



## Extreme Competition

**Peter Fingar**  
Executive Partner  
Greystone Group

[pfingar@acm.org](mailto:pfingar@acm.org)

Latest book:  
Enterprise Cloud  
Computing: A Strategy Guide  
for Business and Technology  
Leaders Meghan-Kiffer Press  
[www.mkpress.com/ECC](http://www.mkpress.com/ECC)

## Whither the CIO?

*What happens to the CIO when companies are turned  
Upside-Down and Outside-In?*

Adapted from *Enterprise Cloud Computing* by Andy Mulholland, Jon Pyke, and Peter Fingar ([www.mkpress.com/ECC](http://www.mkpress.com/ECC))

*If mankind survives, by 2050 the world's human population will see the equivalent of three Chinas being added. The changes in the bigger world outside the business world are so immense that what it means to be a business is changing on a scale never before imagined. The physical world is merging with the digital world, and the role of what we now call the CIO will change, change significantly.*

### Setting the Stage for a CIO rEvolution.

With the complete fusion of technology into the modern enterprise, technology and business have become inseparable. The technology is the business; the business is the technology. Together they are needed to address the bigger world, the bigger society, in which a business must operate. And it's that bigger world that has changed as a result of the hyper-connectivity of the Internet that, in turn, has given rise to total global competition and Social Networks where the future is being discussed, debated, and transformed.

With the advent of easy-to-use "Consumer IT" or Web 2.0 usage of the Internet, Social Networks are changing the ways we live, learn, collaborate, work, consume, and play. These huge changes in society also disrupt the way we design and manage our organizations and our value chains. Social Networks have major consequences for business, even to the point of what it means to be a business, for it's no longer inside-out supply push, it's outside-in demand pull. The customer is no longer king; the customer is now a dictator, and Social Networks are where customers get the information they need to make purchasing decisions. Your fancy Web site is the *last* place customers go. Furthermore, inside your company, business units are increasingly turning to Cloud service providers to obtain the resources they need to get work done, collaborate, and maintain relationships with customers. With credit card in hand, those resources are delivered to business units on demand, and, often, internal IT is the *last* place business units go for these resources.

Not only is the Cloud where work gets done, it's also where innovation happens. "Modern economies," *The Economist* recently noted, "are not built with capital or labor as much as by ideas." The brave new world of widely distributed knowledge in the Cloud has led to the business proposition of "open innovation." No longer can companies win the innovation arms race from the inside out (internal R&D). They should, instead, buy or license innovations (e.g., patents, processes, inventions, etc.) from external knowledge sources, turning the table to outside-in innovation. Leading companies are turning to Social Networks to tap new sources of business intelligence and creativity that can lead to innovation. For example, IBM's Global Innovation Jams

are conducted in the Cloud. In 2006, IBM issued an online brainstorming invitation to its 350,000 employees worldwide, and its clients and business partners. IBM was seeking the wisdom of crowds in the Cloud. The company exposed its emerging technologies, from supercomputing to avatars. IBM managers then used automation to winnow the 37,000 ideas they received down to 300 well-defined ideas. Finally, more than 50 employees spent a week at IBM's Watson Research Center in New York further combining and trimming these top ideas down to 30. And now the company is spending \$100 million to develop the ideas that came from the Jam. Don't confuse open innovation with open source, free software. Open innovation is all about the money to be made.

It's in this context that the role of the CIO comes into question. From compliance to cloud computing, from budget cuts to Social Networks and business innovation, it is clear that the CIO is living in turbulent times. What will be on the CIO's agenda ahead? Will there actually be a CIO in the future?



Bear with me for a minute for a little history is in order to see where we stand in the evolution of technology roles today. We've seen many step-changes in technology over the past 50 years, from mainframes to minicomputers to PCs to client/server enterprise networks, and on to the Internet. We've also seen major shifts in how we command computers to do what they do, from board wiring of tabulating machines to machine-language programming to procedural programming to object-oriented programming of various flavors and granularities now including Web services. We've witnessed the shift from monolithic to modular and client/server architectures and on to service-oriented architectures. We've seen changing IT and IT leadership roles, from board wirer to programmer to systems analyst to information architect to EDP manager to IT director and on to the CIO. Today, data centers are staffed by systems analysts, database administrators, database programmers, data administrators and technical systems administrators. Quite an expensive command-and-control army has grown up to support and control central IT where a company's systems-of-record are housed.

Enter stage left, the read-write Internet, Web 2.0, where just about anybody can go beyond consuming information to producing it as well. Programmer? Who needs one? You just access preprogrammed services to create a Web site, join Facebook, tweet on Twitter, update a Wiki, create a blog or mash up your custom Google apps. Just about anyone can do it, just as they could with a spreadsheet — no central IT department is needed. Web 2.0 represents the consumerization of IT, and you might think that's the end of this one-minute history of technology. No, all that was yesterday. Now the real action has just begun with the read-write-execute Internet. It's called the Cloud. If you take all of the amazing advances in computing over the past 50 years, as described above, the Cloud represents the knee in an exponential growth curve, making cloud computing the new baseline for business and human collaboration models we have yet to conceive of and the new Bill Gates's and Jeff Bezo's we have yet to hear from.

In the past, information technology was about productivity; now it's about collaboration, a shared information base and collective intelligence — the wisdom of crowds, social network, and cloudsourcing of unimaginable computing power, all in the hands of everyday people.

Remember that mechanically inclined board wirer described just a few paragraphs ago? Or that EDP manager, or that IT director, or that CIO? Move over, for it's now time for the chief cloud

officer (CCO). The role of the CCO is to provide leadership and guidance in a brave new world where not just programming but also technology infrastructures are abstracted as services – Everything as a Service (EaaS). It is basically a matter of upping the level of abstraction that IT professionals will have to embrace and master. At each step along the way, some IT professionals were not suited to the new levels of abstraction, and faded away.

Each step represented a climb from a machine abstraction to a business abstraction, and business process management represents a quantum leap to the *business domain* as the central abstraction of software development. Perhaps the highest level of abstraction is that of “general systems thinking.” As W. Edwards Deming, the father of the quality movement, pointed out, it is “the system” that is the problem. End-to-end business processes are dynamic systems, but today’s business professionals are generally not trained in general systems thinking. Too often constrained by a perspective limited to ingrained business practices, rigid scripts, and structured input-output work, few professionals have a wide-angle view of, or experience dealing with, end-to-end business processes.

The worlds of business and technology are growing more complex, and managing that complexity is the goal of systems thinking. It focuses on the whole, not the parts, of a complex system. It concentrates on the interfaces and boundaries of components, on their connections and arrangement, and on the potential for holistic systems to achieve results that are greater than the sum of their parts. Mastering systems thinking means overcoming the major obstacles to building the 21st-century enterprise – for every enterprise business process is a whole system.

Although tech-savvy, the CCO is all business, probably coming out of the ranks of operations or as an extremely business-savvy CIO. It will indeed be informed leadership, not command-and-control management of computing and information resources that will shape the future of companies and countries in the current era of global economic crisis and unexpected change. Agility is no longer an option, a nice to have. It’s the entry price. Lead, follow, or get out of the way. There is much to learn and cultural barriers to overcome, but the company of the future will not be the company of today. The future is here now, as we shift from information technology (IT) to business technology (BT), from systems-of-record to systems to boundless collaboration backed by endless computational resources available to all.

Contemplating any company’s transformation to adapt to the changed world, the implications for IT professionals are profound. Companies will need a far greater contribution from IT than ever before, but that contribution will be of a substantially different nature. For the adaptive enterprise to come about, a system-wide view of the company is needed, and IT professionals have such a view, far more than the marketing, legal, financial, and other specialists in the firm.

Building the process-managed, real-time, “socialEnterprise” will demand innovation and the discipline of “general systems thinking” from a new generation of IT professionals, stressing some to their limits as the cloud computing and Social Networking paradigm shifts take hold. It is not your father’s IT shop any more. Multidisciplinary skills now outweigh yesterday’s technical skills. BPM skills give way to socialBPM skills. Data center management skills give way to cloud brokerage management skills.

### **You Can’t Judge a Job by Its Title.**

Just as today’s popular title of CIO evolved from programmer to EDP manager to IT director, get ready for a new title that reflects the new skill set needed for leadership as companies go beyond IT and embrace BT. In a cover story in *CIO* magazine in 2005, Sue Bushell and I argued for the transformation of the CIO to the CPO or Chief Process Officer, for it is end-to-end process management that companies want, over and above just information management.



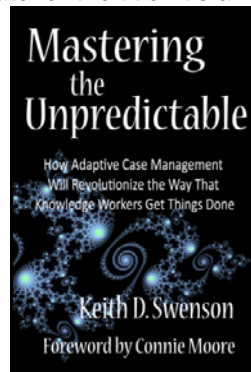
[www.peterfingar.com/CIO-Sep05.pdf](http://www.peterfingar.com/CIO-Sep05.pdf)

Now process management must extend across the entire value chain in the Cloud and provide socialBPM and socialCRM capabilities. So, to indicate the new role and skill set of the CIO, here are some titles that may better reflect the job at hand:

- CCO - Chief Cloud Officer
- CPO - Chief Process Officer
- CDO - Chief Digitization Officer
- CDO - Chief Dot Connector
- CEO - Chief Executive Officer
- CPO - Chief Polymath Officer

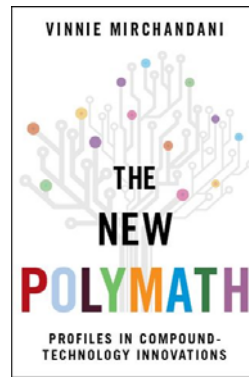
Hmm? About those last two titles? What job and what skill set are needed by a CEO? It is the responsibility of the chief executive officer to align the company, internally and externally, with its strategic vision. The core duty of a CEO is to facilitate business outside of the company while guiding employees and other executive officers toward a central objective. A CEO must have a balance of internal and external initiatives to build a sustainable company.

*Ditto for the next-generation CIO, whatever the title.* It's all about mastering the unpredictable.



[www.masteringtheunpredictable.com](http://www.masteringtheunpredictable.com)

But wait. From CIO to CPO: Chief Polymath Officer? Don't worry. I'm not suggesting that the CIO morph into the Chief Math Officer. Polymath is the Greek word for a Renaissance person, like Leonardo Da Vinci or Ben Franklin, who excels in many disciplines. In his new book, *The New Polymath*, Vinnie Mirchandani describes the enterprise that has learned to amalgamate multiple strands of technology (infotech, cleantech, healthtech, nanotech, biotech) to create compound new products and to innovate internal processes.



[www.thenewpolymath.com/dev](http://www.thenewpolymath.com/dev)

While your own innovation team may be good at tweaking, it needs big, breakthrough thinking. The New Polymaths are not just amalgamating. They are learning new disciplines all the time and leveraging the state of the art in multiple technologies. Mirchandani organizes those technology components using a R-E-N-A-I-S-S-A-N-C-E framework where each letter represents a building block for the New Polymath to leverage. I, for example, covers interfaces other than keyboard/mouse interfaces. The second A covers Analytics (predictive, Web, data visualization) that are way more useful than old business intelligence (BI). C stands for Cloud Computing. The first N covers Networks, as in innovations in telecom; the second N also covers Networks as in the human network – communities, crowds, and collaboration. The S's cover Sustainability for cleantech trends and Singularity for healthtech trends. The E covers Ethical issues, which are proliferating as compound innovations are brought to market.

This multidisciplinary approach to innovation is really about reinforcing the “strength of weak ties.” Many people attribute great creative achievement to *genius*, whatever that really means. Genius is often perceived as the thinking that goes on inside the heads of people like Edison and Newton, or, in modern times, the likes of CEOs such as GE’s Jack Welch or Apple’s Steve Jobs. Unfortunately, mainstream psychology hasn’t been able to throw much light on what genius actually is. However, a new paradigm is emerging that directly challenges a major assumption of most current theories of creative thinking, namely that the intelligence that drives it is located exclusively inside the head (the Mind-Inside-the-Head [MITH] model).

Leading philosophers and mind/brain scientists like Daniel Dennett and Andy Clark argue that, contrary to both the academic and common sense view, the mind extends out into the world. As Clark succinctly puts it, “We use intelligence to structure our environment so we can succeed with less intelligence. Our brains make the world smart so we ourselves can be dumb in peace. Once we recognize the existence of external sources of intelligence, we can begin to conceive of creative thinking in a radically new way.” “The strength of weak ties” is the term coined in 1973 by Mark Granovetter in what many now regard as a seminal work defining “social” collaboration. Strong ties represent the people you are closest to – coworkers, nuclear family, friends supply-chain partners, and so on. Weak ties are connections to people that you may occasionally come across – a friend’s friend or online communities that share special interests outside of your ordinary interests. Granovetter argues that strong social ties are good for exerting power, but because they contain a lot of redundant information they are almost useless for gaining fresh information, new perspectives, and insights – the raw materials for innovation. In contrast, weak ties contain much less redundant information and are often more important for gaining fresh information, connecting new dots, and thinking outside your own box.

The interactions with previous IT collaboration tools have focused on “strong ties,” building the capabilities for relationships between known people around known topics in a manner that provides a structure to deliver value. This remains an important aspect of workflow, but if we consider the emerging Social Networks, then it becomes clear that something different, something unstructured, something unknown is needed to bring new value to the table.

As reported by Patty Azzarello, a former general manager at HP, "A large network of 'weak connections' is more valuable than a small network of close connections. And it is not just a matter of the numbers. The people you are close to are not always very useful to help you because they tend to be in the same environments, know the same people, and think similarly to you. Whereas your 'weak connections' have access to different stuff, people, places and things."

It's the responsibility of the next-generation CIO to establish the capabilities needed for "that something different" for facilitating "the strength of weak ties." To do that, the next-generation CIO and knowledge workers must cross disciplines and heed the advice of Ram Charan, the guru of management gurus, who has no home, clocks 500,000 air miles a year, and pulls down \$20,000 a day talking simple talk to executives across the globe. He lives nowhere, and goes everywhere:

- "Cast a very wide net.
- Continually search for the new and different.
- Sift, sort, and select.
- Hit many singles and doubles, not just home runs.
- Put yourself in positions where you can expand your view.
- Listen, read, become a keen observer.
- Connect the dots to make sense of it all.
- Keep your perceptual lenses open, act on your own curiosity.
- Be proactive in shaping your view of which way things are going."

The spoils belong to those who can act ahead of others – because they see things ahead of others. Much of what Charan and other leaders do is to help business people bring common-sense clarity to an otherwise complex business world. It's all too easy to lose such clarity in the day-to-day grind of the real world of work. But considering all the big business issues – innovation, globalization, profitable growth, increased efficiency, market planning, and increased productivity – a common thread for achieving clarity is to look from the outside-in.

It's wrong to think the dramatic and unexpected changes we are experiencing in today's world will somehow fade away and we'll return to business as usual. There's no going back to the good ole days. Innovate or fade away. It's time to tap the power of weak ties as a catalyst for innovation. And that's the real job of the CEO and the next-generation CIO.

No, they won't be the ones who do all the weak-ties work. Instead, they will be the ones who provide the environment, guidance, and the tools for knowledge workers throughout the workforce to capitalize on weak ties. This also means turning decision-making upside down at the bottom of the organizational pyramid, with front-line staff being where actual events take place. Will this avalanche of technology and change in expectations and working practice really favor an enterprise actually creating more sales and value? As a reality check, there is the well known example of how Wal-Mart, one of the savviest retailers, has gained by supporting and enabling its front-line staff to respond to in-store events and make quick decisions that boost its sales.

Wal-Mart has driven many new technologies through the hype cycle and into real value ahead of others. The Telxon is a hand-held bar-code scanner with a wireless connection to the store's computer. When pointed at any product, the Telxon reveals astonishing amounts of information: the quantity that should be on the shelf, the availability from the nearest warehouse, the retail price, and, most amazing of all, the markup. All employees are given access to this information, because in theory anyone in the store can at least order a couple of extra pallets of anything and discount the item heavily as a Volume Producing Item (VPI), competing with other departments to rack up the most profitable sales each month. Floor clerks even have portable equipment to print their own price stickers. This is how Wal-Mart detects demand and responds to it by distributing decision-making power to the grass-roots level. It's as simple, yet as radical, as that.

One employee recounted the story of test-marketing tents that could protect cars for people who didn't have enough garage space. They sold out quickly and several customers came in asking for more. Clearly this was an exceptional case of word-of-mouth marketing, so the employee

ordered a truckload of tent garages, “Which I shouldn’t have done really without asking someone,” he said with a shrug, “because I hadn’t been working at the store for long.” But the item was a huge success. His VPI was the biggest in store history – not bad for a new employee.

### Today’s Realities

In the just released book, *Enterprise Cloud Computing*, Andy Mulholland discusses the role of IT funding models. Funding Models are at the heart of weathering current economic conditions for IT. In 2009, an open-ended survey was conducted that focused on how CIOs felt in the current economic circumstances, and what role IT was playing in their organizations. As with all surveys, the questions inevitably influence the outcome somewhat. For example, if you ask a CIO if costs are important then you’ll struggle to find one that says “no.” But the open-ended survey led quite naturally into a conversation about how well the IT role was being played. Should, or could, IT be playing other roles? And perhaps, most crucial of all, the survey led to a comparison between how IT was used and how well their organizations were weathering unexpected change in the global economy. How does the CIO see his/her role? The results showed three common profiles of the CIOs surveyed:

- Technology Utility (24%) = IT is managed as a pure utility
- Service Center (39%) = IT assets are packaged to provide specific services
- Business Technology (37%) = IT is a key asset in the leadership of the business

What lies behind these headline summaries is really interesting as 490 CIOs effectively ended up comparing notes on what, and how, things are working, or not working. The encouraging part is that a third of the CIOs now think the credit crunch has driven a reappraisal of how technology can genuinely move to be a revenue, margin, or performance enhancing part of the business model.

But can this really happen without attention to the funding model? IT has traditionally been a *back office* tool designed to centralize and improve key business processes and, as a result, improve enterprise efficiency while reducing costs. As such, IT has been treated as a “business cost” funded through the annual budgeting cycle as an overhead to be recovered. There are various ways to apportion this overhead, but at the end of the day it is a cost to the business, and, like all other overhead, needs to be hammered down.

The pillars of an IT investment have been to invest a relatively large sum of money in a long project cycle, and then wait for a payback by gambling on the stability of the situation. At the end of a given IT investment cycle an enterprise should have a permanent competitive advantage. The end result of this approach is that the ongoing costs of IT have increased so much that the headroom in the budget for new investment continues to decrease. When funding is in short supply and stability non-existent, lacking those traditional pillars, starting new IT projects is generally not acceptable. So CIOs should stop fooling themselves. In reality, much of the IT estate is a requirement to stay in business, is pretty stable in terms of the rate of change, is a genuine overhead, and should be treated as such in terms of ruthless cost management. On the other hand, the value from using new business technology or BT that over a third of CIOs are aspiring to is focused on individual parts of the business in doing what they do uniquely, but doing it far better. That’s not part of an enterprise-wide cost recovery overhead model of funding. It’s a directly attributable cost to a specific business activity – and that’s where the elasticity of the cloud computing model kicks in.

The pressure for new projects comes from two directions. One is from the cost-cutting CFO. The other is from specific functions directly related to the need for intelligence, decision support, and building new online products and services to sell. One of the key advantages of cloud computing is not just that we can build and deploy new business applications rapidly and at low cost, but that we can implement new revenue-generating business models by using situational business processes in the Cloud. The challenge for the CIO is to make sure that this happens in a coherent and cohesive manner in the context of the entire enterprise. Taking on such a role, with a direct hand in supporting innovative business models, is the challenge that a third of the surveyed CIOs

are currently grappling with. Interestingly, these CIOs are working in the most successful enterprises.

In business life today, employees and those external parties who do business with our enterprises are evaluating and using technology as a key part of their work and their business units' successes. In response to such changes it's time to consider how to adapt the funding model of the last century to one more suitable for the coming decades, especially in light of unpredictable change in the global economy.

Maryfran Johnson, Editor in Chief of *CIO Magazine*, further sets the context for the challenge: "Cloud computing seems to have moved from an over-hyped industry buzzword to a serious topic worthy of attention for many enterprise CIOs. There are still big unanswered questions hovering around security and integration issues with cloud computing. But the global economic recession is clearly accelerating CIO interest levels in alternative ways to deliver software and services to organizations that are demanding ever-lower IT expenses while clamoring for ever-higher levels of computing support for collaboration and customer service."

It's in these contexts that organizations need to make thorough assessments and then plan their strategies for adopting cloud computing – and leadership and guidance from the next-generation CIO is critical to making these strategic decisions.

### **Takeaway.**

With Business Technology (BT), the focus is on people, communications, and collaboration, not computers and data. The CIO role has evolved from custodian of the infrastructure under the CFO to a business leader with a seat at the executive table. The next-generation CIO is a strategic agent for business transformation. In the most advanced firms the CIO is the most likely executive to move to CEO. The next-generation CIO is best positioned to manage the creative-destruction<sup>1</sup> power of technology in the face of today's unexpected change and to craft corporate strategy.

[An abbreviated MP3 version of this column can be downloaded at www.mkpress.com/CIOrevolution.html](http://www.mkpress.com/CIOrevolution.html)

If you have read or skimmed the following game-changing works from the "next-generation CIO bookshelf" I invite you to let me know what you think about the future of the CIO – and the enterprise. (BPTrends Discussion Group or [pfingar@acm.org](mailto:pfingar@acm.org))

### **The Next-Generation CIO Bookshelf** ([www.mkpress.com](http://www.mkpress.com))

*Dot Cloud: The 21st Century Business Platform Built on Cloud Computing*  
[www.mkpress.com/cloud](http://www.mkpress.com/cloud)

*Business Process Management (BPM): The Third Wave*  
[www.mkpress.com/#BPM3W](http://www.mkpress.com/#BPM3W)

*Extreme Competition: Innovation And the Great 21st Century Business Reformation*  
[www.mkpress.com/extreme](http://www.mkpress.com/extreme)

*Enterprise Cloud Computing: A Strategy Guide for Business and Technology Leaders*  
[www.mkpress.com/eecdsc.html](http://www.mkpress.com/eecdsc.html)

*Human Interactions: The Heart And Soul Of Business Process Management*  
[www.mkpress.com/HI](http://www.mkpress.com/HI)

*Power in the Cloud: Using Cloud Computing to Build Information Systems at the Edge of Chaos*  
[www.mkpress.com/PowerInTheCloud.html](http://www.mkpress.com/PowerInTheCloud.html)

*The Real-Time Enterprise: Competing on Time*  
[www.mkpress.com/rte](http://www.mkpress.com/rte)

*Enterprise E-Commerce*  
[www.mkpress.com/ecc](http://www.mkpress.com/ecc)

*The Death of 'e' and the Birth of the Real New Economy*  
[www.mkpress.com/#BPM3Wedesc.html](http://www.mkpress.com/#BPM3Wedesc.html)

*The Networked Enterprise: Competing for the Future Through Virtual Enterprise Networks*  
[www.mkpress.com/TNE](http://www.mkpress.com/TNE)

*Bioteams: High Performance Teams Based on Nature's Most Successful Designs*  
[www.mkpress.com/bioteams](http://www.mkpress.com/bioteams)

*Mastering the Unpredictable: How Adaptive Case Management Will Revolutionize the Way That Knowledge Workers Get Things Done*  
[www.masteringtheunpredictable.com](http://www.masteringtheunpredictable.com)

*The New Polymath: Profiles in Compound-Technology Innovations*  
[www.thenewpolymath.com/dev](http://www.thenewpolymath.com/dev)

*Beyond the Crisis*  
[www.mkpress.com/beyond](http://www.mkpress.com/beyond)

## Author

Peter Fingar is regarded as one of the original promulgators of business process management since the publication of his book, *Business Process Management: The Third Wave* (Meghan-Kiffer Press). As a former CIO and college professor, Peter has been working at the intersection of business and technology for almost 40 years. His recent book, *Dot.Cloud: The 21st Century Business Platform Built on Cloud Computing*, is a best seller, along with Chinese and Russian editions. He has joined force with Jon Pyke, founder of the Workflow Management Coalition (WfMC), and Andy Mulholland, Global CTO of Capgemini, to pen the highly anticipated book, *Enterprise Cloud Computing: A Strategy Guide for Business and Technology Leaders*. Peter delivers keynote talks across the globe and is speaking this year in Asia, Europe, and the Americas ([www.peterfingar.com](http://www.peterfingar.com)).

<sup>1</sup> [http://en.wikipedia.org/wiki/Creative\\_destruction](http://en.wikipedia.org/wiki/Creative_destruction)

## BPTrends LinkedIn Discussion Group

We recently created a BPTrends Discussion Group on LinkedIn to allow our members, readers and friends to freely exchange ideas on a wide variety of BPM related topics. We encourage you to initiate a new discussion on this publication or on other BPM related topics of interest to you, or to contribute to existing discussions. Go to LinkedIn and join the **BPTrends Discussion Group**.