



**dba** DIRECT

7310 Turfway Road STE 300  
Florence, KY 41042  
877.687.3227  
[www.dbadirect.com](http://www.dbadirect.com)

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## DATA EXPLOSION MEETS TALENT IMPLOSION

*By John Bostick, CEO  
& Britton Manasco*

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### Executive Brief

Most IT organizations today are on a collision course that promises to significantly diminish their performance and effectiveness. The impact of this collision will further crowd out investments in strategic, innovative and value creating IT initiatives, commoditizing careers and undermining IT's authority in the eyes of senior executives. The question is whether forward-looking IT executives will see the dangers ahead and change course in time to reposition their organizations for the impressive opportunities that also are emerging.

The collision ahead is where today's data explosion meets the coming implosion of talented professionals capable of managing this data. Trends on the horizon suggest that IT executives must now confront this issue – as with other emerging talent issues – if they are to ensure the strategic success of their organizations and demonstrate that IT still matters a great deal.



## 1.0 The Data Explosion

It's no secret that we are in the midst of a data boom. Some 20 exabytes of new digital data (20,000,000,000 gigabytes) will be created in 2006, according to a recent report from Deloitte. According to IDC, data storage needs are growing on average at 50% to 100% annually. Some analysts put those growth rates even higher.

What are the drivers behind this ongoing data explosion? There are many. Companies, for instance, are demanding richer, deeper and more insightful information about their customers and markets. New data-drenching technologies also are emerging – such as RFID and VOIP – that acquire and use large volumes of data. Then there are legal and regulatory compliance requirements that have grown in recent years, particularly with the passage of the Sarbanes-Oxley Act that demands greater operational reporting data. Other drivers include the ongoing digitalization of printed records and disaster recovery/business continuity demands.

Clearly, the falling costs of data storage have driven companies to gather, store and deliver data for various purposes and applications. But there's also a growing demand for data infrastructure support as analytical, reporting and other information applications become increasingly critical to business decision-makers. As one recent story in the *Harvard Business Review* suggested, there are a growing number of companies – such as Dell, Capital One, Amazon, Google, Harrah's and others – that are demonstrating the strategic power of "competing on analytics."

## 2.0 The Talent Implosion

At the same time, there is strong evidence of a mismatch between the categories of IT talent that are available in the market and the types that IT organizations now require to move to the next level of high-value activity. The coming talent implosion is far-reaching in its impact – permeating advanced societies in general and IT

organizations seeking talent more specifically. Indeed, one of the areas of the IT organization where these hiring problems threaten to hit hardest is in the realm of data infrastructure management.

Consider how this talent implosion is playing out on all levels:

### 2.1 The Demographic Shift.

Demographers and economists are now pointing to significant changes in the workforce of advanced societies as "baby boomers" begin to retire and the ranks of new talent entering the workforce remain relatively thin. Within the European Union, workers between 50 and 64 will increase by 25% over the next 20 years, but workers aged 20-29 will decrease by 20%. The percentage of the population in Japan that is over 65 is now almost 20%, exceeding all other countries. In the United States, workers aged 55-64 have increased by more than 50% in the past decade, but workers between 35 and 44 have declined by 10%. One analyst even calls this a looming "demographic cliff."

"The baby-boom generation, which started to turn 60 this year, contains the largest number of people ever voluntarily to give up work in such a short time," according to the *Economist*. "Because it is far larger than the generation that follows it—or any that preceded it—it casts a shadow over the companies it is set to leave behind. Japan expects its workforce to shrink by 16% (some 10m people) over the next 25 years. Europe will see the number of workers nearing retirement grow by a quarter. Some companies are already complaining of a shortage of skills, even before they have started to dole out carriage clocks and fountain pens by the barrow-load."

Major studies in the United States, meantime, suggest that the majority of the jobs now being created demand skills possessed by just 20 percent of the current workforce. Indeed, millions of high-paying positions in fields such as engineering, computing, and health care are going unfilled and will continue at alarming rate.



This situation creates a host of looming dangers. Enterprises are threatened by the possibility of lost knowledge and capabilities as talented people leave the workforce and take their skills with them. Another problem is lost productivity as companies struggle to address emerging challenges with a depleted workforce and find the productivity of existing processes falling in lieu of capable professionals to manage them. And, finally, there is the specter of lost competitiveness. Some industries – such as aerospace and defense – already face a severe talent shortage. In some companies, as much as 40% of the workforce will be eligible to retire within the next five years. Even in offshore locations with growing workforces overall, such as India, the challenge of high job turnover and rapid salary increases suggest there are no simple and obvious solutions to this mounting problem.

**2.2 The IT Talent Shift.** Market research now suggests that demand for IT talent is growing rapidly in many key areas. However, the IT labor pool is not growing rapidly enough to match demand in many of these same areas.

According to Forrester Research, the focus of IT hiring will shift as technicians and other operational hires drop from 50% in 2000 to roughly 25% as a percentage of new hires in 2010. Much of the growth in hiring is expected to be in managerial and analytical roles such as general management, project management, vendor management, business analysts and architectural specialists. Among the positions that are now commanding the highest growth in salary: enterprise architects; business analysts; security specialists; web services experts; open source specialists; business intelligence experts; and business process modelers.

The trouble is that both relatively strategic and non-strategic work roles are under pressure as the market for IT talent heats up and unemployment rates fall. These conditions will only be exacerbated by the demographic trends that have been mentioned – both the growing number of retirees and the relatively low number of

new entrants to the IT field. The Higher Education Research Institute reports interest in computer science as a major has dropped to 62% of its 2000 peak as only 1.4% of incoming college freshman choose it as a major.

**2.3 The Data Profession Shift.** One area where demand is certainly growing faster than supply is among data-related professionals. Research from Foote Partners and other sources suggests that demand for professionals in data-related fields – whether in database administration, database development or the growing number of business intelligence roles dedicated to consolidating, reporting and analyzing data trends – is surging.

Database administration is recognized as one of the fastest growing professions over the next decade – forecast to grow 38% between 2004 and 2014 and commanding salaries in the highest earnings quartile of professions.

One key issue to recognize is that some data-related work will prove strategic and a source of competitive differentiation, while other data work will remain merely administrative, operational and infrastructure-related. The challenge for IT decision-makers who must confront data-related hiring decisions is how they can invest their limited budgets to achieve the highest impact on their enterprises.

### 3.0 Collision Course

These two trend lines – the data explosion and the talent implosion – are racing head on toward a collision. But, unlike other collisions, this one may appear to happen in slow motion. The coming collision may not even be obvious to IT decision-makers until it is too late – or, at least, until tremendous value has been destroyed and opportunities to take a more strategic path have been forever lost. Careers are riding on the decisions that will be made – or not made – with respect to this looming crash.

**3.1 Near-Term Implications.** These trends threaten to hit the IT world particularly hard. Over the next 2-3 years, the laws of supply



and demand will push up the cost of IT talent in the areas that are most critical to strategic differentiation and enterprise value. While overseas outsourcing may be an option in some commoditized forms of IT work, it will not address the overall IT talent implosion to come. Job turnover, salary escalation and a dearth of many relevant skills are all challenges associated with the overseas outsourcing option that may hinder its viability in many cases.

All indicators suggest talent costs will continue to rise over the next few years. This will be particularly true with respect to professional roles – such as program managers, project managers and business analysts – that are considered crucial to the execution of high-impact, innovative and competitively differentiating IT initiatives. These roles can be considered “above the line” marking competitive distinction. But the costs of talent also will rise for many roles that add no competitive advantage at all – roles that are considered “below the line.”

In many companies, the growing costs of talent will exceed the growth in IT budgets – assuming that budgets are growing at all. This will force IT decision-makers to face some difficult near-term decisions. Certain roles will probably be eliminated, automated or outsourced to accommodate the new investments that must be made in higher value IT work. IT professionals that hope to advance their careers will be forced to upgrade their own personal skills and capabilities.

In the realm of data professionals and data infrastructure, the choices are becoming increasingly stark. IT organizations will see costs escalate to meet the growing demands associated with enterprise data, but they will not see an accompanying expansion in budgets or in the labor pool that is consistent with these expansive data demands.

**3.2 Longer-Term Implications** – In the next 4-5 years and beyond, the costs of IT talent will increasingly crowd out vital investments in many companies. IT organizations that are mired in operational activities and

infrastructure maintenance will have fewer and fewer resources to invest in initiatives that strategically differentiate their companies. In many cases, wholesale IT infrastructure outsourcing – much of it pushed overseas – will become an inevitable scenario. Given that the promise of “transformational outsourcing,” whereby outsourcers provide continuously growing levels of business value over time, is yet to truly play out, this may be the end of many IT operations as anything but a support organization.

Some companies will more actively weave IT into the fabric of their enterprises. Through service-oriented architectures (SOA), open source advancements and effective data management, they will make (or continue to make) IT a strategic enabler. But while companies such as Wal-Mart, FedEx and others will continue to view IT as a competitive weapon, many other companies can be expected to lose ground as IT becomes permanently positioned as a commodity resource and cost center.

Previous IT investment decisions will have compounding effects for many years after. CIOs that invested heavily in strategic, differentiating activities will be reaping the rewards of their investments, while senior IT executives that remained focused on the maintenance of outmoded infrastructures will find themselves increasingly vulnerable to escalating costs. It will be clearer in retrospect that some of the key decisions influencing these outcomes will have been hiring decisions, particularly in data-related areas.

As competition becomes more focused on operationalizing analytics and information on the front-lines of the business, the ability of IT to successfully scale, maintain and monitor its data management infrastructure will be a given. IT organizations that leverage this data by investing heavily in analytical, project and application-focused roles – as opposed to administrative roles – will be better positioned to compete effectively in the marketplace.

**3.3 Business Strategy Issues.** These projections raise a host of business issues which concern executives at all levels of an enterprise. Recognizing the fact that there will always be tactical fires to fight, CIOs and other IT leaders are now confronting the strategic challenges that talent trends represent. The decisions they make in the short-term will largely influence the direction of their organizations over the longer term.

Will IT be perceived in the eyes of executive leaders as a tactical, support organization – forever committing resources to activities to that are below the line? Or will it recognize the coming collision in time and take the steps necessary to remain or become a strategic partner to the business – investing in innovative, core, above the line activities that are perceived as competitively differentiating?

Geoffrey Moore, author of the new book *Dealing with Darwin*, argues that one of the greatest mistakes that organizations make is confusing “mission critical” activities with their “core” capabilities. As he explains, “Core is the ability to differentiate for competitive advantage; mission critical is the property of having very high risk, very high consequences when things fail.”

The phenomenon that Moore and others have observed is that IT organizations tend to sink escalating amounts of their precious capital in mission critical activities. Their hiring budgets are increasingly weighted to these types of efforts. After all, CIOs can't afford to fail in mission critical areas. The trouble is that budgetary decisions of this sort come at the expense of more strategic actions; they inevitably diminish the IT executive's status and credibility as an enabler of proactive, innovative, competitive differentiation.

What seems apparent is that intensifying waves of competition and commoditization are forcing senior IT leaders to make complex investment decisions of ever greater consequence. The coming talent implosion only heightens the risk of remaining reactive.

## 4.0 Courses of Action

The questions that have been raised here are obviously quite large in scope and will have implications with regard to many IT decisions to come. However, CIOs and other senior IT leaders now face a set of specific options as it concerns today's data explosion and tomorrow's talent implosion. These are the courses of action now available to them:

**4.1 Do Nothing.** Many companies will take this course. They will allow current trends to play out, hoping that something changes in current talent trajectories or choosing to ignore these concerns. Perhaps, they have always been able to hire data management and administrative professionals to take on the activities that were mission critical and expect that nothing much will change on this front. The question is whether there will be increased demands with respect to data infrastructure and whether the talent will be available to address it. If demands do in fact rise significantly and IT chooses to address them by hiring more people domestically, it will – in most cases – experience the crowding out of other potential investments by the costs of below the line data talent.

**4.2 Hiring Talent Overseas.** Some companies recognize the growing pressures on talent but consider offshore hiring as a means of offsetting these pressures. That is certainly true with respect to many IT roles, particularly commoditized ones. The question is what happens when the skills and capabilities to conduct certain activities are not cost-effectively available offshore. It is unclear whether offshore is a viable alternative with respect to data infrastructure management, for instance. Current indicators suggest that the cost of a Database Base Administrator will only continue to rise – remaining a role that cannot be effectively managed with inexpensive, overseas labor. There also will be a growing demand for new, higher level skills that require a command of data infrastructure knowledge as well as analytical, application and context-related expertise. Unfortunately, many existing data professionals will be tied up in necessary, but non-differentiating tasks (such as monitoring and maintaining data) – unable to



give the higher level, differentiating activities – such as data warehousing and business intelligence – their full attention. It is unlikely that capable talent for these new and desired roles will be available offshore.

**4.3 IT Outsourcing.** There has certainly been a strong wave of IT outsourcing in recent years. Indeed, some companies will either choose to outsource vast swaths or even all of the IT operations. They will bring in IT Outsourcers, write them a check and hold them to a service level agreement. In most cases, such companies will abandon the strategic potential of IT. Instead, it will be treated merely as a supporting resource, albeit a more efficient one. There are mounting questions about the wisdom of this course, however. MIT's Center for Information Systems Research, which surveys companies that have taken this approach, finds that only 50% of such arrangements are perceived as successful. What is more, outsourcing vendors themselves acknowledge that they have failed to deliver on the glowing promises of "IT Transformation" that have been highlighted in their marketing efforts in recent years. They have created very little new, differentiated value; they merely offer a more efficient means of running existing IT organizations.

**4.4 Outsourced Data Infrastructure Management.** In contrast to companies that outsource virtually all of IT and companies that outsource virtually none of it, some companies will follow another proven path: outsourced data infrastructure management. Unlike IT outsourcing, this would enable them to continue to manage and enhance their own IT operations. Moreover, it would free up resources to invest in higher value activities that represent strategic differentiation. As the experiences of many companies have already demonstrated, specialized vendors can provide a scaleable service that can grow as data demands grow – taking on many of the non-differentiating, data infrastructure management activities that would otherwise tie up highly priced data professionals. Indeed, existing data professionals could be redeployed to take on more high-value, above the line, roles and responsibilities.

## 5.0 Conclusion: Scaling the Data-Driven Future

As discussed here, there are a growing number of demands on and applications of enterprise data. Data is the foundational resource for an array of strategic and analytical initiatives that are now coming to the forefront of business. However, companies must be prepared to scale up their data infrastructure to address these demands.

Senior IT decision-makers have options. They can continue to hire talent in patterns that reflect historical approaches. They can turn to offshore talent – hoping it exists and will not run out. They can outsource all IT and let a vendor take on all infrastructure and talent-related responsibilities. Or they can explore the possibility of outsourcing data infrastructure management to a specialized service provider that can manage it with scalable, automated processes and expert service levels.

**The key concern underlying all such decisions is: How can the enterprise competitively differentiate itself going forward and what – if anything – is IT's role in that effort? The data explosion will meet the coming talent implosion. What decisions will senior decision-makers make to ensure that trend doesn't undermine future success?**

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