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# CIO as chief integration officer

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As technology transforms existing business models and gives rise to new ones, the role of the CIO is evolving rapidly, with integration at the core of its mission. Increasingly, CIOs need to harness emerging disruptive technologies for the business while balancing future needs with today's operational realities. They should view their responsibilities through an enterprise-wide lens to help ensure critical domains such as digital, analytics and cloud aren't spurring redundant, conflicting or compromised investments within departmental or functional silos. In this shifting landscape of opportunities and challenges, CIOs can be not only the connective tissue but the driving force for intersecting, IT-heavy initiatives – even as the C-suite expands to include roles such as chief digital officer, chief data officer and chief innovation officer. And what happens if CIOs don't step up? They could find themselves relegated to a "care and feeding" role while others chart a strategic course toward a future built around increasingly commoditised technologies.

FOR many organisations, it is increasingly difficult to separate business strategy from technology. In fact, the future of many industries is inextricably linked to harnessing emerging technologies and disrupting portions of their existing business and operating models. Other macro-level forces such as globalisation, new expectations for customer engagement and regulatory and compliance requirements also share a dependency on technology.

As a result, CIOs can serve as the critical link between business strategy and the IT agenda, while also helping identify, vet and apply emerging technologies to the business roadmap. CIOs are uniquely suited to balancing actuality with inspiration by introducing ways to reshape processes and potentially transform the business without losing sight of feasibility, complexity and risk.

But are CIOs ready to rumble? According to a report by Harvard Business Review Analytic Services, "57 per cent of the business and technology leaders surveyed view IT as an investment that drives innovation and growth."[1] But according to a Gartner report, "Currently, 51 per cent of CIOs agree that the torrent of digital

opportunities threatens both business success and their IT organisations' credibility. In addition, 42 per cent of them believe their current IT organisation lacks the key skills and capabilities necessary to respond to a complex digital business landscape."[2]

To remain relevant and become influential business leaders, CIOs should build capabilities in three areas. First, they should put their internal technology houses in order; second, they should leverage advances in science and emerging technologies to drive innovation; and finally, they need to reimagine their own roles to focus less on technology management and more on business strategy.

In most cases, building these capabilities will not be easy. In fact, the effort will likely require making fundamental changes to current organisational structures, perspectives, and capabilities. The following approaches may help CIOs overcome political resistance and organisational inertia along the way:
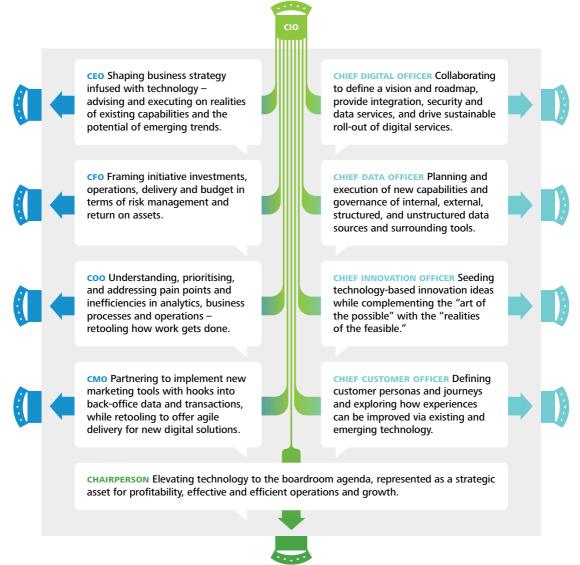
- **Work like a venture capitalist.** By borrowing a page from the venture capitalist's playbook and adopting a portfolio management approach to IT's balance sheet and investment pool, CIOs can provide the business with greater visibility into IT's areas of focus, its risk profile and the value IT generates.[3] This approach can also help CIOs develop a checklist and scorecard for getting IT's house in order.

- **Provide visibility into the IT "balance sheet."** IT's balance sheet includes programmes and projects, hardware and software assets, data (internal and external, "big" and otherwise), contracts, vendors and partners. It also includes political capital, organisational structure, talent, processes and tools for running the "business of IT." Critical to the CIO's integration agenda is visibility of assets, along with costs, resource allocations, expected returns, risks, dependencies and an understanding of how they align to strategic priorities.

- **Organise assets to address business priorities.** How well are core IT functions supporting the day-to-day needs of the business? Maintaining reliable core operations and infrastructure can establish the credibility CIOs need to elevate their missions. Likewise, spotty service and unmet business needs can quickly undermine any momentum CIOs have achieved. Thus, it is important to understand the burning issues end users face and then organise the IT portfolio and metrics accordingly. Also, it's important to draw a clear linkage between the balance sheet, today's operational challenges and tomorrow's strategic objectives in language everyone can understand. As Intel CIO Kim Stevenson says, "First, go after operational excellence; if you do that well, you earn the right to collaborate with the business, and give them what they really need, not just what they ask for. Master that capability, and you get to shape business transformation, not just execute pieces of the plan."

- **Focus on flexibility and speed.** The business wants agility – not just in the way software is developed, but as part of more responsive, adaptive disciplines for ideating, planning, delivering and managing IT. To meet this need, CIOs can direct some portions of IT's spend toward fueling experimentation and innovation, managing these allocations outside of rigid annual budgeting or quarterly planning cycles. Business sponsors serving as product owners should be embedded in project efforts, reinforcing integration between business objectives and IT priorities. Agility within IT also can come from bridging the gap between build and run – creating an integrated set of disciplines under the banner of DevOps.[4]

For CIOs to become chief integration officers, the venture capitalist's playbook can become part of the foundation of this

## New boardroom discussions

With digital now a key boardroom topic, companies are addressing new technology needs in different ways. A recent Forrester survey found that "37 per cent of firms place ownership of digital strategy at the 'C' level, with a further 44 per cent looking to a senior vice president (SVP), executive vice president (EVP), or similar role to direct digital plans. However, less than a fifth of firms have or plan to hire a chief digital officer (CDO), meaning that digital accountability lives with an incumbent role."[a] CIOs can either fill these new digital needs themselves or serve as the connective tissue integrating all tech-related positions.

**CIO**

**CEO** Shaping business strategy infused with technology – advising and executing on realities of existing capabilities and the potential of emerging trends.

**CHIEF DIGITAL OFFICER** Collaborating to define a vision and roadmap, provide integration, security and data services, and drive sustainable roll-out of digital services.

**CFO** Framing initiative investments, operations, delivery and budget in terms of risk management and return on assets.

**CHIEF DATA OFFICER** Planning and execution of new capabilities and governance of internal, external, structured, and unstructured data sources and surrounding tools.

**COO** Understanding, prioritising, and addressing pain points and inefficiencies in analytics, business processes and operations – retooling how work gets done.

**CHIEF INNOVATION OFFICER** Seeding technology-based innovation ideas while complementing the "art of the possible" with the "realities of the feasible."

**CMO** Partnering to implement new marketing tools with hooks into back-office data and transactions, while retooling to offer agile delivery for new digital solutions.

**CHIEF CUSTOMER OFFICER** Defining customer personas and journeys and exploring how experiences can be improved via existing and emerging technology.

**CHAIRPERSON** Elevating technology to the boardroom agenda, represented as a strategic asset for profitability, effective and efficient operations and growth.

Source: [a] Martin Gill, *Predictions 2014: The Year Of Digital Business*, Forrester Research, Inc., December 19, 2013.

transformation – setting up a holistic view of the IT balance sheet, a common language for essential conversations with the business and a renewed commitment to agile execution of the newly aligned mission. These capabilities are necessary given the rapidly evolving technology landscape.

## Harness emerging technologies and scientific breakthroughs to spur innovation

One of the most important integration duties is to link the potential of tomorrow to the realities of today. Breakthroughs are happening not just in IT but in the fields of science: materials science medical science, manufacturing science and others. The Exponentials at the end of this report shine a light on some of the advances, describing potentially profound disruption to business, government and society.

- **Create a deliberate mechanism for scanning and experimentation.** Define processes for understanding the "what," distilling to the "so what," and guiding the business on the "now what." As Peter Drucker, the founder of modern management, says, "innovation is work" – and much more a function of the importing and exporting of ideas than eureka moments of new greenfield ideas.[5]

- **Build a culture that encourages failure.** Within and outside of IT, projects with uncharted technologies and unproven effects inherently involve risk. To think big, start small and scale quickly, development teams need CIO support and encouragement. The expression "failing fast" is not about universal acceptance and celebrating failure. Rather, it emphasises learning through iteration, with experiments that are designed to yield measurable results – as quickly as possible.[6]

- **Collaborate to solve tough business problems.** Another manifestation of "integration" involves tapping into new ecosystems for ideas, talent and potential solutions. Existing relationships with vendors and partners are useful on this front. Also consider exploring opportunities to collaborate with non-traditional players such as start-ups, incubators, academia and venture capital firms. Salim Ismail, Singularity University's founding executive director, encourages organisations to try to scale at exponential speed by "leveraging the world around them" – tapping into diverse thinking, assets and entities.[7]

An approach for evaluating new technology might be the most important legacy a CIO can leave: institutional muscle memory for sifting opportunities from shiny objects, rapidly vetting and prototyping new ideas and optimising for return on assets. The only constant among continual technology advances is change. Providing focus and clarity to that turmoil is the final integration CIOs should aspire to – moving from potential to confidence, and from possibility to reality.

## Become a business leader

The past several years have seen new leadership roles cropping up across industries: chief digital officer, chief data officer, chief growth officer, chief science officer, chief marketing technology officer and chief analytics officer, to name a few. Each role is deeply informed by technology advances, and their scope often overlaps not only with the CIO's role but between their respective charters. These new positions reflect burgeoning opportunity and unmet needs. Sometimes, these needs are unmet because the CIO hasn't elevated his or her role to take on new strategic endeavours. The intent to do so may be there, but progress can be hampered by credibility gaps rooted in a lack of progress toward a new vision, or undermined by historical reputational baggage.

- **Actively engage with business peers to influence their view of the CIO role.** For organisations without these new roles, CIOs should consider explicitly stating their intent to tackle the additional complexity. CIOs should recognise that IT may have a hard time advancing their stations without a positive track record for delivering core IT services predictably, reliably and efficiently.

- **Serve as the connective tissue to all things technology.** Where new roles have already been defined and filled, CIOs should proactively engage with them to understand what objectives and outcomes are being framed. IT can be positioned not just as a delivery centre but as a partner in the company's new journey. IT has a necessarily cross-discipline, cross-functional, cross-business unit purview. CIOs acting as chief integration officers can serve as the glue linking the various initiatives together – advocating platforms instead of point solutions, services instead of brittle point-to-point interfaces and IT services for design, architecture and integration – while also endeavouring to provide solutions that are ready for prime time through security, scalability and reliability.

# My take

**Pat Gelsinger, CEO**
**VMware**

I meet with CIOs every week, hundreds each year. I meet with them to learn about their journeys and to support them as they pursue their goals. The roles these individuals play in their companies are evolving rapidly. Though some remain stuck in a "keep the lights on and stick to the budget" mind-set, many now embrace the role of service provider: They build and support burgeoning portfolios of IT services. Still others are emerging as strategists and decision makers – a logical step for individuals who, after all, know more about technology than anyone else on the CEO's staff. Increasingly, these forward-thinking CIOs are applying their business and technology acumen to monetise IT assets, drive innovation and create value throughout the enterprise.

CIOs are adopting a variety of tactics to expand and redefine their roles. We're seeing some establish distinct teams within IT dedicated solely to innovating, while others collaborate with internal line-of-business experts within the confines of existing IT infrastructure to create business value. Notably, we've also seen companies set up entirely new organisational frameworks in which emerging technology-based leadership roles such as the chief digital officer report to and collaborate with the CIO, who, in turn, assumes the role of strategist and integrator.

What's driving this evolution? Simply put, disruptive technologies. Mobile, cloud, analytics and a host of other solutions are enabling radical changes in the way companies develop and market new products and services. Today, the Internet and cloud can offer start-ups the infrastructure they need to create new applications and potentially reach billions of customers – all at a low cost.

Moreover, the ability to innovate rapidly and affordably is not the exclusive purview of tech start-ups. Most companies with traditional business models probably already have a few radical developers on staff – they're the ones who made the system break down over the weekend by "trying something out."

When organised into small entrepreneurial teams and given sufficient guidance, CIO sponsorship, and a few cloud-based development tools, these creative individuals can focus their energies on projects that deliver highly disruptive value.

VMware adopted this approach with the development of EVO:RAIL, VMware's first hyper-converged infrastructure appliance and a scalable, software-defined data-centre building block that provides the infrastructure needed to support a variety of IT environments. To create this product, we put together a small team of developers with a highly creative team leader at the helm. We also provided strong top-down support throughout the project. The results were, by any definition, a success: Nine months after the first line of code was written, we took EVO:RAIL to market.

Clearly, rapid-fire development will not work with every project. Yet there is a noticeable shift underway toward the deployment of more agile development techniques. Likewise, companies are increasingly using application programme interfaces to drive new revenue streams. Others are taking steps to modernise their cores to fuel the development of new services and offerings. Their efforts are driven largely by the need to keep pace with innovative competitors. At VMware, we are working to enhance the user experience.

Having become accustomed to the intuitive experiences they enjoy with smartphones and tablets, our customers expect us to provide comparable interfaces and experiences. To meet this expectation, we are taking a markedly different approach to development and design, one that emphasises both art and technology. Our CIO has assembled development teams composed of artists who intuit the experiences and capabilities users want, and hard-core technologists who translate the artists' designs into interfaces, customer platforms and other user experience systems. These two groups bring different skill sets to the task at hand, but each is equally critical to our success.

As CIOs redefine and grow their roles to meet the rapidly evolving demands of business and technology, unorthodox approaches with strong top-down support will help fuel the innovation companies need to succeed in the new competitive landscape.

# My take

**Stephen Gillett**
**Business and technology C-suite executive**

CIOs can play a vital role in any business transformation, but doing so typically requires that they first build a solid foundation of IT knowledge and establish a reputation for dependably keeping the operation running. Over the course of my career, I've held a range of positions within IT, working my way up the ranks, which helped me gain valuable experience across many IT fundamentals. As CIO at Starbucks, I took my first step outside of the traditional boundaries of IT by launching a digital ventures unit. In addition to leveraging ongoing digital efforts, this group nurtured and executed new ideas that historically fell outside the charters of more traditional departments. I joined Best Buy in 2012 as the president of digital marketing and operations, and applied some of the lessons I had learned about engaging digital marketing and IT together to adjust to changing customer needs.

My past experiences prepared me for the responsibilities I had in my most recent role as COO of Symantec. When we talked about business transformation at Symantec, we talked about more than just developing new product versions with better features than those offered by our competitors. True transformation was about the customer: We wanted to deliver more rewarding experiences that reflected the informed, peer-influenced way the customer was increasingly making purchasing decisions. Organisational silos can complicate customer-centric missions by giving rise to unnecessary technical complexity and misaligned or overlapping executive charters. Because of this, we worked to remove existing silos and prevent new ones from developing. Both the CIO and CMO reported to me as COO, as did executives who own data, brand, digital and other critical domains. Our shared mission was to bring together whatever strategies, assets, insights and technologies were necessary to surpass our customers' expectations and develop integrated go-to-market systems and customer programmes.

Acting on lessons I learned in previous roles, we took a "tiger team" approach and dedicated resources to trend sensing, experimentation and rapid prototyping. This allowed us to explore what was happening on the edge of our industry – across processes, tools, technology and talent – and bring it back to the core. CIOs can lead similar charges in their respective organisations as long as their goals and perspectives remain anchored by business and customer needs. They should also be prepared to advocate for these initiatives and educate others on the value such projects can bring to the business.

My advice to CIOs is to identify where you want to go and then take incremental steps toward realising that vision. If you are the captain of a ship at sea, likely the worst thing you can do is turn on its centre 180 degrees – you'll capsize. Making corrections to the rudder more slightly gives the boat time to adjust – and gives you time to chart new destinations. Pick one or two projects you know are huge thorns in the sides of your customers or your employees, and fix those first. We started out at Symantec by improving mailbox sizes, creating new IT support experiences and fixing cell phone reception on campus. We moved on to improving VPN quality and refreshing end-user computing standards by embracing "bring your own device," while simultaneously building momentum to complete an ERP implementation. By solving small problems first, we were able to build up the organisational IT currency we needed to spend on bigger problems and initiatives.

When CIOs ask me about how they can get a seat at the table for big transformation efforts, I ask them about the quality of their IT organisations. Would your business units rate you an A for the quality of their IT experience? If you try to skip straight to digital innovation but aren't delivering on the fundamentals, you shouldn't be surprised at the lack of patience and support you may find within your company. A sign that you have built up your currency sufficiently is when you are pulled into meetings that have nothing to do with your role as CIO because people "just want your thinking on this" – which means a door is opening for you to have a larger stake in company strategy.

# Cyber implications

IN many industries, board members, C-suite executives and line-of-business presidents did not grow up in the world of IT. The CIO owns a crucial part of the business, albeit one in which the extended leadership team may not be particularly well versed. But with breaches becoming increasingly frequent across industries, senior stakeholders are asking pointed questions of their CIOs – and expecting that their organisations be kept safe and secure.

CIOs who emphasise cyber risk and privacy, and those who can explain IT's priorities in terms of governance and risk management priorities that speak to the board's concerns, can help create strong linkages between IT, the other functions, and the lines of business. No organisation is hacker-proof, and cyber attacks are inextricably linked to the IT footprint.[8] Often, CIOs are considered at least partially to blame for incidents. Strengthening cyber security is another step CIOs can take toward becoming chief integration officers in a space where leadership is desperately needed.

Part of the journey is taking a proactive view of information and technology risk – particularly as it relates to strategic business initiatives. Projects that are important from a growth and performance perspective may also subject the organisation to high levels of cyber risk. In the haste to achieve top-level goals, timeframes for these projects are often compressed. Unfortunately, many shops treat security and privacy as compliance tasks – required hoops to jump through to clear project stage gates. Security analysts are put in the difficult position of enforcing standards against hypothetical controls and policies, forcing an antagonistic relationship with developers and business sponsors trying to drive new solutions. As CIOs look to integrate the business and IT, as well as to integrate the development and operations teams within IT, they should make the chief information security officer and his or her team active participants throughout the project life cycle – from planning and design through implementation, testing and deployment.

The CIO and his or her extended IT department are in a rare position to orchestrate awareness of and appropriate responses to cyber threats. With an integrated view of project objectives and technology implications, conversations can be rooted in risk and return. Instead of taking extreme positions to protect against imaginable risk, organisations should aim for probable and acceptable risk – with the CIO helping business units, legal, finance, sales, marketing and executive sponsors understand exposures, trade-offs and impacts. Organisational mind-sets may need to evolve, as risk tolerance is rooted in human judgment and perceptions about possible outcomes. Leadership should approach risk issues as overarching business concerns, not simply as project-level timeline and cost-and-benefit matters. CIOs can force the discussion and help champion the requisite integrated response.

In doing so, chief integration officers can combat a growing fallacy that having a mature approach to cyber security is incompatible with rapid innovation and experimentation. That might be true with a compliance-heavy, reactive mind-set. But by embedding cyber defence as a discipline, and by continuously orchestrating cyber security decisions as part of a broader risk management competency, cyber security can become a value driver – directly linked to shareholder value.

# Where do you start?

There are concrete steps aspiring chief integration officers can take to realise their potential. Start with taking stock of IT's current political capital, reputation and maturity. Stakeholder by stakeholder, reflect on their priorities, objectives and outcomes, and understand how IT is involved in realising their mission. Then consider the following:

- **Line of sight.** Visibility into the balance sheet of IT is a requirement – not just the inventory but the strategic positioning, risk profile and ROI of the asset pool. Consider budgets, programmes and projects; hardware and software; vendor relationships and contracts; the talent pool, organisational structure and operating model; and business partner and other ecosystem influencers. Compare stakeholder priorities and the business's broader goals with where time and resources are being directed, and make potentially hard choices to bring IT's assets into alignment with the business. Invest in tools and processes to make this line of sight systemic and not a point-in-time study – allowing for ongoing monitoring of balance-sheet performance to support a living IT strategy.

- **Mind the store.** Invest in the underlying capabilities of IT so that the lights are not only kept on but continuously improving. Many potential areas of investment live under the DevOps banner: environment provisioning and deployment, requirements management and traceability, continuous integration and build, testing automation, release and configuration management, system monitoring, business activity monitoring, issue and incident management and others. Tools for automating and integrating individual capabilities

continue to mature. But organisational change dynamics will likely be the biggest challenge. Even so, it's worth it – not only for improving tactical departmental efficiency and efficacy, but also to raise the IT department's performance and reputation.

- **All together now.** Engage directly with line-of-business and functional leaders to help direct their priorities, goals, and dependencies toward IT. Solicit feedback on how to reimagine your IT vision, operating and delivery model. Create a cadence of scheduled sit-downs to understand evolving needs and provide transparency on progress toward IT's new ambitions.

- **Ecosystem.** Knock down organisational boundaries wherever you can. Tap into your employees' collective ideas, passions and interests. Create crowd-based competitions to harness external experience for both bounded and open-ended problems. Foster new relationships with incubators, start-ups and labs with an eye to obtaining not just ideas but access to talent. Set explicit expectations with technology vendors and services partners to bring, shape and potentially share risk in new ideas and offerings. Finally, consider if cross-industry consortia or intra-industry collaborations are feasible. Integrate the minds, cycles and capital of a broad range of players to amplify returns.

- **Show, don't tell.** As new ideas are being explored, thinking should eclipse constraints based on previous expectations or legacy technologies. Interactive demos and prototypes can spark new ways of thinking, turning explanatory briefings into hands-on discovery. They also lend themselves better to helping people grasp

the potential complexities and delivery implications of new and emerging techniques. The goal should be to bring the art of the possible to the business, informed by the realm of the feasible.

- **Industrialise innovation.** Consider an innovation funnel with layers of ideation, prototyping and incubating that narrow down the potential field. Ecosystems can play an important role throughout – especially at the intersections of academia, start-ups, vendors, partners, government and other corporate entities. Align third-party incentives with your organisation's goals, helping to identify, shape and scale initiatives. Consider co-investment and risk-sharing models where outsiders fund and potentially run some of your endeavors. Relentlessly drive price concessions for commoditised services and offerings, but consider adjusting budgeting, procurement and contracting principles to encourage a subset of strategic partners to put skin in the game for higher-value, riskier efforts. Evolve sourcing strategies to consider "innovators of record" with a longer-term commitment to cultivating a living backlog of projects and initiatives.

- **Talent.** CIOs are only as good as their teams. The changes required to become a chief integration officer represent some seismic shifts from traditional IT: new skills, new capabilities and disciplines, new ways of organising and new ways of working. Define the new standard for the IT workers of the future, and create talent development programmes to recruit, retain and develop them.

# Bottom line

**T**ODAY'S CIOs have an opportunity to be the beating heart of change in a world being reconfigured by technology. Every industry in every geography across every function will likely be affected. CIOs can drive tomorrow's possibilities from today's realities, effectively linking business strategies to IT priorities. And they can serve as the lynchpin for digital, analytics and innovation efforts that affect every corner of the business and are anything but independent, isolated endeavours. Chief integration officers can look to control the collisions of these potentially competing priorities and harness their energies for holistic, strategic and sustainable results.

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