

EXECUTIVE INSIGHTS

IDC Predictions 2005: Convergence, Consolidation, and Realignment as the New IT Game Plan Accelerates

Frank Gens	Luisa Bordoni	Angèle Boyd	Bill Bradway
Crawford Del Prete	Susan Feldman	Steven J. Frantzen	John F. Gantz
Al Gillen	Martin Hingley	Danielle Levitas	Julie Rahal Marobella
Stephen Minton	Mario Morales	Henry D. Morris	Bob Parker
Evan Quinn	Dave Reinsel	Sandra Rogers	Jun-ichi Saeki
Rebecca Segal	Piyush Singh	David Tapper	Vernon Turner
Deborah Williams	Mark Winther	Roberto Masiero	Kathleen Wilhide
Raymond Boggs	James B. Golden III, Ph.D.		

IDC OPINION

For 2004, IDC predicted an IT industry shift to a new game plan, with leading suppliers aggressively attacking their cost structures and reorienting their offerings and organizations around higher-value customer segments and solutions. For 2005, IDC predicts a diffusion of this dual-faceted game plan to more vendors and segments and a rapid acceleration in game-plan execution by the industry's leaders. Beneath the surface of an almost boringly moderate growth rate of 6%, 2005 will be a year of enormous turbulence in the IT market — with lots of convergence, consolidation, and realignment. The outline of the year ahead includes:

- ☒ Moderate worldwide growth in IT spending will set the tone in 2005, keeping the pressure on to cut costs and target better-than-average-growth customer segments and solution areas.
- ☒ Migration in the enterprise to a dynamic IT blueprint — more business-responsive IT, with greater operating efficiency — will continue to drive the creation, through both innovation and acquisitions, of new dynamic "platforms" in IT infrastructure, application software, data/information management, and IT and business services segments.
- ☒ In the consumer space, the themes of convergence, consolidation, and realignment will also define the major market shifts for 2005, with continued digitization of media, expansion of broadband options, proliferation of new converged devices, and collision and consolidation of market leaders.
- ☒ Not surprisingly, the telecommunications industry will continue to be reshaped by consolidation and convergence in 2005.
- ☒ IT growth and opportunity will be very unevenly distributed, geographically and by industry, in 2005. In Europe and Asia, the major markets will continue to grow slowly, while emerging markets will have a big growth year. On the industry front, seven industries will be particularly focused on transitioning to dynamic IT environments.
- ☒ Despite talk of a "maturing" IT industry, 2005 will see lots of IT innovation. Much of it will be in the mainstream of today's markets — in the form of system packaging, virtualization, automated management, voice over IP (VoIP), converged devices, federated data, and composite applications and Web services. 2005 will also see growth in the interest and importance of innovations at the periphery, including sensor-enhanced RFID, mesh networks, and semantic Web technologies.

Welcome to IDC's annual predictions for the IT industry. As IDC clients know, our tradition is not to offer some kind of magic show — with a crystal ball and a focus on generating shock and surprise. Rather, IDC's predictions offer a serious look by IDC's more than 700 analysts at a select group of 10 major IT segments in which critical shifts will either begin or significantly accelerate in 2005. These are not the *only* important trends and events we will see in 2005, but they are guaranteed to be among the important ones that will require executive attention — and that will drive strategic choices — in the year ahead.

The New Game Plan Accelerates in 2005

In *IDC Predictions 2004: New IT Growth Wave, New Game Plan* (IDC #30499, December 2003), we asserted that after several years in post-Internet-bubble purgatory, the IT industry was positioning for the next wave of growth. We also asserted that the new game plan was a "tale of two industries" — with most vendors simultaneously attempting to aggressively drive down their cost structure (e.g., by leveraging off-the-shelf commodity technologies and standards) while also expanding and migrating their product lines to support higher-value solutions. As noted in *Looking Back at Predictions 2004* (IDC #32316, November 2004), the new game plan did play out in the moves of the major IT suppliers this year.

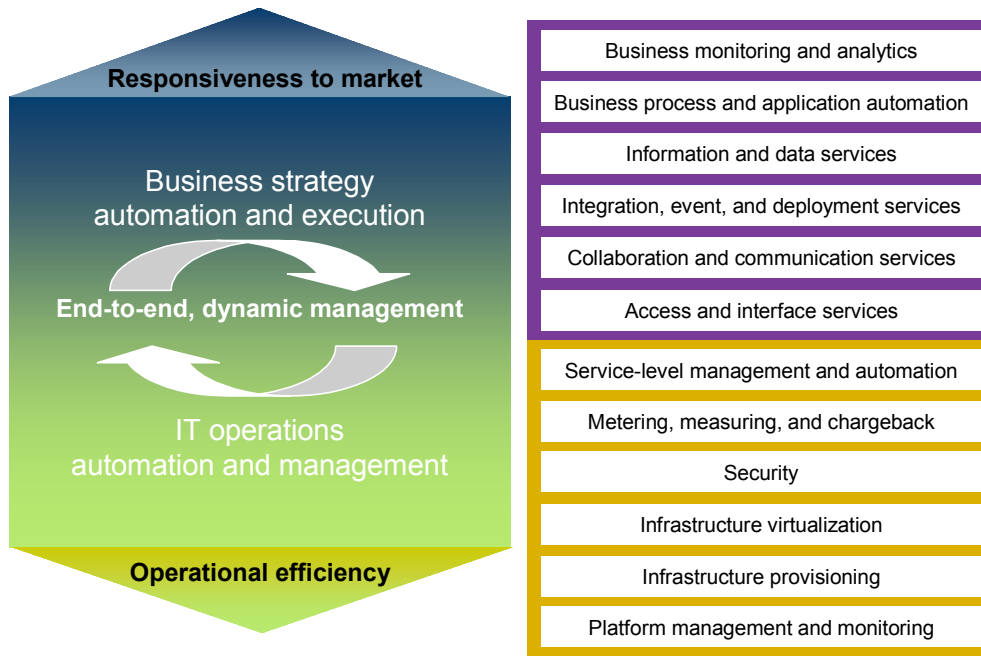
In IDC's 2005 predictions, we see an acceleration of this game plan, with themes of convergence, consolidation, innovation, and realignment for growth, driving both suppliers' strategies and customers' adoption.

In the enterprise, the focus on driving down costs and migrating offerings to high-value solutions dominates our 2005 predictions. And IDC's dynamic IT blueprint (see *Hinge Technologies for the Dynamic Enterprise*, IDC #31371, May 2004) — or vendors' own visions of more business-responsive and efficient IT — has unquestionably driven vendors' strategic moves in 2004 and will continue to do so in 2005.

In the "lower stack," the infrastructure-focused half of the dynamic IT blueprint (see Figure 1), vendors are consolidating within each of six critical technology areas to better position themselves to deliver more complete customer solutions. The larger infrastructure suppliers are expanding their offerings across all six infrastructure areas within the dynamic IT lower stack; for systems vendors, this means building out their software offerings (even at the risk of alienating their ISV partners). And some of these vendors are also attempting, through acquisitions, to reach up the stack into the business process enablement space — as customer leverage and sense of business value move much closer to the business application and business process.

FIGURE 1

Dynamic IT Blueprint



Source: IDC, 2004

In the "upper stack," the application- and information-focused half of the dynamic IT blueprint, vendors are likewise consolidating within each of the major functional areas, as well as expanding across them, to better position themselves to address customer solutions. Our industry-specific predictions — about business priorities and enterprise IT — also tie into the theme of crafting deeper solutions for narrower market needs to capture greater share in the higher-growth segments.

In the consumer space, the themes of convergence, consolidation, innovation, and realignment also define the major market shifts for 2005, with continued digitization of media, expansion of broadband options, proliferation of new converged devices, and collision and consolidation of market leaders.

And setting the stage for industry dynamics in 2005, and for the next several years, is our first prediction area: that of overall IT market growth. Our prediction is for positive, but moderate, IT market growth that will keep the pressure on for suppliers to keep innovating on costs and building new platforms around customers' higher-value needs.

1. Worldwide IT Spending: Continuing Moderate Growth in 2005 Will Continue to Drive Tale of Two Industries

IT spending growth for 2005 is expected to be 6.1% worldwide, based on assumptions of a slightly cooler world economy than this year, a mild rebound in Western Europe, continued high oil prices, and the same general level of unrest in the world. However, as discussed in prediction number 7, the strangling effect of a stronger euro (versus the dollar) creates significant downside risk for Europe's IT rebound, while on the other hand, the weak dollar could offer some upside to our current forecast for U.S. IT growth.

Other factors driving the upside for overall worldwide IT spending would be falling oil prices and improved business confidence. Driving the downside would be overheated demand for energy, higher interest rates, and at least one major wild card shock.

By sector, the strongest growth is likely to be in infrastructure software (including security), handheld devices, network equipment, and outsourcing services. In the next 12 months, we expect to see more of a pickup in things like new application software sales and project-based services. The PC/server upgrade cycle is in full swing until the end of 2005, but of course price competition means that actual revenue/spending growth is pretty tepid in relation to the rest of IT.

The moderate (mid–single-digit) IT growth rate we predict for 2005 (and through 2008) really sets the stage for the rest of our predictions. This moderate growth environment is driving most vendors to leverage off-the-shelf commodity technologies to drive down their cost structure while also migrating their product lines to support higher-value solutions. It is driving industry leaders to develop a much more fine-grained understanding of the marketplace — allowing them to identify higher-growth niches and develop solutions that are narrow and deep enough to capture share in those pockets of greater-than-average growth. The SMB market worldwide is one example of this, attracting attention over the past two years because of growing IT spending at a time when enterprise IT growth had stalled. Although spending everywhere is increasing, SMB efforts will continue to pay dividends to those that targeted this market early, like IBM, HP, and Dell.

2. IT Infrastructure: Dynamic IT Will Drive Acquisitions, Partnerships, and Challenges in 2005

On the software side of enterprise IT infrastructure, the ongoing battle in 2005 will be to build broader, more dynamic infrastructure solutions — within and across infrastructure management, deployment, virtualization, security, and service-level management. Systems vendors like IBM and HP, and independent infrastructure software vendors like CA, BMC, and Microsoft, are expanding their offerings across more layers in the infrastructure. And some infrastructure systems and software suppliers will follow IBM's and EMC's lead to drive up into the upper stack — offering business solutions, not just infrastructure solutions. Details are as follows:

- ☒ **A battle to define the next generation of dynamic infrastructure platforms will drive strategies and acquisitions for systems vendors in 2005.** In 2005, the competitive landscape in enterprise infrastructure software will be shaped by a battle to define and deliver the new generation of dynamic infrastructure platforms — within each of the six lower stack areas, as well as across those areas. This will accelerate the consolidation of vendors across systems management, virtualization, security, metering and chargeback, and service-level automation. Systems vendors like IBM, HP, Sun, and EMC will continue to fill out their own software stacks, even at the risk of alienating their ISV partners. Dell, which has chosen to depend on Microsoft and the Microsoft ecosystem to deliver dynamic infrastructure solutions, will need to decide if it will continue on that hardware-oriented path or join IBM and HP in building out a more wholly owned set of software offerings. Vendors that fail to build a complete "dynamic infrastructure" platform — through acquiring their own infrastructure software or strengthening their relationships with the independent infrastructure software leaders — will be marginalized.

- ☒ **Independent infrastructure software vendors will build out their dynamic infrastructure footprints in 2005.** With the major systems vendors encroaching in their space, major independent infrastructure software players — like Microsoft, CA, Symantec, VERITAS, BMC, Novell, Mercury Interactive, and Compuware — will also spend 2005 continuing to build out their dynamic infrastructure footprints, looking at mergers among equals as well as acquisitions of smaller dynamic infrastructure specialists. Such specialists as Altiris, Oblix, Opware, PolyServe, and many others, will face their own strategic choices — sitting between the major systems and software companies that are vying to build the next major dynamic infrastructure platforms. The game "musical chairs" comes to mind.

- ☒ **The quest for increasing "business value" will drive infrastructure players to partner and acquire in the dynamic IT upper stack.** In 2005, there will be major opportunities for the upper stack and lower stack leaders in dynamic IT to work more closely with each other — particularly around targeted solutions. EMC is an example of an infrastructure player that has reached up into the process enablement space (with its Documentum acquisition) to increase the value of its infrastructure offerings, positioning them in a business solution context (information life-cycle management). Likewise, several of the major infrastructure management ISVs, such as BMC with its BSM initiative and Mercury Interactive with BTO, have aggressively moved into the "business process and application automation" portion of the upper stack, with targeted offerings. And IBM has been blazing down the path of providing linkage between infrastructure and business solutions. In 2005, we expect to see major alliances (and mergers, perhaps) between the leading lower stack players and the upper stack leaders, such as SAP, Oracle, Siebel, PeopleSoft, BEA, and SAS as well as the broad-line IBM and Microsoft. Companies with the resources to do more of this "moving up the stack" include HP, Sun (with some presence in the upper stack through its Java technologies), EMC (already doing so), Dell, and Microsoft (see the next prediction).

- ☒ **Microsoft will make a major move to increase its upper stack leverage.** We don't expect to see Microsoft changing its "one stack" strategy in 2005 (although we see that being in its future in later years). But we know that Microsoft clearly sees (as do we) that market leverage and customer value points are moving up the software stack. The SAP merger talks fell apart, but we don't think that Microsoft is done shopping for a major upper stack position (beyond its Navision and Great Plains lines). Look for Microsoft to make an audacious buy higher in the dynamic IT stack in 2005.

- ☒ **Open source will expand, but "free" will be an endangered species.** In 2005, Linux will account for more than 20% of volume server shipments, growing at twice the rate of Windows (although still less than a third of Windows volume server shipments during the year). Beyond this and other positive market stats, the story of Linux's growing impact is also told in the growing number of Linux-friendly IT strategies that large users, like the U.S. Department of Defense, are putting in place. But even as open source is still in the early days of market penetration in 2005, look for the open source model to show more signs of maturing. The release of a new secure Linux version in early 2005 will be an important forward step for Linux maturity and acceptance. And within several industries that IDC has recently analyzed (manufacturing, financial services, telecom, and government), all save telecom are moving strongly toward enterprise-grade Linux distributions and use commercially supported (read: paid) distributions of Linux. This is certainly also the case for the 20-odd open source middleware efforts we're following, in addition to the obvious Apache, Jonas, and JBoss — there is no such thing as a free lunch. Indeed, we predict that the trend of using "free Linux" — meaning unsupported source code that the customer compiles and self-supports — will not actually be a growing opportunity.

On the hardware side of IT infrastructure, commoditization and downward pricing pressure will continue to define the market in 2005:

- ☒ **The blade server market will heat up (no pun intended) in 2005.** Last month's reentry of Dell will add legitimacy to the market and undoubtedly force pricing down further for regular rack-mounted and pedestal servers — putting even more pressure on the overall server market. However, look for acceptance of blades to continue to be heavily segmented by region: The markets being pressured in ranking order will be the United States, Western Europe and, finally, Asia/Pacific.

- ☒ **High-end computing appliance model makes another run.** The end of 2004 saw the arrival of Azul Systems out of stealth mode, promoting the concept of "network-attached processing." In 2005, look for more vendors to craft — or acquire — operating system-agnostic compute engines that further commoditize the server space, driving down price points and weakening the operating system-centric hold on server computing.

- ☒ **Storage commoditization will continue.** In 2005, commoditization will continue to impact storage systems, with low-cost, high-capacity drives accounting for almost 20% of storage array capacity, and 11% of overall revenue — with this capacity-revenue differential foreshadowing greater price erosion in this market. In a totally different direction, IDC predicts that all the hoopla regarding small

form factor (SFF) hard drives being integrated into mobile phones will continue to be met with sparse adoption in 2005, with 2006 being the first year for potential adoption.

- ☒ **HP will aggressively respond to Dell's encroachment on its imaging/printing business.** This is an important but easy call because HP's CEO Carly Fiorina recently commented on an earnings call that IPG's high operating profit (16.6%) will not likely be sustained as it intends to get aggressive on pricing. Dell has been gaining share, and HP is determined to defend its share and revenue growth.

- ☒ **The semiconductor market will "correct" and then turn up in 2H05.** We expect a correction, not a downturn, next year as semiconductor revenue declines by 2%. Utilization rates will bottom out in the second quarter. Lower but healthy economic, telecom, and IT spending growth will lead the market out of the correction by 2H05 and into 2006. Semiconductor suppliers will continue to migrate from point products to systems solutions to capture the opportunity across most system areas. This will accelerate a healthy level of consolidation and restructuring among semiconductor suppliers. The total semiconductor market, growing at a compound annual growth rate of 11%, is expected to equal \$284 billion by 2008.

3. Application and Information Software: Consolidation, Innovation, and Realignment Will Redefine Markets and Leaders

In the upper stack of the dynamic IT blueprint for enterprises — most directly tied to business process enablement — the focus is on greater business-responsive IT through componentized applications, greater leverage of business intelligence (BI) and analytics, and federated management of information/data — and dynamic integration of all of the above.

Our predictions for 2005 highlight four important dynamic platforms that are emerging and that will drive consolidation, innovation, and vendor competition in some of the largest software markets:

- ☒ **Enterprise solutions platforms (ESPs) to reshape the application software business.** ESPs — a new IDC term for the emerging generation of application providers' integration platforms like SAP's NetWeaver, Oracle Information Architecture (OIA), PeopleSoft's AppConnect, Siebel's Universal Application Network (UAN), and a new form of competition for IBM's WebSphere, BEA's WebLogic, and Microsoft's .NET, is moving the focus of the business applications market away from large, monolithic packages toward the componentization of application functionality, exposure of functional components as reusable services, and linkage of components that define a business process through a dynamic integration environment. The need for the industry to efficiently create and support an increasing variety and depth of solutions (e.g., verticalization) is certainly one of the factors nudging this trend along. Navigating this transition will take several years — even for the dominant enterprise application vendors (e.g., in 2004, only about 5% of SAP's customer base was using NetWeaver in a

significant way). In 2005, the major application vendors will push for greater adoption by customers and focus by the channel. There will also be increasing debate about whether enterprise integration environments should be independent of any vendor's business applications, with SAP, Oracle, and application vendors on one side and IBM and BEA on the other — and Microsoft with a foot in each camp. The long-term impact of the shift to ESPs on these suppliers is still uncertain: Application lock-in may well decrease, but ownership of the integration environment will add an important new point of leverage (this makes BEA a very interesting target, by the way). How to price and package in the emerging model of dynamic, composite applications is another area of uncertainty for the suppliers that win. Beyond the major platform competitors, this shift of leverage from the application to the integration environment will redefine the value-added channel and will continue the long-standing trend of putting pressure on medium-sized vendors of both applications and application infrastructure. But it will enable small and/or start-up vendors to extend and innovate on top of and around the ESPs. The biggest question of course is, Just how many of these platforms will the market support in the long run? The answer to this question is, undoubtedly, *fewer* than are positioning to compete. This fact is certainly a key element driving Oracle's attempt to acquire PeopleSoft.

- ☒ **Emergence of process intelligence.** The delivery of business intelligence in the context of business process and the need for more real-time business intelligence will be driven in 2005 by changes in manufacturing, supply chain, and demand flows (due to technologies like RFID). This will put pressure on the pure BI vendors and the pure business process automation (BPA) vendors because the source of business process and source of intelligence sits in the hands of the big application vendors like SAP, Oracle, PeopleSoft, and Siebel. IDC predicts there will be some point acquisitions by the big application vendors, and maybe IBM, to fill in any holes here.

- ☒ **Emergence of the information infrastructure platform.** Among the upper stack dynamic IT areas, the data and information services area is certainly one of the most critical to customers, and it is also one of the most fragmented markets. There are hundreds of suppliers, both small and large, each separately attacking the interrelated problems of data and information definition, access, management, distribution, assembly, and presentation. Yet customers are looking for more holistic solutions to the problem, How can I get access to all relevant information, no matter where it is, in a form I can use? 2004 marked the beginning of the drive toward consolidating information management and access tools and applications. IBM announced its Content Management Platform at the end of 2003 and its Search Platform in mid-2004. Fast Search & Transfer announced its Enterprise Search Platform in early 2004. Other search, database, BI, and content management vendors are following suit. These platforms rely on Web services, and particularly on XML document schemas, to unite content and database tools such as content management, security, collaboration, search, business intelligence, text analytics, ETL, and data normalization. Their purpose is to create a unified view of and access to both data and content. Platform vendors seek ISV partners that can build industry-specific solutions on these unified information platforms. IDC expects to see some scrambling this year as competitors try to become partners. Channel conflict will be a stumbling block.

We predict that in 2005, there will be an avalanche of acquisitions and mergers that marry suppliers across these segments as leaders in these categories — including IBM, Oracle, Microsoft, Open Text, EMC/Documentum, Informatica, Ascential, and emerging players Verity, Autonomy, Fast Search & Transfer, Endeca, and Google — scramble to position themselves as data and information services platform providers.

☒ **Introduction of the compliance platform.** This is an example, like information life-cycle management, of a solution that pulls together different elements of the dynamic IT environment in support of a growing business need. IDC predicts several strong growth drivers for compliance platforms in 2005:

- ☐ With the fire drill of the Sarbanes-Oxley 404 deadline having passed, sustainability of these ongoing requirements is key; companies will look to automate their highly manual processes and manage documentation by implementing information technology, initially looking to packaged applications.
- ☐ IT internal control evaluations resulting from regulations such as SarbOx 404, Gramm-Leach-Bliley, and HIPAA have revealed high-risk gaps and are driving investments in software to manage IT processes.
- ☐ Litigation support and legal discovery will rise as drivers of implementing information management and record retention policies (second to regulatory requirements).

Hot pockets of technology spend in support of the compliance platform include SarbOx 404 applications, security, patch management, and change management as well as technologies that help companies monitor and audit their IT systems. In the largest organizations, there is a realization that compliance investments can drive broader process and information management strategies. Therefore many compliance initiatives are being incorporated into larger business initiatives. A key question is, Will the ESP vendors realize the necessity for building out the compliance platform and step it up, or will specialists — like EMC/Documentum driving information management, or a BI specialist driving metadata management, or start-ups with best-of-breed solutions — beat them to the punch?

☒ **A battle for the new desktop is joined.** In 2005, the desktop will become an emerging battlefield for software vendors as Microsoft with its InfoWorker products, including OneNote and Microsoft Office; desktop search vendors such as MSN, Google, Copernic, and other Web search vendors; and Adobe with its new Intelligent Document Services platform all vie to own the hearts and minds of the user. Eventually, this war will force adoption of smarter interfaces, contextual computing, and perhaps the development of information appliances. In 2005, the fight for the desktop will still consist of skirmishes, but stay tuned in 2006 for some serious battles to be joined.

- ☒ **Maturing Web services standards and technologies.** In 2005, an increasing number of software releases will address the latest incarnations of Web services standards, with more solutions constructed through services-oriented architecture (SOA) approaches. With the backing of powerhouses such as IBM, Microsoft, SAP, Oracle, and HP, to name just a few, the IT industry has accepted Web services en masse. Grid and Web services standards will converge as the network takes ever more its prominent place in the new world order. Now it will be truly up to the marketplace at large to determine the pace of investment while assessing individual value and risks to adopting such an open and emergent technology platform. Resource pressures will continue to levy their tolls, hindering wholesale change and keeping adoption of SOA to a more staid clip.

4. IT/Business Services: Players Will Continue to Crank Down Costs, Crank Up Business Process Focus

In the IT and business services space, 2005 will be one of several "tales of two industries." On the one hand, "offshoring" will accelerate as the industry races to lower its cost structure and improve its efficiency. On the other hand, the industry will continue to shift its capabilities and offerings closer to business process and value through greater investment in business consulting and process expertise as well as greater focus on business process outsourcing (BPO).

More specifically, we predict that in 2005, offshore activity will increase across a number of areas including the following:

- ☒ **Large, "onshore" service providers will expand offshore presence significantly.** Expansion will be via organic investments in key locations, including India, China, and Latin America, as well as through "cross-border" acquisitions. IBM Global Services and Accenture have led the way in 2004 and will likely continue to do so in 2005. More specifically, multinational IT services companies with operations in Latin America, such as IBM and EDS, are transforming these operations in a global base for exporting services, as evidenced by IBM's recent opening of its fifth services center in Peru, which is in addition to centers in Argentina, Brazil, Mexico, and Chile, and EDS' more than 600 employees in Brazil dedicated to offshore projects. In Central and Eastern Europe (CEE), sourcing for business services/BPO areas will be a key growth area in which multinationals (Accenture, DHL, Capgemini, HP, and IBM) are again establishing BPO centers in countries such as Poland, Hungary, the Czech Republic, and Slovakia, with Indian offshore companies also establishing near-shore presence.
- ☒ **ISVs — particularly midsize ISVs — will look to increase partnership activity with offshore players.** Through these partnerships, ISVs will gain access to lower-cost delivery models and potential new markets. Look for more partnerships in addition to those we've already seen between Lawson and Xansa and PeopleSoft and Covansys.

- ☒ **Large offshore players will expand onshore footprints.** Expansion will occur through cross-border acquisitions that can support BPO or IT outsourcing opportunities. Examples that have started to set the tone include ICICI OneSource (India)/Pipal (United States), Scandent (Singapore)/AON-Cambridge Integrated Services (United States), and Secova eServices (India)/EmpactEBS (United States).
- ☒ **The focus of offshore will be increasingly placed on BPO processes.** These include CRM/call center, finance, and accounting as well as remote infrastructure and application management, and they are already happening, although we expect acceleration across all areas.
- ☒ **Key offshore locations will expand.** Regarding key offshore locations, Dalian, China, will face growing pains, particularly for voice-related services as the pool of linguistically qualified (English, Japanese, and Mandarin) speakers is soaked up, pushing costs up and resulting in searches for alternatives in Northern China. Regarding India, cities that can offer suitable infrastructure and workforces, such as Hyderabad, Pune, and Chennai, will attract an increasing share of investment at the expense of the established centers, such as Bangalore and Delhi, which will need to be bypassed due to stresses from rapid growth, such as attrition, infrastructural challenges, and overhyped conditions. Additionally, in China, Shanghai is experiencing significant pressure, leading to increased investments in centers such as Hangzhou.
- ☒ **The United States will continue to dominate use of offshore.** The United States will continue to dominate in the magnitude of leveraging offshore, while in Western Europe, offshore sourcing will remain a small proportion of service delivery in 2005.

Two additional predictions for services in 2005 focus on the rapid shift toward business process and greater business relevance and value:

- ☒ **Growing acceptance of business process outsourcing will drive key acquisitions and partnerships in 2005.** While cost savings is still a key driver for BPO, the ability to deliver real business process change is an increasingly important component. For this reason, BPO players that have traditionally focused on the operations portion of BPO or IT outsourcing but are increasingly competing for "transformational" deals will seek to acquire or partner for the business process consulting skills they need in 2005. Within some vertical industries, like financial services, these transformational deals may well require vertical-specific expertise such as accounts receivable servicing, epayments for logistics, and collections from large providers like JPMorgan Chase, US Bank, and CSC.
- ☒ **Even as some services flow offshore, business process consulting skills will be in great demand and in short supply in the United States.** While offshoring of development and application management will continue, vendors in the United States will find a shortage of the business consulting and business process skills they need to effectively execute on the more strategically focused outsourcing deals and enhance the value of smaller tactical engagements.

5. Telecommunications: Vendor Consolidation, Expansion of Offerings, and Convergence Will Reshape Competition

Consolidation and convergence have been defining the telecommunications world for several years now. 2005 will be no exception. Details are as follows:

- ☒ **Consolidation in the telecommunications industry will — and must — continue in 2005 as regulators seem to be waving a green flag.** The Cingular–ATT Wireless deal, with very few conditions and divestitures imposed by regulators, took less time to close (eight months) than previous telecom deals. The key driver is that there remain too many wireless operators and too many fixed-line operators, so the game of musical chairs in this market will continue. We're not making any specific deal predictions, but there is strong logic for long distance companies to be bought by larger incumbent local exchange carriers (ILECs) and smaller wireless carriers to be bought by the larger, healthier wireless providers. From a strategic standpoint, the most potent combinations will be those carriers who build out their portfolio of offerings across network types, and build solutions for customer segments across those networks (see the next prediction).
- ☒ **A "triple play" will evolve to a "grand slam" in the consumer market.** Everybody has been pursuing the same triple play bundling strategy for consumers — bundling fixed voice, cable TV, and broadband Internet access. In 2005, expect to see consumer services providers expand to a grand slam offering: integrating wireless into this bundle. A key question is, Who will make this strategy pay in market share gains? Will the telcos (e.g., Verizon, SBC, and BellSouth) that own a wireless subsidiary be able to differentiate from cable companies (e.g., Comcast, Time Warner Cable, and Cox Communications) that do not own a wireless subsidiary? Both will have to pay — transfer pricing for telcos, wholesale purchase for cablecos — but will they have different product integration/innovation abilities — beyond simple bottom-of-the-bill discounting? True integration of the delivery platform (e.g., single point of customer service) hasn't really happened yet, but it will in 2005. A good example: With the Cingular–ATT Wireless deal now complete, IDC predicts that SBC will aggressively leverage that resource in its competition in the residential market with cable.
- ☒ **VoIP accelerated in 2004 and will go mainstream in 2005.** Voice over IP has been around for four or five years now and has gone through four or five product generations. But for most of that time, it has been viewed as a fringe technology in the enterprise market and a curiosity for tech-weenies in the consumer space. But in 2005, this will change dramatically. IDC sees VoIP having gained a lot of credibility with CIOs in 2004: There is strong evidence in the order-of-magnitude increase in the size of the cutover deals we've seen in the past few months (e.g., Ford Motor Company, Boeing, and Bank of America). IDC analysts in Japan and Europe also note enterprise VoIP adoption as a key development for 2005. In our view, this means that in the enterprise market, VoIP adoption is increasingly being driven by strategic convergence strategies versus a more gradual PBX replacement cycle. This means many more Ford- and Boeing-type VoIP cutover

plans will be announced in the coming year. On the consumer side, 2005 is when incumbent carriers will go beyond 2004's announcements and trails, fully executing with mainstream VoIP products, changing the dynamics from the early adopter niche strategies of Vonage, Skype, and so forth.

6. Industries: Seven Will Lead Adoption of Dynamic IT in 2005

As we noted in last year's predictions, developing deeper knowledge about specific industries and crafting more targeted offerings for high-growth, industry-specific needs are key elements of the new game plan for IT suppliers in the enterprise. In 2005, virtually all of the major suppliers, and many of the high-growth start-ups, will continue to develop more offerings targeted at the industry-specific agendas of their customers' CEOs.

Among the developments we'll see impacting IT, within and across industries, are the following:

- ☒ **Dynamic IT will be a focus in some industries more than others.** In 2005, the industries that will have the greatest focus on developing dynamic IT capabilities — driven by competitive pressures, regulatory forces, or growth strategies — include telecom, financial services, utilities, electronics, life sciences, automotive, and CPG. It is important to note that while these industries all have a focus on dynamic IT, they are each at very different stages of progress in adopting dynamic IT. Given the strategy for many leading IT suppliers to rearchitect their offerings around a dynamic IT blueprint, it will be important to put extra focus on those industries with the greatest priority on developing dynamic IT.

- ☒ **In financial services, two key focus areas for IT in 2005 will be:**
 - ☐ **Enterprise payments.** Market forces and technological advances have increased the willingness of banks to consider enterprise payments, or the consolidation of multiple payment systems, on a common infrastructure, increasing both efficiency and flexibility. New, dynamic IT-related technologies such as business process modeling, component architectures, and Web services have made this concept more realistic than it was previously.

 - ☐ **Infrastructure refresh.** Many of the current industry hot buttons, such as compliance and enterprise risk management, put demands on the aging infrastructure of the industry. These demands, combined with increasing volumes everywhere and underinvestment over the past three to four years due to economic pressures, are causing institutions across the industry to take a long, hard look at whether their core systems will withstand the demands of the future. Although likely to be a phased obsolescence rather than a big bang retirement, we believe that technology investment decisions for the foreseeable future (especially the next 12 months) will be influenced by this need — particularly in the United States.

This industry will also push ahead as an early adopter of information infrastructure platforms.

☒ **In manufacturing, four priorities driving IT investments in 2005 are:**

- ☐ **Product introduction process improvements.** Investments will be made to improve the effectiveness of product introduction. According to IRI, products that are second to market in a category have 25% less sales than those products that arrive first. Additionally, an emphasis on specific products for increasingly narrower segments requires a great deal more flexibility in those processes.
- ☐ **Supply chain efficiencies.** Manufacturers still experience enormous waste in their supply chains around the transaction costs involved in moving information. Manufacturers are also attempting to shift the orientation of their operations from "plan and push" to "sense and respond" and eventually "engage and orchestrate" by creating tighter links between the demand signal and the supply network.
- ☐ **Better revenue management.** Manufacturers are looking for ways to be more effective at pricing, managing sales incentives, and growing aftermarket revenue.
- ☐ **Lean enterprise.** Manufacturers are bringing continuous improvement programs like Six Sigma and lean manufacturing off of the shop floor, and they are applying those same methods to improve supply chain and back-office activity.

☒ **In life sciences, 2005 will see business-driven IT focus on:**

- ☐ **Systems-enabling pharmacovigilance.** Pharmacovigilance is the proactive monitoring of drug safety, drug interactions, and adverse events reporting. With the recent VIOXX debacle, pharmas are increasingly looking to technologies and methods to prevent unsafe drugs from making it to the marketplace. Also, once drugs are in the marketplace, pharmas want to monitor those drugs (also called signal detection) to identify any problems as soon as possible. IT will be a core component of these systems.
- ☐ **Regulatory compliance.** Pharmaceutical companies operate fairly independently but in the end must meet the FDA's requirements for new drug filings. Standards in format, ontology, and taxonomy are being required by the FDA to speed the process of new drug filings. The regulatory landscape is constantly evolving, and keeping track of regulatory issues often falls on the CIO. IT again will be a key solution or choke point on meeting FDA requirements.

7. EMEA: A Tale of Three Markets in 2005

In EMEA in 2005, three very different IT growth pictures will continue to develop.

Two of the three pictures are in Western Europe, which is really the home of two very different economic environments — and, therefore, IT markets. The first is that of the United Kingdom, Spain, and some of the Nordic countries, where public administration is a low portion of the GDP and business environments are more flexible than in much of the rest of Western Europe. These economies have been freer to invest in innovation, and have seen restructuring in the recession, to position for growth. And their IT growth has reflected this bias to innovate.

The second economic picture in Western Europe is that defined by Germany, France, and Italy — countries with greater than 45% of GDP intermediated by public administration. In this latter environment, businesses have been less free to move from inefficient, highly vertically integrated structures to more flexible, globally competitive structures. In these countries, many enterprises are addressing a difficult economy and increasing global competition by cost cutting rather than innovating.

The divergence in these two economic pictures contributes significantly to our 2005 outlook for Western Europe:

- ☒ **Western Europe will struggle for IT growth in 2005.** 2004 was a low-growth year for Western Europe, and 2005 may not be much better. In fact, the triple-threat of the drag on growth from the Italian, French, and German economies (discussed above); the growing strength of the euro; and the impact of high oil prices make the downside risk quite high in 2005.
- ☒ **The slow economic environment will mean, once again, that IT vendors in Western Europe will continue to fight each other for market share.** Among major IT product segments, market attention will remain focused on security, mobility, and dynamic IT (see predictions number 2 and 3).
- ☒ **IT vendors promoting — and customers adopting — dynamic IT will be a critical piece of Europe's future IT growth picture.** As discussed previously, one of the benefits of dynamic IT is the ability for businesses to generate operating cost savings (e.g., through IT infrastructure efficiencies) that can finance innovation and global competitiveness.
- ☒ **In Western Europe, telecom service providers will become major dynamic IT vendors.** British Telecom, France Telecom, and Deutsche Telekom will play a bigger role in serving up dynamic IT as a service to large business users.
- ☒ **In Western Europe, consumer IT will become a greater focus.** Large converged handset devices show strong growth in the region, and computer vendors with a linked-services approach to entertainment and/or business applications will fare better than those with just a hardware sales approach. Other key consumer products are media center PCs, inkjet printers, PDAs, MP3 players, flat-screen TVs, and digital cameras. Music downloads and mobile email applications will become key.

In the meantime, the third growth area in EMEA, the Central and Eastern Europe and Middle East and Africa (CEMA) markets, will continue to deliver exceptional growth in 2005. In more detail:

- ☒ **The CEE and MEA regions will continue to exhibit exceptional growth.** IDC predicts growth of nearly 17% in overall IT spending in 2005. IT vendors in EMEA will continue to put a greater focus on these higher-growth markets. Investment in basic technologies such as PCs will continue to drive overall market growth, although spending will pick up more strongly on software and IT services.
- ☒ **UMTS and EDGE (and to a lesser extent CDMA2000) will appear in several more countries and become available on a widespread basis across CEE.** Subscriptions to these services will remain modest as a percent of total mobile subscriptions, but momentum is finally building for the full-scale transition to 3G mobile services in CEE. Broadband Internet access is also becoming mainstream across most countries in the CEE region, opening the door for broadband-oriented content services in 2005, particularly streaming video.
- ☒ **Russia's oil production promises to have immense geopolitical — and IT market — significance in 2005.** Russia is the world's number 2 oil producer behind Saudi Arabia, and not only is the country getting rapidly richer, but it is also becoming much more influential. Russia now has, de facto, no foreign debt, and higher oil revenue is driving ICT investment in a number of sectors. Russia is not the typical IT market, however. For example, in 2005, the value of the mobile phone handset market in Russia will exceed the value of the country's entire IT hardware market.
- ☒ **Telecom transformation will drive growth in the Middle East in 2005.** Wireline and wireless liberalization efforts will drive growth in the telecom services and equipment markets in the Gulf States, Iran, and Jordan. Likewise, the boom in telecom IPOs and inward and regional investments by Gulf investors will drive capital expenditure by incumbent and greenfield telecom operators in Morocco, Saudi Arabia, UAE, Oman, Algeria, Tunisia, and Iran.
- ☒ **Africa will struggle in 2005.** Africa's more recent promise in terms of ICT investment will give way to even more turmoil and instability as ethnic and religious strife undermine economic development. On the other hand, the opening of North Africa with the reappearance of Libya will draw greater attention from ICT vendors.

8. Asia/Pacific: Japan Struggles, the Rest of the Region Surges

In 2005, the Asia/Pacific region (like Europe, the Middle East, and Africa) will offer very different IT growth pictures. Japan — by far the largest IT market in Asia/Pacific — will continue to trail the United States and Europe in IT growth rate. On the other hand, IT growth in much of the rest of the Asian market will remain robust in 2005, replicating its growth of 10% in 2004. Predictions we consider noteworthy in these two important markets for 2005 include:

- ☒ **In Japan, enterprise users will remain reluctant to make IT investments.** Though many Japanese private companies' business performance is improving, their IT spending growth rate will still be lower than the worldwide average. The reasons are as follows: More than one-fourth of the IT budget is used for maintaining existing systems, which were developed on high-end server systems with customized applications; hardware price erosion is ongoing, especially in the midrange and high-end server and storage systems; and the outsourcing of system management and system development is becoming widespread, from small companies to large enterprises. Many executives have recognized that IT is important to improve their corporate productivity, competitiveness, and flexibility, allowing their organizations to adapt more rapidly in a changing business environment. However, the average senior executives will still stress cost control rather than aggressive spending for strategic IT investment.
- ☒ **Corporate investments in Japan will focus on network infrastructure.** Even though large corporations have already installed computer networks, the performance is insufficient to support increasing demand for broadband, large volume data sets, and contents. Beginning in April 2005, the Japanese government will allow corporations to use documents solely in electronic form (the raw form being edocuments), which will provide an additional boost to network usage.
- ☒ **Consumer digital devices in Japan will spread into home appliances.** As the digital camera, camera phone, and DVD recorder have all rapidly found their way into Japanese households, these markets are rapidly maturing. As a result, home electronics vendors and semiconductor device makers are looking for new applications and nontraditional IT products in which electronic devices will play an important role in adding value. Game consoles with high-end graphics, high-resolution flat-panel PC/TV displays, and DVD recorders equipped with sophisticated search and program storage functions are all typical examples of this trend. IDC predicts that even though home networks will still be uncommon in 2005, Japan's households will be filled with more high-performance digital devices.
- ☒ **IT spending in Asia/Pacific excluding Japan (APEJ) is expected to remain robust in 2005.** IDC predicts the region will replicate its growth of 10% in 2004. Total IT spending in the region will reach \$97 billion in 2005.

- ☒ **China and India will drive the greatest APEJ growth.** 2005 IT growth will be driven by a healthy 15% growth in China (excluding Hong Kong) and 22% growth in India. These two countries will account for 42% of total IT spending in APEJ in 2005; China, with 33% share of total IT spending in APEJ, will be the more dominant market.

- ☒ **IT growth in APEJ will happen in spite of a slowdown in economic growth.** Even though overall economic growth in the region is expected to slow down in 2005 by one to two percentage points (compared with the high growth witnessed in 2004) due to the dual impact of slower economic growth in China and the United States in 2005 as well as the economic impact of higher oil prices on net oil-importing countries in the region, we expect IT spending to remain robust for several reasons:
 - ☐ The IT spending-to-GDP ratio is still low in the region (at 2% compared with the average of 4–5% in developed countries).
 - ☐ Exports from the region have surged in 2004 as the global economic environment has improved.
 - ☐ We expect to see more investments from the telecommunications segment as it rolls out more advanced services such as 3G and the migration to IP-based core infrastructure continue in 2005. This segment accounts for 15% of the total IT spending in the region.
 - ☐ The political environment has become more stable with the conclusion of elections in several countries in the region in 2004 (Australia, India, Indonesia, Malaysia, Philippines, Singapore, and Taiwan), which will give a boost to IT investments in the public sector.

9. Consumer Markets: Convergence, Consolidation, and Innovation Will Define Shifts in 2005

In the consumer space, the themes of convergence, consolidation, innovation, and realignment also define the major market shifts for 2005, with continued digitization of media, expansion of broadband options, proliferation of new converged devices, and collision and consolidation of market leaders. Details are as follows:

- ☒ **2005 will be a huge year for handheld game consoles.** 2005 will be a huge year for portable gaming. Sony's new PSP handheld gaming device and Nintendo's DS are the standouts. Great platform designs and compelling content expand the handheld gamer market in Japan, North America, and Western Europe.

- ☒ **Broadband adoption continues, and strategies evolve.** In 2005, broadband Internet adoption will continue for many of the same reasons it did in 2004: fast Internet access, falling price points, online gaming, and music services. Broadband service providers will take a stronger role in distributing home

networking equipment as a way of selling new services (increasing ARPU and decreasing churn), particularly VoIP, on top of the broadband connection.

- ☒ **Move over iPod.** HDD-based, portable MP3 players see strong growth in 2005 as Apple's iPod continues to evangelize the market, and this segment benefits from more hard drive vendors introducing 1.0in. HDDs and online music services — becoming more popular — offering a greater variety of music acquisition models (à la carte and more flexible subscription services with supporting hardware). Portable media players, on the other hand, disappoint.
- ☒ **Film print volumes will continue to experience double-digit declines as digital camera shipments exceed 80 million units.** With a maturing market, vendor shares are consolidating around traditional camera market players (photofinishing vendors like Kodak and Fuji and camera vendors like Canon and Olympus) and leaving most consumer electronics (Samsung, Panasonic, and Casio) and IT vendors (HP, Gateway, Epson, Creative Labs, and Logitech) trailing. Sony, as a digital camera leader, is the one consumer electronics industry exception. Kodak may indeed reach its goal by YE04 of being number 1 in the United States.
- ☒ **IP video is a "hot" topic, but rollouts are minimal in 2005 as challenges continue.** There is movement in the market, but expectations are well ahead of reality. In 2005, we expect IP video efforts and offerings to remain largely on the fringes in many regions. Don't expect iTunes video in 2005 — but in 2006, it could well be.

10. Emerging Technologies: Three Worth Watching in 2005

At IDC, we are always on the lookout for technologies that are on the periphery of today but are poised to be at the center of tomorrow's markets. And so our last prediction for the coming year offers some technologies in early adoption stage — or even earlier — that merit some attention as potential game changers a few years from now. In more detail:

- ☒ **RFID with sensors.** Although we said the hype last year would be high on RFID and that some RFID mandates would be delayed, there is still plenty of forward momentum. This year, the leading edge will begin talking about sensors (Has the item been thawed, bumped, or moved?) used in conjunction with RFID. This is an area in which the future will, as author William Gibson might say, be unevenly distributed — the military and some companies are already using sensors and RFID in the supply chain, but many other companies are clueless.
- ☒ **Mesh networks.** These are ad hoc networks, based on peer-to-peer architectures, that allow communicating end points (motes) to come on and off the network without disrupting the network. Early applications are in areas like public safety where police cars or fire trucks are equipped with motes and are always wirelessly connected to the mesh network; these applications have been proven in battlefield settings. Mesh networks may be used in conjunction with fixed infrastructure (router) networks as well as to connect sensors with wireless

connections (see above). Two vendors to look at are Mesh Networks Inc. and CrossBow Technology.

- ☒ **Semantic Web.** This is the next stage of the Web's evolution that W3C's Tim Berners-Lee has been evangelizing for the past couple of years. The semantic Web allows for the aggregation of data from different XML data bases using standardized definitions, conversion schemes, and naming conventions. In 2005, we'll begin to hear more about it as some leading applications will start to appear. However, until automatic conversion from one schema to another is solved, the semantic Web can proceed only by baby steps. Standards for tags will also need to be more widely adopted.

Additional IDC Predictions Events and Documents

This document summarizes just some of IDC's predictions about the year ahead. Numerous IDC research teams, focused on different IT product and services segments and on specific IT buyer/user segments, are developing more detail predictions for their coverage areas. Go to www.idc.com for information on IDC's full series of predictions documents and telebriefings for 2005.

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John T. McArthur, Meredith Whalen, Tim Grieser, Dennis Byron, Bob Giffords, Richard Vancil, Stephen Graham, Gary Koch, and Shiv Bakhshi.

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