



ConnectedCIO

Strategic player of business
transformation

DELLTechnologies

CONTENTS

MORE THAN JUST KEEPING THE LIGHTS ON

The strategic CIO

5

CLOSING THE INNOVATION GAP

The shift to digital

12

EVOLVING THE BUSINESS AT ITS CORE

Transforming IT

23

PRIORITIZING YOUR GREATEST ASSET

Transforming Workforce

33

PROTECTING THE ORGANIZATION'S LIFEBLOOD

Transforming Security

43



Introducing the **modern Connected CIO:** *The Great Juggling Act*

As a modern-day CIO, you are the facilitator who builds the right connections between the virtual and the physical world. You have to make sure every data point is captured and can be used to advance the business. Why? Because data is the next big challenge for today's CIO. It's also the great value creator, which means that IT now has more means to move away from the idea of 'cost center' and towards innovation projects that will help propel the business forward.

As I travel around the region meeting with CEOs and CIOs, a common discussion point is the changing role of the CIO. No longer simply leading a back-office support function, IT is now also about empowering employees through better and more innovative customer experiences, both inside and outside the company.

This also means that yesterday's CIO must now morph into a hybrid, "Connected CIO" who is both technology-minded and business savvy. They combine technical expertise on big data, analytics, security and the Internet of Things with a deep understanding of business processes.

The Connected CIO must also possess the people skills needed to steer both employees and the organization through this swelling data stream and the overall digital transformation. To make matters even more complicated, the democratization of information technology has given business departments more purchasing power, forcing CIOs to cover all bases while preventing shadow IT from compromising the overall IT strategy and architecture. Speed of implementation (and thus agility) will become crucial here, too. As consumers we expect instant gratification, and this mindset is increasingly gaining ground within our professional realities as well.

These are certainly interesting times for the CIO. With this booklet, we want to help you as a CIO prepare for the challenges and opportunities this role will offer in the upcoming years. We will also demonstrate how you can guide your company successfully through Digital, IT, Workforce and Security Transformation. I look forward to reaching out to you and gathering feedback from your experiences

Best wishes

Aongus Hegarty,
President, Dell EMC, Europe,
Middle East and Africa



Introducing the strategic CIO: Someone who is both technology-minded and business-savvy.

Perhaps more than any other executive role, the CIO is dealing with a growing range of challenges and pressures: they need to be increasingly proactive and agile in an unpredictable and disruptive business environment. That said, digital leaders need to look at the bigger picture and focus on innovation as well as providing the usual excellent IT services.

Evolving towards a dual role, the digitally transformed CIO means business

Gartner predicts that by 2020, 100% of roles in IT will require an intermediate level of proficiency in business acumen to effectively execute on digital business strategy. That means understanding the business, interacting with visionaries across the organization, and driving a smart digital agenda. Technology will always be the foundation, but now business outcome is the mind-set.

CIOs are developing new skill sets that extend further than running a great IT organization. They are now expected to drive revenue and contribute to bottom-line goals and company growth. Only a CIO with business acumen can execute on a digital leadership strategy that will

make the business more efficient but also actually create new, profitable digital sales channels. It's about reaching a higher level of maturity as a business partner, change agent and transformation leader.

Every great CIO's strength lies in their ability to change and adapt. That's why the demands of this new world order won't be a reinvention but a reaffirmation of the CIO's place as a visionary, digital strategist, and a key driver of business growth.

Toyota CIO and VP, Albert Ma, has seen IT become much more of "the business" in driving success within the organization. He said: "We have seen a shift from back-office activities like process improvement and optimized efficiencies, to more customer-facing, revenue-generating capabilities. Our executives really understand this and we're working together to see how we can drive business outcomes using IT."

Moving away from back-office tasks

Transitioning to a disruptive mindset takes time, plus it requires new skills. Traditionally it could be said that the majority of CIOs were hired from within the IT department whereas today there is an increasing emphasis to speak the language of the C-suite to collaborate and execute line of business strategy.

31%

CIOs are increasingly able to devote time to strategic tasks such as business innovation, while maintaining oversight of IT operations.

Source: CIO.com's
State of the CIO, 2017.

Where IT is headed, are you too?

From back office orientation

Function-centric organization

Measured on release & availability of systems

System and technology-focused

Consolidated and top-down decision making

Project management

Security handled by security

To front office leadership

Aligned to capabilities and the business

Measured by business outcomes

Customer and business-focused

Distributed decision making by teams

End-to-end delivery

Information Security is in everyone's charter

WHAT ARE THE CIO'S TOP CHALLENGES?

CIOs have a lot on their minds these days. Here are just some of their concerns:

Budget and removing technical debt

IT budgets continue to be squeezed. The vast majority of those budgets are dedicated to support activities that don't move the revenue needle or add perceived value – tactical work like system maintenance, upgrades and security patches – while also maintaining security and regulatory requirements. That leaves a lot less of the IT wallet for innovative, boundary pushing work that enables a company to differentiate itself and become a revenue changer.

A pragmatic way to mitigate risk while addressing declining budgets is to modernize and automate to take cost out of maintaining legacy assets. Streamlining and modernizing takes cost out of maintaining legacy kit while addressing risk.

Leveraging disruptive technologies

With the proliferation of mobile services, smart devices, connected sensors and big data flows on one hand, and the need for real-time insights on the other, it is safe to say that data is transforming traditional businesses into digital entities. And it's your role as CIO to steer this change.

Building a high-performance digital culture

Success depends on your people. According to Forbes 'Digital Transformation is not just about devices and hardware. It must be accompanied by a shift in culture – one that trusts its workers, that empowers them with technology and that enables users to become the creators.'

A key challenge therefore, for any CIO, is to ensure that the skills of employees are apace with the changes in technology, and ensure the IT talent pipeline is robust enough to meet the business outcomes of the organization.

"The strategic CIO is about developing new leadership and entrepreneurial skills in an environment where we can drive business value and be more involved in generating revenue while becoming more agile and efficient – making sure, as we look out to 2030 we prepare for what our customers want and what the business needs in order to thrive."

Bob Savage, EMEA CIO, Dell EMC

'The Encyclopedia Britannica was the world's preeminent reference source. A central authority determined the priorities, the work was conducted by a cadre of prequalified experts, the findings were centrally controlled. In 2001, Wikipedia was born, creating a completely different cultural model. Priorities and work assignments were generated by popular consensus.

Work was distributed across tens of thousands of end-users. Most significantly though, Wikipedia instilled a culture of trust, end-users were trusted and empowered to create the content, to maintain quality control, and to adhere to minimal, but strict, standards set forth by management.'

Source: Forbes Insights: The high-performance digital culture: empowerment, trust, and the new equilibrium between the employee and IT

Digital business is driven through collaboration

Functional Lines of Business are leading digital transformation initiatives and forcing decentralization from the IT organization. For example, the CMO knows AI is key to making intelligent recommendations to customers.

However well intentioned, this siloed innovation has given rise to Shadow IT where business units suddenly feel it necessary to draw up their own IT agenda, or worse still, initiate and finance it from the functional area budget without the knowledge, involvement, or support of

corporate IT. "Technology is becoming easily available and accessible to everyone, therefore companies in Europe are witnessing the surge of business funded IT investments. By 2021, LOBs will fund half of the IT spending, meaning that business managers will increasingly make decisions independently and without the approval of IT departments," said Andrea Minonne, research analyst, IDC Customer Insights and

Analysis. Furthermore, Gartner estimates that by 2020, a third of successful attacks experienced by enterprises will be on their shadow IT resources, so it is best for CIOs to nip this trend in the bud and tackle it head on by providing 'as-a-Service' offerings and matching the needs of the business.

Source: Gartner's Top 10 Security Predictions 2016, Gartner, 2016



CIO sponsoring change and enabling lines of business

To deliver high-quality service to end-users, CIOs themselves and IT teams need new skills. Up until now, traditionally, IT organizations have been built to provide reliable computing resources and services, yet they may not be culturally or structurally built to enable and manage disruptive change.

To stay relevant for the business, the IT team is developing:

1. Strong relationships with the lines of business (LOB): Being fully responsive to LOB requirements is a first crucial step to improve the performance of the IT workforce. It will also constrain shadow IT. For this, IT employees need to expand their business skills.

2. A strong service orientation: Ultimately, all organizations want to achieve outstanding customer satisfaction. The IT workforce can contribute to this overall goal by optimally supporting and understanding the LOB. This requires IT employees to see the bigger picture, develop their communication skills and identify new ways of using technology to move the business forward.

3. An increased focus on financial management: Leveraging a chargeback method for IT – i.e. assigning direct costs for IT services and passing them on to the LOB – will improve the prioritization of business issues and needs from a technological perspective.

54%

of LOB decision makers feel that the IT department controls too much of the Technology estate that if changed, would enable them to innovate more.

Source: IT Organization Imperatives:
Key Behaviors to Drive IT Transformation,
IDC Market Spotlight, 2017

55%

of enterprises that leverage a chargeback method report a 55% bigger improvement in customer satisfaction compared with organizations that don't.

Source: IT Organization Imperatives:
Key Behaviors to Drive IT Transformation,
IDC Market Spotlight, 2017

140%

Enterprises that have a strongly service-oriented IT organization see a 140% bigger improvement in the time employees spend on serving customers than those that don't.

Source: IT Organization Imperatives:
Key Behaviors to Drive IT Transformation,
IDC Market Spotlight, 2017

Getting **buy-in** from the CEO to accelerate change

63%

of CEOs said that they are likely to change their business models between 2018 and 2020.

Source: IT Transformation: Success Hinges on CIO / CFO Collaboration, Forbes / Dell EMC

89%

of senior executives surveyed in a Dell EMC and Forbes survey acknowledged that significant barriers keep CIOs and CFOs from collaborating more closely on IT Transformation. That said however, 85% of them reported that they plan to spend up to a quarter of their total enterprise budgets on modernizing their IT infrastructure in 2018.

Source: IT Transformation: Success Hinges on CIO / CFO Collaboration, Forbes / Dell EMC

What's slowing digital progress?
Here are the **top 5** commonly noted barriers:

1. **Insufficient budget and resources**
2. **Inadequate skills & expertise**
3. **Lack of senior support**
4. **Technologies working at speed of business**
5. **Data privacy and security concerns**

Source: Vanson Bourne Digital Business Research Survey, 1/16-3/16.

The 5 KEY characteristics of the hybrid CIO

1. Business acumen DNA

Coupling technical insight with business strategy and knowledge. The CIO can articulate and match challenges from the executive stakeholders with, "What value does this digital project bring to our company?"

2. Collaboration across the executive board

Technology has become so pervasive that every line of business has become tech-savvy while feeling autonomous about their own IT budget and decision-making power. The CIO is the digital navigator, meeting functional needs while also eliminating shadow IT and siloed digital projects that cause inefficiencies and security risks.

3. A driving force behind innovation

Which innovations will make the business stand out and disrupt? The CIO is thinking pragmatically but with a start-up and experimental mentality for their teams while ensuring there is a steady hand on the business as usual and ongoing modernization motion expected across the organization.

4. Technology integrator tying everything together

CIOs are setting the pace for the innovation with their C-Suite colleagues, balancing what investments are made to simply keep the engines running, and what buckets are set aside for innovation. The Hybrid CIO has two feet on the accelerator as they are now leading a dual-speed business.

5. A strong partner and bridge-builder

The CIO is naturally a life-long learner, forging alliances internally while drawing in resources from IT guilds, service providers, vendors and consultants in order to motivate key stakeholders and enhance the digital organization.

"CIOs are dealing with even more complex challenges – and most of those challenges are not technical. They are now much more about how CIOs drive change and how they present themselves as effective leaders."

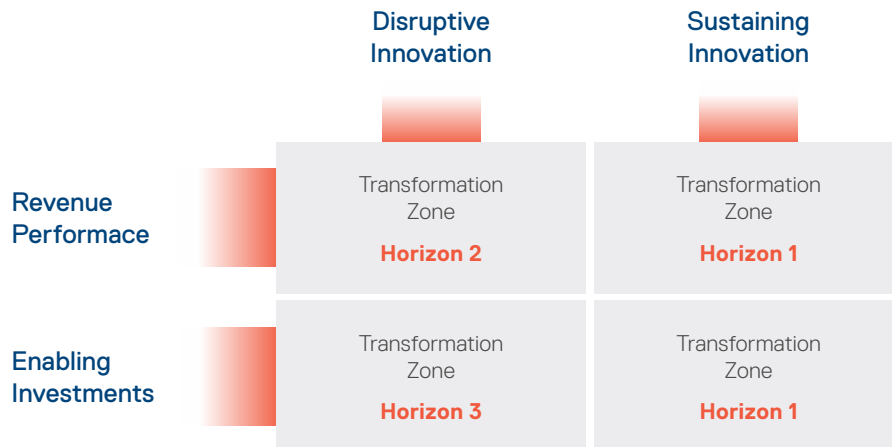
Source: Analysts Answer: What Leadership Challenges Will CIOs Face in 2018?, Gartner 2017

CLOSING THE INNOVATION GAP:

This is a time of digital Darwinism – an era where technology and society are evolving faster than businesses can naturally adapt. This sets the stage for a new era of leadership, a new generation of business models and the seamless merging of technology and people. Digitalization in business is not a new concept but it does require a pragmatic plan.

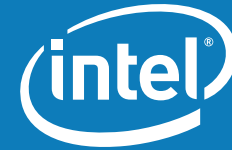
"If you ask why start-ups outperform established enterprises when it comes to catching the next wave, the answer is that they are not conflicted. Everyone is rowing in the same direction. This is never the case in a company that has a portfolio of businesses at different stages in their maturity. So, the key to winning is that there has to be 'zone out' of the conflicts – sort of like sending quarrelling children each to their own room."

Geoffrey Moore



Source: Zone to Win: Organizing to Compete in an Age of Disruption, Geoffrey A Moore

THE INEVITABLE SHIFT TO DIGITAL



Balancing Efficiency with Innovation

According to Intel®, architecting a digital business platform can be used as a basis for innovation thereby creating and delivering new services.

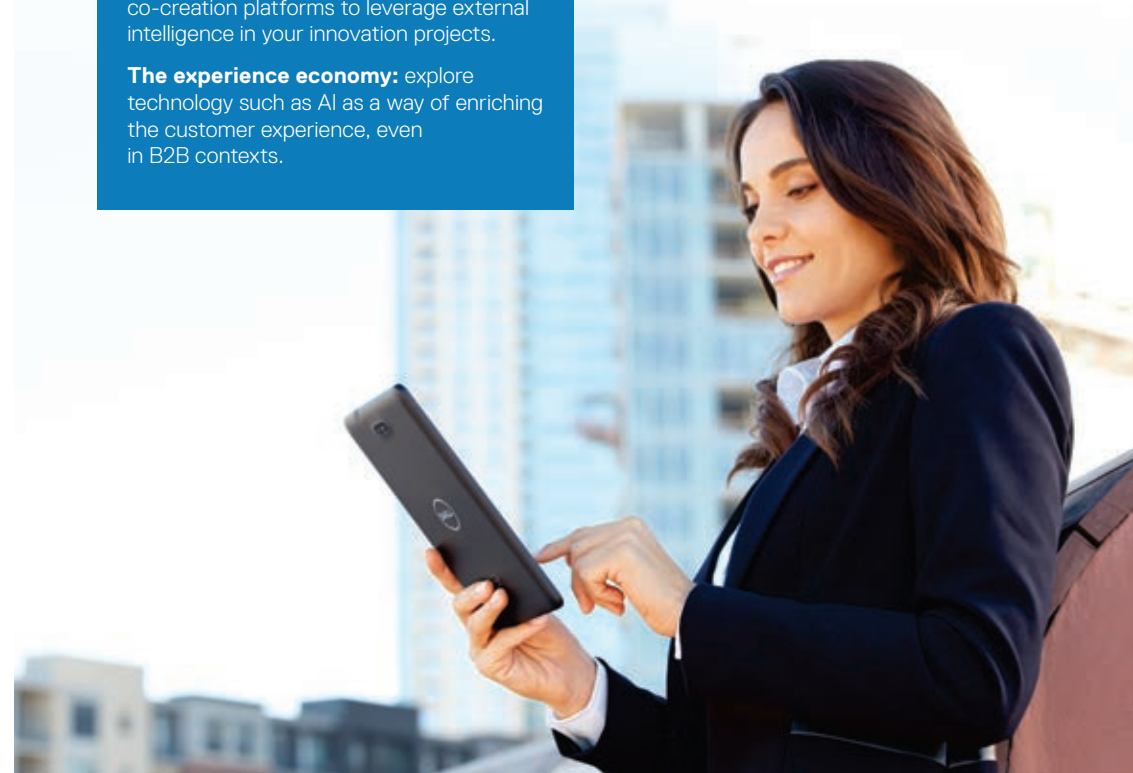
Digital means embracing new and diverse business models, yet being mindful of not attempting to do it all at once.

The sharing economy: shared cloud-computing infrastructures and adopting more public cloud technologies, providing the agility you need to innovate faster while reducing costs.

The co-creation economy: using digital co-creation platforms to leverage external intelligence in your innovation projects.

The experience economy: explore technology such as AI as a way of enriching the customer experience, even in B2B contexts.

Each transformation process involves more or less the same phases. To ensure operational continuity while taking advantage of the data deluge and disruptive technologies. In other words, putting a transformation office in place to ensure there are zones for sustainability and ongoing operational improvements balanced with an environment for rapid testing of new ideas to benefit agility.



Solid digital foundations are based on reliable, real-time data.

The World Wide Herd (WWH) concept from Dell enables distributed, yet collaborative analytics at a global scale, enabling geographically-dispersed data to be analyzed in real-time wherever it resides, without needing to first centralize the data in a single location.



Patricia Florissi,
CTO, Dell EMC

"Rich insights can be obtained when the domain of the data analyzed transcends geographical, political, and organizational boundaries, and can be analyzed as one virtual cohesive dataset."

Effectively, this federated analytics model, takes processing power and analytics to the data, rather than vice-versa. Intelligence is extracted and shared with each participating location completely anonymously. Each location has the autonomy to manage their data in whatever way they see fit, while allowing other organizations to securely share analytics performed in each location. The more locations that are connected, the more detailed the network and the better the real-time view across the supply chain.

Case Study: Federating data with a single pane of glass.

The WWH model is already helping hospitals worldwide make more efficient and cost-effective use of expensive medical diagnostic equipment such as MRI and CT scanners, by fostering the growth of a digital ecosystem linking healthcare providers and solution providers and bringing together their data, applications and services.

Another example is where supply chains can analogously apply this framework to transcend siloed systems across organizations, unlock knowledge, gain rich insights and take decisive action within very narrow windows of opportunity.

"When you think about this digitization era, and smarter devices, and more sensors creating more information... say I'm an oil company drilling a well, and I have it well sensor-ed in many different ways. I can process that in real-time, on the edge, with no latency, to slow down the drill bit or speed it up."

Jeff Clarke, Vice Chairman, Dell EMC

'Solid digital foundations are based on reliable, real-time data.'



"The use of apps by employees can be the competitive difference in the market. However, this kind of change can only take place in an environment that trusts and makes technologies readily available to its employees."

Sumit Dhawan, SVP and General Manager,
End-User Computing, VMware

DIGITAL DISRUPTION

Leading the charge is what is sometimes called 'the platform revolution'.*

In a data-led software-driven world, we are witnessing a variety of disruptors that are not following the traditional routes of entry. Netflix, Spotify and Alibaba are arguably the textbook companies for digital disruption, but it's also happening inside established businesses that realise the need to focus on what's next. Almost a decade ago, GE set out on a path of transformation, determined to participate in the digital revolution in industrial production — with full awareness that the world was changing around them.

Take Kone Lifts as another example, which still creates elevators that it is renowned for but has a mission to enhance

the movement of people and the flow and quality of urban life. Or Formula 1 constructor, McLaren, which is applying its expertise in electronic systems, telemetry, software, sensor technology, simulation and predictive analytics to industries beyond motorsport.

As complexity cannot be managed with costly legacy solutions — today's new digital culture also demands an agile framework in order to foster creativity and differentiation.

The opportunity for the CIO is to focus on IT service delivery but also helping to address disruption in the market by providing the best apps to employees and customers and having an agile platform to enable the software driven organization.

**A Platform-Thinking Approach to Innovation, Wired*

According to the World Economic Forum, there is a \$100 trillion prize at stake over the next decade to businesses that can unlock digital services and meet changing customer requirements.

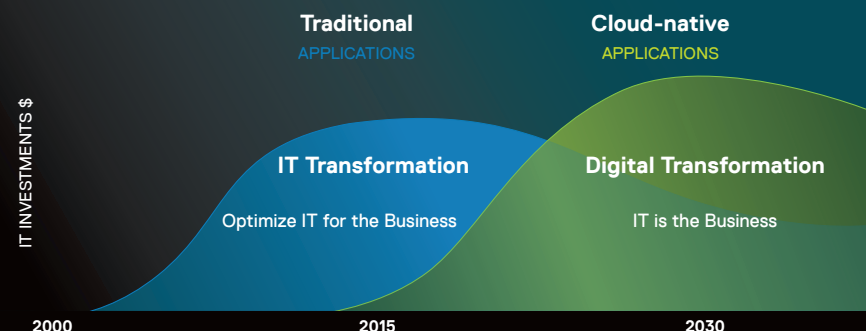
Source: \$100 Trillion by 2025: the Digital Dividend for Society and Business, Weforum.org

72%

of leaders plan to expand their software development capabilities

Source: Vanson Bourne Digital Business Research Survey,

IT Transformation meets Digital Transformation





Ford goes into overdrive

Ford Motor Co. knew this back in 1903 with the invention of the assembly line, a bold move that forever transformed the auto industry. Now, over a century later, Ford is at it again. With the help of Dell Technologies solutions, it is shifting gears and shifting industries from being a car company, to being a mobility company. Automating, iterating and innovating as fast as possible.

GoalControl Empowering referees, appeasing fans

Soccer is the world's game, with every outcome producing its own set of shockwaves. GoalControl uses seven cameras and IoT Technology to ensure every goal is seen and analyzed as fairly and accurately as possible.

With 3D camera-based technology and real-time data analytics, GoalControl is crafting an industry-leading improvement in watching, playing and refereeing

"It's the first time that somebody has implemented AI and machine learning into football."

Daniel Marchwinski, CEO, GoalControl

professional sports around the world. By deploying strategically placed cameras that monitor soccer's all-important goal line, along with technology from Dell featuring high-performance graphics, they are ensuring a winning experience for fans, refs and players.

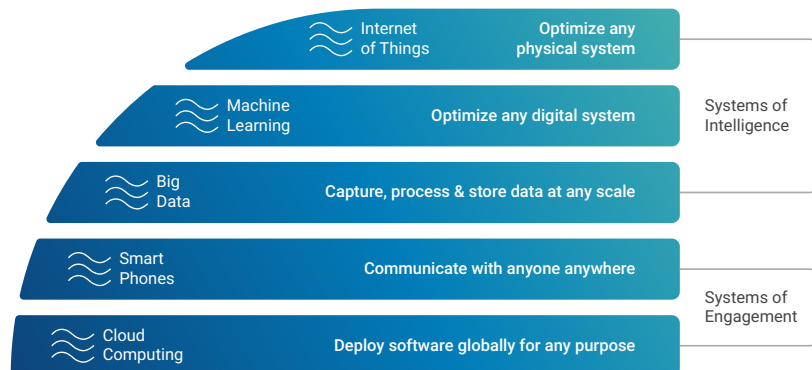
Digital Transformation has become mission critical.

Digitization in business is not a new concept. Today, fast-emerging technologies, like AI, machine learning, 5G and quantum computing are set to be key drivers of revenue. At the same time, tech practices and cultures have also progressed, most notably with IT departments moving from isolated, technology-centric units to becoming more business focused and integrated.

What has changed most over time is the urgency and importance of balancing these innovation initiatives and leveraging of new tech fitted to the unique goals of the business. Companies that hope to survive and prosper in today's digital world can do so by aggressively modernizing and automating their IT infrastructure, adopting the appropriate cloud models, and fine-tuning their operational practices and IT skills.

When disruption changes the design rules, you have to catch the next wave

Geoffrey A. Moore, Author, Zone to Win



60%

of CIOs are targeting 20% of or more of their production applications for hybrid cloud environments, whilst 48% have reached an initial evaluation stage in their hybrid cloud journeys.



The latest tech trends impacting CIOs

Forbes in its recent research grouped the upcoming technology trends for CIOs as follows:

Dawning: The technologies or trends which are in a growth phase and organizations are experimenting with them to understand the scope and implementation process along with the benefits and challenges as part of the process.

Awareness: This includes the trends/ technologies against which organizations have benchmarked ROI and tangible benefits, by reducing cost, improving customer acquisitions and engagements and optimizing workforce.

Acceptance: The technology or trends that have matured and been accepted by the industry as a core part of their technological setup and are set out to make a change in the culture to ensure a 360-degree implementation.

Artificial intelligence (AI), Blockchain, and the Internet of Things will all play a crucial role in how technology will transform business and the Connected CIO between 2018 and 2020.

Source: 9 Technology Mega Trends That Will Change The World In 2018, Forbes



AI and machine learning

With all of the hype around artificial intelligence (AI) and machine learning (ML), businesses are feeling a lot of pressure to embrace and enthuse about these technologies. That's all well and good, business advisors say, but it puts the cart ahead of the horse.

Compounding the hype problem, management of data analytics has escaped from the IT department and is roaming the halls, sweeping up enthusiasts from departments who don't necessarily understand the thoughtful, reasoned approach that will make the effort a success. Business leaders must understand that in order to get the outcome and results, you have to have the data that gets you there.



Blockchain and distributed ledger technologies

In the near future, many business transactions will occur on a blockchain platform. In fact, dozens of industry consortia are already developing the platforms to serve as a virtual "ecosystem," where transactions between B2B customers and third parties can occur.

"Two of the great things about blockchain technology are its ability to maintain integrity of records and its ability to achieve consensus among industry participants, which is why it attracts so much interest," said Max Solonski, chief security officer at BlackLine, a financial and accounting automated software provider. "It's extremely difficult to manipulate the data."

As a result, the technology presents the opportunity to create a reliable, trusted ecosystem in which business transactions can occur automatically – without human interventions like time-consuming phone calls or emails.

IoT

Gartner predicts that by 2020 there will be 20.4 billion IoT appliances around the world, creating a vast range of business opportunities. CIOs are already moving from IoT trials to full deployments as the technology proves it can find new revenue streams and drive operational efficiencies. Increasingly, strategic-minded CIOs are looking to harness all the aspects that the IoT brings – including people, data, processes and technology – to leapfrog their competition.



Source: Dell IT Proven

It's easy to think that this new world seems to be all about new platforms, software and building applications and making devices smart. Do we even need to care about infrastructure anymore? Absolutely infrastructure is a top priority in digital projects.

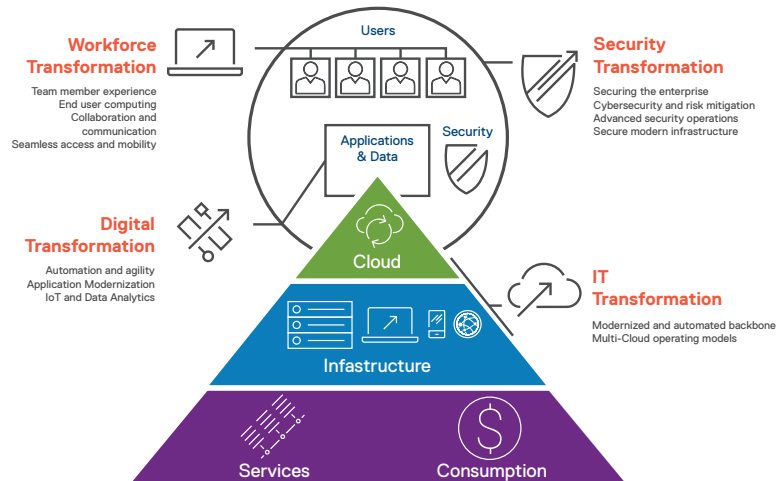
We know organizations are rushing to become digital businesses, but in order to do so, they need to be able to optimize their existing IT environments so that they can direct those efficiencies towards adapting innovative and emerging technologies.

'The CIO can deliver real, technology-driven change based on a new, modernized infrastructure.'



89% of senior executives surveyed in a Dell EMC and Forbes survey acknowledged that significant barriers keep CIOs and CFOs from collaborating more closely on IT Transformation, that said however, 85% of respondents reported that they plan to spend up to a quarter of their total enterprise budgets on IT Transformation in 2018. It is a dynamic process, and is not a one size fits all approach. So IT Transformation will definitely look different from one organization to the next. As discussed in the previous chapter, the common goal for any CIO is to move IT from being inflexible and reactive to being proactive, agile and aligned to a disruptive digital business strategy.

A Cohesive Transformation Approach



InsideOut

IT Transformation priorities

Every organization has its own transformation objectives, challenges and successes, but there are several IT goals that are common among CIOs.

Reducing IT costs and optimizing the use of cloud platforms. This objective is reflected in the strong adoption of hybrid and multi cloud solutions.

Capturing, storing and extracting value from the new gold: The data flowing inside and outside of the organization.

The Platform revolution: Speeding the development and deployment of applications to meet evolving business needs to drive the adoption of continuous delivery of innovative software, DevOps techniques and practices.

Applying latest digital technologies to find better ways to support business unit users and improve customer experience.

Services for customers both internally and externally: 'IT-as-a-Service'

A new role to play: CIO as the ITaaS broker

To help the business grow in the digital age, CIOs have had to reinvent their brand. Sure, a visionary application of technology is a part of this, but crucially, it is the approach to servicing their customers and quality provided that will differentiate how they are perceived by the organization. But it won't be the cloud or IoT solutions alone that will make organizations more digitized and agile. To win legitimacy, CIOs must shake off their image of 'tool providers' and become 'business strategy facilitators'. As an ITaaS broker, the IT department will need to use its professional knowledge and experience to support the business in properly assessing needs, shop for the best value and help with specific events or questions. This requires a mind-set shift and a focus on an ITaaS management activity, demanding:

New IT business models

IT has to become more service-oriented towards its internal stakeholders and more market-driven towards the end customers; never losing sight of the P&L while becoming a broker and builder of services to all internal and external customers.

Modernize, automate, transform

In fact, a recent Forbes insight into IT Transformation says that global enterprises are focusing on cloud computing in all its delivery models – from private and public clouds to hybrid and multi-cloud architectures. This helps them exchange upfront capital costs for predictable operating expenses and provides the flexibility to quickly spin up new services to match dynamic business needs. Predictive

"No one in the organization knows as much about Technology as the CIO. It is through innovative use of Technology, namely software, that start-ups are disrupting established companies. A technologist to the bone, the CIO not only knows which technologies can be used to attack the company's position, but can also play a leadership role in identifying how the company can use Technology to pre-empt disruption or move the goalposts to their advantage."

Aongus Hegarty, President, Dell EMC, Europe, Middle East and Africa

Lessons learned from Dell Technologies own IT Transformation



Source: Dell IT Proven 2018

analytics, big data and business intelligence platforms offer greater insights into the current and future requirements of customers to help enterprises gain an edge over competitors.

New technology architecture

CEOs, CFOs and COOs are looking to their CIOs for services that accelerate and automate processes across the business using analytics and AI.

Skills, roles and organizational alignment

For IT staff, training is an important aspect in developing the much-needed soft skills such as business and communication competences. In addition to this, software development skills, DevOps, BI and analytics services to the business can only be met through attracting and focusing on the development of IT talent.

A stepwise & 2-track approach

No two businesses are alike, and neither are their IT transformations. Nevertheless, each transformation process involves more or less the same phases.

To ensure operational continuity while making great strides in digital transformation, a 2-track approach is advised. This entails the IT organization working at two speeds.

The first is about the ongoing concern. The second is a kind of 'turbo mode' enabling the rapid testing of new ideas. Both of these benefit the organization's agility by improving better-understood areas on the one hand, while experimenting to solve new problems on the other.

"Take cost out and innovate by leveraging those efficiencies created through modernization."

Nigel Moulton, Global CTO, Dell EMC

NATO is winning the battle...with Data



Security in our daily lives is key to our well-being. That's exactly what The North Atlantic Treaty Organization (NATO) is pursuing. NATO's purpose is to guarantee the freedom and security of its members through political and military means. The alliance has always innovated and adapted itself to ensure its policies, capabilities and structures meet current and future threats. That also means advancing on the digital journey and the capacity to process data.

Managing the IT infrastructure for such a complex organization like NATO is a monumental challenge. It concerns 26 data centers, 18,000 users and 31,000 devices. Factor in 29 different nations each with their technological protocol and speaking dozens of languages, and it's easy to see how hard it could be to keep things running smoothly.

By building a cost-effective and resilient infrastructure for all services and a network that will connect these services in a powerful way, NATO is able to develop the means to respond to existing and new threats. By consolidating data centers and putting virtual equipment in place, NATO is now in a position to use modern technologies such as machine learning, artificial intelligence and big data analytics.

Bank Leumi transforms customer experiences with Dell EMC's hybrid cloud

Bank Leumi is Israel's oldest banking corporation and one of the leading and largest corporations in the Middle East with 200 branches and 11,000 employees. But with age, size and complexity, sometimes comes stagnation. Bank Leumi realised that to become more competitive, they had to become as flexible as a start-up company and build a bank that was based on mobile Technology. That meant it had to move from a traditional environment to the cloud.

In order to achieve the efficiencies it required, the organization had to build a new data center in three months rather than the two-year period that it would normally take.

The approach – In 2015 Bank Leumi started with a private cloud strategy and in 2017 moved from private to a hybrid cloud model. Moving to IT as a service enabled it to put its money where it wanted it to be and that was on developing newer services that would bring real value to the business. Services such as using mobile Technology to reach out to new customers by allowing them to conveniently open an account in eight minutes from the comfort of their couch, rather than the traditional 30-60 minute process in a physical bank.

The result – The hybrid cloud solution and the software-defined Data Center that was established using solutions from Dell Technologies allowed Bank Leumi to build a very fast infrastructure that enabled it to deliver code production in hours, compared to weeks. This meant greater efficiencies, faster time to market and faster time to establishing new environments, all at a dramatically reduced cost than compared to traditional means. And that's something it could really bank on.





HomeServe.

Transforming the
business with
IoT, sensors and
modernization

Ever experienced a gas
boiler unit failure right in the
middle of a winter peak?

That's where assistance firm HomeServe comes in. It responds quickly and reliably to all kinds of homeowner emergencies. With presence in Europe and in the US, the company has witnessed tremendous growth over the last few years, reaching a record 100,000 emergency calls a day, when the average used to be around 10,000 calls.

The customer-facing departments from HomeServe – as well as the 1,200 engineers who fix problems at the customers' homes – needed to rely on a stable and extremely responsive IT infrastructure to cope with thousands of customer calls in the field and they need this 24/7.

They embarked on a significant transformation to move old equipment

out and place critical mixed workloads and storage within a modernized data center using performant infrastructure to lower response time, simplify management and increase employee efficiency.

Because quality of service is an absolute, the technology HomeServe now has, provides the ability to quickly service issues in the field and as a result make customer lives better.



Concrete Business Outcomes



Enterprise Strategy Group categorizes a company's IT Transformation level by examining how extensively it has adopted:

Modernized data center technologies

Transformed organizations take steps such as virtualizing their infrastructure using all flash storage where appropriate. They run a considerable portion of their workloads using a scale-out and converged or cloud platforms. CIOs are committing to a software-defined approach while ensuring a comprehensive and well-tested data protection strategy.

Automated IT processes

Transformed organizations automate their environments to help them deliver IT as a service in a cloud-like model for cost transparency, efficiency, and responsiveness. This agility enables the transformed organization to focus and adopt application development and data analytics.

Transformed organizational dynamics

Transformed organizations believe in tight business and IT alignment, and business units regularly inspect IT outcomes for effectiveness. The IT organization's executives almost always report directly to the C-suite leadership team. Transformed organizations also often adopt DevOps principles and methodologies.

Next up after reviewing IT strategy? **Workforce Transformation**



Key to your digital transformation strategy is to meet the evolving needs of a modern-day workforce. As new generations enter the workforce, IT departments must meet their expectations for frictionless, high-quality collaboration and communication.

IT leaders are rethinking IT's role in the employee experience.

Forward-thinking CIOs are proactively championing modernization initiatives in the enterprise to drive digital workforce transformation.

PRIORITIZING YOUR GREATEST ASSET:

TRANSFORMING WORKFORCE

42%

of millennials would quit a job over poor technology.

82%

say technology influences the job they take.

60%

of people do some work after business hours.

Source: Dell/Intel Future Workforce Study

66%

do some work from home.

The most valuable resource you've got is your source of innovation. And the #1 influence on customer satisfaction is... your employees. Engaged employees are the heart of every digital transformation and companies expect their CIO to help ensure that talent is productive and happy by providing the right technology and training. Enabling a more flexible user experience is a top priority.

For employees to stay empowered, organizations need to find harmony in the digital workspace where things are simple and secure. But how can we bring these two worlds together? By syncing IT Transformation to your front office and getting all the pieces of the puzzle in lockstep.

Satisfying rising end-user demands

The way people are working is changing. For example, here at Dell Technologies, work isn't considered a location, it's an activity. Employees want to work whenever and wherever it suits them, and technology

plays a crucial role in this. Moreover, end-users are – without doubt – becoming increasingly demanding.

An ongoing dialogue with employees is crucial; they are the ambassadors of the company and their enthusiasm will largely determine the organization's success. On the other hand, fluidity of data transcends the notion of physical boundaries. The majority of security breaches originates from the end point, (which we shall discuss in the next chapter) – such as the end-user's smartphone, laptop, etc. This should be an important area of focus for CIOs.

In brief, to satisfy the internal customers, a CIO has a big part to play in:

1. Attracting talent and maximizing productivity by providing innovative and cutting-edge technology devices that employees love to use.
2. Enabling the workforce to work where they want, when they want.
3. Simplifying device mobility safely while delivering security.

Our vision of a modern workspace is a **Connected Workplace**



Workplace Innovation featuring ultra modern workspaces that foster creativity, productivity, and collaboration.

A Digital Experience that creates an agile, highly mobile work culture that enables us to work seamlessly, anyplace, anytime.

Flexible Work solutions that support diverse workstyles and recognize how team members choose to work.

Source: Dell IT Proven 2018

Source: The Connected CTO, Advanced Computer Software Group

CIOs EMPOWERING THE WORKFORCE

Not only are the devices and technologies we work with changing, but who does the sourcing is changing too. Technology choices are made more and more in a collegial way.

Lines of business like HR, Operations, Engineering, Marketing and other business departments are increasingly choosing devices and tools best suited to their role and workstyle.

To be able to meet all the expectations of the different functional users, it is important that CIOs understand tools that enable talent play a big part in attracting the best in a very competitive marketplace and retaining those employees that are key to business success.



HR



Legal

Operations



Marketing



IT

**Like all customers -
Lines of Business have
unique needs**

Technology needs to:

- Shift to a mindset of 'Work is an activity not a location'
- Adapt and change the work practices of the function
- Provide the tools to increase productivity and track business outcomes
- Attract and retain top talent in a competitive market

McClaren takes pole position in Workforce Transformation



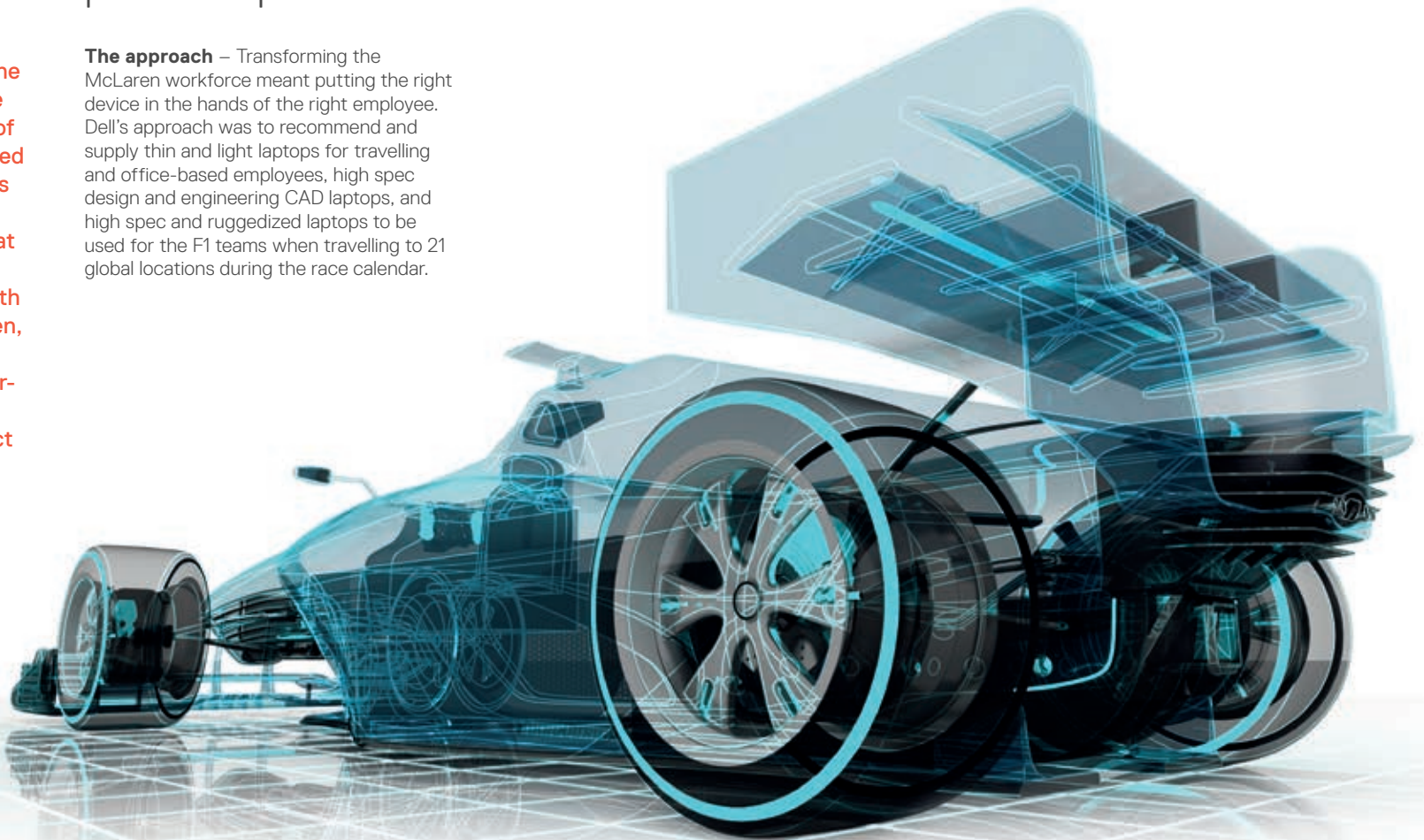
McLaren's workforce is diverse and highly mobile, and it recognized that IT needed to adapt and evolve to address the needs of its workers so as to continue to attract top engineering talent. The organization's greatest challenge today is growth across all areas of the business in automotive, applied Technology and Formula 1. This is further complicated by the fact that it has 20 global locations that operate at various times of the day, all needing to collaborate with each other. So how does McLaren, with the help of Dell, go about transforming to adapt to the ever-changing needs of their modern workforce and continue to attract top talent?

The high-speed pursuit of perfection

The approach – Transforming the McLaren workforce meant putting the right device in the hands of the right employee. Dell's approach was to recommend and supply thin and light laptops for travelling and office-based employees, high spec design and engineering CAD laptops, and high spec and ruggedized laptops to be used for the F1 teams when travelling to 21 global locations during the race calendar.

The result – Partnering with Dell Technologies for client solutions enabled McLaren to optimize its IT performance and give the right device to 4,000 employees working for the McLaren Technology Group across its 20 global locations.

The range of laptops and McLaren's ability to put a common operating system and set of policies against those laptops, enables its IT department to run them at relatively low management cost, while still enabling employees using the devices to have the right tool for the job they are employed to do.



In-built cyber safety for your IT and Workforce: Security Transformation

27%

of UK companies have a
formal cyber security policy
in place.

*Source: GOV.UK Cyber Security
Breaches Survey 2018*

Juniper Research:
cybercrime will cost businesses

**£1.7 trillion
by 2019.**

*Source: The Connected
CTO, Advanced Computer
Software Group >*

With diverse communication methods and access to data on the fly becoming the norm both within and outside of the walls of today's mobile organization, building and maintaining best-in-class defences against burgeoning security threats has never been higher on the agenda of the modern CIO. There are approximately one million cyber-attacks released every day and according to security consultancy Juniper Research, cybercrime will cost businesses £1.7 trillion by 2019.

Hence, it's no surprise how much further up the boardroom agenda cyber security has been pushed with 68% of CIOs reporting that their boards are supporting them in their cyber security strategies. Security attacks in the form of cyber warfare, and government and corporate espionage are also increasingly prevalent. The Connected CIO recognizes that security management needs to evolve beyond traditional firewalls and anti-virus programmes to provide the necessary protection or the consequences could be catastrophic.

PROTECTING THE ORGANIZATION'S LIFEBLOOD: TRANSFORMING SECURITY

To thrive in the digital age, organizations need to inspire customer and stakeholder trust by protecting data and other critical assets. By implementing a resilient, adaptable, unified and trusted approach to managing IT security and business risk, the Connected CIO closes the loop on an integral part of digital reinforcement, which we call “Security Transformation.”

In a survey of 9,500 executives in 122 countries, Forbes discovered that 44% don't have an overall information security strategy.

Source: The CEO's Critical Role In Driving Cybersecurity Readiness

CIOs are best-placed to overview the specifics of the company's IT infrastructure and application services. Partnering with the CISO, they have a unique insight into the possible operational implications of information theft and security breaches. Furthermore, CIOs often have ultimate responsibility for protecting data and guaranteeing business continuity.

According to PWC research, 58% of CEOs say it's hard for businesses to gain and keep trust in the digital age. Built-in security is a necessity rather than a luxury. As

Digital, IT and Workforce Transformation create a new architecture, the need for inbuilt security transformation is critical. Simplified, more connected and more efficient IT security is an enabler for the business strategy. It also acts as barrier to the loss of personal data and reputation that can have a massive and often unrecoverable impact on the organization.

Source: 58% impact on growth - PWC 20th CEO Survey of 5,351 members of the public, in 22 countries, 2016.

As you've probably and, unfortunately, witnessed firsthand in the past year, breaches are affecting millions of victims around the globe. And because the industry isn't doing enough to protect consumer data, new regulations are now in place to force that change. For instance, the European Union General Data Protection Regulation, or GDPR, has many requirements, including strict rules around breach notification. Penalties under

80%

...of chief information security officers will be reevaluating their security strategies in the next year.

Source: Security: why you should care. Dell EMC.

Business struggle

Data everywhere

High impact breaches

Increasing privacy regulations (e.g. GDPR)

Rising risk and costs

Loss of stakeholder trust and confidence

IT security struggle

3 in 4 say security is retrofitted

75 average number security tools

3.5M security labor shortage by 2021

\$1.5 billion

...this is the amount of money Gartner predicts will be spent on IoT security in light of an escalation in attacks targeting IoT devices.

Source: Gartner Newsroom, March 21, 2018.

the GDPR range from 2-4% annual turnover. Anyone doing business with a European Union company, or which has access to EU resident information, will have to comply.

According to a Deloitte study, 80% of consumers 'somewhat to strongly agree' with the statement that they are more likely to buy products from companies which they believe protect personal data in an efficient manner.

Add to this the increasingly complex infrastructure, limited security budgets, shortage of skilled resources and a siloed security architecture across strategic IT pillars including cloud, mobility and the data center, and all the ingredients for a security transformation are in place.

A WATERPROOF APPROACH TO SECURITY

When embarking on the transformational security journey, it's important to focus on:

1

Resilient secure infrastructure:

Integrate security into your end points, network and data to ensure that your infrastructure is proactive rather than reactive.

2

Advanced and adaptable security operations:

The security stance must evolve from one focused strictly on protection to a sharp spotlight on an automated response to intrusion.

3

Business risk management:

Change the approach to risk management, because Technology is the business today. Risk Management specialists have to evolve to assess the risk to the business itself.



"Modern companies concerned with security breaches must not only guard against new variations on old themes, they must also stay on top of the latest trends being propagated by virus creators. To protect ourselves from criminals, we must think like criminals."

Aongus Hegarty, President, Dell EMC, Europe, Middle East and Africa

Case Study:

Mastercard

Quantifying the operational and commercial implications of security breaches can inform your development of risk-mitigating security strategies that work both to prevent attacks and respond and resolve incidents quickly when they occur.

Protecting customer data with analytics

How can you drive new value from customer information and transactional data, while also protecting it securely? Global payments leader, Mastercard wanted to use predictive analytics to study customer purchase patterns and behavior, in order to derive valuable new insights. It needed an analytics environment with the scale to deal with data from 2.2 billion payment cards globally, and up to 160 million transactions per hour. At the same time, it required the highest levels of security to protect this sensitive personal and financial data.

Mastercard worked with Dell Technologies companies to build a secure solution to enable data analytics. The solution has increased security and fraud protection through analyzing customer purchasing patterns, affinities and rhythms using machine learning. It has also helped drive business value from anonymized data on share of wallet compared to competition, average spend and purchase frequency. This helps Mastercard to identify marketing opportunities and measure return on investment – while protecting its sensitive data.

Case Study:

Dell Technologies transforms its security strategy with RSA® identity governance and lifecycle.

Challenges

Managing user access to hundreds of business applications and thousands of databases across 225,000 employees and contingent workers.

Executing recertification campaigns for Sarbanes-Oxley compliance.

Results

Achieved significant cost savings by consolidating all identity management functions on a single platform used throughout the enterprise.

Slashed the time it takes to execute recertification campaigns for Sarbanes-Oxley compliance by 50 percent.

"We will help you with this process while you do it your own way."

Paul Brook, Director Data Analytics, Dell EMC

Digital Transformation is not simply about making the inevitable shift from paper to digital, or improving processes. It's about seizing the opportunities that new technologies can offer you and applying digital capabilities and change mechanisms to fundamentally reimagine your business.

Join us on a journey through Digital Transformation and find out how you can best navigate your company through these uncharted waters.

"Dell EMC didn't just come in, review our requirements and propose a solution. They invested in gaining a deep understanding of our entire digital transformation business strategy and the digital experience we wanted to deliver to brokers and borrowers."

Jonathan Workman, Program Director, UK Mortgages, Bank of Ireland.

1

Benchmark
Compare against your peers

2

Engage business stakeholders
Gather input to develop a complete vision of the target future state

3

Build a business case
Quantify the expected impact of the transformation

4

Create a roadmap
Use as a guide to moving from your current state to future state by defining milestones

5

Agree on next steps
Prioritize a limited number of projects with visible business results

Where are you are on your digital journey?
Visit delltechnologies.com to arrange an Executive Briefing for your team

CONCLUSION

In a digital world,
companies must be ready
for one thing: anything.

About Dell Technologies

Technology now has the single greatest impact on an organization's ability to react, innovate and succeed. Today's industry leaders have embraced this, and literally transformed their organizations. Of course, everyone uses Technology to transform in different ways, but we believe

customers can take four approaches to ensure success: Digital Transformation, IT Transformation, Workforce Transformation, and Security Transformation. Whatever approach they take, companies of all sizes have gained new capabilities, new value and new competitive advantages that have changed the game.



Digital Transformation

The fastest-growing companies are undergoing Digital Transformation: they are enabling themselves to use and monetize the power of software, data analytics, IoT, and artificial intelligence. Digitally driven businesses aren't just the new normal; they're the new mandatory.



IT Transformation

Transforming your IT comes down to modernizing your infrastructure so that it can support highly automated processes. Achieving this enables very fast delivery of Technology services to your own organization as well as your customers. The result is that your IT department transforms from being a cost center to a profit center.



Workforce Transformation

People expect Technology to help them get more done faster and collaborate in a natural, seamless way. It's what's required for organizations to compete and succeed. You can do more than keep up with this exciting trend. You can lead it.



Security Transformation

One of the biggest accelerators – and roadblocks – to growth is the ability to protect and secure growing amounts of critical data. Security Transformation helps you address this with solutions that are resilient, adaptable and unified. This frees you to focus on what matters most – your business.



The power of 7 Technology leaders committed to your transformation



DELL EMC

Pivotal®

RSA®

Secureworks®

virtustream®

vmware®

Dell Technologies is formed of a group of seven innovative companies: Dell, Dell EMC, Pivotal, RSA, SecureWorks, Virtustream and VMware. Dell EMC enables (public) enterprises and governmental organisations to reinvent their business and services and become more digital.



Digital Transformation



Workforce Transformation



IT Transformation



Security Transformation