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HOW TECHNOLOGY IS DRIVING ROLE CHANGES IN THE C-SUITE

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INTRODUCTION

A wave of changing technologies continues to bombard companies at an accelerating rate. Emerging and expanding technologies such as the cloud, big data, business analytics and intelligence, and HTML5, all will have enormous implications for how companies deploy, use and manage information.

How well companies surf the wave will have a significant impact on their future success. New models for how to manage information, technology, and the role of the CIO will be dramatically different 10 years from now. Now is the time to start moving away from the old models; failure to adapt will likely lead to operational and strategic problems.

- Information technology has become faster, cheaper, more flexible, easier to deploy and easier to use. More and more companies are relying on data, requiring the right analytic tools and training to sift through varied and voluminous sources, as reported in "Analytics 3.0" by the International Institute of Analytics.ⁱ
- The cloud continues to swell. As reported in RightScale's third annual State of the Cloud Survey of 1,068 technical professionals from a broad cross-section of organizations, companies are quickly realizing the increasing value of the cloud. With the cloud comes "greater scalability, faster access to infrastructure, higher availability, and faster time to market for applications."ⁱⁱ For smaller companies and start-ups, the cloud eliminates the need to invest in building a traditional data center.
- Companies can sample an almost endless stockpile of applications, particularly with SaaS progressively dominating the market. Little investment is required for companies to experiment with multiple approaches; they can choose what best suits their specific needs. Increasingly, general business managers will be deciding what to use, taking decisions out of the hands of technologists.

So what does this mean for executives and the Chief Information Officer (CIO) in particular? HighPoint Senior Advisor Bob Kaplan weighed in on the escalation of information technology and its intensifying role in business, offering a wake-up call to long-held assumptions about the

role of the CIO. Kaplan has over 30 years of consulting and senior executive experience in IT strategy and operations with McKinsey & Company, The Boston Consulting Group, and leading technology companies.

THE EVOLVING ROLE OF THE CIO

"The era of the CIO as keeper and interpreter of the data and high priest of infrastructure will come to a close," asserts Kaplan. "Within 10 years, the position of CIO will be an anachronism in the best-run companies."

The track that most CIOs followed prepared them for the role of gatekeeper, responsible for the management and security of applications, networks and data. The complexities of integrating mainframes, networks, desktops, and more recently mobile devices, required a highly focused technical expertise.

To stay ahead, though, and not just keep up with emerging trends and technologies, the CIO will need to evolve.

The Cloud

As reliance on the cloud grows, the need to develop and manage individual data centers and networks is decreasing. "The IT infrastructure that used to require attentive management is now just a commodity. From a cost and efficiency standpoint, it makes more sense for that infrastructure to be migrated to a cloud service or be outsourced," adds Kaplan.

The best example of this is Netflix for whom data, both in terms of content and information about its customers and their behavior, is a critical asset. Netflix accounts for more than 30 percent of North American peak Internet traffic, the most of any content provider.ⁱⁱⁱ Netflix has migrated almost all of their infrastructure and data to Amazon EC2 cloud services, and has been quite open and public about what they have done.

"Why more companies are not aggressively following the Netflix approach is beyond me," says Kaplan. "Company-owned and staffed data centers will soon become the dinosaurs of our age."

Adrian Cockcroft, Director of Architecture for Netflix's cloud systems team has been quoted as saying "...there is no data center behind Netflix." Netflix moved its entire technology infrastructure to AWS in November 2012, and also plans for failure. They assume some companies are broken and inefficient at any given time. Cockcroft described Netflix's design philosophy to "create a highly agile and highly available service from ephemeral and often broken components."^{iv}

Heightened Security Risks

While security has always been a priority for the CIO, hacking and security threats have escalated the need for the more specialized role of CISO (Chief Information Security Officer). According to a study by the Ponemon Institute, more than half of corporations with 1,000 or more employees now have full- or part-time CISOs.^v

Corporations are quickly realizing it's harder to manage their own security than to have someone else manage it for you. "Would you trust the security of your data to three guys in your IT department or to a cloud provider that's having daily briefings with the NSA on international hacking and security threats and has a seasoned staff of 300 focused solely on network safety?" asks Kaplan.

Today it's impossible for the average company to ensure adequate breach defense, even with the best intentions, people and technologies. "Security must be built in, not added on to systems," asserts Kaplan.

He shares the story of one client who had his team test the integrity of the company's systems. Within an hour, the hired hacker had gained access to the guarded building (he walked in with the UPS delivery guy), talked his way onto the locked floor housing the data system ("I forgot my keycard and my boss will kill me if I'm late"), and used a credit card to pick the lock on the server room door.

Breaches in security not only result in significant financial losses (averaging \$7.2 million per breach event^{vi}), but threaten job security as well, with the CEO, CIO, CISO, or all of them being the immediate fall-guy.

Standardized Applications

In addition to security and data management, the CIO has historically chosen, developed and customized applications – exercising the belief that because his business is unique, it thereby requires specialized applications.

"It's really a flawed notion," explains Kaplan. "Businesses can use standard application platforms just as easily – there are infinite options available, many that can meet a company's diverse and distinctive needs more readily than if developed in-house."

Furthermore, every time an application is customized, adds Kaplan, it impacts the speed and efficiency of subsequent upgrades. Customization is a moot option on a multi-engine cloud. Most cloud-based applications are highly configurable with options that can be turned on or off as desired.

Proper integration of the various custom and packaged software applications with each other and with the enterprise's hardware platform (once a CIO's rationale for limiting application diversification) will cease to be an issue. This is true not only because of SaaS, but the cloud as well, where providers have introduced enterprise message bus and other technologies to ease cross-platform integration.

"Frequently, the desire of the CIO to police his systems has conflicted with the demand for business managers to introduce innovation," explains Kaplan. "We saw it with the introduction of mini computers, then network PCs, social media, even tablet technology. With each new technology wave, some CIOs found reasons to resist change."

For example, when tablet technology was first introduced, many CIOs used integration and security as rationale for barring its use. Kaplan described a client where the CIO would not allow a field force to switch from heavy laptops to iPads. His excuse was that the iPad was not a "securable device." As a result, laptops were left in the office and printouts with confidential data were carried on calls. Inevitably some of these printouts were lost, requiring the company to notify clients of the potential data breach. That CIO was replaced.

Too many companies missed out on early opportunities with this important, more mobile technology. Now, two of technology's leading competitors (IBM and Apple) have jumped on this cross-platform opportunity, together launching about 100 enterprise apps focusing on specific industries including retail, health care, banking, transportation and insurance.

STAYING RELEVANT IN A CHANGING ENVIRONMENT

As the role of gatekeeper evaporates along with the old rationales of security and integration, a CIO needs to lead the path to innovation and work harder to ensure conversation across his organization, asserts Kaplan. "He needs to reinvent himself in the role of Systems Analyst, and embrace new technologies that will drive change in the business models."

Too often the CIO has had a limited grasp of the business his company is in and its diverse operational needs. Peter Senge, Senior Lecturer at MIT's Sloan School of Management and author of *The Fifth Discipline*, reiterates the fault of CIOs operating in a systems management silo when he talks about

a learning organization. Individual instinct, he states, is to focus only on our own position and shirk responsibility for the results produced by the company as a whole.^{vii}

"To be effective in the future, the CIO should take Senge's ideas to heart," stresses Kaplan. "He must not only grasp the core needs of his company, but become the organizational expert on best practices. He should stay on top of where the cutting edge of technology is going, and what tools and approaches make most sense for his business. He must become a force for creativity and change in the organization, pushing his company to continuously experiment and improve."

In reality, the time is ideal for CIOs to tackle a big-picture role, particularly as more companies (including Twitter, Yahoo, McDonald's and Tiffany) shed the COO role, giving line executives direct access to the CEO. According to a 2013 study by the search firm Crist|Kolder Associates of 668 companies from the Fortune 500 and S&P 500, only about 35 percent of companies still retain the COO post.^{viii}

Likewise, the CIO will need to know how to apply and build systems and data analysis methodologies for her company. She must play a role in finding creative ways to use data, understanding what kind of data is useful and what kind of models should be built. She can also play a role in mining beyond knowable data, stretching business units outside their typical data sources and staying on top of emerging resources.

With respect to security, the CIO should be worried not just about blocking data breaches, but finding preventive measures and controls to help her company rebound more quickly after a breach and contain the damage. Research from the Ponemon Institute on the aftermath of a data breach showed that reputation and loss of customer loyalty have the biggest impact on the bottom line, requiring huge output to regain brand image and acquire new customers.^{ix} The CIO should play a significant role in creating crisis management and business continuity plans.

Most Importantly, Connect with Your Customer

A 2013 study conducted by the IBM Institute for Business Value of more than 4,000 CxO executives worldwide validated that technology is considered the most important external force shaping organizations today, with an entirely new set of emerging dynamics.

"Technology is not just part of the infrastructure needed to execute a business strategy, it's what makes entirely new strategies possible."^x

And while 7 of 10 CxOs recognize the imperative of integrating the social, digital and physical worlds to gain the customer

connection needed to thrive in the future, only 45 percent of the enterprises interviewed have the foundation from which to take advantage of big data.

As the study shows, an enterprise that understands its customers is an enterprise likely to thrive. From a CIO's perspective, there's no time like the present to evolve from service provider to critical strategic enabler. It's time to establish the information architecture and analytics to get in sync with customers.

What These Changes Mean for the Business Manager

The CIO, stresses Kaplan, doesn't play a solo role in the understanding and use of technology in his organization. Business managers will have to step up and take ownership for collecting and analyzing data. They will need to become more familiar with outsourcing and selecting the best platforms for managing their own businesses.

Regrettably, according to the Ponemon Institute, only 20 percent of IT experts have consistent communication with their CEOs about threats and only 14 percent say the executive leadership takes part in incident response.^{xi}

"I have never seen a CEO admit to a lack of expertise on marketing, finance or distribution," says Kaplan. "But many are much too comfortable saying they don't know anything about IT. This complete abdication of technology doesn't work anymore."

Going forward, CEOs will need to own the bottom-line impact of a data breach and the negative fall-out when it occurs. Target, where the CEO eventually resigned, is a prime example of the fallout on executive management when a breach occurs. Executive management, including the CIO, will need to take charge of leading and managing crisis and business continuity plans following any breach. And whether they volunteer or not, many will be asked to take the fall.

Similarly, the way business unit managers use data and invest in applications to manage their businesses will profoundly impact the type of strategies they can deploy and the likely competitive success of the business.

Kaplan sees businesses forge ahead where CIOs and IT departments have been reluctant to go. He gives the example of a company that was looking to enhance its offering to high-end customers. The new products and services to be offered required new systems capabilities. The CEO consulted with his IT department who were quick to shoot the move down, saying it would require them to adapt and integrate a new systems platform, take up to 24 months to complete the work

(due to other priorities), and cost \$5 million. This approach was totally unacceptable to the CEO from a strategic and competitive perspective.

Instead the CEO, at Kaplan's urging, put together a small, integrated swat team of business and IT experts completely outside of the traditional IT group. IT and all other functional departments were told they had no authority or responsibility for the work of the special team that reported directly to the CEO and met with him weekly.

The team contracted with two cloud providers for the front-end and back-end systems. The two vendors had previously created integration bridges for their systems. No customization was allowed (even though some desired features were initially lacking), acknowledging that a "vanilla" system would be easier to maintain and upgrade in the future.

Within six months, the new products and services were online and generating significant revenue and increased customer loyalty for the institution – all delivered by the special team for only \$1 million. Without the CEO's direct involvement and protection of the team from his well-meaning IT group, the project would have failed. Sadly this is true of many transformational plans and projects.

Own the Changes

It's time to acknowledge that the new models for managing information and technology are changing the role of the CIO and his operational counterparts.

So what should you do tomorrow? Kaplan has the following suggestions.

If you are the CEO or senior business unit manager:

- Take the lead in developing a strategic vision for how information and technology will be used to transform your business. If you do not transform your business, someone else will.
- Review the current technology plans of your organization. Are there initiatives in place to outsource infrastructure and security and move applications to the cloud?
- Develop a systems analytics and business modeling capability within your business units.
- Assess the skills and structure of your senior IT leaders and their organizations. Are they a source of innovation or are they an obstacle to change?
- Spend time with key technology companies at their executive conferences. Become a beta partner for new technology start-ups. Make sure you have a window into

where technology is heading and how it will impact your business.

If you are the CIO:

- Be a source of ideas for business innovation and change.
- Decentralize decision making and technical budget responsibility into the business units.
- Recognize the commoditizing nature of many aspects of IT and outsource them.
- Create an incubator to experiment and test new ideas with the business units. Kill ones that are not showing promise quickly and double down on a few.
- Create a strategic technology vision and architecture based on a fundamental analysis of how data structures and usage will evolve in the business.

Kaplan concludes "Senge reminds us that any member of a learning organization has to be open to accepting and adapting to new ideas and changes and work together with others to achieve a shared vision.^{xii} Technology is forcing change and introducing revolutionary ideas at an unprecedented pace. Any individual or company that is unwilling to recognize the impact of this change on strategy, roles and responsibilities will be left behind."

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