relative to the relevant benchmark), using the following grid:

<i>Top 5% = Excellent</i>	<i>Below 50% = Average (-)</i>
<i>Top 20% = Very good</i>	<i>Bottom 35% = Weak</i>
<i>Top 35% = Good</i>	<i>Bottom 20% = Very weak</i>
<i>Above 50% = Average (+)</i>	<i>Bottom 5% = Insufficient</i>

Figure 12 - Overall result of the IO maturity analysis
(Representative sample of 123 CIOs)

IO discipline	Technology Utility	Service Center	Business Technology
Information and communication technologies	AVERAGE (-)	GOOD	VERY GOOD
Information life cycle management	WEAK	AVERAGE (+)	VERY GOOD
Information behavior and values	VERY WEAK	WEAK	GOOD
IO maturity	WEAK	AVERAGE (+)	VERY GOOD

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There is, therefore, a clearly established correlation between the level of maturity of the IT function in terms of IT practices and the ability of the company to take advantage of its information.

The results of the IO diagnostic™ also teach us something else: CIOs consider their company to be more mature in areas directly related to the IT function than in its ability to manage the information life-cycle or (especially) information behaviors and values efficiently.

// *Business managers find it difficult to step back and analyze the role and position of the information system in their activities. At the IT department, we often get the impression that we don't understand how requests emerge from the BUs and how they get passed on to us."*
The CIO of an energy sector company

The IO disciplines:

“Information and communication technologies”

When it comes to assessing the intrinsic performance of information systems at every level (operational support, cross-functional processes, etc.), the CIOs are fairly confident, even if those whose IT function is positioned as a “Technology Utility” underline the difficulty of running an effective information system, except for business process support, notably with ERP applications.

// *Our ERP was implemented with particular care and attention by the BUs. We’d heard so much about “ERP projects from hell” that the CEO really piled the pressure on the BUs; but it’s not always like that.”*
The CIO of an industrial firm

Figure 13 - Result of IO maturity analysis for the discipline: “Information and communication technologies”
 (Representative sample of 123 CIOs)

Information and communication technologies	Technology Utility	Service Center	Business Technology
Operational support	WEAK	VERY GOOD	VERY GOOD
Business process support	AVERAGE (+)	GOOD	VERY GOOD
Innovation support	WEAK	GOOD	GOOD
Management support	AVERAGE (-)	GOOD	VERY GOOD

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“Information life cycle management”

The results of the IO diagnostic™ are more nuanced with regard to information life cycle management. Once again, traditional IT-function responsibilities such as collecting and organizing information are seen as better managed than those directly linked to the use of information by the BUs. And as before, the “Technology Utility” cluster seems to bear the brunt of the difficulties encountered in managing the information life cycle.

// *Reference databases are a constant topic of debate with the front-line services. If we let them have their way, they’d duplicate all the structures in order to go faster.”*
The CIO of a public sector organization

Figure 14 - Result of IO maturity analysis for the discipline: “information life cycle management”
 (Representative sample of 123 CIOs)

Information life cycle management	Technology Utility	Service Center	Business Technology
Collecting	AVERAGE (-)	GOOD	VERY GOOD
Organizing	AVERAGE (-)	GOOD	VERY GOOD
Maintaining	WEAK	AVERAGE (-)	VERY GOOD
Processing	VERY WEAK	AVERAGE (-)	GOOD
Sensing	WEAK	AVERAGE (+)	GOOD

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“Information behaviors and values”

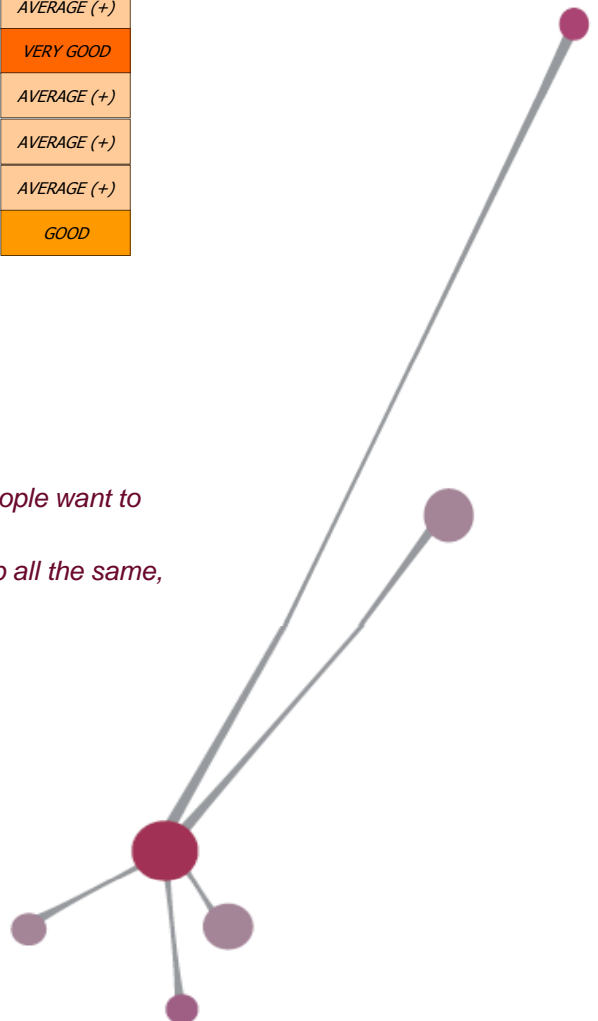
With the exception of “Business Technology” clusters, the CIOs describe as “weak” or even “very weak” their company’s degree of maturity in information behaviors and values. Even when information is available and accurate, it is frequently not shared.

Figure 15 - Result of IO maturity analysis for the discipline:
 “Information behavior and values”
 (Representative sample of 123 CIOs)

Information behavior and values	Technology Utility	Service Center	Business Technology
Integrity	VERY WEAK	WEAK	AVERAGE (+)
Formality	AVERAGE (-)	AVERAGE (+)	VERY GOOD
Control	VERY WEAK	AVERAGE (-)	AVERAGE (+)
Transparency	WEAK	AVERAGE (-)	AVERAGE (+)
Sharing	VERY WEAK	WEAK	AVERAGE (+)
Proactiveness	WEAK	AVERAGE (-)	GOOD

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“
 Do we talk about ‘information value’? First of all, people want to know what we’ve got in stock!
 Nobody’s interested. But I try to bring the subject up all the same, from the risk and security angle.”
 The CIO of a service company



The IT function must build the notion of information usage into IT governance, and lay down the foundations for an IT/BU dialogue on information usage

We asked Professor Donald Marchand to sketch an outline of what the different IO maturity levels would look like for each of the clusters.

Figure 16 - Outline of IO maturity for the different clusters

	Technology Utility	Service Center	Business Technology
Information and communication technologies	The systems provided are not used efficiently; management does not promote the development of IT beyond the coverage of operational needs.	Coverage and level of IT support are acceptable at every level.	Strong IT support at every level. Support for innovation appears somewhat weaker, but this is also an area where the system impact is at its weakest.
Information life cycle management	Users and management pay little heed to information as a business asset.	Good level of information collection and organization, but weak understanding of the real utility of the information.	Mastery of the entire information processing chain. The main question is: how can we go further in proactively looking for information in order to make a difference ?
Information behaviors and values	The basic information behaviors lack maturity.	Users are sensitive to the potential value of information; they trust in the utility of formal sources of information, and back them up with informal sources, but don't know how to move forward from here.	The organization is aware of – and looks for – business impacts derived from the effective use of information. There is still real room for progress, especially on "soft" aspects

Companies are therefore faced with a real need to transform in order to develop their ability to create value through the use of information. What many CIOs so often say is borne out here: the potential of information systems is under-utilized in business.

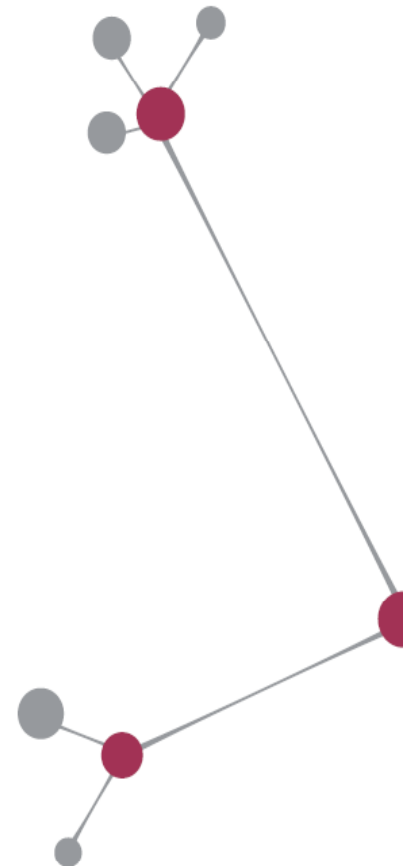
This transformation cannot be brought about by changing the information system. It is not about the information system: it is about information. The IT and business departments must get together and think about how to build a set of information-usage practices that draw on the levers available to the IT function and also on the organizational and managerial levers that only the BUs can currently bring to bear on the users: awareness building and training, motivation and incentives, control and reward.

The IT function must build the notion of information usage into IT governance, and lay down the foundations for an IT/BU dialogue on information usage by, for example, producing statistics on application usage profiles, setting up post-mortem reviews on the business impact of IT projects, or organizing competitive analysis of IT issues.

“

We installed probes on the workstations, to track usage profiles. We had been working on the basis of what users told us; we discovered that the reality was very different.”

The CIO of a financial institution



Industrialization, innovation, usage: highly differentiated practices

The study shows that information system industrialization is widespread, while innovation levers are less widely implemented, and those relating to the use of information and information systems even less so. Therein lies the challenge facing businesses.

Observation of the deployment of IT practices, for all of the clusters, reveals a strong distinction between:

- The practices related to the industrialization of the IT function, which are by and large mature (deployment rate greater above 60%);
- A set of practices related to innovation, which are developing (deployment rate between 30 and 60%);
- Practices relating to information usage, which are thin on the ground and still at the emerging stage (deployment rate below 30%).



IT functions are substantially industrialized

Industrialization is at the root of mature IT practices, and CIOs see it as the cornerstone of the IT function.

Our study shows that industrialization applies within the IT function and at the interface with the business units. 93% make use of the performance indicator “IS infrastructure uptime” and 93% also use the indicator “business application uptime”. Some 68% of IT functions have defined a service level agreement for each service, and 78% constantly monitor “SLA compliance”.

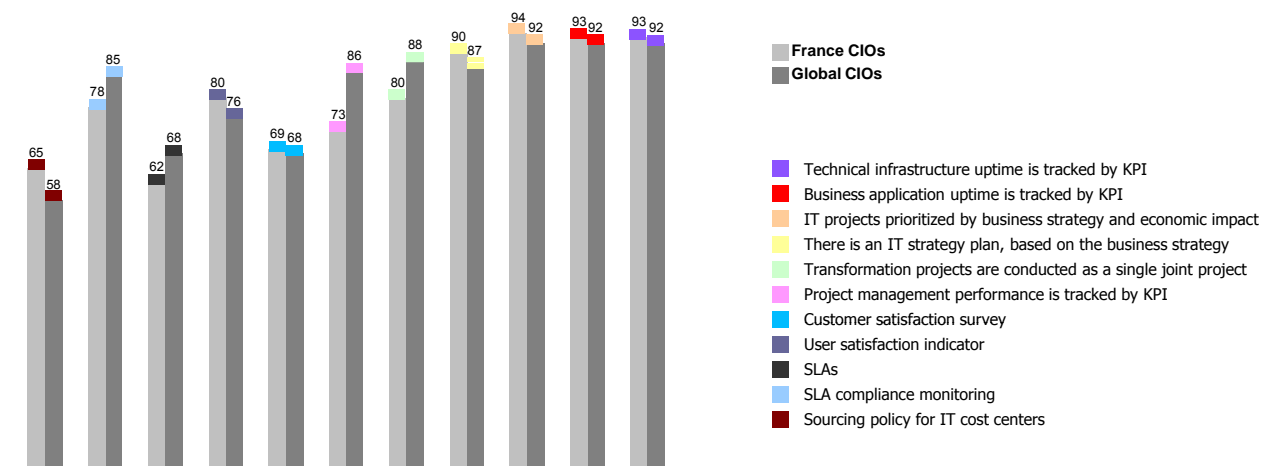
Project portfolio management and project implementation are now well organized, and balanced out between the IT function and the business actors. For example, 74% of project portfolios are optimized through consultation between the IT function and the BUs, and 90% of IT projects are ranked in order of priority on the basis of strategy and estimated economic impact.

It also emerges from our study that 59% of IT functions set a level of return on investment at the start of each project and update it regularly throughout the duration. Moreover, 88% of “business transformation” projects that include a large IT component are conducted as a joint project by the BU and the IT function.

Finally, user satisfaction is measured both quantitatively and qualitatively, by means of satisfaction surveys in 69% of cases, and performance indicators in 76% of cases.

“*Before we can begin to challenge the business units, we have to be beyond reproach ourselves! The last external audit was just what we needed: it showed that we were the best organized function in the group and that our processes were ‘industrial’.***”**
The CIO of a consumer goods company

Figure 17 - Scale of maturity in industrialization of IT practices (%)

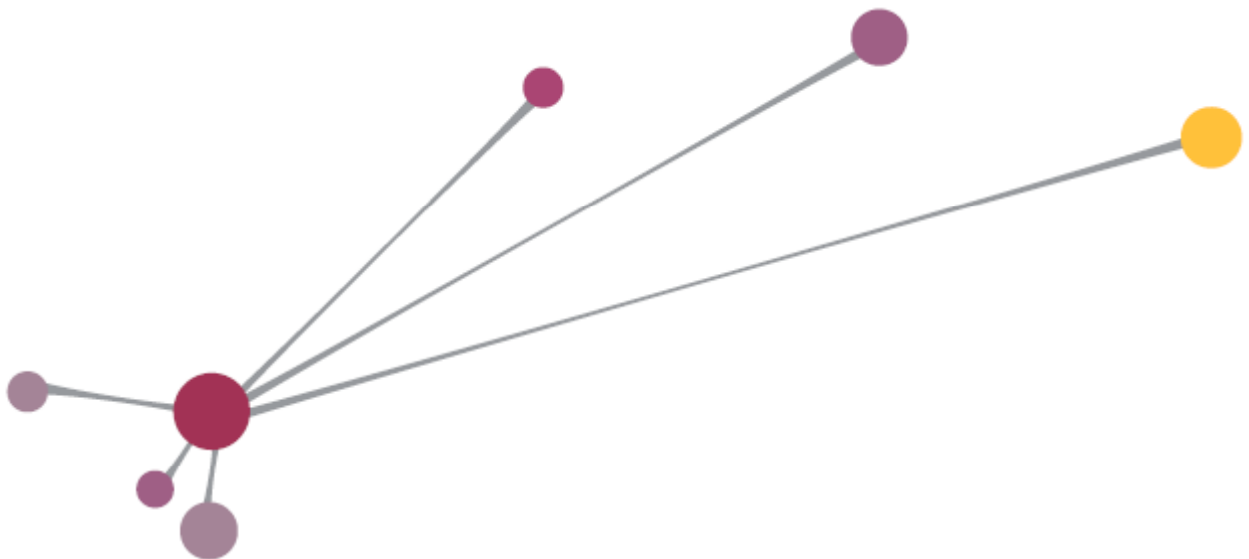


The IO analysis provides confirmation: for the respondent CIOs, industrialization is at the root of an IT function and is a *sine qua non*. Most feel that their company is well equipped with information and communication technology tools, and well advanced in the deployment of its information systems. They consider that the IS and the applications provide effective support for their operational decisions and communication processes.

Figure 18 - Level of maturity in industrialization, as established by the IO analysis

Production support	Good
Business process support	Good
Management support	Good
Process integration with suppliers	Good
Collecting and organizing information	Good
Analysis and decision support tools	Good
Avoidance of informational redundancy	Good
Trust in formal sources of information	Good

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IT functions are making progress on innovation

Almost 60% of companies integrate IT potential into the business innovation process.

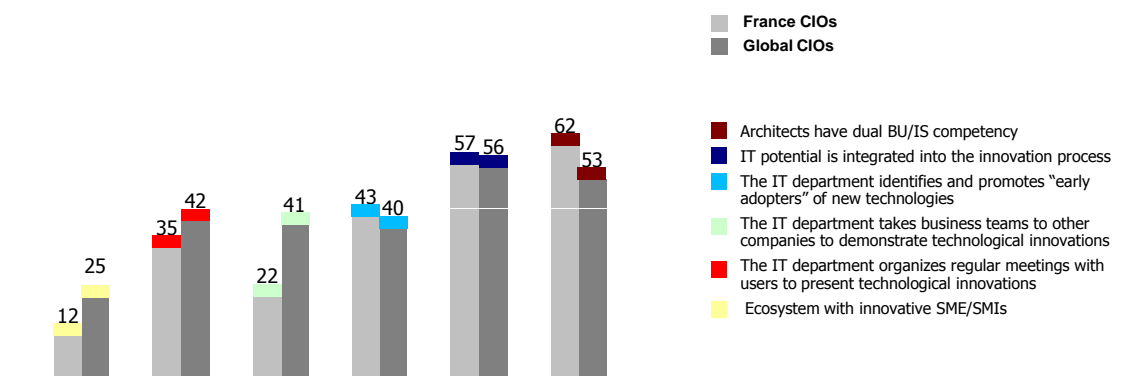
48% of IT functions have set up a technology innovation watch and 41% of IT teams organize contacts with business users to present the latest technological advances.

Many firms take full advantage of innovations coming from outside the company; for example, 41% of IT teams organize visits to other companies in order to demonstrate the value of new technologies to business users.

48% of IT functions monitor new technological innovations and 26% of companies have a specific IT R&D department. IT functions are becoming well organized and better equipped to find technological innovations that can create additional value for business.

“Even if we are competitors, we have a European forum where we share experiences in cutting-edge areas, such as augmented reality. It’s a very useful source when preparing for a management committee.”
The CIO of an industrial company

Figure 19 - Stated maturity level for certain innovation questions (%)



The results of the IO maturity analysis show that all of the respondent CIOs rank the spread of innovation practices in their company slightly above average.

They estimate at above 50% their company’s ability to search and find information on business threats and opportunities, as well as their capacity to use the information to react quickly to changes in their competitive environment. They ascribe a similar rating to its ability to formalize informal sources of information and its aptitude for promoting and communicating new ideas. But the majority also agree in giving a below 50% grade to the company’s ability to appreciate the potential for using new information to resolve problems.

Although companies are aware of the potential benefits of rapid access to accurate and relevant information, and are starting to think about how to formalize this latent information capital to make it more accessible, they still need to bring about a step change in behaviors if they are going to increase the collective capacity for innovation.

Figure 20 - IO maturity analysis of the IT function’s capacity for innovation

Valuing the potential of using new information to solve problems	Average (-)
Seeking information on competitive opportunities and threats	Average (+)
Exploring new ways to acquire and use information to do their jobs better	Average (+)
Fostering and communicating new ideas	Average (+)
Looking for opportunities to use information to respond quickly to changes in the competitive environment	Average (+)
Formalizing informal sources of information	Average (+)

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We worked with HR to persuade the CEO to let us set up a Wiki and a collaborative work space. It took a while to get going, but when it did, even we were astonished at some of the insights users came out with!"

The CIO of a retail sector company

The usage-value of information: a vast reservoir of untapped potential

The usage-value of information remains uncharted territory that is best explored by means of quantitative indicators. Currently only 37% of IT functions use the indicator “business process efficiency”.

The first pre-condition is that the IT function and the BUs improve their capacity to identify and promote “bilingual” managers and employees – meaning those with both IT and business competencies. Teams that are at home in both disciplines will be better able to mine the possibilities for extracting value from information usage.

Our study shows that 26% of companies include the ability to use business applications in their employee performance evaluation criteria.

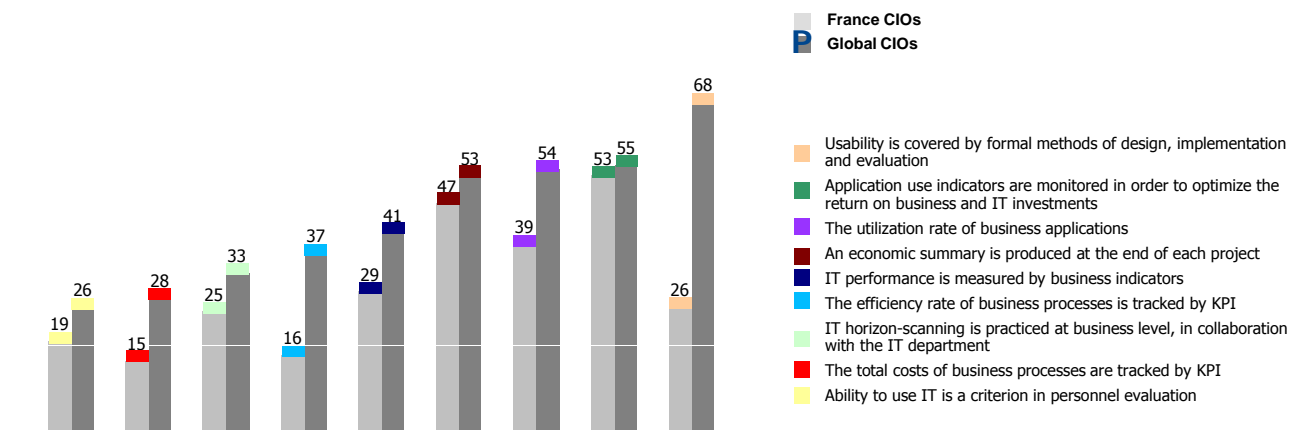
Significantly, perhaps, in only 17% of companies is the IT function a stepping-stone for promotion to senior management positions.



People don't become IT/business bilingual by chance. It's something they build up by taking the right career paths. The trick is not to lose them for good when the business side offers them possibilities for promotion.”

The CIO of a financial institution

Figure 21 - IO maturity analysis of certain aspects of information usage (%)



We introduced the European Computer Driving License for administrative staff using office applications. It's a start.”

The CIO of an industrial company

// *Mobile workers don't have the same attitude outside the company as they do inside. Outside, they can't be bothered about security rules; but inside, you have to explain to them why they should be sharing information with other departments."*
The CIO of a service-sector company

Moreover, the usage-value of information received the lowest rating (below average) in the IO maturity analysis of information usage practices. Employees are neither trained, nor motivated, nor even encouraged to collect, use and update information; the CIOs consequently have a low assessment of their understanding of how valuable information can be and how it should be used.

The CIOs feel that the personnel in their company do not know how to put information to good use, and that there is a real need for management disciplines designed to promote behaviors that foster the sharing, and intelligent use, of information. Most companies do not know how to promote transparency in the use of information and do not have measures in place to prevent information being manufactured retrospectively to justify decisions.

Figure 22 - IO maturity analysis of the IT function with regard to information usage

Promoting openness in effective information use	Average (-)
Training employees to keep information up to date	Average (-)
Sharing information across functional boundaries, e.g. sales and manufacturing	Average (-)
Preparing people to actively seek new information	Average (-)
Valuing the potential of using information to solve problems	Average (-)
Understanding what constitutes appropriate uses of information	Average (-)
Avoiding the fabrication of information to justify decisions	Average (-)

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Job description: "IT Usage Manager"

(example from a retail firm - a member of CIGREF)

An initiative in information usage: the creation of a post of "IT Usage Manager", reporting directly to the CIO.

Objectives:

- To promote knowledge and correct use of the different IT solutions made available to all Group personnel by the IT department.
- To develop and support the use of information sharing tools (intranet, extranet, collaborative work space, messaging) within the Group.
- To handle the IT department's internal and external communications, in coordination with the Group's Communication Director.

Missions:

- To implement, or oversee the implementation of, the necessary change management actions for each IT project.
- To evaluate the change management effort required for each project, in coordination with the project team.
- To define the action plan and ensure its implementation with all other contributors (BU management, HR, project team).

Goal: To make sure users have all the information they need in order to be ready for the new solution.

In 2009, some two thirds of the companies covered by the study opted for an IT cost reduction plan. Fewer than half of the CIOs see use of information, and use of the IS, as a lever for improving the company's competitive position.

// *We had some unused internal capacity, due to certain projects being rescheduled, so we took the opportunity to see if we could bring some areas, where we weren't satisfied with the outside service provision, back in-house: namely the help desk and the maintenance of certain applications. The pre-studies are conclusive, so we're going ahead with it."*

The CIO of an industrial company

// *I didn't have to go and negotiate the envelope for reducing our IT costs. It was the business managers who went to see the Financial Director and suggested he cut the marketing budget instead so that we could carry on financing our current IT projects."*

The CIO of a consumer goods firm

The crisis has set "Business Technology" function CIOs apart from the rest

On the subject of value creation through the use of information systems, it is worth taking a closer look at the context in 2009 in order to understand how the IT function contributed to the company's efforts: by reducing costs or increasing value?

More than the status of the IT function, the company's industry sector was the determining factor in setting up an IT cost-cutting plan in 2009. Fewer than 50% of public sector organizations were concerned, compared with 82% of private sector enterprises. The average, for the firms in our study, comes out at 70%.

These cost reduction plans made use of five main levers:

- Reviewing supplier contracts (a key lever for 68% of CIOs);
- Reviewing the project portfolio to accelerate high business-impact projects and prioritize projects with a quick return on investment (55%);
- Outsourcing certain services (45%);
- Reorganizing and automating the IT function (42%);
- Reviewing the service catalogue and SLAs (30%).

For 17% of the CIOs, the reintegration of certain outsourced services was also a major lever.

Once again, IT functions with a "Business Technology" cluster stand out on several scores:

- Rapidity in implementing decisions;
- Moderation in cost reduction targets;
- Ability to accelerate high-impact projects and to launch new projects to capture business opportunities embedded in the context.

In contrast to the economic crisis of 2001-2002, more than two out of three CIOs see the recent recession as an opportunity to get closer to the BUs and improve the way they work together.

CIOs' perception of information as a lever for competitive advantage remains weak

Few CIOs think that the use of information and information systems in their company can help improve its competitive position.

Figure 23 - Perception of information as a lever of competitive advantage by CIOs

Ability to use the levers...	Technology Utility	Service Center	Business Technology
Operational information	AVERAGE (-)	AVERAGE (-)	AVERAGE (+)
Competitive information	WEAK	AVERAGE (+)	AVERAGE (+)
Customer information	VERY WEAK	WEAK	AVERAGE (+)
Resulting competitive prospects	WEAK	WEAK	AVERAGE (+)

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More than 6 out of 10 CIOs feel that the value created in their companies through the use of information and information systems is insufficient. Only those whose IT function has "Business Technology" status believe that the use of information and information systems represents a competitive advantage for their companies.

//

Our competitors have slowed down much more than us. I know because I just recruited one of their project managers. He could hardly believe it when he first saw our project portfolio for 2010."

The CIO of a financial institution

The detailed IO analysis yields valuable insights into how CIOs perceive their companies' strengths and weaknesses with regard to information usage.

As stated earlier (page 22), the IO maturity diagnostic™ is based on a comparative scale (relative to the relevant benchmark), using the following grid:

Figure 24 - CIOs' perceptions of the maturity levels of their companies with regard to information usage

<i>Top 5% = Excellent</i>	<i>Below 50% = Average (-)</i> <i>Bottom 35% = Weak</i> <i>Bottom 20% = Very weak</i> <i>Bottom 5% = Insufficient</i>
<i>Top 20% = Very good</i>	
<i>Top 35% = Good</i>	
<i>Above 50% = Average (+)</i>	
<i>Below 50% = Average (-)</i>	

Operational information	Technology Utility	Service Center	Business Technology
Monitoring information about the company's business processes to cut costs and reduce cycle times	WEAK	WEAK	AVERAGE (+)
Delegating decision making to the lowest levels possible in the company by delivering the right information at the right time	AVERAGE (-)	AVERAGE (-)	AVERAGE (-)
Allowing people to work more effectively in groups by using information to coordinate activities and people	AVERAGE (-)	AVERAGE (-)	AVERAGE (+)
Reducing the need for the physical movement of people, projects, and facilities by using information to coordinate activities and people	AVERAGE (+)	AVERAGE (-)	AVERAGE (+)
Exploiting network-based coordination and monitoring to take full advantage of outsourcing opportunities	AVERAGE (-)	AVERAGE (-)	AVERAGE (+)

Competitive information	Technology Utility	Service Center	Business Technology
Pre-empting the movements of competitors	WEAK	AVERAGE (-)	AVERAGE (+)
Leveraging information to ensure partner loyalty	WEAK	AVERAGE (+)	GOOD
Using information to select and control suppliers	AVERAGE (+)	AVERAGE (+)	GOOD
Exploiting information received from customers and partners to win new markets or operate more efficiently	WEAK	AVERAGE (+)	AVERAGE (+)
Using information to streamline the supply chain and eliminate middlemen	WEAK	AVERAGE (+)	AVERAGE (+)
Gaining access to competitive information that is not available to competitors	WEAK	AVERAGE (-)	WEAK

Customer information	Technology Utility	Service Center	Business Technology
Detailing customers' needs in order to offer customized products and services	WEAK	WEAK	AVERAGE (+)
Engaging in two-way information exchanges with customers to better understand their purchasing behavior	VERY WEAK	WEAK	AVERAGE (+)
Providing information to differentiate products and services	VERY WEAK	VERY WEAK	AVERAGE (-)
Pushing information to customers to encourage consumption of the company's products/services and to offer incentives for moving them to new products and services	VERY WEAK	WEAK	GOOD
Linking customers in after-sales information exchanges to help increase customer loyalty	VERY WEAK	WEAK	GOOD
Gaining access to customer information that is not available to competitors	WEAK	VERY WEAK	WEAK

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Beyond presenting the table of the different maturity levels here, it would be rash to speculate about underlying causes. Only an in-situ analysis at each company can define which courses of actions should be considered.



The performance objectives for developing web 2.0 applications or implementing Product Lifecycle Management (PLM) systems demand great fluidity and integrity of shared information both within the company and with its external customers and partners. Only those companies whose teams have attained a level of IO maturity will be able to fully benefit from these new ways of working. It's what I call Knowledge Leadership, i.e. management in the digital age."

Professor Donald Marchand

Using information to create value: the CIO must take charge of the initiative and develop it within the company

The results of our study demonstrate that, if one accepts the causal link between a company's IO maturity level and its business performance, then it is an economic necessity for managers to evolve their IT functional practices. The companies that have made the greatest progress in IS-driven value creation are precisely those which are most capable of creating value through information usage. But only 4 out of 10 companies demonstrate such a capability.

More than ever, it is essential for companies to look beyond the traditional IT management framework to take account of all the factors involved in the efficient use of information. Making progress solely on the IT front will not produce the desired effects and will only aggravate the under-utilization of IT potential. Even companies at the leading edge of IS-driven value creation have plenty of margin for progress in the promotion and monitoring of effective information use.

Current forms of IT governance must evolve to explicitly encompass information usage. CIOs must become the ambassadors of this reform: the opportunity for them, perhaps, to become directors not only of information systems, but of information *and* systems.

At a time when many companies are rethinking their business model, they should also take time to review the model of their IT function, because now it's official: *information matters!*

Participating companies and organizations

Business Services

- Adecco Spain
- Amadeus
- APG
- Bureau Veritas
- CARE Schadeservice
- CRV BV
- De Post
- Descours et Cabaud
- Fast Search & Transfer
- Invivo
- Loyalty Partners Solutions GmbH
- Mayer Brown
- OSEO
- RoyalFrieslandCampina
- SAP AG
- Securitas
- Sick AG

Consumer Products & Retail

- Ahold
- Akzo Nobel
- Beiersdorf Shared Services GmbH
- Cadbury
- Canon Europe
- Carrefour
- Chanel
- Coop
- CORA
- Damm
- Danone
- Del Monte
- Essilor
- Felleskjøpet Agri
- Foster's Group
- Fressnapf Tiernahrungs GmbH
- Gerolsteiner Brunnen GmbH&Co.KG
- GO Sport
- Groupe BEL
- Gruppo Bacardi & Martini
- ICA AB
- Japan Tobacco International (UK)
- La compagnie des Alpes
- Les Mousquetaires
- L'Oréal
- LVMH
- Mahou-San Miguel
- Marico Limited
- Mars
- Maxeda
- Metro AG
- Midelfart Sonesson
- Nestlé Nederland BV
- Office Depot
- Onninen
- Pernod Ricard
- Pioneer
- Rexel
- SABMiller Europe
- Schuitema
- Scotts
- Seur
- Swedish Match Nordic
- he Carphone Warehouse Group
- The Phone House
- Titan Industries
- United Breweries Limited

Energy & Utilities

- ACEA S.p.a.
- Acergy
- Agder Energi
- Alpiq Ltd
- Anonima Petroli Italiana S.p.a.
- Areva
- Arkema
- Baker Hughes
- BKK
- Bruce Power
- Caltex
- Cepsa
- Covanta
- EDF
- EDF DCO DPP
- Edison S.p.a.
- Elia
- Enagas
- Eneco Energie
- ENEL S.p.a.
- Energy Future Holdings
- ENI s.p.a.
- E.ON (UK)
- ERDF
- Fluxys
- Gaz de France
- Göteborg Energi AB
- Hafslund
- Integrys
- LDE
- Media-Saturn-Holding GmbH
- Neste Oil
- NiSource
- NTE
- Oil and Natural gas Corporation
- Limited
- OMV AG
- Ontario Power Generation
- Poweo
- Reliance Infrastructure Ltd.
- Rhodia
- Schlumberger Ltd.
- Sibelga
- SPE Luminus
- Statkraft
- StatoilHydro E&R
- TenneT
- Upstreamofmajor energy company (BP) Vattenfall
- Vattenfall Europe AG
- Veolia Eau
- Véolia Environnement

Banking

- ADAC e.V.
- Adeslas
- Agrupació Mutua
- Aktiv Kapital
- Allianz
- Allianz AG
- Asisa
- Axa
- AXA France
- Banca Popolare di Milano
- Bancaja
- Banco de España

- Banca Popolare di Verona
- Banco Popular
- Bank Gospodarki ywnościowej S.A.
- Bankadati - Services Company of Gruppo Credito Valtellinese S.p.a
- Caisse d'Epargne
- Caja de Ávila
- Caja de Guadalajara
- CFF
- Credit Agricole Group Belgium
- De Lage Landen
- Deutsche Bausparkasse Badenia AG
- Dexia Bank Belgium
- Euroclear SA
- GE Money Bank
- GE Money Bank a.s.
- GE Money Bank GmbH
- GE.SI.ass.
- Generali
- Generali Business Solutions S.p.a
- Genworth Financials
- GMF
- Handelsbanken
- HDFC Bank Limited
- Humley Insurance
- ICICI Bank
- If
- ING Belgium
- International Card Services
- Intesa San Paolo S.p.a.
- KAS Bank
- KBC Group
- Komerční Banka
- La Banque Postale
- Länsförsäkringar
- Liberty Seguros
- Línea Directa Aseguradora
- London Metal Exchange
- MAIF
- Mapfre
- Max New York Life Insurance Company Ltd.
- Mazars
- Mutua Pelayo
- Nordea
- OAMPS Insurance Brokers
- PGGM
- R+V Versicherung AG
- Raiffeisenbank a.s.
- Sanitas
- SBI Life Insurance Company Limited
- SCOR
- SegurCaixa holding
- SI2M
- Siemens Financial Services GmbH
- Skandia Retail
- Société Générale - Bque de détail France
- Sparebank1 Midt-Norge
- Sparebank1 Skadeforsikring
- Superpartners
- Swedbank
- Teller
- UVIT
- Volksbank Slovensko, a.s.
- Westfarmers Insurances
- WestLB AG

- Westpac
- Zürich Financial Services AG

Industry

- ABB
- Aditya Birla Group
- Aker Solutions
- Alenia Aeronautica
- Arc International
- Arcelor
- ArcelorMittal
- ASML
- Avebe
- Bayer MaterialScience AG
- BCD Travel
- Beam
- BENNET
- Benteler AG
- Bluestar Silicones International
- Canberra
- Cargill BV
- Celanese
- CSM
- DCNS
- Deutsche Amphibolin-Werke
- Draka Holding NV
- Elis
- Eramet
- Ericsson AB
- Famosa
- Fedrigoni Cartiere S.p.a.
- Freescale
- Fujifilm Europe
- Getinge
- GI Group S.p.a.
- GMR Group
- Goldsmith Seeds (Syngenta)
- Goodrich
- Grupo Cementos PortlandValderribas
- Gruppo BREMBO
- H.C. Starck GmbH
- Hero Honda Motors Limited
- Holden (General Motors)
- Honda Siel Cars India Ltd.,
- Kemira
- Lafarge
- Lanxess Pte. Ltd.
- Luigi Lavazza S.p.a.
- Manpower
- Maruti Suzuki India Limited
- Metrovacesa
- Michelin
- NCC
- NCC Roads
- Nexans
- Nexter Group
- Norsk Hydro
- Norske Skog
- Nortura
- NXP Semiconductors
- Outokumpu
- Paccar Europe
- Porsche Deutschland GmbH
- PosteVita Gruppo Poste Italiane
- Renault
- Renault Trucks
- RIELLO S.p.a.

- Rockwell Automation
- Sandvik
- Sandvik Mining and Construction Australia
- Siemens Audiologische Technik GmbH
- Siemens Industrial Solutions and Services
- SKF
- Stora Enso AB
- Süd Chemie AG
- Syngenta
- Temple-Inland
- Textron
- Torras Papel
- Vinci
- Volvo Bussar
- Volvo Cars
- Volvo Trucks
- Wabco

Public Sector

- Academisch Medisch Centrum
- ACOSS
- Adif
- AENA
- AGIRC ARCCO
- Airport Authority of India
- Ajuntament de Barcelona
- Alfa-College
- Amphia Ziekenhuis
- Australian Department of Agriculture, Fisheries and Forestry
- Australian Department of Veterans Affairs
- Australian Tax Office
- Banque de France
- Bayerisches Staatsministerium der Finanzen
- Brønnøysundregistrene
- Bundesministerium der Justiz
- Bundesministerium des Innern
- Bundesministerium für Verkehr, Bau und Stadtentwicklung
- Bundespräsidialamt
- Business Link Pty Ltd
- Caisse des dépôts
- Catharina Ziekenhuis
- CenITex
- Centraal Bureau voor de Statistiek
- CGAP
- Cnaf
- CNP
- Crown Prosecution Service
- CTTI (Centre de Telecomunicacions i Technologies de la informació)
- Departament de Salut (Generalitat de Catalunya)
- Departamento de Informática (Agencia Estatal de la Administración Tributaria)
- Department for Children, Schools and Families
- Department of Education and Training

- Deutscher Wetterdienst
- DGA
- DGME
- Dienst Justitiële Inrichtingen
- Domstolsadministrasjonen
- Environment Climate Change and Water
- Etelä-Karjalan sosiaali- ja terveystieteiden tutkimuskeskus
- Europese Commissie
- EXPO 2015 S.p.a.
- Ferrocarriles de la Generalitat de Catalunya
- Freie und Hansestadt Hamburg
- Gemeente Amsterdam
- Gemeente Breda
- General Teach Council for England (GTCE)
- Göteborgs Stad
- Government of New South Wales
- Gruppo FERROVIE DELLO STATO
- Helse Vest
- Her Majesty's Revenue and Customs (HMRC)
- Immigratie- en Naturalisatiedienst
- India Post, Department of Posts
- INRIA
- Istituto Poligrafico Zecca dello Stato
- International Olympic Committee
- Interprovinciaal overleg
- Ipe de Bruggen
- Kadaster
- Kuntien eläkevakuutus
- La Poste
- Land Berlin
- Land Hessen
- Landstinget Gävleborg
- Lånkassen
- Lantmäteriet
- Learning and Skills Council
- Leibniz-Rechenzentrum
- Leids Universitair Medisch Centrum
- MINEFI
- Ministère de la Défense
- Ministerie van Binnenlandse Zaken en Koninkrijksrelaties
- Ministerie van Buitenlandse Zaken
- Ministerie van Economische Zaken
- Ministerie van Landbouw, Natuur en Voedselkwaliteit
- Ministerie van Onderwijs, Cultuur en Wetenschap
- Ministerie van Verkeer en Waterstaat
- Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer
- Ministerio de Defensa
- Ministerio de Industria, Turismo y Comercio
- Ministerio de Justicia
- Ministerio de la Presidencia
- Ministerio dell' Interno
- Ministry of Justice
- Ministry of Transport and Water
- MSA

- National Offender Management Service (Ministry of Justice)
- NAV
- NSW Attorney General's Department
- NSW Office of State Revenue
- NSW Services Technology and Administration
- Octrooi Centrum Nederland
- Office for Standards in Education, Children's Services and Skills (Ofsted)
- Openbaar Ministerie
- Österreichisches Patentamt
- Oulun kaupunki
- Parnassia Bavo Groep
- Pôle Emploi
- Politidirektoratet
- Politie Amsterdam Amstelland
- Power Finance Corporation Limited
- Puolustusministeriö
- RATP
- Region Skåne
- RFF
- Rikspolisstyrelsen
- RSI
- Sächsisches Staatsministerium des Innern
- SENASA
- SINTEF
- Skatteetaten
- Skatteverket
- Skyguide
- SPK
- Statens Vegvesen
- Statistisches Bundesamt
- Stichting Rivierduinen
- Stockholm Stad
- Stockholms Läns Landsting SLL
- TAD
- Tampereen kaupunki
- Transport for London (TfL)
- Tullihallitus
- Universitair Medisch Centrum Utrecht
- Västra Götalandsregionen VGR
- Vereniging van Nederlandse Gemeenten
- Ville de Grenoble
- Voorziening tot Samenwerking Politie Nederland
- West Sussex County Council

Telecoms, Media & Entertainment

- Arris
- Canal +
- Club Med
- COLT
- Corporation RTVE
- Dagens Nyheter
- EMI UK
- Eurodisney
- Euskaltel
- France Télévision
- Hub Telecom
- Hutchison 3G Austria GmbH

- Il SOLE 24 ORE
- Mc Graw-Hill
- Multi Screen Media Private Limited (Sony Entertainment Television)
- NetCom
- Orange UK
- Radio France
- R-Cable
- Scholastic At Home Inc
- SEAT Pagine Gialle S.p.a.
- Swets
- TDF
- Telecinco
- Telenor
- Viacom
- Vonage
- Westwood One

Tourism, Transport & Travel

- Aéroports de Paris
- Air France KLM
- ASF
- De Lijn
- Deutsche Lufthansa AG
- DHL Leimur Logistics Pvt. Ltd.
- Geodis
- GVK Mumbai International Airport Ltd
- Jernbaneverket
- Leif Höegh & Co
- NH Hoteles
- Norbert Dentressangle
- NSB
- Posten Norge AS
- Qantas
- SAS
- SJ
- SNCM
- TNT Post
- Vopak
- WMS

Pharma & Life Sciences

- Actelion AG
- Amerisource Bergen Specialities
- AstraZeneca
- Bayer Healthcare AG
- Capiro
- Covance
- Eli Lilly
- EMD Serono
- McKesson
- Medical Action Industries
- Meril
- Sanofi Pasteur
- Sanofi Pasteur MSD
- Sanofi Pasteur R&D
- Sanofi-Aventis
- Sartorius AG
- Shering Plough
- Shire
- Smith & Nephew
- UCB
- Urgo

Methodology and tools employed

For the purposes of this project, designed to evaluate the level of value created by the use of information and of information systems across very diverse sectors, we deployed two analytical tools:

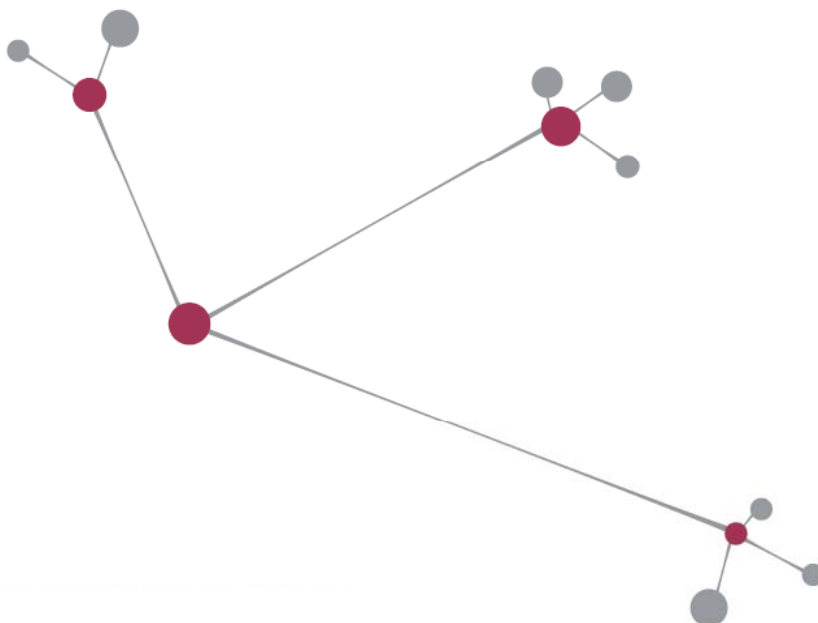
- A questionnaire, developed specifically for this study, which was completed in the course of 490 face-to-face interviews with CIOs in companies from 14 different countries. This enabled us to define the status of the IT function within each company and how it was seen to be evolving. We were then able to check the degree of maturity of the practices applied in the 5 domains of the IT practice reference model.
- An online diagnostic tool for assessing Information Orientation maturity, developed by Professor Donald Marchand from the IMD in Lausanne, Switzerland. Designed to evaluate an organization's capacity to create value through the use of information, this tool has demonstrated its effectiveness around the world.

By combining these two instruments, we were able to compare and statistically cross-correlate the answers on information usage and information value obtained from the respondent group of CIOs. This was an unprecedented exercise.

//

It is very rare, in a study, to be able to deploy two analytical tools on the same population."

Professor Donald Marchand



Face-to-face IT questionnaire

Between June and October 2009 principals and vice presidents from Capgemini Consulting conducted 490 face-to-face interviews with CIOs from 14 countries and a broad range of industries. Each interview, which lasted approximately one hour, involved the completion of a detailed questionnaire designed to shed light on the ability of each respondent's company to derive business value from the use of its information systems. The results were analyzed using SAS statistical software (see About SAS).

Each interview explored the respondent's IT practices over the five reference domains (fundamentals, action levers at the interface between IT and BU, CIOs' roles and alliances, IT governance, IT performance indicators). These domains of practice were identified in 2008 by CIGREF, following a collaboration with McKinsey & Company , as being the main levers for generating a value-creation dynamic driven by the company's information system.

Depending on the nature of each domain, the CIOs assessed the level of deployment of a set of individual practices on the following scale:

- Not practiced
- Occasionally
- Regularly
- Systematically.

Figure 25 - Breakdown of interviews per industry

	N° of companies	%
Public Sector	123	25%
Manufacturing	77	17%
Energy & Utilities	50	11%
Banking	46	10%
Consumer Products and Retail	45	10%
Insurance	39	8%
Pharma & Life Sciences	23	5%
Media and Entertainment	19	4%
Telecoms	18	4%
Business Services	14	3%
Tourism, Transport and Travel	12	3%

Figure 26 - Breakdown of interviews by region

	N° of interviews	%
France	90	18%
Netherlands	63	13%
Germany / Switzerland	45	9%
Spain	42	9%
Norway	38	8%
Italy	37	8%
North America	37	8%
Sweden	37	8%
India	20	4%
UK	20	4%
Australia	19	4%
Austria / Eastern Europe	17	3%
Belgium	11	2%
Finland	10	2%



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IO maturity diagnostic™

In order to validate the findings of the IT questionnaire and delve deeper into the importance of usage value, we conducted a second analysis using the Information Orientation (IO) maturity framework.

Of the 490 CIOs completing the face-to-face questionnaire, 123 subsequently completed the online IO diagnostic™ developed by Professor Donald Marchand. The profiles of this subset correlated very closely with the total cohort as regards industry sector and IT functional status.

Professor Marchand analyzed the results of the IO diagnostic™ recorded in the enterpriseIQ® international benchmark database, and conducted several workshops with the Capgemini Consulting team to interpret the data.

Figure 27 - The IO Maturity Diagnostic™ model



The CIOs who took part in the IO survey are a representative sample in terms of segmentation and economic sector

From the total cohort of 490 CIOs who participated in face-to-face interviews based on the IT practices questionnaire, the subset of 123 CIOs who subsequently took part in the IO online survey is a representative cross-section both in terms of IT function cluster – “Technology Utility” (24% for the overall sample, 22% for the IO subset), “Service Center” (39% vs. 40%) or “Business Technology” (37% vs. 38%) – and in terms of industry sector, as can be seen from the table below:

Figure 28 - Homogeneous breakdown of respondents by economic sector

	Total CIOs (490)	CIOs completing the IO questionnaire (123)	
Public Sector	25 %	26 %	- 1
Manufacturing	17 %	20 %	+ 3
Energy & Utilities	11 %	7 %	- 4
Banking	10 %	7 %	- 3
Consumer Products & Retail	10 %	11 %	+ 1
Insurance	8 %	6 %	- 2
Pharma & Life Sciences	5 %	6 %	+ 1
Media & Entertainment	4 %	3 %	- 1
Telecoms	4 %	4 %	-
Business Services	3 %	4 %	+ 1
Tourism, Transport & Travel	3 %	6 %	+ 3

Figure 29 - Homogeneous breakdown of respondents by IT function type

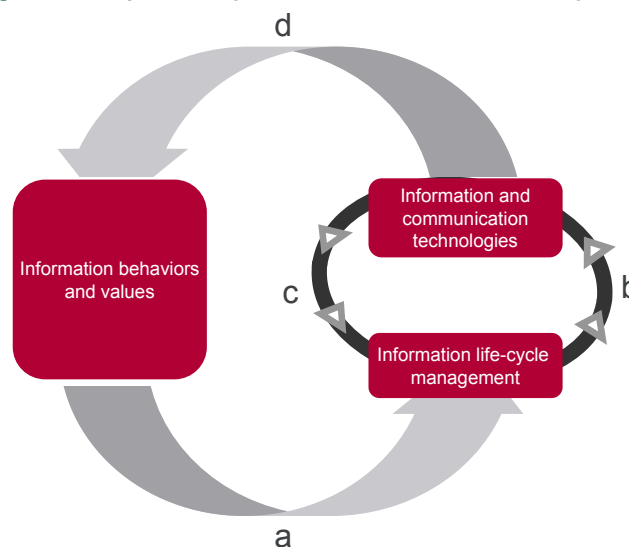
	Total CIOs (490)	CIOs completing IO questionnaire (123)
Technology Utility	24%	22%
Service Center	39%	40%
Business Technology	37%	38%

The IO model reveals the dynamic that leads companies to acquire greater maturity in the use of information

The research behind the development of the IO model also revealed the dynamic that leads companies to acquire greater maturity in the use of information:

- In this model, each discipline includes a range of practices that correspond to an upwards evolution in terms of maturity and performance. Thus, in principle, the presence of systems that provide effective support for cross-functional business processes pre-supposes that effective transactional systems are also in place. Likewise, official sources of information cannot be formalized and used effectively unless the users have faith in the integrity of the information they receive.
- These elements of virtuous interaction within the same discipline also apply across the different disciplines. Good information behaviors and values reinforce (a) the virtuous circle (b,c) that exists between information life cycle management practices and information and communication technology practices. Meanwhile, implementing effective information systems reinforces the company's problem-solving and decision-making capacity, which in turn has a positive influence (d) on information behaviors and values.

Figure 30 - A dynamic of positive interaction between disciplines



Source: Donald A. Marchand, William J. Kettinger and John D. Rollins. Information Orientation: The Link to Business Performance.

- A company cannot, therefore, make progress in one discipline independently of the others. It must move forward on all three disciplines at once, following a logical line of progression within each one, and between them all.

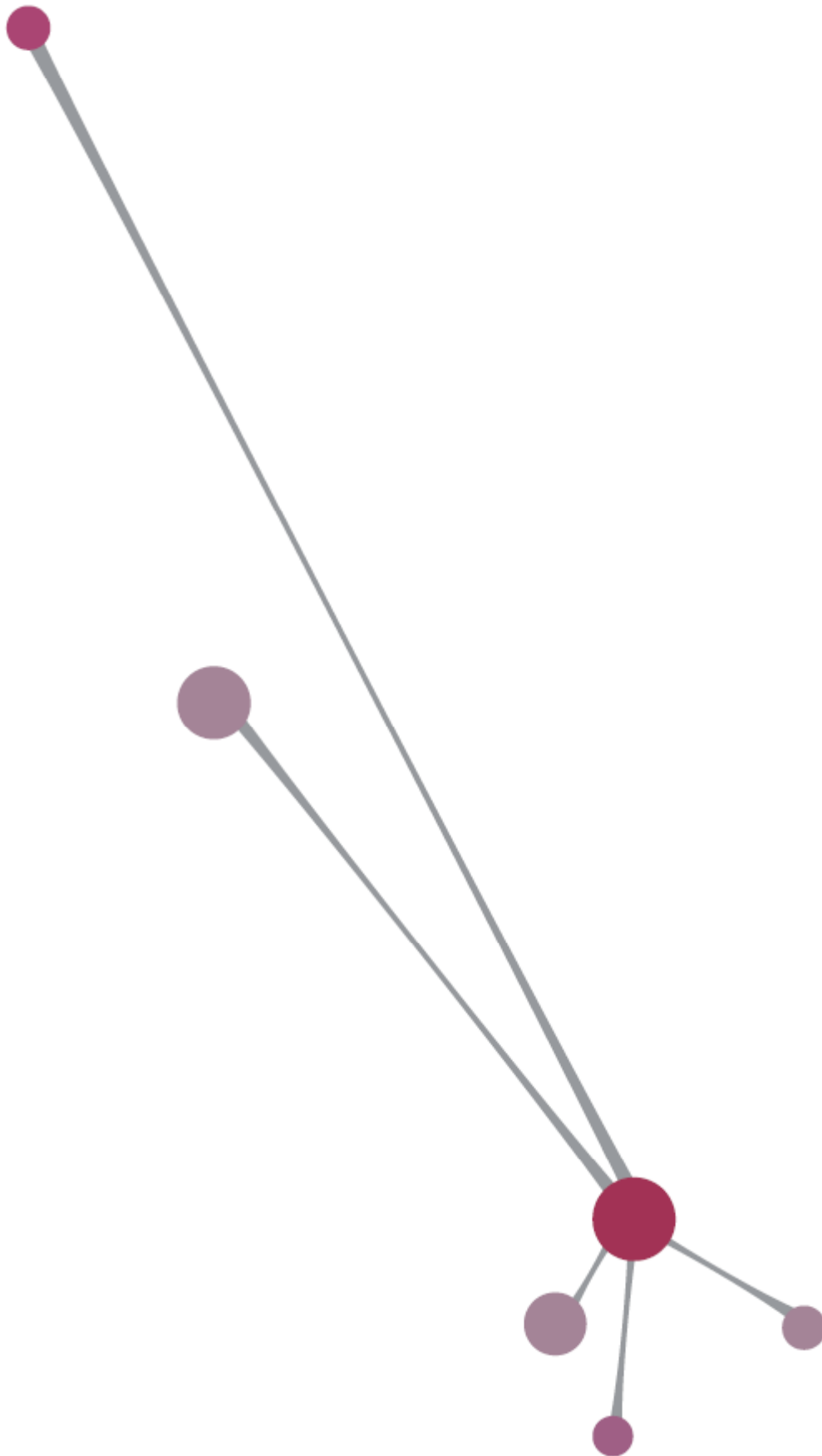
This research enabled the IMD, through the intermediary of a spin-off, enterpriseIQ, to develop a toolbox for evaluating and analyzing the IO maturity of organizations. This particularly involved compiling a benchmark database and developing a diagnostic tool, in order to produce an IO evaluation based on an online questionnaire, which was used by the respondent CIOs for the needs of this study.

enterpriseIQ[®] is the first global business analytics company offering proven metrics that link superior performance to how effectively a company manages and uses knowledge, information, people and technology.

The Information Orientation (IO) maturity metric was developed during a four-year research project conducted at IMD International, one of Europe's leading business schools, based in Lausanne, Switzerland.

enterpriseIQ[®] was established as a spin-off of the IMD research project in response to demand from companies wanting to use the metric to leverage knowledge and information for competitive advantage.

For more details: www.enterpriseIQ.com



Thanks

CIGREF's part in this study was overseen by a Steering Committee comprising:

- Pascal Buffard (sponsor) - Director of Transversal Operations, Axa France
- Bruno Brocheton - Vice President Information Systems, Euro Disney
- Régis Delayat - CIO, SCOR
- Georges Epinette - Managing Director STIME – DOSI, Mousquetaires Group
- Maurice Kouby - Group CIO, Société Générale
- Bruno Ménard - Vice-President Information Systems, Sanofi-Aventis
- Daniel Urbani - CIO, Pôle Emploi

Jean-François Pépin, General Delegate, Sophie Bouteiller, Florence Dietsch and Stéphane Rouhier, *Chargés de mission*, helped to ensure the smooth running of the study.

We would also like to thank the CIOs who not only participated in the interviews but also re-read and commented on earlier versions of this report.

For Capgemini Consulting, the study was overseen by an Editorial Committee consisting of Patrick Ferraris, Xavier Hochet, Olivier Sevillea and Mark Porter.

The Project Team was Cyril François, Eric Monnoyer, Sandra Lagrue, Donald Marchand, Joyce Marchand, Robin Psomas and Adnane Habib-Allah.

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