



DELLTechnologies

THE CONNECTED CIO

Leading Change For The Digital Future

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*"Modern CIOs understand how digital technology
can be used to create value for the business"*

—LINDA TUCCI, EDITOR-AT-LARGE, TECH TARGET¹



The World Has Already Changed

We see every day how the world's become digital. The way we live, work, collaborate and shop have changed dramatically. In turn, these changes transform what we know, when we know it, and what we do next. And the impact can be felt both personally, and in every business and organization.

Today, every organization needs to become digital too. It's no longer just nice to have: it's mission critical. The CIO is squarely at the center of this transformation. As a leader and a technologist, CIOs will be the ones to transform their organization to new, agile and hyper-efficient models.

There's no doubt about it. There couldn't be a more exciting time to be a CIO than today. Ideas that a few years ago seemed like science experiments are now becoming common place—autonomous cars, tele-surgery, smart factories. All of this will be built on your shoulders and is reflective of how the role of the CIO has changed in just a very short time.

What's complicating things is the pace of change—it's exponential, not linear. You already know the clichés. It's not good enough to simply collect more data—organizations must now derive even more value from it in real time. New technologies come screaming at us every day to solve problems we might not even know we had. The workforce and customers are more mobile and tech-savvy than ever. The threats to data and identities create a potential loss of trust. On top of that, everything demands immediacy. Everyone, from business leaders to employees to customers, want everything now.

The implications are obvious: organizations must digitally transform, and it takes a new kind of CIO—a Connected CIO with hybrid skills—to get the job done.

The Connected CIO

Just a few short years ago, the CIO would have been the sole-source provider of technology for their business. Sure pieces of tech were out-sourced or contracted-out, but everything from infrastructure, to apps, to laptops went directly through the CIO's organization. The CIO once completely controlled the technology and the budget. But times have changed. With the advent of the digital era and the availability of X-as-a-Service offerings, anyone in an organization with a credit card can obtain IT services. And because of this, it's changed the role of the CIO and their control over IT forever. The Connected CIO is more of a digital navigator than a controller of boxes, a designer of a strategy than simply a manager of projects. They're business savvy, but tech minded. And they use a disruptive mindset to power the entire organization, not just their corner of IT.

Today's Connected CIO wears both a business hat and a technology hat, partnering with various parts of your business to act as a service provider and a services broker—first understanding the context of business needs and then delivering solutions to address them.

5 years ago, CIOs believed their most important skill was technology know-how. Today, they believe it is contributing to corporate strategy.²

70%

of CIOs believe technology trends are increasing the chances of the CIO becoming the CEO.²

Simply put, the Connected CIO takes a different view of people, processes, the world, the company and the role of IT within their organization. They use this reorientation to create change and value for their organization.



“(Today’s) CIO is both technology-minded and business-savvy. 63% more CEOs are now concentrated on projects that make money rather than save money.”

—HARVEY NASH, CIO, KPMG³

Technology: The Engine that Propels You Forward

Every business, whether it be in the public or private sector, in retail, financial, or manufacturing, has a unique set of business requirements that drive their strategic IT initiatives. But there are some commonalities. Every enterprise wants to reduce costs and increase agility. They all want to create new value, whether that is in terms of revenue or new services. They need to better engage their workforce and attract new talent. And today every organization wants to improve their sustainability credentials.

Technology is at the heart of every one of these requirements. And it is very likely that you are already working inside your organization on these requirements. But it’s a really complex process to affect transformative change in your organization. Every organization and every CIO need a partner that can help you propel your organization forward. And you need to tap into the best practices to most effectively payoff on the business imperatives of agility and cost savings, creating new value, transforming workforce engagement and sustainability, all with an underlying thread of security.

What Does It Mean To Become Digital

Our research with 4,600 leaders⁴ around the world told us one important thing: To lead in a digital future, everyone in an organization must embrace the change – from the top to the bottom, and everyone in between. And for an organization to truly become a digital leader it requires more than simply leveraging the latest technologies. It requires a change in people – mindset, culture, and skills. And it requires changes to IT processes that align with the priorities and strategic objectives of the organization.

Interestingly, in the near future there will no longer be the need to say you are a “digital business,” according to Accenture⁵. If you’re still in business, investing in digital is understood. A “post-digital” organization is one that has doubled down on completing their digital transformations to get the most value from those investments—and at the same time, turning a strategic eye toward what’s next. By moving the focus to targets of opportunity, finding a place among the ecosystems of the post-digital era, and mastering digital investments with an eye toward the post-digital future, leaders will position themselves for success for years to come.

Many have written about the traits of a digital organization. They range from technical to strategic, but generally it’s a mix the two. The one common thread in transformed organizations is that their leaders are willing to rethink everything in order to achieve the benefits of transformation.

Business leaders believe leading digital organizations should possess these five traits:

- Innovate in an agile way
- Predict new opportunities
- Evoke transparency and trust
- Deliver personalized experiences
- Make everything always on, in real time

“A post-digital world doesn't mean that digital is over. On the contrary, we're posing a new question: as all organizations develop their digital competency, what will set you apart?”

—PAUL DAUGHERTY, CTIO, ACCENTURE⁶

Business Imperatives For The Connected CIO

Every organization needs to be a digital organization powered by data and running in a multi-cloud world.



The Transformation Landscape: Critical Components

Digital transformation puts technology at the heart of an organization's products, services and operations. It can help accelerate and competitively differentiate your organization to improve the experience for your customers. Using higher-performing components, harnessing the power of data analytics, and continuously improving the technology ecosystem are all ways of becoming a truly digital business.

The goal of digital transformation is to more effectively deliver differentiated products or services to the market—whether through a capability that nobody else offers, or at a speed at which no competitor can match. In doing so, your organization can become the preferred and trusted choice for your target customers.

There are many business imperatives that will drive your strategic IT initiatives. While each industry or sector has its own unique issues, there are four strategic imperatives that apply to virtually every digital organization.



A Multi-Cloud Strategy For Agility And Cost Savings

Agility can mean different things to different parts of your organization. For HR it can mean new platforms that allow for faster and more effective talent evaluation and hiring. For Marketing it can mean faster time to market for the latest digital campaign. And for Sales it can mean migrating to the latest CRM functionality for rapid lead evaluation.

When it comes to business agility, one of the smartest investments any Connected CIO can make is in the area of automation, especially when it comes to cloud operations and automating backup, recovery, security, provisioning and orchestration. In fact, in a recent GigaOM Landscape report⁷, the research firm stated that for every \$1 dollar invested in automation, there is potential to realize a \$100 return over a 5-year period. While this sounds great, the reality is that you are unlikely to ever see those levels of returns unless you have a comprehensive multi-cloud strategy.

The diverse and ever-changing needs of your business mean that no single cloud can satisfy every requirement. In fact, you probably already deploy workloads across two or more clouds today. However, this multi-cloud approach can result in an enormous amount of IT complexity. Cloud chaos is the result when you have multiple operational silos, disparate management, operational tools and APIs. This leads to resource constraints, app and tool lock in, and even greater security challenges. Paradoxically these issues can actually reduce agility—one of the main reasons you adopted cloud solutions in the first place. Without a comprehensive multi-cloud strategy, you'll be leaving many potential gains in speed and agility unrealized.

Since the dawn of cloud computing more than a decade ago there have been massive changes in IT from both a development and operations perspective. And while the hope has been that these new models would be a panacea for existing IT concerns, they are often incongruent with the current applications, skillsets, and operational models established over many years within an organization. We believe that you should have the flexibility to choose whichever cloud environment is best for your workloads and data—without the byproduct of additional complexity.

90%

of companies will use more than one cloud.⁸

78%

think cloud management consistency would boost efficiency & simplify operations.⁹

To do so you must start thinking holistically. Keep these three pillars in mind when developing your multi-cloud strategy:

1

First, architect for integration.

As you know, technology is changing rapidly; Having choice and flexibility will be the key consideration. This flexibility should focus on your data; where you put this data and how you process it should always be at the forefront of architecting for the cloud. Also design for interoperability. All technology, to a point, has rules or confines with which you must work. Make sure your teams truly understand the tight coupling that each third party has in their “as-a-Service” solutions so you will have the flexibility to make innovative tech decisions in the future.

2

Second, think about how this integration may or may not open you up to new risk.

When thinking about security in your multi-cloud strategy, returning to the basics will help you frame what’s really going on. Start with people. Unfortunately, humans are still the weakest link in cyber security. In cloud, patching, out-of-date software or unmaintained software has led to numerous companies showcased on the front page of the news. People were the ones making the risky choices in all these cases. Next is process, this is where automation can really pay off. Focus on how you can automate as many of the processes for updating, patching or repaving and this will really pay off on business agility. Lastly the technology you use has vulnerabilities in it. If you think of that at the forefront of how you architect, it will help you. Apps, container images, hyper-scalers all have shown that they are susceptible to vulnerability. Acknowledge security risk and set up precautions and fire drills for when things inevitably happen.

3

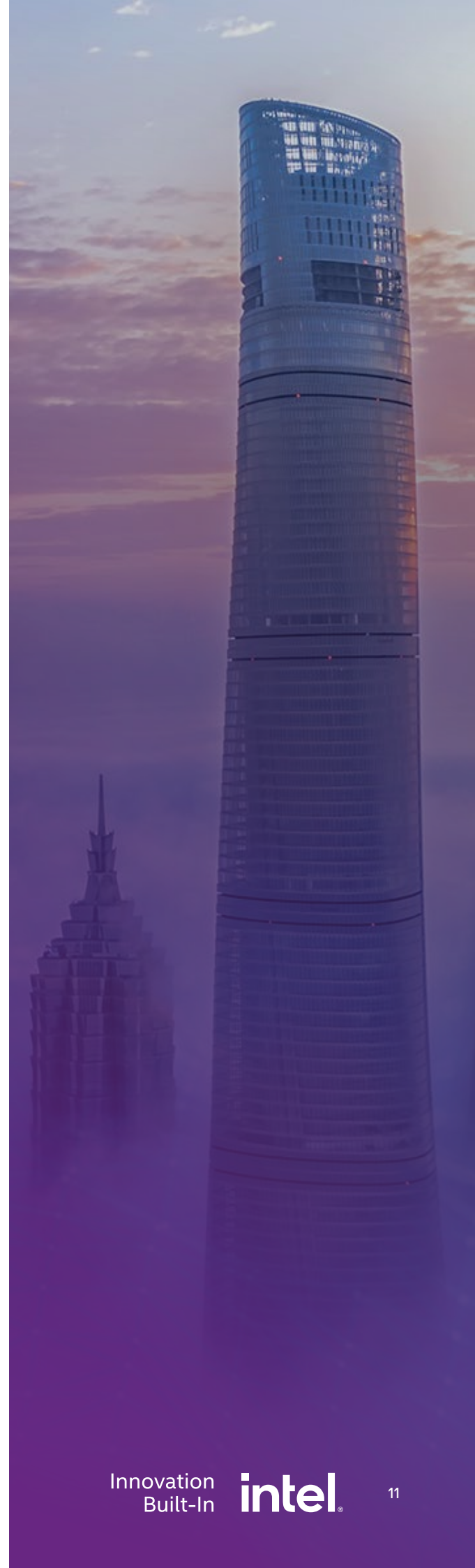
And lastly, build, deploy and run on the cloud best suited to each app.

Different clouds have differing cloud semantics and APIs, security models and management environments. So, the hallmark of any multi-cloud strategy is to maintain consistent infrastructure operations across different deployment environments. That’s a key to realizing agility and the cost savings – building a common management and orchestration hub that delivers a consistent cloud consumption experience across all cloud locations, regardless of the underlying infrastructural elements.

What achieving business agility with the right multi-cloud strategy looks like

If cloud chaos is a concern, Dell Technologies recommends exploring the following options:

- ♦ **Attend a Dell Digital Way Workshop:** These workshops and executive briefings are where Dell IT practitioners share expert knowledge and best practices from our own multi-cloud journey to help you create world-class experiences and accelerate your business outcomes.
- ♦ **Engage with a Dell Technologies Cloud Representative,** who serves as the operational hub for your hybrid cloud. You'll see how to streamline operations and improve cloud economics through a consistent management experience across clouds. Plus, you can benefit from the simplicity of a single-vendor support experience and fully-integrated cloud platform.



Improving business agility to support global expansion and attract new talent

Transforming IT enables organizations to reach key objectives like improving their business agility, speeding up their services and enabling a more rapid scale-up of their business. With the assistance of Dell Technologies, many financial services companies have managed to deliver more value on a hyperconverged infrastructure instead of relying on separate silos of computer storage and networking.



“Hybrid cloud and modern systems infrastructure is very important for our IT Transformation and it helps drive the way Baillie Gifford delivers services to our customers worldwide.”

—COLIN LENNOX,

HEAD OF TECHNOLOGY AND SERVICE DELIVERY AT BAILLIE GIFFORD

Global services based on hyperconverged cloud solutions

Using hyperconverged technologies, Dell technologies can enable the rapid deployment of fresh databases and developer environments. What was once quite a manual and time-consuming process, is now automated and essentially, with one click, the company can now deliver those services, and this not only from their own datacenters, but also from cloud datacenters.

Hyperconverged technologies allows financial services companies to more quickly deploy their bespoke asset management applications, make changes and scale the environment up or down in order to better meet the needs of the business. With the help of Dell Technologies, these companies will continue to innovate and develop their future services.



Creating New Value Through The Edge

All digital businesses create data that is more efficiently processed when the computing power is close to the thing or person generating it. Edge computing addresses this need by acting upon data at or near the source of data generation. The Edge can be a fitness watch that computes the number of steps taken in a day. It can be a micro-data center on an oil platform. It can be traffic lights in a digital city.

Within the next 3-4 years, mobile data traffic is expected to surge by 8 times. 45% of that data will be stored, analyzed and acted on at the Edge.

By 2023, over 50% of new enterprise IT infrastructure deployed will be at the Edge rather than corporate data centers, up from less than 10% today; by 2024, the number of apps at the edge will increase 800%.¹⁰

The three top drivers of moving compute closer to data sources:

- Data volume: there's too much to send it all to a cloud all the time.
- Speed: many Edge use cases require a real-time response, so cloud latency issues are a deal breaker.
- Uptime: as reliable as the network is, there are still times it fails, which would not be tolerable in a real-time scenario.

Consider the following use case: Today's "smart cars" come with about 50 sensors processing 50 megabytes of data a day, enabling functions such as adaptive cruise control and drowsy driver monitoring systems. By contrast, the next generation of autonomous (self-driving) vehicles will require 400 to 500 sensors, processing 40 terabytes of data every eight hours of driving. You simply couldn't have an autonomous car with a traditional, highly-centralized compute model where all that data needed to be sent back to a data center for processing and then back to the car for action. Over the past several decades, compute has swung like a pendulum between centralized (e.g., mainframes) and distributed (e.g., client server) models. Today, the pendulum is swinging farther into the distributed mode, the Edge.

If you are building autonomous cars or smart cities this all makes perfect sense to you. But what if you're not interested in these things and why should you care? By acting on data closer to the source, the Edge has the potential to enable entirely new experiences, enhance efficiency and control in businesses across the spectrum. It can also transform how people and machines interact virtually everywhere. It is at the Edge where you'll find the greatest opportunity to create new value for your enterprise, especially as the world becomes more mobile and the Internet of Things (IoT) becomes more prominent and practical. In order to monetize that data or to interact with people in whole new ways and unlock the full potential of the Edge for your organization, Dell Technologies has established a rich set of best practices.

"Currently, Edge computing promises to play an essential role in the network of the future as it evolves to accommodate IoT needs. In future, Edge computing will be used in smart cars and along with many other devices."

—PAX BHATI, ACCELERATOR DIRECTOR, EY¹¹

As more and more deterministic, real-time, quality-of-service, fraction-of-a-second functions happen at the Edge, IT must change compute, network, storage and apps architectures, with all of those changes need to be viewed in the context of data. When you think about the Edge, think data first.

Three best practices for Edge solutions:

- 1 Watch out for inconsistent Edge standards:** Edge environments have wildly diverse data protocols and are more dynamic and fluid than traditional data center environments. Software-defined infrastructure allows you to abstract away complexity and provide open interoperability and management at scale. This way you can build on a consistent foundation that uses a common set of management tools and open APIs, which will help you gain certainty about the value you will create. This helps you deliver business agility as well, because you're free to run your Edge environments on your terms, not someone else's.
- 2 Ensure that your apps are cloud native and containerized:** This way they can run on any Edge and any cloud. By doing this you can run your apps wherever they create the most value, which is critical as sources of data and your data connections will no doubt change over time.
- 3 Be wary of pre-configured Edge solutions:** The last point might sound a bit counter-intuitive, but while pre-configured Edge solutions might look very tempting you must think about your data and business outcomes first. Only then can you decide if those solutions deliver on your objectives. Many solutions tend to come with platform lock-in and a set of prescribed data connectors. And most lack industry-vertical functionality. You might be tempted to take the easy route—the “easy button”—but this might not be your best option. When you put the data and your outcomes first, those solutions will be anything but “easy.”

What creating new value at the Edge looks like

Your Edge is unique to your business and your data. Dell Technologies recommends that you start by talking with your account representative about Dell Technologies ProConsult Advisory Services. ProConsult Advisory Services are designed to help you assess your current state and align stakeholders on the issues and the areas where change is needed. We'll identify the steps required to close the gaps and help you create consensus across these stakeholders. And the process will develop clear and actionable next steps along with expected outcomes. It is critical to not just look at your technology, but also include the people and processes required to define your Edge.



How IoT accelerates production at a brake pad manufacturer

If there is one industry where data can immediately be translated into value, it's manufacturing. Smart factories use the Internet of Things (IoT) to improve efficiencies and optimize operations in the production process and the supply chain.

Italy-based Brembo is one of the global market leaders in vehicle braking and safety systems. It is well known for its work with top motorsport teams around the world, like the Scuderia Ferrari Formula One team. In fact, it's been behind an impressive 21 drivers' and 25 constructors' championship victories since 1975 for drivers such as Lewis Hamilton, Michael Schumacher and Ayrton Senna.

IoT development in Brembo is focused on getting information and data from Programmable Logic Controllers (PLCs). The value of the information collected helps manage both the quality process and the assembly process. By analyzing the big data coming from the production machines, the production team gains an insight into the efficiency in each production line around the world. The data also allows to plan predictive maintenance on the machines in the future.

A dashboard shows the output on each production line. This helps process engineers to improve the products and processes by analysis of the big data that IoT collects. The dashboard summarizes all the information that an operator or a production manager needs to know, for instance how the line is performing during a current shift. Not only does this allow production control in real time, engineers are also able to perform historical analysis on the data.

By investing in the latest generation of Dell Technologies data center hardware, Brembo has made impressive savings while increasing processing power and keeping its IT budget at the same level. It has halved the space required for its hardware, even though it now has two data center sites. The company has also lowered cooling costs by 30 per cent, and delivered savings of around €30,000 on power consumption.

"IT is essential to all activities at the factory and in the warehouse. We can't do anything without IT. All the knowledge that we learn, we are able to transfer to the road."

—PAOLO CROVETTI, CIO AT BREMBO

Using data to speed up the path to cure cancer

Each day, the physicians, nurses and researchers at Gustave Roussy are working on a better, faster and more personalized cure and care treatment for their patients. Through a holistic IT transformation, they are able to decrease the time taken to turn data into clinical and academic value, provide access to these insights anytime, anywhere, through secure applications, and develop new research grounds by applying artificial intelligence.

France-based Gustave Roussy is one of the world leaders in research, patient treatment and teaching. This comprehensive cancer center unites over 3,100 professionals and every year, 50,000 patients are treated for each kind of cancer.

*“Accessibility, trust, efficiency and zero downtime
are a must when you deal with patients’ lives.”*

—MIKAËL AZOULAY, CIO/CDO AT GUSTAVE ROUSSY

Artificial intelligence and deep learning

Taking into account that each cancer has its own unique attributes, oncologists today use a multidisciplinary approach to achieve the greatest efficacy in treating a patient’s cancer. As part of their search for the best holistic treatment, the extended clinical team focus on developing precision medicine strategies to screen and understand each tumor at the molecular level. These insights lead to targeted treatments (immunotherapy, radiotherapy, chemotherapy, etc.) designed to break down the mechanisms underlying the cancer. None of this could be made possible without advances in genomics, sequencing technologies, specific algorithms, and computing power.

Innovation enhanced by simplified IT environment

Gustave Roussy sought to increase the processing capabilities of its bioinformatics platform to support more genome analyses per day while enhancing research programs. By introducing new open-source software, Dell Technologies boosted the institute’s research speed, while cutting back the power usage per genome analysis by 23%. With more genome analyses done per day, patients will receive faster treatment for their illness. Additionally, Dell Technologies provided scalable storage so that 5 more years of ongoing cancer research will be supported by the same system.



Attract and Retain Talent

A few years ago, Dell Technologies commissioned a study on the future of the workforce. To the absolute surprise of no one we found that tech-related issues are the biggest time-wasters for employees. Those issues could be hardware, software, or network related. Or they could be security related, or even incorrect types of PCs. The goal of engagement transformation is to make your workers more productive, while lowering your costs without compromising security. By personalizing the experience for employees, you can ensure they have the right set of applications, data, and devices they need to be productive. They can have secure collaboration and communication anywhere, anytime on any device, whether in the office, at home, or on the go. This kind of transformation is all about simplifying IT consumption for your end users by providing a more compelling, smarter and faster way for them to consume IT services.

More personalized, secure, collaborative and simplified IT is on every CIO's agenda. Transforming engagement also delivers an even bigger set of benefits to your company or organization. Happy employees are productive employees. There is an actual statistical correlation between employee engagement and revenue growth. Research shows that for every 5% improvement in employee engagement there is a 3% increase in revenue.¹² When employees are more engaged they have a greater psychological investment in their organization. They are more likely to say positive things about your organization and act as advocates. They tend to stay at their organization longer and are motivated to give their best efforts to help the organization succeed. That's why transforming engagement and workforce modernization should be near the top of every Connected CIO's priority list.

The Connected CIO can make a significant impact in their organization's ability to attract and retain talent, by championing and implementing smarter, faster end user experiences. It's time to explore new ways to empower your workforce.

There are three things you can be doing today to transform engagement and modernize your workforce:

1 Transforming the way you deploy: Organizations are looking for better ways to serve an increasingly mobile workforce, which is accustomed to consumerization, automation, and self-service, especially if that workforce is increasingly composed of millennials. Users want minimal disruption. At the same time, IT must maintain system security, reliability and efficiency over the life of that system. But most enterprise deployment programs aren't optimized to keep up with the differing needs. This new style of workforce requirements has broken the old way of deploying and managing end-user assets. When it comes to deployment and client management, enterprises should think of four key areas: image, applications, user data, and client fitness, with an overarching theme of security. The prime mission is to have the system ready for use as soon as the end users receive it, with zero downtime.

2 Deploy seamless end-point security: If you were to ask your employees if endpoint security slows them down or increases productivity you wouldn't be surprised by the answer. There is a reason why end-users often try to bypass security or send sensitive data from personal email accounts – current security protocols are disruptive. Security solutions should encourage efficiency, not inhibit it. A multifaceted security strategy is required that focuses on the way end users work. This includes authentication, encryption (both file-level and dual-level) and advanced malware prevention, utilizing AI and machine learning, to keep data safe while enabling the way people work.

3 Rethink endpoint management and support: To be fully engaged, different groups of employees have different needs in terms of end-user device hardware, software, and configuration. Today organizations are providing and supporting a wider range of technology to an increasingly dispersed and mobile workforce. And they do this while trying to maintain low end-user disruption and managing cost pressures. For greater efficiency, migrate from multiple tools that manage desktops and mobile devices to unified solutions that can manage all devices and configurations from a single console for lower cost and greater flexibility.

Faster data insights, faster speed to market and faster data-enabled cycles of innovation for better data-driven design and decision-making in a world where technology powers human progress.

—MCLAREN¹³

What success looks like

Dell Technologies has a great deal of expertise helping organizations transform their workplace engagement and realize greater employee productivity. Besides a legacy of client devices, we created the Dell Technologies Unified Workspace to revolutionize the way you handle deployment, security, management and support. This integrated solution was designed with intelligence and automation to provide visibility across the entire endpoint environment and eliminate non-value add work. It helps you reduce run-the-business tasks and provides personalized ready-to-work experiences for end users. Applications are provisioned with VMware Workspace ONE in the factory, and systems are shipped directly to your employees anywhere, everywhere. This way they can hit the ground running, and you can focus on what's next.

“Companies need to change the way they manage and lead to match the way that modern humans actually work and live.”

-BRIAN HALLIGAN, CEO, HUBSPOT ¹⁴

Digitally empowering workers in manufacturing and retail

The effects of digital transformation are also felt in various parts of the economy, such as the manufacturing and retail business. As their workforce is changing, with Gen Z making its entry into the job market, they have to find new ways to speak to new talent and existing employees. To stay relevant in this transforming market, these companies make use of a secure and multichannel approach to improve the digital workspace of their employees.



“When we look back at the transformation and the transition that we did, the feedback that we had was awesome. Both the feedback from Dell Technologies as a company, but also from our local IT and our users. Having the right partners that can empower our change was really important.”

—CATO JENSEN, HEAD OF END USER COMPUTING, SANDVIK

For instance, many manufacturing businesses utilizing machine learning, deep learning, and AI are experiencing increasing competition by other hi-tech companies to attract the same digital talent. In order to stay competitive on the job market, many of them underwent a workforce transformation, allowing more people to work in remote offices, and across the whole world.



“If you want to be the most trusted beauty company, you need the latest security solutions, protecting the customer and employee data. Not only for our products, but also for the value we provide for our customers, employees and the entire organization.”

— SÉBASTIEN HEBERT, TECHNICAL DIRECTOR, SHISEIDO EMEA

To increase the digital happiness of their staff, Dell Technologies supported these manufacturers in implementing an efficient and sustainable way to roll out devices to its workforce globally. This helps to empower their workers, attract new types of talent and support every work style, anytime, anyplace.

In retail, Dell Technologies has assisted various companies to make their digital workspace shine like never before, by empowering users, securing solutions and providing access to application and data, regardless of where they are based. These benefits have greatly improved the working environment for employees and it will allow the company to more efficiently attract and retain talent in this digital age.

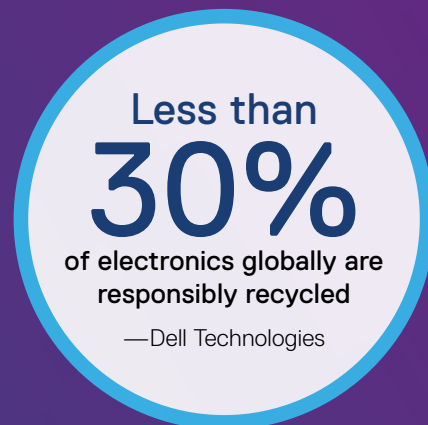
Enabling employees to work from home has become a necessity. The experience of the user, wherever he or she works, remains the same because their company provides them with custom-made solutions, suited to everyone's specific needs and supported by the latest Cybersecurity infrastructures.



Add Sustainability To Your Technology Profile

The e-Waste problem is huge and growing. When electronics end up in landfills or are not recycled properly, toxins such as lead, and mercury can leach into the soil and water. Many organizations are working to more responsibly master the art of retiring hardware at the right time. Many corporations now have sustainability mandates and might be subject to e-waste regulations. We are all part of a circular economy where materials go from harvest, to use, to reuse.

According to a study by United Nations University, all the countries in the world combined generated a staggering 44.7 Million metric tons/49 Million tons, or an equivalent of 6.1 kilograms/13 pounds per inhabitant of e-waste annually. This is close to 4,500 Eiffel Towers each year. Gone are the days when you brought used laptops home to your kids or sent trucks loaded with old monitors to the dump. Less than 30% of electronics globally are responsibly recycled. The rest may get dumped or may simply be sitting around in storage. Either way, they have exited the economy.



Here are three things to think about as you consider meeting your sustainability goals through responsible recycling:

- 1 Resell, recycle and donate:** When you first acquire an asset is the time to think about what to do when that asset ultimate reaches the end of life. Recycling might be your first option, but more and more organizations are seeing greater potential value by reselling or donating equipment. If a laptop or printer is still in good working order but simply no longer meets your organizations standards maybe a non-profit could benefit? Either way, make sure that resell, recycle and donating options at part of your technology lifecycle plans.
- 2 Protect sensitive information:** No matter which disposal option you choose, data protection is paramount. Identity theft standards, compliance, environmental liability – these are increasingly top-of-mind for today's businesses. From personal financial information and highly confidential health records to corporate intellectual property, the information on business servers, desktops, and notebooks across the globe includes some of the most sensitive and proprietary data. Whomever you choose to perform your asset disposal, make sure they adhere to proper data sanitation and security standards.
- 3 Make sure you have clear reporting of disposed assets:** Insist that your vendors provide clear asset disposal reporting. Ask for status and settlement reports on sanitization, disposal, and any resale value. This will help you not only comply with local regulatory guidelines such as the EPA and WEEE legislation and waste regulations, but can also safeguard your brand should anything go wrong with the disposal process.

What success looks like

Maybe you've heard about the sustainability leadership from Dell Technologies. Back in 2013 we put our technology and talents to work where they can do the most good for people and the planet and set goals for 2020. By early 2019 we announced that we had achieved many of those goals ahead of schedule including:

- Reusing 45 thousand metric tons/50 thousand tons of recycled content, plastic and other sustainable materials in Dell Technologies' new products
- Developing and maintaining sustainability initiatives in 100% of Dell Technologies-operated buildings
- Reduced our product portfolio energy intensity footprint by 64%

As we look toward the next 10 years we will be setting out goals even higher.

Dell Sustainability

Dell Technologies can help you meet your sustainability goals and help you do your part to solve the e-Waste problem. When you are ready to retire your assets, Dell Asset Resale and Recycling Services can resell, recycle or return to lease your excess computer equipment in a secure and environmentally-conscious manner:

- **Collect and assess**, including the pickup logistics of any brand of leased or owned hardware, not just Dell gear.
- **Sanitize to ensure data security** through onsite or offsite data sanitization of used devices.
- **Resale and recycling options** that meet or exceed local regulatory guidelines. In some countries we can even help you donate assets.
- **Reporting, with detailed and transparent status and settlement reports** on sanitization, disposal, recycling and resale value.



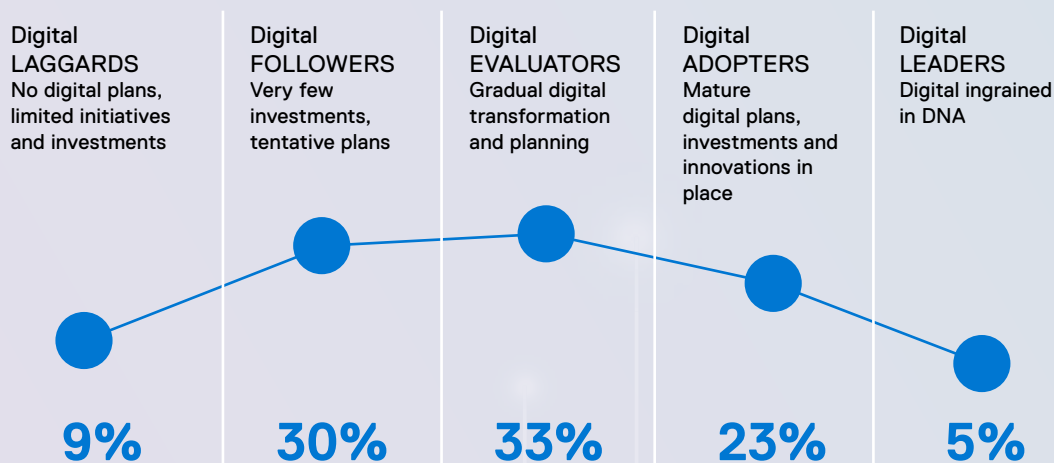
If Transformation Was Easy, You'd Already Be There

Any IT project, and any transformation, follows a few standard steps. We know, however, that it just isn't that easy.

Since 2016, Dell and Intel have studied thousands of business leaders to measure the global state of digital transformation. The results show that just 5% of organizations fall into the 'Digital Leaders' category, where digital transformation is ingrained in the DNA of the business. What is surprising is that many organizations have not started or are simply evaluating what they should do next.

Your first step to your own transformation is to read the results of the Dell Technologies Digital Transformation Index⁴. You'll see the results from 12 industries in 40 countries, taken from key levels within these organizations, from Director to C-Suite, mid-sized to large enterprises. And you'll be able to benchmark your organization with others in your industry or region.

DELL TECHNOLOGIES DIGITAL TRANSFORMATION INDEX



Only 5% of organizations are digital leaders.⁴

"Most IT organizations at Fortune 500 companies don't have the right operational models to build and deliver next-generation digital experiences."

—FORRESTER¹⁵

Path to Growth: Tackling the Transformation Tightrope

Intel's venerated former CEO Andy Grove once said, "Success breeds complacency, complacency breeds failure, only the paranoid survive". A truism more relevant now than ever given the profound ways in which technology continues to re-shape our world.

This leads to a central challenge leaders face when transforming their business – how to innovate, with velocity, at scale, ahead of the market. With recent research suggesting only 5% of digital transformations meet or exceed expectations, it exposes one of the great misunderstandings of 'digital' – namely the difference between Digitalization and Digital Transformation.

*"It's not necessary to change,
because survival isn't mandatory"*

—W.Edwards Deming, noted professor, author and business advisor

“Doing Things Better” Increasing Business Agility

Tactics to Defend the Core

Digitalization is fundamentally about ‘DOING THINGS BETTER’. It can be described as the application of digital technologies to transform business operations. Without question, this is a good thing to do, but it can’t be the only thing - the competition will likely be doing the same!

Optimize the Core Business

An optimized and agile core business serves as a cornerstone for successful transformation. Profits generated provide the investment needed to fuel innovation and drive scale efforts into new markets.

‘Digitalization tactics’ can be employed to great affect to drive core business improvement. This starts with the adoption of a secure multi- cloud foundation upon which key process can be automated, customers can be reached through new digital channels, and workforce efficiency gains can be made through greater collaboration.

Avoid ‘Digital Washing’

Organizations need to avoid the temptation to preface everything with the term ‘digital’, applying technology for its own sake. This is known as ‘Digital Washing’.

Digitalization projects should be prioritized and funded based on a clear understanding of benefit and measurable, material value. Plans announced with great fanfare will often fail to deliver on their promise when undertaken without the necessary due diligence.

"Digital transformation is as much about leading a revolution as it is about running a business. Envisioning the future requires a wide aperture of understanding on what's going on at a global level – technologically, socially, environmentally and politically. Everyone from the board to the shop floor needs to improve their digital IQ."

—ANDREW MOORE, MANAGING PARTNER, DIGITAL NEXUS ASSOCIATES LTD.

“Doing Better Things” Create New Value

Strategies to Disrupt the Core

Digital Transformation is about strategically re-imagining a business or industry. Or, to put it another way, it's about 'DOING BETTER THINGS'. It requires a willingness for re-invention, early technology adoption, cultural change, cross-company engagement and a multi-year tolerance for risk.

Competition Redefined

The business rule book has been re-written. Market incumbents have lost out to a new style of competition, based not on similar-but-better products/services, but on entirely new business models. This has been most apparent with the rise of the Unicorns who have met customer outcomes through radical new experiences, made possible by digital technologies.

However, we are now on the cusp of the next wave of technology innovation, defined by the World Economic Forum as the Fourth Industrial Revolution. Advancements such as Artificial Intelligence, Mixed Realities and the Internet of Everything has the potential to once again level the playing field. Disruptees willing to be early adopters and innovators, can themselves become the disruptors!

Every executive needs to grasp the impact this can have on the business - not just those in IT.

Winning in the 4th Industrial Revolution

Customer Obsession – leaders care deeply about their customers and will go to great lengths to understand how they can most effectively meet their desired outcomes. This thinking factors in everything they do.

Data Centric Business Models – leaders understand data as an asset and know how to use it to unlock value through compelling and convenient new experiences, often blending virtual and real worlds.

Reinvent the rule book – leaders have a 'leadership mindset' - they remove cultural dogma, drive disruptive innovation, encourage risk taking, develop new skills/talent, build new eco-systems, are environmentally sensitive and track the right metrics.



Dell creates technologies that drive human progress.

At Dell Technologies, we see social impact – the significant, positive change associated with addressing pressing social or environmental challenges – as a business imperative, essential to our success. Our commitment is drawn directly from our purpose to create technologies that drive human progress and we consider social impact as part of our corporate objectives, our culture and how we run the business.

Knowing the importance of social impact, and the power of technology, we are constantly asking the question: How can we – along with our customers, partners and suppliers – have a profound and positive impact on society and the planet?

To help answer that question, Dell Technologies has announced Progress Made Real, a comprehensive plan for how we'll have the greatest impact by 2030.

Progress Made Real is focused on areas we feel are critical to creating a positive social impact: advancing sustainability, cultivating inclusion and transforming lives by addressing society's most pressing issues. Of course, underlying each of these is our commitment to ethics and data privacy. Now we're introducing a moonshot goal in every area – a call to action for team members, partners, and customers to come together to achieve what, at the moment, may seem beyond our limits.



AI gives ALS patients a voice

The end game of technology is to eradicate every disease and come up with a cure for any ailment. We are not able to cure each disease yet, but technology is making great strides to make life more agreeable to patients. That's what Stuart Moss, the Global IT Innovation Strategist at Rolls-Royce had in mind when he made sure Rolls-Royce teamed up with the MND Association.

MND stands for Motor Neuron Disease but is better known under the ALS acronym (amyotrophic lateral sclerosis) or Lou Gehrig's disease. MND causes patients to lose control of their muscles, affecting their ability to move, speak, swallow, and eventually breathe. Stuart Moss lost his father to this disease but he is now spearheading 'Next Generation Think Tank' – a project Rolls-Royce and the MND Association established to explore technologies that support MND patients. It has an ambitious vision: help patients, even after the disease robs them of their ability to move, speak, eat or breathe.

"MND is a medical condition, but until we find a cure, the IT industry will be quicker and better than the medical industry in developing assistive technology."

—STUART MOSS, GLOBAL IT INNOVATION STRATEGIST AT ROLLS-ROYCE

Moss succeeded in bringing 20 technology companies together to think about how to help patients cope. Even competing IT companies joined forces. Among the participants in the project are Dell Technologies, Intel and Microsoft. Intel is bringing its experience of providing 'Hawking experience' technology for British physicist Stephen Hawking, Dell Technologies is providing hardware for artificial intelligence (AI) and Microsoft is offering its voice-enabled, digital assistant technology skills.

One of the project's goals aims at providing verbal spontaneity. MND patients have limited options to communicate, and the most common way is using eye-tracking technology, by which patients move their eyes to point to letters on a screen, spelling words. Teams at 'Next Generation Think Tank' are working to improve the process through clever applications of AI. This is a great example of how technology can help people live better lives. Find out how you can help by visiting the website of Rolls-Royce.



Advancing Sustainability

Starting with our first moonshot, we think about the environment in everything we do. For every product a customer buys, we will reuse or recycle an equivalent product. 100% of our packaging will be made from recycled or renewable material. And more than half of our product content will be made from recycled or renewable material.



Cultivating Inclusion

By 2030, it's possible there will be a global tech labor shortage of 4.3 million. In fact, 89% of IT employers say they're already experiencing the negative effects of skills shortages on their business.

What is Dell Technologies doing to address the talent shortage?

- We've invested over \$70 million to advancing STEM initiatives globally.
- We're also building innovative partnerships and programs to create pathways for talent to enter – and re-enter – STEM, whether made up of students or seasoned professionals with different skills and/or from other industries.
- We also have a moonshot that by 2030, 50% of our global workforce and 40% of our global people leaders will be women.

Attracting, developing, and retaining diverse talent couldn't be more important to us. We also believe diversity across our leadership team increases our ability to be innovative and ensures company decisions reflect a wide array of perspectives.



Transforming Lives

We like to think of ourselves as Tech Optimists because we truly believe technology has the power to solve some of the greatest challenges facing humanity. Our moonshot goal for Transforming Lives is that with our technology and scale, we will advance health, education and economic opportunity initiatives to deliver enduring results for 1 billion people.

With Progress Made Real, when we talk about Transforming Lives, we focus on:

- Creating technology to tackle global problems that are impacting millions
- Bringing more people into the digital economy, and
- Partnering with others to address society's most pressing challenges



Upholding Ethics & Privacy

Dell Technologies believes privacy is a fundamental human right, so it is important we continue with user centric transparency in how we collect, use, share and transfer our customers' personal data. We're helping shape new consumer privacy laws worldwide while taking action to protect our customers privacy rights.

So we've set a moonshot goal for upholding ethics and privacy as well – that we will fully automate and make it easier for our customers to access, delete and make choices about their personal data.

In all of our efforts to achieve this 2030 vision, ethics and protecting customers' privacy must guide us. We believe this strongly, and we know our customers and team members do, too.

With our Progress Made Real 2030 plan, we are ushering in a new decade of responsibility and innovation. Our moonshot goals will propel the company's positive social impact even further. These ambitious goals are grounded in the belief that technology and data, combined with human spirit are, and will always be, positive forces in the world.

These are moonshot goals - we are shooting for the moon - but we're keeping our feet on the ground and making progress real, today.



Transform your business in just one day.

Executive Briefing Program

Solving your organisation's biggest technology challenges takes great minds and open collaboration. Your Executive briefing is designed to deliver both. At Dell Technologies, an Executive Briefing is a personalised experience, designed to help you create a digital strategy. Whether you visit one of our 13 modern and collaborative spaces or we come to a location near you, one thing remains constant; you will experience an engagement and agenda completely customised to your strategic initiatives and your challenges.

During your visit, you will have direct access to Dell Technologies executives, thought leaders, business and technical subject matter experts. Our Discussion Leaders will engage in candid conversations, sharing industry best practices and unparalleled customer insight.

Dell Technologies partners with the CxOs of our customers around the world to make their transformation real. In doing so, we've found that transformation always starts with a conversation. We look forward to exploring, collaborating and finding innovative ways to transform your business together.

Learn more at delltechnologies.com/ebp and contact a member of your Dell Technologies account team to book your Briefing



Dell Technologies Can Help You Lead Your Transformation

While many Connected CIOs face similar fundamental challenges, your journey is unique to you. Your industry, your people, and your corporate culture will all have a major impact on how far and how fast you can move forward.

Now more than ever, you need a partner who understands you and your imperatives for change. We created Dell Technologies to provide not only the products and solutions, but also the services and expertise to help make business transformation happen, and make it real for you: one partner, purpose-built for your digital future.



Call your Dell Technologies representative



Learn more at
DellTechnologies.com/ConnectedCIO



Assess your digital transformation status:
DellTechnologies.com/DTIAssessment

Dell Technologies can deliver transformation
in ways no other company can.

DELLTechnologies

Innovation
Built-In

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