Research Article

Key information technology and management issues 2011–2012: an international study

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Abstract
The importance of the impact of IT for organizations around the world, especially in light of a very slow recovery from the global financial crisis, has amplified the need to provide a better understanding of the specific geographic similarities and differences of IT managerial and technical trends. Going beyond identifying these influential factors is also the need to understand the considerations for addressing them in light of recognizing the respective local characteristics, especially when operating in a globally linked environment, although somehow heavily influenced locally. By comparing and contrasting IT trends from different geographies, this paper presents important local and international factors (e.g., management concerns, influential technologies, budgets/spending, organizational considerations) necessary to prepare IT leaders for the challenges that await them. It can also serve as an indicator as the respective geographies evolve from the economic conundrum. The research is based on data from four geographic regions (United States (US), Europe, Asia, and Latin America). The same questionnaire (although translated for the respective respondents), based on the lead authors well-respected and long-running Society for Information Management survey, was applied across the geographies. This paper presents the major findings based on survey responses from 620 respondents (275 US, 100 European, 59 Asian, and 186 Latin) in mid-2011. The top five management concerns were: (1) IT and business alignment; (2) business agility and speed to market; (3) business process management and business process reengineering; (4) business productivity and cost reduction; (5) IT reliability and efficiency. The five most influential technologies were: (1) business intelligence; (2) enterprise resource planning systems; (3) cloud computing; (4) mobile and wireless applications; (5) customer relationship management.
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Introduction

The Society for Information Management (SIM) has been conducting a survey of senior IT executives since 1980, to help IT and business leaders understand and prepare for important issues and trends. There are a number of IT trends described by survey results reported in the literature, but most are either specific to a certain industry, such as IT (Herlihy and Ptak, 1997) and airlines (Airline Business, 2009), or concentrate on a specific aspect of an industry, such as IT

salaries (Ziff Davis Enterprise, 2011). There have been a limited number of surveys covering various aspects of the IT industry (Herlihy and Ptak, 1997; O'Toole, 2003; Ziff Davis Enterprise, 2011; Airline Business, 2009; Baker, 2006), most with limited geographic reach (Li *et al.*, 2005; Li *et al.*, 2010). The SIM survey remains one of the longest running surveys covering various aspects of IT industry.

Organizations around the world have used the findings of the previous SIM surveys as a barometer to prepare for the future, although the annual SIM survey, before last year, has been based on survey responses just from organizations located in the United States (US).

The recognition of the global reach of IT, especially in light of the impact of the global financial crisis, has amplified the necessity to obtain responses from organizations around the globe to understand similarities and difference across geographies. Hence, since 2010 the same survey was conducted in three major geographies outside of the US, namely, Europe, Asia, and Latin America.

This paper presents the major insights gained from this year's survey in Europe, Asia (including Australia), Latin America, and the US; the same geographies covered in our last year's study (Luftman and Derksen, 2011). This paper is based on responses from IT executives representing over 620 organizations (see Table 1 and Table 2 for participant geographies and demographics).

While the findings from the US (with some minor comparison with Europe and Asia/Australia) have been published in the December 2011 issue of *MISQ Executive*, this paper, using an updated set of data from other geographies, includes the major insights gained from Europe, Asia, and Latin America, and uses the overall global responses as the benchmark for comparison purposes.

Research methodology

In the summer of 2011, a survey of senior IT executives from over 600 respondents located in the US, Europe, Asia (plus Australia), and Latin America was conducted. Table 1 provides a breakdown of respondents based on their geography and Table 2 provides a breakdown of the respondents by industry. While the December 2011 issue of *MISQ Executive* presented the US data in detail, this paper focuses on analyzing the geographies outside of the US. Additional methodological information is provided in the Appendix.

Table 1 Percentage of respondents by geography

Geography	Total
US	275
Western Europe	100
South East Asia (including Australia)	59
Latin America	186
Total	620

Table 2 Percentage of respondents by industry

Industry classification	Percentage				
	Global (%)	US (%)	Europe (%)	Asia (%)	Latin America (%)
Manufacturing/process	16.61	15	30	11.10	13.54
Finance/banking/insurance	13.77	16	13	5.60	13.49
IT	13.26	14	11	33.30	7
Construction/utilities/engineering	3.15	3	8	5.60	
Government	6.51	3	6		14.03
Consulting	11.01	9	5	5.60	19
Pharmaceutical/health care	7.46	15	5		
Transportation	1.25	1	5		
Wholesale/retail/distribution	4.53	4	4		7.05
Publishing	0.93	1	3		
Real estate/legal	1.37	2	3		
Travel, tourism	0.48		3		
Chemicals	0.32		2		
Network communications	0.53			5.60	
Entertainment/sports	0.60	1	1		
Marketing	0.69		1	5.60	
Education	85.69	7		16.70	2.7
Research and development (R&D)	1.33	3			
External service provider/data processing services	1.42	2		5.60	
Executive placement/search aerospace	0.89	2			
Mining	2.31			5.60	5.92
Food/agriculture/fishery	1.13				3.78
Trade	0.49				1.62
Other	1.30				4.32

The four categories focused on in the 2011 survey were:

(1) Top IT Management Concerns.
(2) Top Application and Technology Investments.
(3) IT Budget Allocation.
(4) IT Organizational Considerations.

Participants were asked to rate the importance of 39 managerial concerns, 52 application and technology investments, budgetary considerations, staffing and remuneration matters, and 18 organizational considerations.

The top 10 management concerns across the geographies were aggregated to provide the global top 10 management concerns. The global top 10 management concerns along with the respective ranking for each of the items in the various geographies are presented in Table 3. These concerns are elaborated on throughout this paper.

Similarly, the top five applications and technologies were aggregated to provide a list of the global top five applications and technologies. The global list, as well as the corresponding ranking for each of the technologies in various geographies, is presented in Table 4 and elaborated on in this paper.

Top 10 IT management concerns

The top 10 management concerns tend to evolve slowly except for concerns such as IT cost reduction, which appear to be directly related to each region's short-term economic performance. Despite the prevailing global economic conditions, management concerns such as IT and business alignment, and business agility and speed to market are both globally and locally the consistent top three management concerns.

Interestingly, IT cost reduction is increasing in importance within Europe while it is decreasing in all other geographies. This can be a result of the current economic turmoil that has hit Europe harshly. A second reason is the budget

Table 3 Top IT management concerns

	Global	*US*	*Europe*	*Asia*	*Latin America*
IT and business alignment	1	1	1	6	2
Business agility and speed to market	2	2	1	2	3
BPM and BPR	3	3	4	1	1
Business productivity and cost reduction	4	4	2	5	4
IT reliability and efficiency	5	6	3	3	5
IT strategic planning	6	5	7	4	6
Security and privacy	7	8	8	8	7
EA/infrastructure capability	8	7	10	7	11
Revenue generating IT innovations	9	9	16	16	8
Project management	10	11	14	13	10
Change management	11	12	9	10	14
IT cost reduction	12	10	5	12	20
Knowledge management	13	15	11	15	12
CIO leadership role	14	14	15	10	13
IT organization design	15	16	13	18	9
Globalization	16	13	18	18	16
IT human resource considerations	17	17	20	8	15
Outsourcing/vendor management	18	18	12	14	18
Prioritization process	19	14	21	17	21
Sourcing decisions	20	19	17	16	17

Table 4 Top application and technology development

	Global	*US*	*Europe*	*Asia*	*Latin America*
BI	1	1	1	2	2
ERP systems	2	3	2	7	1
Cloud computing	3	2	8	1	5
Mobile and wireless applications	4	4	5	7	8
CRM	5	5	3	3	10
Virtualization	6	7	7	17	4
BPM systems	7	3	5	3	17
Collaborative and workflow tools	8	8	3	24	16
Continuity planning/disaster recovery	9	14	10	12	10
Software as a service (SaaS, PaaS)	10	6	9	29	32

control focus of the Western European organizations, which are well represented in the European part of the survey. Countries such as Germany and the Netherlands are focused on IT costs rather than return on IT investments. Almost 27% of their IT managers report to the financial Director/CFO and a large amount of CEO's have a financial background as well. Finally, this is also related to a higher percentage of outsourced/offshored IT (see IT budget later).

IT and business alignment

Alignment of IT and business remains an ultimate but elusive goal, and it has increased its global ranking from the 2nd place last year (Luftman and Derksen, 2011) to the top spot this year. In all of the geographies, IT and business alignment ranks in the top 10 management concerns; ranking 1st in the US and Europe, 2nd in Latin America, and 6th in Asia. IT and business alignment has maintained or improved its ranking in all geographies except in Asia, where business productivity and business agility have pushed it from the 3rd place in 2010 to 6th in 2011.

IT and business leaders continue to see IT as an integral driver/enabler of efficiency/effectiveness throughout the business, and therefore focus on initiatives that enhance the maturity of alignment between IT and business. For instance, since the economic transformation of the 1990s in Latin America, IT and business alignment has become a primary focus for corporations and government organizations in the region. They have introduced sophisticated technologies to cope with technological evolution, accelerated innovation in business services, and high levels of competition. These conditions have increased the need for adoption of methods to align IT and management needs to demonstrate the business value of IT (Leaver, 2011).

For example, an Enterprise resource planning (ERP) failure can have devastating consequences for the company, sometimes even jeopardizing survival of the company. During the late 1990s and early 2000s, after many ERP implementation failures in Asia, company leaders gradually realized that simply introducing new IT technologies might not bring benefits to the enterprise, and therefore IT business alignment has become the key consideration in implementation of new technologies (Tsai *et al.*, 2010).

Within Europe the need for alignment is generally not only well recognized, but also its impact has been scientifically proven by several scientists (Luftman, 2003). Furthermore, in 2006 a significant relationship between alignment and return on IT investments was proved using the strategic alignment model by Poels (2006). Within Europe, the alignment component score for 'added value' is on average lower than the worldwide benchmark of the strategic alignment benchmark score as published by Luftman (2003). However, on the element budget control (component governance), the average score is higher, indicating that Europe is more focused on IT costs and IT costs reduction using methods such as Total Cost of Ownerhip (TCO) (Gartner, 2010) instead of Value of IT (Isaca, 2010).

Business agility and speed to market

Business agility and speed to market is ranked No. 2 in the US and Asia, as the top concern in Europe, and 3rd in Latin America, making it the 2nd highest ranked management concern globally. This is one position higher (closer to first) over last year's global ranking (Luftman and Derksen, 2011). Business agility and speed to market are essential for business growth in a competitive and stagnant or slowly growing (post-recession) economy, and the continued high ranking of business agility and speed to market is testimony to that. Quickly providing demonstrable business value is fundamental in this economic environment.

Regional business agility and speed to market is also important when customers are becoming more informed via internet and are able to compare substitute products simply by scanning a barcodes or taking a photo on their smartphone. In the past couple of years, business agility and speed to market has moved up from the mid-teens to within the top five management concerns. Between 2010 and 2011, it has moved to number 1 or 2 in all geographies, except Latin America, where it is ranked as No. 3 management concern.

The impact of the recession had been subdued in Asia before this year, and business agility and speed to market ranked relatively lower there in 2010 at 6th place. With the continued sluggishness of the global economy, and as predicted in our publication last year (Luftman and Derksen, 2011), business agility and speed to market has moved up in ranking and is now ranked in the 2nd place in that region.

As it was noted previously, business agility and speed to market along with business productivity and cost reduction are the foundation for long-term competitive advantage (Luftman and Derksen, 2011), and therefore it is anticipated that these concerns will maintain and/or improve their ranking as various geographies will try to maintain and improve their global competitive advantage.

Business agility and speed to market is essential for business survival in an uncertain and volatile economy, and the improved ranking of business agility and speed to market is testimony to that. Even though there are known examples of business agility and speed to market, such as Apple iPad and Google Chrome, regional business agility and speed to market is a fundamental factor in business survival. Both the European and US results demonstrate this well over the past few years. It should be noted that business agility and speed to market along with business productivity and cost reduction are the foundation for long-term competitive advantage, and therefore it is anticipated that these concerns will improve in their ranking.

Latin American organizations are increasingly participating in global markets. A 2011 ranking elaborated by *AmericaEconomia* business magazine shows important Chilean, Mexican, and Brazilian companies, which are successfully expanding their operations internationally (*AmericaEconomia*, 2012). Global markets are unpredictable and durability of operational best practices tends to be shorter, driving more-frequent adjustments to operational processes and business transactions. Agility contributes to better responses to the dynamics of the changing market and customer requirements; this can explain business agility being ranked as one of the top three concerns in Latin America (Dixon and Jones, 2011).

Business process management (BPM) and business process reengineering (BPR)

BPM and BPR are ranked in the list of top 10 concerns in all of the geographies (ranked 3rd and 4th in the US and Europe, respectively, and 1st in both Asia and Latin America). The ranking of BPM/BPR has improved in all geographies since last year except in Europe, where it dropped from the 2nd place to the 4th; last year it ranked 5th in the US, and 3rd and 4th in Asia and Latin America, respectively (Luftman and Derksen, 2011).

Since the 1990s, large European and American corporations leveraged BPR tools that analyze, design, and automate workflows and processes within an organization. As a result, BPM and BPR have appeared every year in the list of top 20 concerns in the US and Europe. Asian and Latin American companies are catching up, and hence BPM and BPR ranking higher in those geographies.

The results in Asia and Latin America may be associated in part with the creation of more developed and efficient organizations across those regions, which have substantially decreased their vulnerabilities to the impact of the global financial crisis through structural changes, production specialization, and improved resource efficiency (Dutta and Mia, 2011).

BPM is a 'natural' follow-on to workflow management (WFM) and BPR. Integration of WFM into BPM suites is often high on the management agenda within Europe, although not quite as high as in the other geographies.

As the economic recovery gets underway in a very uncertain and volatile regional and global economy, and as corporations' large and small need to compete in a globally linked market place, it was predicted and it is still expected that BPM and BPR remain a top management concern globally. The very high ranking of ERP as an important application and technology in all geographies except Asia (discussed later in this paper) provides further support for this important consideration.

Business productivity and cost reduction

Business productivity and cost reduction was universally ranked as the top management concern in 2010, and it still appears as one of the top concerns in all geographies ranking 2nd in Europe, 4th in the US and Latin America, and 5th in Asia.

There is a general consensus on the importance of business productivity and cost reduction using IT, but IT itself is still somehow perceived to be an expense within many companies. This is demonstrated by the continued appearance of IT cost reduction as one of the top 10 management concerns and the TCO and IT budgets as percentage of revenues and/or turnover (discussed later in this paper). However, this economic downturn has successful organizations considering the opportunity to leverage ITG to reduce business expense much more important than merely reducing IT expenses. This is very different from previous economic downturns.

After many years, this is the first year when IT cost reduction has been pushed just outside of the top 10 management concerns globally, even though it still appears at No. 5 in Europe. Within Europe, a significant percentage of the IT managers report to the CFO, which is indicative of lower actual business and IT alignment. This tacitly implies a preference to decrease the IT costs often over management concerns.

In line with last year's finding that instead of simply cutting IT budgets, IT leaders seem to respond to the recession by focusing on IT as an enabler/driver of business productivity (Luftman and Ben-Zvi, 2011b; Luftman and Derksen, 2011), it seems business productivity and cost reduction has remained a major management concern as economies are slowly move into a post-recession phase. As in 2010, it is noted that this trend is present in all geographies except in Asia (including Australia) where issues such as IT strategic planning (and hence the role of CIOs) are ranked higher than business productivity and cost reduction. As Asia has not been as severely affected by the recession and as Australia is the only Western country that did not undergo a recession in 2008/2009 (MoneyWeek, 2009; Plessis, 2009), placing more focus on strategic issues instead of cost reduction is understandable. It is still noted that business productivity and cost reduction rank very high in Asia, although not as high as the other geographies.

IT reliability and efficiency

The growing complexities of IT systems along with the ever-increasing reliance of business operations on IT have amplified the importance of IT reliability, availability, and efficiency. IT reliability and efficiency is ranked 6th in the US and Latin America, and 3rd in Europe and Asia, making it ranked at the 5th place globally, exactly the same as its ranking last year (Luftman and Derksen, 2011).

This management concern has risen in the US since 2008, when it rose from 8th place in 2008 to 6th in 2009 and 4th in 2010 (Luftman and Ben-Zvi, 2011b), but this year IT strategic planning has pushed it just outside of the top five management concerns in the US.

Both Europe and Asia ranked IT reliability and efficiency as their No. 3 management concern. Some Asian and many European organizations are preparing for some fast IT changes due to the rise of tablets and strategies such as Bring Your Own Device (BYOD) (de Vries, 2012). On the basis of the current platforms and integrated applications, the existing IT infrastructure is often not ready to provide a stable environment in support of BYOD (de Vries, 2012) and other initiatives.

Another reason for the high ranking of IT reliability and efficiency in Europe is the increasing usage of guidelines, frameworks, and standards such as SAS70 and ISAE3402. European organizations are looking for a higher level of reliability related to the domestic and offshored IT sourcing. The 'quality' standards such as SAS70 and ISAE3402 provide some guidance and certainty to customers of IT in working with their IT supplier regarding acceptable levels of IT reliability and security.

Due to a number of very high-profile cases, including the migration of the WikiLeaks web site hosting from the US to Europe, as well as the well-publicized cyber-attacks on eCommerce sites such as PayPal and Mastercard (Island-Crisis.net, 2010; DarkNet.org.uk, 2010), last year we predicted a high ranking for IT reliability and efficiency in Europe (Luftman); our prediction has come to fruition

not only in Europe, but also in Asia and Latin America as well.

In Latin America reliability is no longer an option or a luxury, it is an essential component of operating a business and keeping an IT infrastructure operating at maximum efficiency (CIO to CIO perspectives, 2011). E-commerce in Peru, for example, is expecting to grow by as much as 30% in the next 3 years and businesses need to show their clients they can rely on their transaction platforms (Trujillo, 2010). A stable, reliable IT infrastructure and application environments is key to provide value to these companies.

IT strategic planning

IT strategic planning was the top ranking concern in the US in 1980, and has remained in the top 10 ever since, improving its ranking to 5th place in the US in 2011 (6th in 2010); European, Asian, and Latin American IT leaders ranked it 7th, 4th, and 6th, respectively (7th, 9th, and 5th, respectively in each of the geographies in 2010) (Luftman and Derksen, 2011). IT strategic planning is an important consideration, especially as most target geographies are turning their attention to post-recession activities.

IT strategic planning improved its global ranking from the 6th place last year (Luftman and Derksen, 2011), and has maintained or improved its ranking in all geographies except in Latin America, where it has been drop by only one notch.

Within Europe IT strategic planning (ranked 7th) is a yearly part of the governance process. Most CIO's and IT managers fulfill this task yearly but their real concern is getting it aligned to the business strategy. An upcoming trend within Europe is not to write a separate IT strategy plan anymore but making it an essential part of the company's business strategic planning (Hinssen, 2008).

In Asia, IT strategic planning is still followed with interest, and it seems the economic crisis elsewhere has had little impact on this; it is ranked as the 2nd in the top 10 management tools in 2011 (Rigby and Bilodeau, 2011).

Latin American organizations ranked IT strategic planning in 4th place, as they need to know the impact of IT initiatives on the business and need to have a clear idea of the benefits, costs, and time of incorporating IT investments (Deloitte, 2011).

Migration to cloud computing services for Latin American organizations will represent an investment of about US$280 million by the end of 2012, investments on 'big data' will reach $370 million and penetration of smartphones will grow about 71% in 2012, very important IT initiatives that directly impact the organization's IT strategic planning (AETecno, 2012).

Security and privacy

Security and privacy is ranked in 8th across the board except in Latin America, where it is ranked as No. 7. Security and privacy was ranked just outside of the global top 10 last year, at No. 11 (Luftman and Derksen, 2011). Security and privacy was in the top 10 management concerns last year in the US and Latin America, and this year it is a new entrant in both Europe and Asia regions. This increase in management concern importance was predicted last year due to a number of highly publicized incidents during 2010 (Luftman and Derksen, 2011). There

were also a few more incidents within Europe in 2011, which will help to keep security and privacy as a top concern in that region. An example was Diginotar, a Dutch government organization, which provided trusted third-party certificates. This organization was hacked and was used in the delivery of untrusted third-party certificates. The organization does not exist anymore, but did motivate putting the management concern high on the European list (Hulsman, 2011).

For Latin American organizations, investing in security and privacy is not easy, and it is even more difficult to demonstrate the return on investment. Still, security and privacy are possible and necessary (Franz, 2011). Many companies in the region are underestimating the high costs of cleaning up user records following a security breach. To mitigate the risk of IT security breaches, IT leaders need to implement more preventive processes and stronger access controls to applications and data (Waltham, 2011).

It will be interesting to track the ranking of this issue in the next 12 months, particularly in reference to the Asia-Pacific region where it will more than likely increase in importance. The fact that it is a new entrant in Asia list of concerns is further evidenced by the priority given to the issue at the 19th APEC Economic Leaders meeting in Honolulu November 2011, which listed 'implementing an APEC Cross Border Privacy Rules System' as one of eight key steps to strengthen regional integration and expand trade (APEC, 2011). APEC states that a Cross Border Privacy Rules System would '… reduce barriers to information flows, enhance consumer privacy, and promote interoperability across regional data privacy regimes' (APEC, 2011).

Mexico and Peru are Latin American members of APEC, and therefore there may be potential for companies based in those countries to lobby APEC on cost issues or capability development and aid. Also of note, Mexico will host the 2012 G20 Summit, and therefore issues in Latin America might be in more focus in the next APEC Summit.

Enterprise architecture (EA)/infrastructure capability

EA/infrastructure capability is ranked 7th both in the US and Asia, and 10th in Europe and 11th in Latin America. This is a universal improvement across the board, as it was ranked 13th, 11th, 12th, and 14th in 2010 in the US, Europe, Asia, and Latin America, respectively (Luftman and Zadeh, 2011). The fact that EA is just outside of the top 10 management concerns in only one geography, that is Latin America, could mean IT leaders in the region have not yet come to appreciate the importance of developing business architectures to integrate and standardize the functions and processes of their organizations to improve the effectiveness of the business itself and to build innovation culture. The continuing growth of new methods to build an 'architectural vision' of an organization (e.g., Gartner, 2011) can contribute to better understanding of EA within Latin American organizations. Therefore, we predict EA move up its ranking as a management concern in a near future in this region.

In Asia, EA has captured growing attention as a means to systematically consolidate and interrelate diverse business and IT services to provide holistic decision support in

recent years. The recent popularity of a service-orientation has added 'service' and the related constructs as a new element that requires consideration within EA. Since the emergence of the Service-Oriented Architecture (SOA), many attempts have been made to incorporate SOA artifacts in existing EA frameworks in Asia.

Revenue generating IT innovations

Revenue generating IT innovations tied for 9th both globally and in the US, and at 16th in Europe and Asia. This is a substantial decline from last year when it was ranked at No. 6 globally and in Asia, and at 7th place in the US and Latin America (Luftman and Zadeh, 2011). In the US, revenue-generating IT innovations have reversed its upward trends in recent years (No. 6 in 2010, 8th in 2009, and 17th in 2008). This concern was first included in the SIM survey in 2007. Even though similarly ranked in both Europe and Asia (16th), the reasons cannot be further apart. The ranking in Asia clearly match the economic outlook in the region, as during economic uncertainty, executives searched for alternative ways of generating revenues, and one way is through IT innovations. With the economy in Asia not been as depressed as other geographies, IT innovations have fallen from the 7th to the 16th place. In Europe, on the other hand, IT leaders seem to have shied away from IT innovations as the (economic) storm clouds have gathered, and remained; it seems IT leaders are unwilling to commit to any form of discretionary expense as long as there exists extreme economic volatility and uncertainty.

Innovation is important in Latin America as it allows organizations to compete, increase production, and respond to requirements of the global market. For example, initiatives in Peru demonstrate that IT investments in organizations have increased by 11.9% in 2011 compared with 2010 (Gestión, 2011). These IT initiatives have contributed to make the Peruvian economy more dynamic, generating incomes that represent about 1.2% of Peruvian GDP in 2011 (Gestión, 2011).

Project management

Project Management was ranked at the 9th place globally last year (Luftman and Zadeh, 2011), but it only made the global top 10 management concerns this year, as there was greater disparity between regions in ranking other management concerns such as IT cost reduction. Last year, Project Management was ranked as 16th and 18th in the US and Europe, and at the 6th place in both Asia and Latin America (Luftman and Zadeh). This year there was less disparity between geographies in ranking Project Management, ranking it as 11th, 14th, 13th, and 10th in the US, Europe, Asia, and Latin America, respectively.

As we predicted last year, the much longer history of successful IT project completions in the US and Europe have been noted in Asia and Latin America; the ranking of Project Management in all regions seem to have merged ever closer to each other. There was a 12-place difference between the highest and lowest ranking of Project Management in different regions in 2010, but this year the difference has shrunk to only four places. In the absence

of any regional major new initiatives in Project Management, it is anticipated that this trend continues.

Top five applications and technology investments

Survey respondents were asked to rank the importance of applications and technology developments by selecting their top five from a list of 52. Similar to the SIM survey, respondents were also asked to nominate new technologies if it was not already in the list. Table 4 lists the top five application and technology rankings for 2011 across the geographies. Some of the top five applications and technologies, such as business intelligence (BI), are identified as important across all the geographies, while the ranking of some others, such as cloud computing, vary greatly across the geographies. This is indicative of the different cultural, technological, infrastructure, and human resource variation in those areas. The top five applications and technologies for 2011 are discussed below with comparisons across the surveyed geographies.

Business intelligence

BI remains the top technology investment in 2011. It also ranked 1st globally in 2010 (Luftman and Zadeh, 2011). It has been ranking the highest in the US every year since 2009, and this year it jumped to the spot in Europe as well. It remains the 2nd top technology in Asia and Latin America.

Since BI leverages data mining to identify valuable insight. This high ranking across geographies suggests that IT leaders still believe their organizations are data rich and insight poor (Luftman and Ben-Zvi, 2011b). Sixty-two percent of the European organizations studied indicated that more than 1-year-old information in their organization is of insufficient or poor quality (Derksen, 2011).

IDC Financial Insights studied the extent to which BI is currently used among leading players in the industry of Asia. The report also highlights how BI will gain even more relevance in the region in the future (IDC, 2011). Latin American organizations are also reacting to the effect of accelerated information growth (almost 50% every year) opening a new $370 million market of 'big data' management according to the study 'IDC Latin America Predictions 2012' (AETecno, 2012). This is in line with Gartner's analysts who also fear that the increasing volume of unstructured information currently available to organizations (e.g., images, videos, and social media files) will make it even harder to ensure the consistency and effectiveness of data. This kind of information will be difficult to understand and analyze. As businesses seek to obtain value from this unstructured data, it is expected to see a more close integration of business intelligence tools and analytic technologies (Eschen, 2011).

ERP systems

As expected, the high ranking of BPM/BPR as a management concern drives the associated applications and technologies such as ERP and Customer Relationship Management (CRM); ERP ranked 2nd globally and in Europe, one spot higher than in 2010 (Luftman and Zadeh, 2011). In 2011, ERP ranked 3rd, 2nd, and 1st in the US,

Europe, and Latin America, respectively, and CRM ranked 3rd in both US and Asia. See CRM discussion below.

Although over 50% of Western European organizations already use one or more modules from ERP systems, ERP is still one of the top five investment areas within Europe. This is partly due to deployment of new releases of Oracle and SAP software systems and partly due to the current economic downturn in Europe, which has resulted in concerted efforts in standardization and business productivity improvement (see also top management concerns discussed above).

In Latin America, due to the presence and marketing campaign of a large Brazilian ERP provider (Totvs), many organizations keep revisiting and reevaluating their ERP solutions to identify possible areas of improvement. This exercise, of course, has resulted in ERP securing the top spot in our applications and technologies table in 2011.

ERP continues to have aggressive growth across Asia. Nevertheless, fragmented adoption, combined with various market dynamics, provides both opportunities and challenges (Yanna Dharmasthira, 2011), which promises to keep ERP an important technology in the region in the coming years.

Cloud computing

Cloud computing ranks 3rd globally this year (2nd in 2010). This year cloud computing ranked as the top technology in Asia and in the 2nd place in the US, both higher than their respective rankings last year. On the other hand, IT leaders in Europe and Latin America ranked cloud computing much lower than last year; it moved from the 3rd place to the 6th in Latin America and dived in Europe from the 1st place in 2010 to the 8th in 2011. The implications of cloud computing are yet to be fully understood, and the economic volatility in Europe has forced IT managers to look in their immediate organizational vicinity for certainty, where applications and technologies such as BI, ERP, CRM, BPM, and collaborative and workflow tools ranked higher than cloud computing. On the other hand, general shortage of skilled labor in Asia in general (Nystedt, 2010) and the shortage and expense of skilled labor in some parts (Beer, 2010; Herrick, 2010) have been major drivers of cloud computing in that region. In the short term, it is anticipated that the shortage of affordable skilled labor will keep cloud computing a technology hot spot. Substantial university enrollment (Thibodeau, 2011), however, will ease this shortage over medium to long term. Clearly the added value of flexibility, and ability to have employees focus more on unique internal initiatives brought with Cloud are other motivators for the anticipated continued high ranking of Cloud.

Lack of easy access to inexpensive and clean electricity continues to be another driving factor behind adopting cloud computing in the US and Asia. Koomey (2008) reported that 'total electricity use grew at an average annual rate of 16.7% per year, with the Asia-Pacific region (without Japan) being the only major world region with growth significantly exceeding that average.' For example, introduction of 'Carbon Tax' in Australia (Rehn, 2011) can only accelerate price increase of electricity (ABC News, 2011). These will inevitable increase the importance of cloud

computing, and its close cousin, virtualization, for IT leaders in that region.

Cloud computing is ranked 8th in Europe, an interesting point of difference. Security is the main issue considering cloud computing (IDC, 2008). Often due to local (national) legislation as well as European union legislation, the data protection and privacy code is a very important part of considering cloud computing, a consideration that has somehow hindered adoption of cloud computing in the region.

Mobile and wireless applications

Mobile and wireless applications cover a whole computing platform as a service across computer networks. They go hand in hand with cloud computing and can greatly benefit from it as shown, for example, by DropBox and by Apple's iCloud services. Mobile and wireless applications are most useable in geographies with high penetration of smart mobile devices, hence higher ranking in the US and Europe compared with Asia and Latin America. It should be noted that there are some minor differences among some of the countries within the different regions.

With all indicators pointing to a growing proportion of smartphones in all geographies, and with some predicting over 50% smartphone penetration in many countries (Be, 2011), and considering the profound effect this might have on accessibility and security of enterprise services, we envisage mobile and wireless applications will be one of the issues keeping many IT managers awake at night over the next couple of years.

Mobile and wireless applications are the fastest improving top five applications and technology investment in most geographies, for example in 2010 this IT trend was ranked 18th in Europe but is now ranked 5th in that region.

Mobile and wireless applications are also linked with another business trend, 'The new worlds of work' (Derksen, 2011), which enables professionals to work more flexibly, any time anywhere, while providing organizations a reduction in the number of employer-provided work spots. Due to the combination of these developments the demand for mobile and wireless applications is on the rise globally, with specific areas leading the way in each of the geographies.

Customer relationship management

CRM tools were not ranked in the top 10 applications and technologies in 2010, but this year it is ranked in the 3rd place in Europe and Asia, as IT managers are trying to capitalize on their existing customers. For example, in the last few years National Australia Bank, one of the largest banks in Australia, has been focusing on 'cross-selling' their products using their extensive CRM infrastructure, and as a result it was named the winner of the IFS/Cap Gemini Financial Innovation awards for its CRM system.

CRM also appears in the list of top 10 technologies in Latin America, although not ranked as highly as in Europe and Asia. The relatively lower ranking could be attributed to CRM being a relative newcomer in that region, where lack of well-established data warehouses have traditionally limited mass adoption of tools, such as CRM, which require detailed historical data on individual customers.

CRM is ranked 3rd in Europe in 2011. The economic downturn in Europe forces companies to invest in their customer relationship, which is especially true for the banking and insurance branch. These European organizations are focusing on improving the customer trust and intimacy.

During the global economic downturn, Asian companies have been facing an increasing export pressure, which has translated to more importance being placed on CRM tools than ever before.

IT budget allocation

This section discusses the survey findings related to the overall allocation of IT budgets with a further discussion on staffing and compensation matters (Table 5).

Overall budget allocation considerations

It seems that the different geographies are rebounding from the recession at different rates as explained by corresponding increases in IT budgets. CIOs reported increased IT budgets in 2011 compared with 2010 in 45% of the companies in Europe and the US, 64% in Latin America, and a whopping 74% in Asia (see Figure 1). IT leaders anticipate this trend to continue in 2012 with 56% of US, 37% of European, 79% of Asian, and 67% of Latin American respondents indicating that their IT budgets would increase in 2012. The actual budget increases in 2011 in Asia and Latin America is similar to that of pre-recession budgets in the US, which based on previous SIM surveys, was around 75% (Luftman and Zadeh, 2011).

Looking at the data from another perspective, only 17% of US, 11% of Europeans, 9% of Asians, and 12% of Latin American respondents reported budget decline in 2011 compared with 2010. In anticipation for 2012, <7% of respondents believe their IT budget will see a decline compared with 2011. The same rate for US respondents was relatively higher, but still quite a healthy, 15%.

2011 infrastructure expenditures, which in the US had been steadily decreasing during the recession, have increased to 44% in the US. European IT leaders also spent 44% of their budget on infrastructure, while the same expenditure accounted for 61.2% and 59.3% of IT budgets in Asia and Latin America, respectively.

The IT budgets for 2011 indicates a sustaining or increasing infrastructure expenditure in most geographics;

in the U.S. (44% in 2011 up from 37% in 2010), Europe (44% in both 2010 and 2011), and Asia (63.5% up from 61.2%). The only geography to decrease expenditure on IT infrastructure is Latin America, where it is expected to slightly decrease to 59.3% in 2011 from 59.8% in 2010.

It seems that Asian and Latin American companies have been (and still are) investing in their own infrastructure, perhaps to catch up, while the US and Europeans are spending a lot more on their internal domestic staff than Asian and Latin Americans.

When reviewing the budget allocation for running existing systems *vs* building/buying new systems, the US has consistently been two-thirds one-third, respectively. Europe is about the same, and while Asia leaders spent about 45% of their IT budget in 2010 on acquiring new systems, they have come much closer to the US and European figures, by spending 35% on buying new systems in 2011.

IT budget as a percentage of revenues

The often-benchmarked average IT budget as a percentage of revenue for the US had been relatively stable for a few years (around the 3.8% mark), but this year it is reduced to around 3.5%. This can be attributed to the increase in revenues, with some cautious budgeting due to the persistent uncertain economic conditions in the US. At the same time, European enterprises have increased their IT budget from 3.59% of their revenue in 2010 to over 6.3% in 2011, although this is probably due to decrease in enterprise revenues while maintaining their IT budget, rather than increases in dollar value of their IT budgets. Percentage of IT budget as percentage of revenue of Asian enterprises has soared in 2011 to over 11.8% compared with
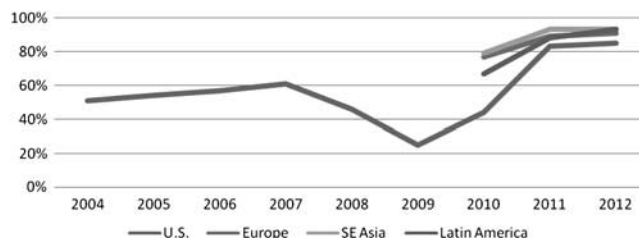
Figure 1 Percentage of companies with increasing or sustaining IT budget.

Table 5 2011 IT budget allocation (actual)

	Global (average) (%)	US (%)	Europe (%)	Asia (including Australia) (%)	Latin America (%)
Hardware, network, software, depreciation	50.4	44	44	61	60
Internal staff – Domestic	30.0	38	28	18	23[a]
Consulting services	11.9	11	15	11	12
Outsourced staff – Domestic	5.6	3	8	9	7[b]
Outsourced staff – Offshore	1.8	2	3	5	a
Internal staff – Offshore	1.8	2	2	6	b

[a]This figure includes both domestic and offshore internal staff.
[b]This figure includes both domestic and offshore outsourced staff.

around 5.8% in 2010. It seems the better-than-the-rest economic conditions have made Asian enterprise leaders bullish in their IT expenditure. A similar pattern is evident in Latin America where IT expenditure has increased from 5.8% of enterprise revenues in 2010 to over 10.85% in 2011. Analogous to results in previous years, an examination by industry reveals that some sectors, such as business services, entertainment/sports, banking/finance, and education/publishing, have IT budgets of more double that of sectors such as manufacturing, real estate/legal, construction, retail, and utilities. The industry breakdown is comparatively consistent across geographies.

IT staffing and compensation matters

Staffing (internal and external) remains the largest single component of IT budgets (56% in both the US and Europe, 48.9% in Asia, and 41.9% in Latin America). It is noted that staffing as a component of IT budget has shrunk in 2011 in all geographies. This seems to be a direct result of increased infrastructure spending and consolidation in the face of global economic uncertainties.

The domestic sourcing budgets for internal staff are 38% in the US, 28% in Europe, and 23% in Latin America, but only 17.5% in Asia. Conversely, many enterprises in Asia and Latin America prefer to take their internal staff through offshoring, accounting for 5.5% of their total IT budget in Asia and 7.3% in Latin America (compared with only 2% for both the US and Europe). It is important to note how rapidly outsourcing of internal staff has expanded in Asia; it accounted for a mere less than 0.5% of total IT budget in 2010, while as noted it has reached 5.5% in 2011. This is an interesting trend, as the US and Europe show the exact opposite, going down to 2% in 2011 *vs* 3% in 2010. A discussion of the budget allocation for IT outsourcing is included in the IT outsourcing section below.

The domestic sourcing budgets for internal staff in Asia are only 17.5%, compared with 23% and 28% in Latin America and in Europe, respectively, and a whopping 38% in the US. Conversely, many enterprises in Asia and Latin America allocated more than 40% of their IT budget to maintaining and expanding their infrastructure, while the same figure for the US and European enterprises is around the 30% mark.

Offshore internal staff account for only around 2% of the IT budget in the US and Europe, but around 5% of IT budget of Asian enterprises. A discussion of the budget allocation for IT outsourcing is included in the outsourcing subsection of the 'IT Organization' section.

When it comes to IT staff salaries, Asia seems to be the most buoyant geography, showing 74% and 79% of workers having salary increase in 2011 and 2012, respectively, compared with the previous year. This is at the pre-recession levels of salary increases in the US (78% in 2008). Sixty-four percent of Latin American IT workers had a pay increase in 2011, and even a slightly higher percentage (67%) expects pay increases in 2012.

In another sign of recovery from the recession, the US market has seen a very healthy 66% increase in IT salary expenditure in 2011, but European managers have only managed to increase salary of less than half of their workers in 2011, a modest 44%. Even though 44% seems rather low

compared with the other geographies, European enterprises managed to improve their staff salaries in 2011 more than in 2010 (44% *vs* 41%), despite the economic uncertainties in the region. As hinted in our last year's report, Early 2010 the European Court of Justice ruled that a German law limiting the use of Polish workers was discriminatory (Slegers, 2010). That ruling along with an active recruitment of skilled workers from the neighboring countries (The-News.pl, 2010) resulted in an influx of skilled migrants, pushing downward pressure on salary increases in Germany, and the effect of this is still persistent in Europe. With the current economic environment in Europe, this downward pressure might keep salary increases at current levels in the short to medium term in Europe.

As in previous years, the respondents were also asked to indicate the anticipated percentage of their IT budgets allocated to education and training. The percentage of IT budget allocated to education and training is on the increase across all of the geographies after a slight dip in the US and Europe in 2010, which can be an indication that organizations are willing to spend more money to prepare and retain their talent. It is also an indication that IT managers are warming to the idea that it is better to spend money on training staff even if it means they leave, rather than not training them and they hang around.

Training budget projections for 2011 was just over 3.5% in the US, 2.65% in Europe, and a staggering over 10% in both Asia (10.8%) and Latin America (12.1%). Apparently, Asian and Latin American IT leaders have decided that to utilize the latest technologies and innovations and to drive business growth, they need better infrastructure and more skillful IT workers, especially in expanding their business, management, industry, and interpersonal skills. In contrast, in the US and Europe, a much bigger proportion of IT budgets are allocated to staff salaries, which leaves less money for infrastructure expenditure and staff training. Due to this difference in focus, the job market is increasingly becoming attractive for IT workers in Asia and Latin America. The economic uncertainties in Europe and to a lesser degree in the US, as well as improving consistency in governance in Asia and Latin America might have the potential to trigger a reverse tidal migration of IT workers *to* these regions instead of *from* these geographies. This is more common among nationals within the region, but we are beginning to see a migration of IT workers from Spain/Portugal to several Latin American countries.

Last, with regard to the rate of IT staff turnover, there is surprisingly good staff retention rates across the globe. Staff turnover was 5.56% in Europe, 6.1% in Asia, and 4.9% in Latin America. In the US staff turnover was 5.51%. Staff turnover is a very good barometer of economic outlook, as employees are far less likely to leave during economic downturn than they are during times of high growth. In the US, 2011 was the first time since 2006 when staff turnover did not decrease year on year, which suggests perhaps that boomers are more comfortable financially to retire and IT staff have started to look for job in other places, positive indications for a thawing economy. In Asia, staff turnover in 2011 surpassed the magical 6%, the level reminiscence of the pre-recession period in the US, indicating that the economy in the region is moving full steam ahead with

barely any sign of a slowdown. In Europe, staff turnover decreased from 5.82% in 2010 to 5.56% in 2011, signifying the tendency of IT staff to be happy to keep their jobs rather than looking for greener pastures.

IT organization considerations
This section discusses the survey findings related to IT organizational structure, CIOs, and IT outsourcing.

IT organization structure
The IT organization can have a major impact on the performance of the company. IT organization structure is the degree to which it is centralized, decentralized, or federalized. The percentage of organizations with either extreme (fully centralized or fully decentralized) has been steadily declining in all geographies. For example, the percentage of enterprises with a centralized IT structure has gone down from 68% in 2010 to 61% in 2011 in the US, from 66% to 64% in Europe, and from 69% to 68% in Latin America. In Asia, the percentage was 45% in 2010, and it has dramatically gone down to a mere 25% in 2011, but we note that very few respondents in Asia reported the structure of their IT organization, and therefore this year's result of 25% should be taken with a grain of salt.

As noted above, the two extreme organizational structures (i.e., centralized and decentralized) are becoming less prevalent in enterprises in all geographies. A federated (or hybrid) structure can realize the benefits from both centralized and decentralized structures. Corporate-wide standards are enforced in an effort to maximize the benefits of economies of scale, while providing flexibility to business units to maximize unique application opportunities at the business unit level. It is easy to see why IT leaders across the globe would want to move toward federated/hybrid IT organizational structure. Indeed 34% of the European companies are reported to have federated IT organizational structure in 2011 compared with 23% in 2010. Similar significant increases are evident in Asia (37.5% in 2011 compared with 25% in 2010) and in Latin America (31% in 2011 compared with a mere 14% in 2010). Bucking the trend was the US, where the percentage of enterprises with federated IT structure was slightly reduced from 28% in 2010 to 26% in 2011. Although the long-term trend is the same as all the other geographies, 28% in 2010, 18.4% in 2009, 22.2% in 2008, 18% in 2007, 15.7% in 2006, and 15.8% in 2005 (Luftman and Ben-Zvi, 2011a).

CIO trends

CIO reporting structure and role of CIO
As the majority of CIOs time is spent in dealing with non-technical issues (see Table 6, discussed below), the roles of CIOs vary between the geographies surveyed.

Table 7 shows where CIOs or senior IT executives report to. Previous research has shown that, on average, organizations in which CIOs report to CEOs have higher alignment maturity than those reporting to non-CEO executives (Luftman and Ben-Zvi, 2011b; Luftman *et al*., 2010). CIO reporting to the CEO continues to be the highest in Asia (68% in both 2011 and 2010), but the other geographies are catching up very fast with Latin America showing the highest rate of increase, from 13% in 2010 to 49% in 2011

Table 6 Activities which CIOs spend time on

	Global (average) (%)	US (%)	Europe (%)	Asia (%)	Latin America (%)
Architecture	9	6	6	13	14
Human resources	6	7	10	12	—
IT governance	10	9	12	12	10
Non-IT	7	7	5	8	8
Operations	12	12	8	13	13
Relationship management with business	18	20	22	13	15
Relationship management with IT staff	12	12	15	14	11
Relationship management with vendors	8	7	10	6	8
Software development	7	5	3	5	11
Strategy	12	15	10	9	9
Other	0	—	—	1	1

Table 7 CIO or senior IT executive reporting

IT executives report to:	Global (average) (%)	US (%)	Europe (%)	Asia (including Australia) (%)	Latin America (%)
CEO	52	49	58	68	49
CFO	30	32	24	—	40
COO	8	12	7	16	—
Business Unit Executive	4	5	2	3	3
Other Corporate Executive	6	2	9	13	7

(43%–58% from 2010 to 2011 in Europe and 44%–49% in the US). As a result of the increase across all geographies, the global average has improved from 42% in 2010 to 52% in 2011. This is indeed a substantial increase in one of the key markers pointing to either very high or substantially improving alignment maturity.

CIO tenure

The average CIO tenure, on the rise in the US since 2006, decreased from 5.1 in 2010 to 4.45 years in 2011. In 2011, the respondents in Asia reported a decline in CIOs with more than 3 years at the job at 42.42% of all CIOs, compared with 52.3% in 2010. But Latin America shows a reverse trend where, in 2011, 60.43% of CIOs are reported to have tenure of more than 3 years (compared with 48% in 2010).

The survey also asked respondents to indicate where CIOs were hired from. Sixty-five percent of the US and 76% European, 46% of Asian, and 44% of Latin American respondents said their CIO was hired from outside the company.

In other words, only 35% of the US and 22% of European (both down from 42% in 2010), 54% Asian (down from 58%), and 56% of Latin American CIOs (down from 64%) were hired from within the company. Hiring CIOs from within the company is down in all geographies probably due to the perception that a new-to-organization CIO is more likely to implement major change, something that might be seen as favorable in times of economic volatility. The insight of this is that the odds of getting a CIO position in your current own company not only has not been in your favor for a while, but the chance is indeed diminishing.

When asked what background CIOs had before taking up their current position, the respondent indicated that in the US, 97% of CIOs were recruited from IT organizations (either internal or external). In Europe it was 80%, 96% in Latin America, and a solid 100% in Asia, for CIOs being recruited from IT organizations. In other words, you will not likely become the CIO in your company, especially without an IT background.

CIO time on activities

Not only have CIOs been spending most of their time dealing with non-technical issues, but this is taking an increasing proportion of CIO times: 77% in the US in 2011 compared with 75% in 2010; 83% in Europe compared with 75% in 2010; 63% in Latin America compared with 57% in 2010; and a staggering 74% in Asia compared with 68% in 2010. Interestingly, CIO-time spent on software development issues remains around 4%–6% across all the geographies barring Latin America, where it has slightly declined from the high of 14% of CIOs time in 2010 in around 11% in 2011.

Because of the relatively less mature infrastructure in Asia and Latin America, it is expected that IT leaders in those areas spent more time on technical issues than their counterparts in the US and Europe. Last year with expectation that all geographies march towards maturity, we predicted this gap to remain substantial. However, it now appears that this gap is in fact widening: while U.S. CIOs spend 18% of their time on operations and

architecture in 2011 (19% in 2010), European CIOs spent even less time on the same issues, only 14%, compared to 18% in 2010. The same activities used to take up 23%–25% of the time of IT leaders in Latin America and Asia in 2010, but in 2011 they accounted for over 26% of CIO time in both of these geographies. We expect these numbers to move closer to that of the US and Europe as the infrastructure in those areas matures. It seems that the US and European markets are indeed continuing to mature, but the global economic uncertainty has made Asian and Latin American CIOs to take a more hands-on approach when it comes to technical issues.

IT outsourcing

IT leaders globally have long been looking to outsourcing as a vehicle to reduce costs, as well as to fill skills gaps. The recession accelerated this even further; the overall increase in outsourcing in all geographies is indicative of that. Considering total outsourcing, which includes offshoring, near-shoring, and consulting of non-internal staff (recognizing that different geographies define these differently), the allocation of the respective IT budgets are 33% in Europe, 31% in Asia, 19% in Latin America, and 18% in the US. As highlighted above, it is important to note how rapidly outsourcing of internal staff has expanded in Asia, accounting for $<0.5\%$ of total IT budget in 2010 but skyrocketing to 5.5% in 2011.

In the US, outsourced *offshore* staff increased from 5% of total IT budget in 2010 to 8% in 2011, but is set to decrease to 6% in 2012. The same pattern is seen in Asia (2% in 2010, increased to 5.2% in 2011, and set to decrease in 2012 to 4.8%) and Latin America (1% in 2010, 7.3% in 2011, and 7.2% in 2012). The only exception to this pattern is evident in Europe where the decrease has already happened in 2011, and offshore outsourcing of staff is set to increase in 2012 (5% in 2010, 3% in 2011, and 4% in 2012). Offshoring of outsourced staff has always been least attractive in Europe as there are plenty of outsourcing opportunities onshore. With the economic uncertainty in Europe, offshoring has appeared to have been put on the back burner, but the relative weakness of the Euro might just be what is needed to fuel this for 2012. Unless the Euro witnesses substantial growth against other currencies, offshoring all outsourcing activities remain a very viable option for European IT leaders.

Offshoring seems the most attractive in Australia, where the local currency (Australian dollar) has sustained its value at or close to the highest ever compared with US dollar. Unless the Australian dollar loses some of its steam, we anticipate offshoring activities to pick up even further, at the expense of local outsourcing, although this is unlikely in the medium term as many ratings agencies are providing advice that Australian dollar is the currency investment of choice based on IMF assessments of sustained GDP in Australia and comparative stability in relation to US, Europe markets (EconomyWatch, 2010).

Outsourcing of offshore staff in Asia remains relatively lower than the other geographies due to the number of high-profile offshoring failures in the early 2000s (e.g., see Gray, 2003). It is noted that the effect of the current US pressure on China for revaluation of the Chinese Yuan

(Morrison and Labonte, 2008) remains to be seen. If the Chinese Yuan continues to appreciate against the US dollar, offshoring of staff will pick up steam in Asia.

Outsourced *domestic* staff also mostly follow the same general pattern as the offshore staff, increasing in all geographies in 2011 compared with 2010 but tapering off in 2012, except in Europe, where it continues to grow to 8% and 9% in 2011 and 2012, respectively.

Consulting service providers seem to be in for a tough year; in the US, consulting services peaked in 2010 at 10% (Luftman and Zadeh, 2011) to 8% of total IT budget in 2011 and is set to decrease to only 6% in 2012. Similarly, consulting services in Europe has dropped from 12% in 2010 to 11.3% in 2011, and will drop to 7.8% in 2012. But in Latin America, consulting services increased from a mere 4% in 2010 to 11.6% in 2011, but is set to decrease to 10.7% in 2012.

Despite the relatively unhindered economy in Asia, it is experiencing the highest volatility in outsourcing consulting services jumping from 4% to 11% between 2010 and 2011, but anticipated to drop to 7.8% in 2012 (Luftman and Zadeh, 2011). One reason for this could be that due to strong local currencies, offshoring of outsourced staff has become a very attractive option in Asia, which means Asian IT leaders have a viable alternative to consultants in addressing their staff skill shortages. The argument, of course, does not hold in the other geographies, and as a result consulting services are not projected to decline in those geographies as much as in Asia. Overall, the prognosis for outsourcing is that it might be in for a period of consolidation while volatility of exchange rates in the short term dramatically changes attractiveness of offshoring for IT managers.

Costs savings are the main reason why Latin American organizations decide for outsourcing. However, after an important increase of outsourcing operations in 2011 compared with 2010, the acquisition of these services offshore seem to be set for a slight decrease in 2012. Latin American organizations will tend to use outsourcing services within the region since more Asian and American companies are looking to expand their outsourcing services in the region (AETecno, 2012; Leaver, 2011).

Concluding remarks

In another indication that firms are moving toward post-recession mode, for the first time since the start of the recession, IT cost reduction has been pushed outside of the top 10 global management concerns. Furthermore, 'business productivity and cost reduction' remains an important focus across geographies, signifying that organizations are more interested in utilizing IT to increase productivity and reduce the cost of doing business as oppose to focusing on the reduction of IT costs.

Although IT cost reduction is pushed out of the top 10 globally, it is still the number five concern within Europe. Next to the economic downturn Europe is cost oriented within both government and commercial organizations. Concepts like TCO and budget orientation are still being used. Although the current economic conditions are challenging for executives across the globe, IT has proven to be very resilient. There are promising signs of improvements in IT

spending, with a steady progression toward, and in some cases even exceeding, pre-recession levels. Budgets, new hires, and salaries show similar upward trends across the globe.

The rather slow pace of recovery from the recession varies greatly in different geographies, as each area has its own set of characteristics, and therefore varying management concerns and responses seem evident. As highlighted in our last year's study, unique characteristics of the *local markets* influence management responses of enterprises operating in a *globally linked* environment. By comparing and contrasting different geographies, this research has identified the many similarities and dissimilarities that confront managers. Clearly, there are regional influences that are powerful enough to reduce the influence of global trends. Indeed, in some regions such as Europe, local considerations are so prevalent that they have taken precedent over global influence and interconnectedness.

In closing, it is important to point out that IT managers are working in a highly interconnected world, and therefore certain patterns span different geographic locations. However, this research found that while there are many similarities there are also important local trends that managers must be sensitive to.

The authors envision extending the surveys participation to all geographies and welcome proposals to assist in obtaining additional data.

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Appendix

Survey methods

The SIM survey has been conducted since 1980. Surveys before 2000 focused just on the top management concerns. Since 2003, the survey has been extended to pursue more specific insights regarding the key IT issues of the day. A significant strength of this research is in its ability to identify important trends by comparing survey data from previous years. Beginning in 2008, the survey has been extended to IT executives from around the globe.

The 2011 survey was similar to previous ones in methodology and process. The questions were based on previous surveys, with questions modified based on previous results and suggestions from respondents and researchers (academic and industry). In addition, some questions were updated and new questions were added based on (1) lists from other similar research, (2) input from Board members from sponsoring organizations, and (3) the lead author's experience.

SIM members represent the US respondents, while CIOnet members represent the European respondents. The results from S.E Asia and Australia were facilitated by Hossein S. Zadeh (co-author), and Latin America was facilitated by Martin Santana (ESAN) and Guillermo Rodriquez (UNAM). Senior IT executives were invited to take the online survey. The key US findings were initially presented during the 2011 SIM annual conference (SIMposium) in late 2011, and global findings have been presented throughout the 4th quarter and 1st quarter in 2012.

The US findings and initial international findings have been published in the 4th quarter issue of *MISQ Executive*. The purpose of the *JIT* paper is to provide important international insights.

The authors anticipate extending the reach of this important research to a more complete set of countries and geographies, and invite leading researchers with a strong network of IT executives to contact us.

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