

Advanced 365 Thought Leadership Series **2014**

# The CIO as Manager, Leader and Entrepreneur

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In what could be termed the mainframe era, spanning the 1960's into the early 1980s, IT became synonymous with mainframe computers. In this period, the IT executive started to automate back office functions and slowly reduce headcount<sup>1</sup>. The building of proprietary systems gave prominence to those with technical backgrounds, and with business knowledge taking very much a secondary (if at all existent) role<sup>2</sup>.

Towards the end of this period – in the late 1970s, the distributed era emerged. Characterised by integrated networks of PC workstations and mainframes, most software was typically delivered in packages that led the CIO to concern themselves primarily with the installation of such software, rather than its development. Towards the end of this period and leading into the web-based era starting in the 90s, outsourcing further reduced the technical component. Clearly the role of IT had already begun to transform radically from utility to strategic resource and this started to demand a different response from the CIO.

The CIO as guru, operations guy and order taker are all typologies that are being side-lined or replaced<sup>3</sup>. The skill-set of the successful CIO has changed profoundly. In the current strategic era, the CIO is '...managing a portfolio of applications, technologies, people and processes<sup>4</sup>.'

The way companies buy, build and use technology is changing rapidly, which means the teams that build it and run it will need to change too. As recently as the dotcom crash or global financial crisis, efficiency and cost cutting were critical success factors; now the CIO is being asked to demonstrate how ICT is contributing actively to the top and bottom line. Khalid Kark, research director at Forrester believes that for those who do not '...you are going to be commoditised as an entity and as an organisation, and you'll see a lot of business areas trying to get ICT on their own and trying to do things on their own because they don't get the value and support they expect from technology through the CIO<sup>5</sup>.'

This paper will look at the varying and somewhat paradoxical demands being placed on the CIO under the lens of CIO as manager, as leader and as entrepreneur. In the Harvard Business Review, Martha Heller notes that the position of CIO '...is a set of contradictions that lies at the heart of IT leadership<sup>6</sup>.' There are wishes to be increasingly strategic, yet demands persist to be operational.

New technologies, and their use and diffusion within organisations, are redefining not just the CIO role but business models in general. Arguments could be made that the CIO role encompassing all three typologies will develop. This suggests the need to manage day-to-day IT, develop better relationships both internally and externally, and help discover and implement technologies. This also brings forth the possibility of splintering of the CIO role into its constituent roles.

Ultimately, the CIO could help inform the business strategy and even help reorganise business processes and structures to help propel innovation.



The CIO is in an interesting position, never more important but now challenged by every forward facing department

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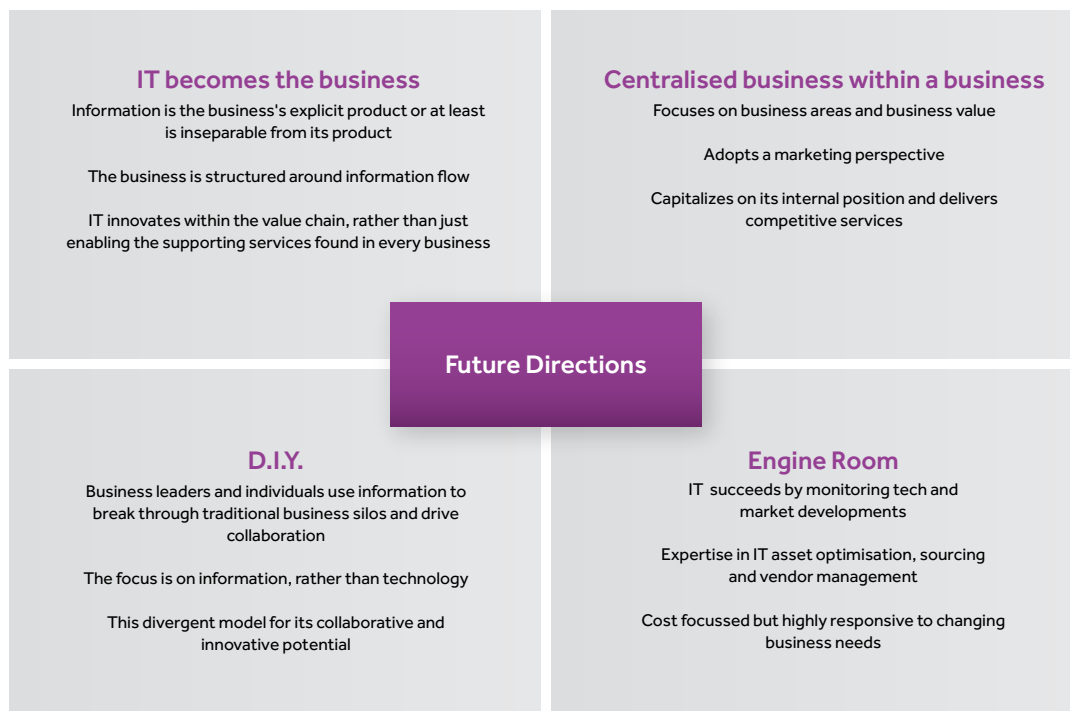
## The choice for the CIO

The CIO must deal with legacy systems whilst adopting emerging technologies and also help boost innovation, whilst ensuring the security and privacy and accuracy of data that is starting to become a flood. Five key technologies – mobile, social, big data, cloud and the Internet of Things will only reinforce this paradox. The tightrope that CIOs must walk would appear to be finely calibrated: success will see the CIO as a confirmed leader of organisational renewal and growth, whilst failure will ensure a struggle – at both the personal and organisational level. The direction in which CIOs and other executives decide their ICT function should go will partially depend on the talent and skillsets available to them. 51 percent of CIOs say change is coming too fast and 42 percent don't feel they have the talent to face this<sup>7</sup>.

There are a variety of ways in which ICT could be positioned moving into the future. (See diagram below)

It is vital that the CIO and other leaders at least articulate the desire to move along one of these broad directions as the status quo will not hold. Technology is now so important to every part of a company that business units are demanding a say in technology decisions, which is leading to fragmented CIO control. How to deal with this will help shape the path that future CIOs will operate within.

Several of these scenarios will necessitate CIOs taking a hard look at skill gaps within their own staff. Forrester VP and analyst John McCarthy is '...more worried about what happens to the rank-and-file IT worker than the CIO. CIOs will need staff that live at the intersection of mobile, social and data analytics more than they'll need network engineers<sup>9</sup>.'



It should be noted that these scenarios, adapted from Gartner, are not mutually exclusive and may exist in combination<sup>8</sup>.

The scenarios depicted will each require a differing blend of the characteristics outlined in the introduction of the CIO as manager, leader and entrepreneur. Who are these different people?

### **Managers first ask, "How?"**

which refers to actions that will deliver the strategies. They also ask "When?" "Where?" or "Who?" Managers are interested in process-related questions around projects, timetables and outputs.

### **Leaders first ask, "What?"**

which refers to strategies that will deliver the vision. They might ask "What products?" or "What technologies and for whom?" Leaders are less interested in how things will be done than in what things will be done.

### **Entrepreneurs first ask, "Why?"**

which refers to setting the vision. They will ask, "Why are we doing this in the first place?" because they are looking for new ideas. Entrepreneurs are inquisitive and reflective.

## The CIO as manager

### The role of CIO

61 percent of enterprise technology projects are now funded by the business rather than the IT department<sup>10</sup>, yet the average tenure of a CIO hovers around three or four years before they quit or are fired, and so seen through this prism, their prospects of enacting significant strategic shifts remains limited. As with earlier waves of ICT innovation, it could take years for the benefits to be realised as management and organisational innovation must accompany technological innovation<sup>11</sup>. This creates a sense of urgency for CIOs, especially as technology will enable and indeed force organisations to reassess their business models.

CIOs could make investments in developing advanced integration and data management capabilities to support such models. Gartner claims that '...over 70 percent of organisations that are using or planning to use cloud services expect internal ICT to assume the role of cloud services broker.' Managing such a transition includes challenges that extend beyond integration to include security, data integrity and reliability and '...is also creating demand for cloud orchestration to link multiple cloud services to each other – and to the core<sup>12</sup>.' This creates complexity that is being magnified by other emerging technologies, and this demands a thorough organisation level response.

### How technology could impact this role

Thanks to the internet, 2015 could herald 1.3 billion mobile workers globally, representing 37.2 percent of the total workforce<sup>13</sup>. BYOD has already increased the complexity levels associated with the mobile workforce by 2-3 times<sup>14</sup>. Operational issues of security, compliance and privacy cloud the greater strategic outlook for this new form of technologically enabled work environment. More than ever, procedural details will be critical in enabling secure and efficient mobile working. The CIO will be needed to help put the strategy in place by building a robust and flexible framework.

From now until 2020, the digital universe will about double every two years<sup>15</sup>. Since many corporate networks cannot handle the volume and variety of contemporary, let alone future, data in an efficient and economical way it has been suggested '...that a central IT department will be a thing of the past by 2020<sup>16</sup>.'

In some cases, such restructuring is already underway. Take cloud computing for example, which by year end could be worth some \$150bn globally<sup>17</sup>. By 2020, 40 percent of all the digital information in the world – not just that owned by corporations – is forecast to be stored in the cloud at one time or another during its lifecycle<sup>18</sup>. However, Kantar CIO Matt Graham-Hyde believes that '...the biggest myth (held by CIOs) is that cloud computing is not enterprise ready and is insecure and that you put your business at risk by using cloud computing<sup>19</sup>.' It is perhaps natural that technological progress should outstrip human acceptance, but from the CIOs perspective, this is a dangerous development. Digital competence is increasingly making or breaking organisations and amongst this churn, Forrester suggests that IT must become an agile service broker, or else fade away<sup>20</sup>.



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## How changing IT supply routes impact the role

For many organisations, dealing with internal issues will prove to be problematic. 'Today, non-IT people, including business executives and consumers, are either making decisions or are involved in the decision-making process,' says Capgemini Consulting. IT is being forced to adopt and play a different role as the fundamental model for IT changes. By 2017 the CMO is forecast to spend more on IT than the CIO<sup>21</sup>. Indeed, '...the interrelationship between technologies is creating unprecedented waves of disruption,' suggests Deloitte<sup>22</sup>. The share of ICT projects primarily or exclusively run by the ICT department is forecast to decline from 55 percent in 2009 to 47 percent in 2015<sup>23</sup>. The days of silo decision-making, where one person or department has control over a purchase is rapidly disappearing, and as technology is a key driver, the ramifications for the CIO are far-reaching.

The 'Evolved CMO in 2014' report by Forrester and Heidrick and Struggles found that 62 per cent of CMOs surveyed globally believe the CIO is a strategic partner in meeting corporate goals, yet only 29 percent partner with their ICT counterpart when procuring marketing technology. 41 percent said they shared a common vision of how marketing and IT should partner<sup>24</sup>. This is key from a procedural perspective and although the figure appears relatively low, it does at least suggest that many CIOs have identified the need to develop a more collaborative management style.

However, it remains essential for organisations to possess a senior figure with expertise in technologies that are of interest to various business partners, as well as ensuring the integration of such technology physically, and in terms of compliance, and doing so for the correct price.

As 85 percent or more of total ICT outlays are focused on maintaining existing systems, leaving just 15 percent for new initiatives<sup>25</sup>, it is perhaps unsurprising that the CIO is being increasingly circumvented. This need not be the case. Enterasys Networks' aggressive cloud adoption has allowed its ICT department to shift its focus. In the space of three years, ICT went from spending 60 percent of its time on operations and maintenance and 40 percent on new application development to a ratio of 30/70. Under the guidance of the CIO and other senior leaders, ICT operations staff have moved into business analyst, application developer, and user support roles<sup>26</sup>. This is not to suggest that CIO management is lessening – but rather that it can become more effective in new areas whilst streamlining the ICT focus.

Ultimately, demands for digitisation are coming from every corner of the company. The marketing department would like to run digital campaigns. Sales teams want seamless connections to customers as well as to each other<sup>27</sup>. Marketing departments' spending on ICT is rising two to three times as fast as that of companies as a whole and almost one in three marketers thinks the ICT department hinders success<sup>28</sup>. A lack of strategic coordination could be the result. Indeed, it is predicted that by 2017, 50 percent of the world's companies will ask workers to individually provide devices for work<sup>29</sup>. The IT department and the finance operation of many organisations are stretched as a result; hardly a position of strength from which to map out and account for the various privacy and security issues resulting from BYOD growth. ICT faces an overwhelming challenge as it attempts to provide a consistent end user experience across inconsistent platforms, while maintaining corporate and regulatory policy compliance<sup>30</sup>. Policies must be backed up with technological solutions - they cannot stand alone: 81 percent of workers admit to using their devices to access their employer's network without their employer's knowledge or permission - and 58 percent do so every single day<sup>31</sup>.



Certain technologies could help  
the enterprise innovate, create  
new customer experiences, new  
markets, and new opportunities

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## Do changing perceptions of IT impact the role?

Given the value of information in its broadest sense – whether it be social, big data analytics or cloud, it is alarming that less than 10 percent of enterprises have a true information strategy<sup>32</sup>. Peter Sondergaard, vice president of research at Gartner, believes a lack of confidence in CIOs among CEOs and other members of the C-Suite is causing a ‘...crisis in ICT leadership, and a profusion of new titles, including chief digital officer, chief data officer, and chief technology and strategy officer. The new titles are the result of inflated expectations for IT, the perception that companies are spending tons on IT, and the lack of business breakthroughs driven by hyped new technologies like Big Data<sup>33</sup>.’

It has also been predicted that about one quarter of all companies in the world will have created a Chief Digital Officer (CDO) seat at the senior executive table by 2015, thanks to companies increasingly looking to digitise their operations, products and services<sup>34</sup>. It is even suggested in an MIT Sloan paper that if the new wave of CDOs prove successful in their positions, they ‘...will probably be running the show in 3-5 years<sup>35</sup>.’ One upshot of this internal reorganising could be that around 40 percent of companies put marketing and IT under one SVP by 2020, as Motorola has already done<sup>36</sup>.


Perhaps the influence of digital on key organisational processes – from marketing to customer service - will lead to the blurring of the distinction between CIO and CDO. This would necessitate CIOs adapting to these key business functions or else be bypassed by the CDO. Alternatively, the move en masse of organisations to a default digital setting could well remove the need for a specialist CDO<sup>37</sup>.

## Making the case for the CIO as manager

It is likely that CIOs will turn to more simplified IT architecture to manage, through greater standardisation of software<sup>38</sup>. Since operational pressures are rising, this would seem inevitable. 85 percent of CIOs are seeing IT requirements increase significantly, with more support needed for applications that enable multiple channels, including mobile. Nearly 75 percent say time pressure for implementing IT projects is increasing as time-to-market emerges as a key performance indicator<sup>39</sup>.

How companies view ICT could be set to radically change. Information flows and data analysis could help shift the CIO paradigm, but several commentators think the new normal will ‘...split the CIO into two roles: one role focused on the strategic information needs of the company; the other focused on managing the information technology of the company (much, if not most, of which will be procured from outside vendors) and building IT functional capabilities<sup>40</sup>.’ The FT for one suggests that the benefits of the division of labour are most bountiful in the split to a chief strategic information officer (CSIO), and the latter a chief technology officer (CTO).

Broadly speaking, the future CSIO could concentrate on creating and nurturing an information ecosystem from a business rather than technological perspective. Coupled with a robust analytics capacity for extracting value from big data, this might require complete overhauls, or even mothballing of existing legacy systems. However, the CTO and not the CSIO would be responsible for the building and administration of the ecosystem. The twin roles would focus to a greater degree on operations and strategy respectively than the contemporary CIO does on either.



The change will be in the  
business model, and how  
technology is used to change an  
organisation and its interaction  
with customers

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## The CIO as leader

### The role of CIO

The need for CIOs to develop and demonstrate leadership material is 'pressing.' One good place to start could be in horizon scanning and scenario development. Google's director of engineering, Ray Kurzweil, suggests that '...if you don't model where the future will be, your plans will be wrong in a year, let alone two years<sup>41</sup>.' Harvard Business Review notes that '...it's the rare CIO who applies scenario planning to the business of IT. Yet, in a function driven by innovation and the uncertainties surrounding the application and implication of future technologies, not using scenarios is tantamount to management malpractice<sup>42</sup>.' Backing the wrong technology(ies) and failing to develop and implement alternative courses of action has accounted for several once large organisations and whilst scenario planning is not a panacea, it does provide a degree of insight and flexibility in thought and action that could help CIOs deliver an increased level of strategic value. CIOs could also build on this and show through scenarios how certain technologies could help the enterprise innovate, create new customer experiences, new markets, and new opportunities<sup>43</sup>.

Deloitte reports that 75 percent of CIOs have a clear understanding of how their ICT function can support their organisation's innovation strategy yet an almost equal number, 65 percent, do not believe their ICT function is considered a credible hub for innovation within their organisation.'

Worryingly, 40-50 percent of CIOs have not yet moved beyond researching innovation-driving technologies such as mobile, the cloud and social media<sup>44</sup>. As a result, about half of companies now practise some form of 'two-speed IT'<sup>45</sup>, – a phenomenon where there is a dual need to be safe and even slow moving in some respects but agile and reactive in other areas. Increasingly this

two-speed split is being felt between different business areas and the impact could be profound. Not only does it imply different software needs, but possibly even a divergence of organisation structure and the ability (and need) to develop business ecosystems and deeper forms of external relationship. In many ways, this is at the crux of why leadership characteristics will be increasingly important. Knowing which areas to keep steady (or operational) and which areas to 'accelerate' and how to enable each - with regards to specific technologies, policies and even talent requirements - will feed directly into overall business strategy.

There is little doubt that the often conflicting pressures – of being both strategic and tactical – will cause several CIOs to lose their influence and position. Those who adapt most readily to the new normal will likely thrive however, given that 80 percent of respondents at the Forrester CIO Forum believe that technology would remain a differentiator in 2020<sup>46</sup>. Of course, an alternative reading of this could posit that getting 'technology' wrong will be a major differentiator. Perceptive CIOs are starting to realise that management of risks originating from technology is insufficient, regardless of effectiveness. Rather, Deloitte notes '...they understand the imperative to exploit technology to manage risk across the entire enterprise, not merely within the IT department<sup>47</sup>.' Risk intelligent CIOs could increasingly harness technology to embed risk management into the organisation's day-to-day operations. The introduction and use of a common language across the organisation, augmented by metrics to measure could fast become a feature of the new CIO-as-leader era.

For the attentive CIO, one major issue will undoubtedly surround the nascent Internet of Things (IoT). Some estimates suggest 50 billion

devices will be connected by 2020<sup>48</sup> - CIOs must actively identify possible business outcomes, address inherent security and data issues, and most pertinently, partner with other leaders and stakeholders to ensure alignment between the use of the technology and organisational goals. IT, more generally, must also ensure that standard protocols are adopted in order for the IoT to be truly able to engage and communicate across new networks and spaces. Clearly, the 'Internet of Silos'<sup>49</sup>, scenario resulting from a lack of coordination and standards is best avoided, and significant effort must be given to ensure this happens.

### How technology could impact this role

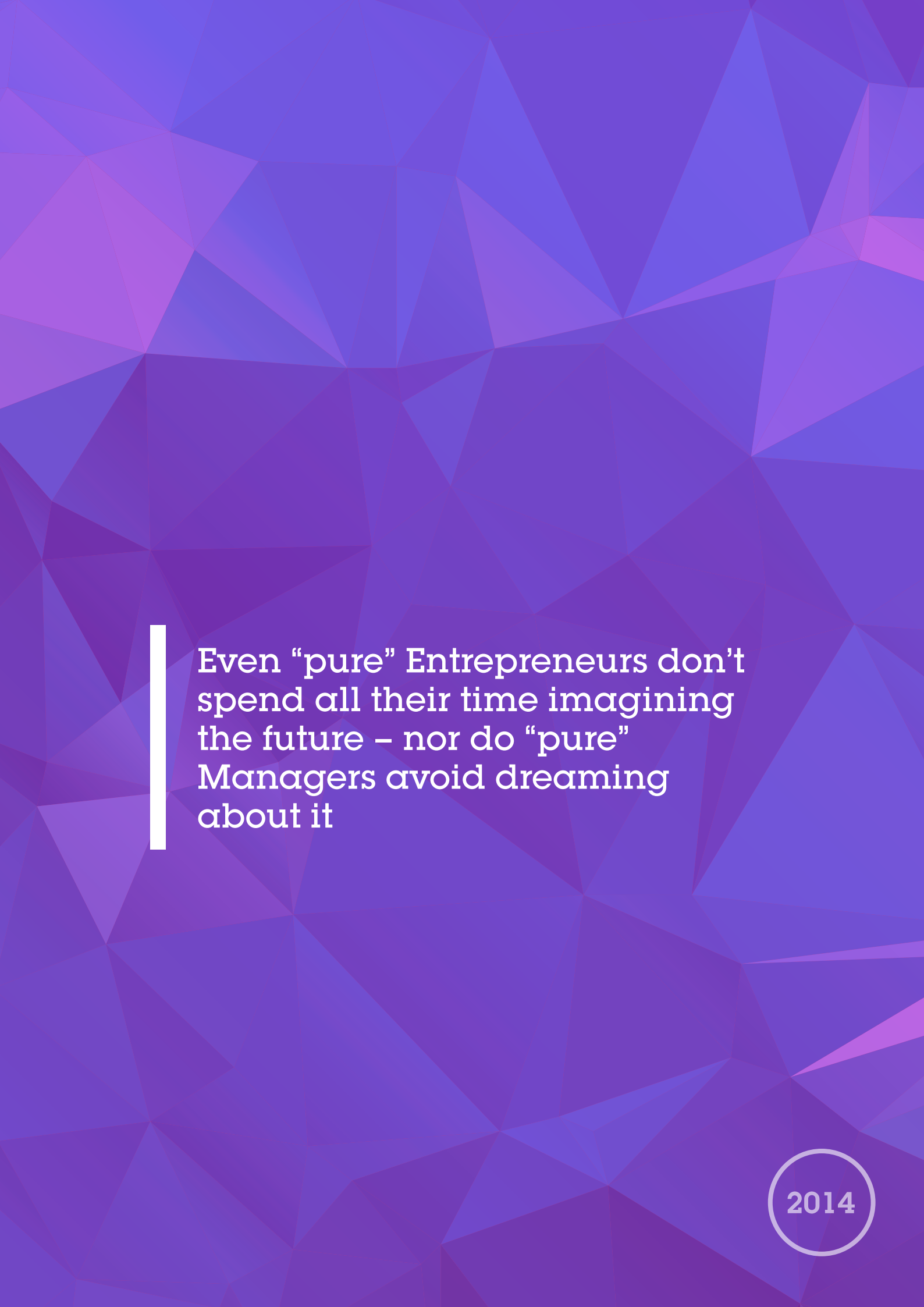
Innovative technology is redefining every industry and will greatly transform the requirements of the CIO, the internal composition of organisations and the wider operating environment. In several cases technology will compress the distance between the three: A.T Kearney suggests that by 2020, technology '...tools designed to maximize the value of customer connectivity and interactions will emerge as a top priority, driving up ICT spending. These tools include ones devoted to personalised marketing campaigns, data analytics and online-ordering systems. At the same time, overall technology requirements will increase, as well as the pressure to complete projects faster<sup>50</sup>.' In addition, the evolving and increasingly mobile, internet, social tools, big data and the cloud will continue to rewire markets and companies internal structures.

It is estimated by McKinsey that widespread business use of social technologies could yield \$1.3 trillion per year of new value into the economy<sup>51</sup>. Two-thirds of that value could come from improved social collaboration within or between companies, which could translate into a 20 to 25 percent improvement in the productivity of knowledge workers. In order to achieve this, businesses must become social, as opposed to just using social

tools, which requires a major reconfiguration of internal structures and processes.

### How changing IT supply routes impact the role

ICT supply routes have been disrupted and reworked. The decisions surrounding what to own, what to outsource and which forms various collaborations should take are increasingly strategic. New ICT routes will reflect the new realities of work for many organisations: that is to say decentralised, mobile and increasingly from outside the organisation. McKinsey suggests that closely aligning technological choices with structural and organisational forms will have the greatest impact. 'The next leap forward in the productivity of knowledge workers will come from interactive technologies combined with complementary investments in process innovations and training. Strategic choices, such as whether to extend collaboration networks to customers and suppliers, will be important<sup>52</sup>.' For example, Gartner predicts that by 2017, more than half of consumer goods manufacturers will receive 75 percent of their consumer innovation and R&D capabilities from crowdsourced solutions<sup>53</sup>. Consumer goods companies are engaging crowds much more aggressively and with increasing frequency using digital channels to reach a larger and more anonymous pool of intellect and opinion. The exchange of ideas encouraging co-creation will increasingly set tomorrow's agenda<sup>54</sup>. Crowdfunding, from \$6 billion globally in 2013<sup>55</sup> and an expected \$16.6 billion in 2014<sup>56</sup> could explode to a \$93 billion dollar process in emerging markets alone by 2025<sup>57</sup>. The mechanisms of collaboration, curation and crowd creation will become critical skills and processes for businesses – and how to organise technologically for this will be critical. It has been well established that several technologies are proving powerful enablers of new consumption and delivery models. However, there is often considerable complexity barring



Even “pure” Entrepreneurs don’t  
spend all their time imagining  
the future – nor do “pure”  
Managers avoid dreaming  
about it

2014

successful implementation. The EIU suggests that internal co-ordination (selected by 33 percent of respondents), technical complexities (30 percent) and compliance regarding data privacy and protection (27 percent) are viewed as the key difficulties in implementing these technologies and delivery models<sup>58</sup>. As perceptions of ICT continue to change, CIOs leaning more towards their strategic role of leading in areas of their expertise would do well to base their future efforts around these three issues.

### Do changing perceptions of IT impact the role?

PwC estimates that, in total, less than 1 percent of Board directors have technology experience, and less than half believe they can make appropriate technology decisions. Some estimates posit that close to 90 percent of Board members feel ill-equipped when it comes to technology<sup>59</sup>. Clearly these numbers tend to suggest that technology oversight is at best incomplete, and such assumptions appear to be confirmed with figures from Kellogg School in the U.S.. They suggest that 75 percent of executives aren't confident in the value of their technology investments, 70 percent of ICT projects deliver disappointing results and that 35 percent of projects fail outright. In short, business leaders well versed in technology are needed, at both Board and C-suite level.

However, according to the 2013 CIO100, 78 percent of UK-based ICT leaders have Board level positions and over half report directly in to the chief executive<sup>60</sup>. Furthermore, globally, 45 percent of companies expect to have a CIO on the Board of directors by 2020<sup>61</sup>. The need for some sort of Board level technological expertise is telling. Deloitte's *Directors Alert 2013* lists the top issues facing boards, including cash management, getting ahead of the next regulatory wave, winning the war for talent, innovation and others. These issues are compounded by day-to-day responsibilities such as '...CEO succession, executive compensation, crisis

and risk management, and the on-going rise of shareholder expectations in a recovering economy<sup>62</sup>.'

The danger for companies is that such an exhaustive list may preclude technology from the level of attention it deserves as a business catalyst, hence the clear need for CIO involvement. Whether or not CIOs are ready to respond remains questionable however: competencies that have made great CIOs can get in the way of being a great Board member. About 50 percent of sitting CIOs have broken through the 'techie stereotype' and are moving toward becoming business leaders. Only 2-5 percent of CIOs are viewed as potential CEOs and possible Board members<sup>63</sup>, and it is incumbent upon CIOs to demonstrate their leadership potential and for them to display their business sense to help redress this organisational necessity.

### Making the case for the CIO as leader

As noted by HP, '...As the world increasingly becomes digital, the CIO pretty much has his own destiny in his hands<sup>64</sup>.' Those that demonstrate an ability to initiate and enact upon a vision of how ICT can become a strategic, value adding entity. As Forrester observed in 2011, '...the CIO's number-one job in the coming decades will be to drive business results - and by definition this requires CIOs to reshape ICT for future success. Failure by CIOs to recognize this shift and shape a new ICT for the future will result in turnover in ICT leadership. CEOs can no longer afford ICT leaders without the vision and influence to effect business change<sup>65</sup>.' Change is inevitable, and in a multitude of ways: only 10 percent of CIOs are women - less than the average percentage of women working in IT<sup>66</sup>. The shift towards the CIO as a leader should also be accompanied by a change in culture. The CIO needs to articulate and demonstrate how ICT can work across silos to help units meet their goals, and ultimately to align business strategy cohesively.



## The CIO as entrepreneur

### The role of CIO

Peter Drucker famously noted that '...the entrepreneur always searches for change, responds to it, and exploits it as opportunity<sup>67</sup>.' Seen this way, it is not as giant a leap as it appears, to suggest that an entrepreneurial capability forms a significant part of the emerging CIO skill set.

Anna Frazzetto, senior vice president at Harvey Nash, suggests that 'CEOs will require CIOs to have experience starting a company, running a line of business or devising a new product line. No exceptions. Familiarity with marketing a product or service, even creating a launch campaign, will be part of the job<sup>68</sup>.' Robert Laskowski, president and CEO of Christiana Care, suggests that his CIO is an '...operational strategist', turning mission needs into practical action and tools. 'IT here is not a technology issue for us, or even a means to an end, but a catalytic enabler of a whole new way to practice our profession<sup>69</sup>.'

The rationale, in part, is that the CIO of the near future should be aiming to link people and ideas (including where necessary, data flows) across the company and between companies. Collaboration, creativity and agility are core components of the modern organisation and are often areas familiar to those inhabiting the start-up space. Facilitating organisational agility, extending the boundaries of the organisation<sup>70</sup> and developing an awareness and capability of technological trend scanning would not only ensure CIO success, but initiate the wider organisational change more generally needed to compete. It is also possible that one skill-set or mindset – that of a venture capitalist – will be increasingly sought. CIOs could '...actively manage their ICT portfolio in a way that drives enterprise value and evaluate portfolio performance in terms that business leaders understand — value, risk and time horizon to reward<sup>71</sup>.'

The need to evolve into a digitally centred environment replete within a larger ecosystem is largely recognised, as is the need to use social tools and other collaborative technologies to enable that. By articulating the vision for the future, CIOs have the potential to '...provide the platform upon which innovation is encouraged, nurtured and manifested<sup>72</sup>.' Indeed innovation in management is perhaps even more critical to the CIO than technological innovation as the latter cannot fully form without the former. In many ways the CIO is well positioned to be the resident futurist at many organisations. At the very least the CIO as entrepreneur should be able to act decisively on core issues. Information, in all its guises will become the lifeblood of many organisations. The opportunities are so significant that the EIU suggests that '...for those who can master it, "big data" will become a business of its own<sup>73</sup>.'

### How technology could impact this role

The Internet of Things (IoT) – linking people, processes, data and buildings could be a problem affecting the nature and volume of data gathering. Cisco estimates that 99.4 percent of physical objects in the world are still unconnected<sup>74</sup>, with only about 10 billion of the 1.5 trillion items currently connected globally. Given the potential value of the IoT - \$14.4 trillion to 2022 by some counts<sup>75</sup>, there is clearly a business rationale for developing a strategic approach to what, how and where the IoT can be used to unlock new value streams and create new businesses. There can be no doubt that larger organisations have some operational advantages when it comes to anything at scale, but questions remain of whether they have the correct mind-set when it comes to big data.

A related issue is that several of the key technology trends are not pure technologies

per se. This makes sense when we consider that '... the change will be more about the business model, and how technology is used to change an organisation and its interaction with customers, rather than some major technology change on its own<sup>76</sup>.' Digital convergence is increasingly eroding boundaries – both within organisations and between the organisations and the wider ecosystem and operating environment.

With the raft of new technologies creating opportunities and issues for businesses, the CIO should be ideally placed to oversee a new era, with one caveat. The nature of change allowed by this raft of new technologies requires a new corporate mind-set, a new business model and new procedures – and it is precisely these areas in which incumbents often struggle. It is also where entrepreneurs typically thrive.

### How changing IT supply routes impact the role


The new mobile and social business models bring myriad challenges and contradictions, notes Wharton management professor Harbir Singh. 'Most businesses today understand that they need to exist in an "ecosystem" that includes other companies, some of them competitors<sup>77</sup>. 'Ecosystems have intense implications for how companies plan for the future and it is the job of enterprise architects (EA) to help build the infrastructure and its dynamics to support innovation and enable successful strategy execution. The need for a close relationship between the CIO and EA is clear, but success also depends on a new appreciation of external collaboration and risk tolerance. This not only requires the CIO to develop a clear knowledge of how various technologies work in synergy but more pertinently, of how such ecosystem wide collaborations could be monetised.

Perhaps key to the idea of CIO as entrepreneur is the idea of risk tolerance. Here the concept of two speed ICT again becomes important. Clearly risk tolerance when it comes to data security, finance functions etc. must be low, but in areas that can provide competitive advantage, there is scope and even need for the CIO to be less risk averse, at least on a limited scale. With regards to internal collaboration, there is still scope to extract value from existing ICT processes and reorganising internal ICT supply routes. For example, '...BMW CIO Karl Probst created a governance model that coordinates all digital assets, including robots, CAD, traditional ICT systems, ICT in sales, and in-car IT. With this and many other changes, BMW can now produce completely customized cars in six days<sup>78</sup>,' adding a greater degree of organisational agility. Such reorganisation also helped rebalance the ICT spend ratio on existing infrastructure/new spend to 50:50 – which is widely considered as leading-edge.

### Do changing perceptions of IT impact the role?

Such examples of ICT contributing to agility, flexibility and ultimately producing new value are still far from established as being the norm. ICT departments are often described as cautious, risk averse, and only interested in operational matters. This criticism is echoed in the results of an *Information Week Survey* of 382 ICT and non-ICT business professionals. When asked if ICT is foremost a support or maintenance organisation, as opposed to an innovation engine, 39 percent of ICT professionals agreed but 54 percent of non-ICT professionals agreed<sup>79</sup>.

However, the pressure to enact such attributes will increase. Kantar notes that '...in this revolutionary time, CEOs, and in particular CMOs, are under massive market pressure from their customer base to be more digitally relevant and have faster product developers. As the world moves at digital speed, all businesses will become technology businesses<sup>80</sup>.'



The Board might wish to consider how it needs to change itself to oversee what has become an increasingly strategic resource of the organisation - ICT and the CIO

Advising the business on how technology can help achieve more, and in some cases even fuel innovation and new business opportunities, is clearly of import. So is introducing technologies and related work practices that cannot actually induce change. Clearly the CIO has the potential to be a key pillar of organisational renewal, rather than a support function<sup>81</sup>. Advisor Group, a subsidiary of multinational insurance company AIG, was on the brink of being sold or disbanded in 2007 because it was losing business. 'The broker-dealers and investment advisers who used the company's client-management tools and forms were not seeing enough value to convince them to stay<sup>82</sup>,' until the CIO, David Ballard, intervened. He decided on the development of a one-stop online portal for all the services and processes that used to be scattered and paper-based. In essence he crafted a basic service that enabled advisers in their daily work lives. As a result, the adviser retention rate grew steadily from 86 percent in 2009 to 98 percent in 2012. Through close consultation with the advisers and broker dealers, Mr Ballard realised that his company could gain a competitive advantage by automating this process. Whilst not revolutionary in any technological sense, this platform was reportedly the first in the industry as of 2012.

Developing partnerships with other key stakeholders, understanding customers and placing themselves at the heart of business critical issues will be key. The ability to demonstrate value for various business units will be also dominate, as there '... is not so much a concern about the nature of the technologies themselves, but rather about humans' continuing ability to influence how they operate to the benefit of the organisation, its customers and other stakeholders<sup>83</sup>.' Nearly four in ten worry that '...their organisations will be unable to keep up with technology change and will lose their competitive edge<sup>84</sup>.' If the CIO can develop a culture that enables flexibility and agility with technology, then the perception of ICT will almost certainly change for the better.

## Making the case for the CIO as entrepreneur

The primary role of the CIO in innovation, according to 22 percent of 'Top Performers', is to create new products and services<sup>85</sup>. Since technological innovation will continue and consolidate as a core business process and differentiator, somebody will be needed to make sense of it all at the macro level<sup>86</sup>. Today, just 10 percent of CIOs are responsible for owning and driving digital strategy, innovation, and ultimately, disruption. By 2018, Forrester predicts that number will rise to 20 percent and another 50 percent of CIOs will co-own business outcomes that are tied to disruptive innovation and strategy<sup>87</sup>.

They need to drive digital business in its totality, simplify organisational (and IT) architecture and redefine the strategic delivery of IT across the organisation<sup>88</sup>. Nobody else has the scope to affect all three of these critical levers. Nor does anybody have the potential reach to remove the barriers to greater organisational and business model change. Indeed, Michelle McKenna-Doyle, CIO of the NFL believes that a lot of contemporary CIO's are in a good position – organisationally - for being the agent of change. 'A lot of the revenue-driving ideas actually live at the base level of the people keeping the lights on. They're the ones who will see the most waste or the most opportunity<sup>89</sup>.' The changing technological environment is changing faster than most people's, and organisations', ability to adapt. As a result, organisational change must now often accompany the widespread infusion of technology into a given business. By enhancing internal co-ordination, reducing technical complexities and crafting effective compliance for data privacy and protection, CIOs can help launch business into the digital era successfully.

## Identifying the CIO as Manager, Leader and Entrepreneur

It is important for each organisation to define what Manager, Leader and Entrepreneur mean in their own context. For example, an Entrepreneur in the military will have a very different meaning from an Entrepreneur in an advertising agency!

**Manager** – delivers today. Works with the Leader and Entrepreneur to drive out value from the organisation. Manages the business for commercial success.

**Leader** – plans for tomorrow. Works with the Entrepreneur to design a new position. Leads people into tomorrow by engaging them in change throughout the organisation.

**Entrepreneur** – dreams about the future. Seeks out change. Shares ideas with others and innovates against those changes to gain commercial advantage.

We are all a mix of Manager and Leader and Entrepreneur. This means we can all do the things in each profile – it's just that we usually prefer to do things within one or two of the profiles. Anyone can come up with a vision, make a plan, or deliver on a target. But if you only have 10% of one profile while someone else has 60%, they will have a much stronger preference to achieve the task.

Everyone's profile is a mix of Entrepreneur, Leader or Manager. Even "pure" Entrepreneurs don't spend all their time imagining the future – nor do "pure" Managers avoid dreaming about it.

### **Manager**

Manager – delivers today. Strong on process.  
Brilliant at capability

Managers are brilliant communicators and very effective at managing people's capability. This means they are also great people to manage

processes. They are good at lining everyone up and developing people through coaching and learning. The Manager secures the commercial return for the business.

Most organisations have more Managers than Leaders or Entrepreneurs, which is great for business because Managers can take innovative ideas and make them work. Managers are practical, grounded in today's reality and essential to keep the business wheels turning.

Each profile needs the other two. The Entrepreneurs might develop novel solutions – and Leaders might fire everyone up – but Managers make the ideas work!

### **Leader**

Leader – plans for tomorrow. Strong on people.  
Brilliant at behaviour

People follow Leaders because Leaders are good with people and understand behaviour. Imagine a race of ducks in flight. Which is the leader? The one in front. If you do something first, and people follow you, then you are a Leader. They don't have to be innovative, they simply have to be first and have the ability to take people with them.

Leaders help people engage with change by inspiring them and generating a buzz. Often, they might be leading people into a new situation that has already been designed by the Entrepreneur. They are quick to identify opportunities and capitalise on ideas which they can communicate effectively to others. They aren't the original innovator and usually get their ideas from an Entrepreneur but they can apply their foresight to translate these into strategies to be implemented by the Manager.

## Entrepreneur

Entrepreneur – dreams about the future. Strong on ideas. Brilliant at vision

Entrepreneurs live for change, ideas and innovation. Entrepreneurs can always suggest lots of ideas and are very adept at inventing and designing visions of the future. But don't necessarily have to design something totally new. Entrepreneurs often bring a change into their organisation that other organisations have adopted many times before. The important thing is that the Entrepreneur's organisation has never taken on this particular change before.

Entrepreneurs are innovators, the ideas person with plenty of start-up energy. In big corporations they are typically asked to launch novel products or create new business units. But the "pure" Entrepreneur usually doesn't have the required Leader or Manager profile to convert new product into sustainable sales, for example. Today, many "pure" Entrepreneurs work in small or medium sized businesses, feeling they don't belong in the corporate world as their skills are not always understood or appreciated.

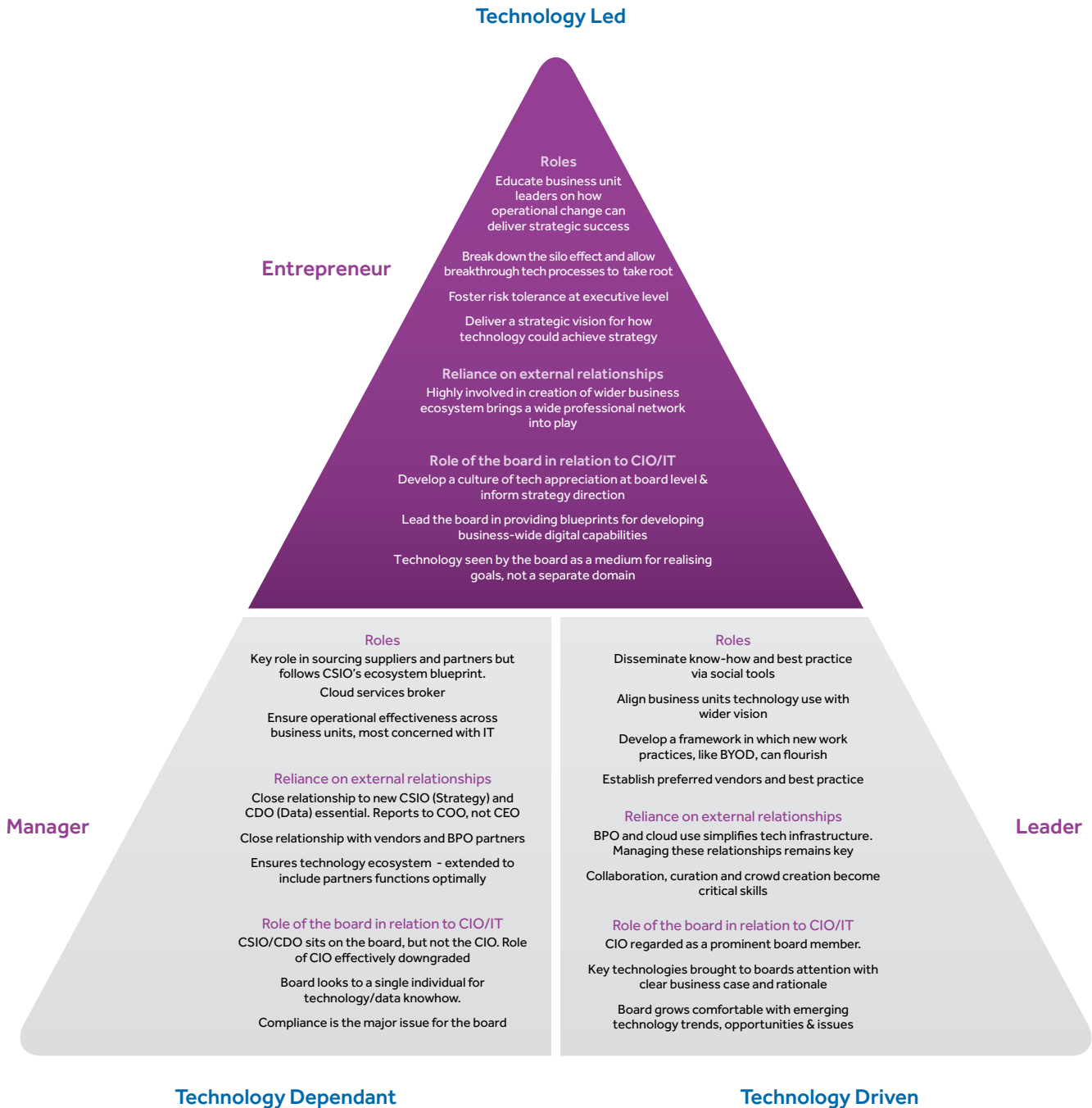
## The role of the Board

It will be as important for the Board of the organisation to be clear about what profile they are looking for in their CIO as it is for the CIO to identify what's required of them by the organisation. The Entrepreneur-Leader CIO is likely to display far more energy looking at the strategic future of the organisation and how new and often breakthrough technologies can help achieve it. The Manager-Leader CIO will tend to focus on the rigours of creating a harmonious, service oriented, value generating ICT eco-system and infrastructure for today. Neither are wrong and all these orientations will be required in order for the organisation to thrive in these turbulent times, but the question is - Which are the most important profiles you need in the CIO now?

To support this we have prepared a matrix aligning an organisation's reliance and attitude to information communications technology with the Board's primary requirement of their CIO.

(Please see overleaf )

Fig: Aligning the primary role of the CIO with the organisations relationship with ICT





## Strategies

Aligning ICT resources and priorities with the organisations strategy remains critical, probably more important than at any time in the past. So the approach to ICT will differ according to the strategy being employed and one can make the same judgement on the leader of this critical function as well. Porter posited back in the 1980's that there are really only three basic strategies - Market segmentation and focus, Product and service offer differentiation, and Cost leadership (or in other words, price).

A differentiated strategy could well need a strong outwardly focussed view of ICT, looking for new innovations to separate the firm's proposition from those of their competitors. Equally, a cost based strategy would require focus on new implementations of ICT that can lead to more efficient operations, supplier engagement and business channels. As we have been discussing in this paper, we all have each of the three characteristics of Manager, Leader and Entrepreneur within us but in very different combinations. The desired attributes of your CIO will be heavily influenced by your strategy and reliance on ICT to deliver that strategy. The diagram on the opposite page seeks to help you identify your positioning and thereby the primary attribute of your CIO.

## Next paper

In our next paper we will consider the use of ICT and the engagement of the CIO from the Board's perspective. Discussing how best to align the strategic intent of the organisation and its operational goals with the role of the CIO and ICT itself. The Board might wish to consider how it needs to change itself to oversee what has become an increasingly strategic resource of the organisation - ICT and the CIO.

## Summary

Understanding what role current and future technology will play in the development of the organisation has always been key. What has become clearer however, is that identifying the right attributes of your ICT leader is now a critical strategic decision. CIO and CMO (marketing) will need to be best 'buddies' as ICT plays an ever increasing front-of-house role, particularly with interaction and engagement with customers. In addition, business models are shifting rapidly in many industries, including some quite conservative industries such as banking, insurance and pharmaceuticals and the CIO will need to be just as aware of these changes as they might be about the next big technologies. The Chief Digital Officer and the Chief Strategic Information Officer are new roles on the block and these could be embodied in a CIO or may become animated by new people advising the Board on the capabilities and risk that ICT brings. The CIO is in an interesting position, never more important but now challenged by every forward facing department on the use of ICT, along with new roles emerging which could undermine the CIO as pre-eminent adviser on technology to the Board.



### About Advanced 365

Advanced 365 is a leading UK based provider of CIO Advisory, Business Innovation Solutions and Managed Services. Over 250 organisations rely on our expertise and service excellence to improve their operational efficiencies, control costs, and capitalise on digital business opportunities.

Advanced 365 Business Innovation has over 25 years' experience as a leading provider of pioneering software solutions, with tens of thousands of organisations using our products and services. We enable our customers to increase business value and maintain competitive advantage by maximising the potential of existing data and applications, combining core systems with latest technologies.

Within our CIO Advisory Practice, we work with CIOs, CFOs and other senior managers to address immediate and long term opportunities and issues such as:

- Business and Financial Alignment,
- Operational Transformation, and
- Technical Strategy.

Advanced 365's relationship with David Smith is one of many relationships we have with prominent industry leaders to ensure we can provide the very best ideas, innovation and thought leadership in the industry to our clients.



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Global Futures and Foresight (GFF) is a strategic futures research organisation. The aim of GFF is to develop views of the future to help their clients embrace change with more certainty thereby releasing the full power of their creativity and innovation. GFF helps its clients to reduce their risk of being blindsided by change and to be better enabled to adapt to the fast changing world.

GFF clients number some of the largest and most prestigious firms from around the world including: NATO, HSBC, Lloyds/TSB, RBS, Lloyds, More Than, e-sure, Kraft, Mars, Steria, CSC, Unisys, Cisco, Microsoft, Siemens, Equinix, Deloitte, Ernst & Young, PWC, CBRE, Royal Mail, Bausch & Lomb, Linpac, Kraft, Heinz, SAS airlines, Philips and many other businesses and academic institutions.

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