The digital business

Creating the right IT platform for digital transformation
Contents

Foreword 3
Executive summary 4
The technology platform for a digital business starts with cloud 5
Accelerating your digital business through your cloud adoption strategy: next steps 8
In conclusion 11
BT as a digital business partner 12
Glossary 13
Change is happening at pace. Eighty-five per cent of companies feel they have 2 years to make significant inroads on their digital transformation before suffering financially, and/or falling behind.

Foreword

No boardroom can ignore the impact of digital technology, the rapid rise of new competitors and their platform-based business models. The ascendancy of digital-native companies shows how fast and how far digital innovation can undermine market leaders and dislocate whole industries. Established businesses must rise to the challenge if they are to survive and make the most of this opportunity to grow in this digital economy.

Change is happening at pace. Eighty-five per cent of companies feel they have 2 years to make significant inroads on their digital transformation before suffering financially, and/or falling behind\(^1\). It comes as no surprise that, as Forbes has reported\(^2\), ninety per cent of global businesses have kicked off a formal digital transformation initiative of some form.

The good news is that our 2017 global survey of over four hundred CEOs\(^3\) reveals that they are positive about the opportunities of digital transformation – to the extent that one in four are even taking the lead in their companies.

Their biggest challenge is not what to do, but how to do it.

We believe the way ahead lies in understanding what your organisation is trying to achieve strategically, and then embracing and applying the same agile infrastructure and open innovation model as digital entrepreneurs. And in using secure cloud-based services and future networking to build, flex and scale a truly digital business. Ubiquitous connectivity, cloud services, mobility and security have combined to create an ecosystem of integrated products and services that anyone can use, anyone can adapt and anyone can sell as a service. The challenge for businesses today is how to exploit these services, where to focus their effort to get their business fit for the digital age as well as spotting and taking advantage of new innovation in the digital world.

The purpose of this paper is to help CIOs and their boardroom colleagues find the right approach to building a digital infrastructure to achieve the right outcomes for their business. Our aim is to help you work out where your organisation is on its digital journey, and how you can best use cloud services and emerging technologies to rapidly progress to the next stage of your digital transformation pathway.

Chris Cochrane

CIO, Global Services

We believe the way ahead lies in embracing and applying the same agile infrastructure and open innovation model as digital entrepreneurs.
Executive summary

Eighty six per cent of CEOs recognise that they face challenges when it comes to digital IT infrastructure³. One of these challenges is that the IT department does not understand the needs of the business (and, arguably, the rest of the business does not understand the role of IT).

Only when you know what the priorities of the business are, and the specific outcomes that will deliver them, can you then design an IT strategy to enable it all. Digital transformation is about securely using technology in the right way, for the right reasons. CEOs see cloud computing as the second biggest technology trend (after the Internet of Things) that will significantly impact their business over the next two to three years³ so it needs to be a large part of the IT roadmap.

With changing market conditions, business demands and customer expectations, the CIO can only make so many assumptions about future unknowns. That’s why a practical solution is to adopt a hybrid cloud strategy, combining private and public cloud services with an intelligent network and in-built security services. This approach allows organisations to transition to the cloud at their own speed whilst ensuring flexibility and compliance.

This will also create an environment for accelerating the move to platform based models. By 2018 more than fifty per cent of large enterprises will create and/or partner with industry platforms⁴. For those who are digital innovators and fast followers, platform-based business models, using cloud services as the foundation, are already part of their business strategy.

The future is exciting and although it’s uncertain, there will constantly be opportunities for growth. Forward thinking successful businesses are already building on third party services, including those of their competitors, in order to thrive in the digital economy.

They are also prioritising the redesign of their teams to drive a more value added, innovative and dynamic IT department for the future.

By 2020 the digital economy will account for twenty-five per cent of the entire economy.⁴
The technology platform for a digital business starts with cloud

Before you even start to look at your infrastructure strategy it is essential you have clear direction on the organisation’s digital business strategy and priorities.

Our recent CEO research found that increasing operational efficiency is one of the top three strategic priorities for CEOs of multinational companies.

But it’s not just about costs, there are further business objectives competing for attention. The research revealed a fairly even spread of strategic priorities.

What are the primary drivers of your overall business strategy?

- Increasing operational efficiency: 37%
- Improving customer experience: 37%
- Innovating products and services: 35%
- Gaining competitive advantage: 34%
- Expanding geographically: 34%
- Improving employee experience: 33%
- Accelerating time to market for new products and services: 31%
- Growing through merger and acquisition: 30%
- Withstanding disruption: 30%
The shift to cloud is well underway

Whether it’s developing a digital portfolio of products and services, offering new channels for customer service, automating internal processes, introducing new ways of working for employees, achieving geographic expansion, collaborating with supply chain partners, leveraging the innovation of SMEs, or exploiting new data sources – the business must be able to progress and balance multiple outcomes simultaneously.

CIOs are already using hybrid cloud models to deliver these outcomes and cloud maturity has been increasing. However, less than one third are at a level that IDC would classify as ‘mature’. It is these organisations that experience the biggest impact of cloud on the strategic measures of business success. A mature cloud strategy can typically drive $1 million in cost reduction and $3 million in additional revenue per business application deployed in the cloud.7

Evaluating whether you are behind or ahead on your cloud journey means you can put a precise roadmap in place. Looking at cloud maturity assessments is a great place to start.

Balancing strategic outcomes

The challenge is how use technology to enable the outcomes that will advance these priorities – particularly in markets where disruptive technologies can change the dynamics in a flash.

There is clearly a need for CIOs and CDOs to be part of the overall business strategy development process. Not only does this help the IT department understand exactly what is expected of them in terms of specific outcomes, but it also means they have the chance to weigh in with the potential opportunities and risks generated by emerging technologies. Involving the IT team in this way allows them to become value creators.

Thirty seven per cent of CEOs say a barrier to a better digital infrastructure is a lack of understanding by the IT department into what the business actually needs.3

Which outcomes will help you achieve your strategic priorities?

- Develop a digital portfolio of products and services
- Offer new channels for customer service
- Automate internal processes
- Introduce new ways of working for employees
- Achieve geographic expansion
- Collaborate with supply chain partners
- Leverage the innovation of SMEs
- Exploit new data sources
A more agile network

CEOs cited inflexible technology infrastructure as the top barrier to a better digital infrastructure. This is not just data centres and services, but the underlying network as well. As more applications move to the cloud, businesses push into new and wider geographies, and the use of bandwidth hungry applications accelerates, the quality of network services is diluted by hybrid. The journey to building a network infrastructure that will support today’s and tomorrow’s cloud business applications is a complex one. No business is starting from a greenfield site. With a range of new technologies to support this, there are some fundamental steps that businesses should be taking now.

One such step is to look at infrastructure with in-built security that is pre-connected into leading cloud software providers or public cloud providers. This approach can help organisations to quickly connect their cloud environments to their corporate networks using a variety of network technologies, including internet and IP. These pre-connected services have appropriate security and acceleration services built in as virtual functions.

Intelligent software defined networks and network function virtualisation (NFV) can help CIOs build more flexibility into their networks, and enable them to adapt and refine in real time to meet the changing needs of the digital business. This is a complex topic and one which we will be covering in more detail in our next white paper which will be available for download at www.bt.com/digital-business shortly.

Why hybrid cloud is the bridge to a digital platform

Successful digital companies are ones that build on partner assets and have a strong ecosystem approach to their business to drive growth. Hybrid cloud is an example of building that foundation from moving from a DIY build model to a largely consume model from cloud providers.

Digital leaders such as Alibaba, Airbnb, Robinhood and Slack all have the same model: they create digital platforms that manage and monetise ecosystems of consumers, producers and innovators. Such platform-based businesses are disrupting industries and creating new ways to grow digitally. Indeed, twelve of the world’s top thirty brands have created more revenues from their digital channels than traditional routes.

For every business, accelerating its adoption of cloud services and introducing future networking technologies will help to prepare the ground for the future implementation of a digital platform.

Find out more at www.bt.com/personalised-cms

Digital platforms

“Firms are likely to deploy ‘platform enabling platform’ technologies that help to create horizontal linkages across their vertical businesses. We can expect to see more and more businesses adopting such technology as they seek to digitalise their global business operations.”

Geoffrey Parker, Professor of Engineering at Dartmouth College, Fellow at the MIT Initiative on the Digital Economy, and author of Platform Revolution
Accelerating your digital business through your cloud adoption strategy: next steps

So how do take your technology infrastructure from where you are now to where you need to be?

It takes a change of mind-set and a willingness to abandon old ways of thinking and working. To balance competing business outcomes successfully, you’ll need to:

1. **Know where you are on your digital journey**

   At a strategic level, identify and evaluate your business DNA components. Given the right input and tools, it is easy to empirically measure what you are doing and where you should go next. Identify which of your existing products and services might translate into digital, plus any new products and services which you could launch as digital offerings. Use industry standard tools to rapidly prototype and test the viability of digital ideas.

   At a more tactical level, assess your maturity (not only for cloud but also network), identify the gaps and develop a clear roadmap to fill them. Look at how your budget is allocated (strategic vs routine), time to provision services (internally and externally), cost reduction analysis (people, technology and services), then benchmark yourself against your peers.

---

**Questions to ask yourself**

- Are we aligned with the key strategic priorities of the business?
- How clear is our strategy to support outcomes for customers and employees?
- What are our cloud and network maturity levels? How do they compare to others in our industry?
- Do we know where we are, ahead or behind, in enabling the business’ digital journey?
2. Demonstrate value creation

Despite what many business leaders think, inflexible infrastructure is not always the real obstacle to digital transformation. Simply moving existing infrastructure to the cloud is just as likely to increase total cost of ownership, not reduce it. Organisations should move away from treating the IT department as a cost centre, with discrete outcome-based measures and detailed procurement specifications, and think of it more like a software development house – agile and swift in outlook and behaviour.

Questions to ask yourself

- How do our existing IT finance and procurement policies/practices need to change to allow us to deliver a more agile infrastructure?
- Are we positioning ourselves as a value adding unit for the wider business, or just as a cost and operational function?
- Do we know what each area of the business wants to achieve and how we can help deliver it?

3. Be innovative, agile and attractive

When your business depends on creating software assets, not buying physical objects, the IT team must think like a software development house. Stop buying more servers – rent them instead; no more off the shelf software – write/integrate your own; abandon twelve to twenty-four month delivery schedules and plan to make changes to digital services in weeks or days. This mind-set requires agile skills and methodologies. A business such as Amazon will have 100 software releases every week, constantly making subtle adjustments to its platform. Another part of this agile methodology is continuous improvement: continuous integration, continuous development/testing, and continuous deployment. New innovative trends such as container technology and microservices help with this, but it means you need to constantly refine your strategy to improve digital experiences.

If you don’t have the right agile skills and methodologies, including software development, you’ll need to bring them in. Use agile coaches to train your existing team and market yourself to attract the next generation of talent.

Questions to ask yourself

- How can we learn to behave/work in a more agile way? What do we need to stop doing?
- What skills or coaching do we need to bring in?
- Have we got a plan for attracting the best talent with the skills we need?

4. Subscribe don’t build

An agile business values use of an asset over ownership. Explore the vast ‘as-a-service’ market. Find the right mix of vendors for different use cases – from rapid and inexpensive test environments to high grade production infrastructure – and you have your hybrid cloud coming together. And don’t forget to check out ‘platform-as-a-service’. These standards based, and technology and industry agnostic, ‘business-platform-as-a-service’ from neutral third parties offer pre-built functionality, including end-to-end automation and digital processes for sales, fulfilment and monetisation, and provide an alternative to DIY.

When reviewing which services you might look to implement it’s important to assess cost, security, features and service types. You also need to consider ease of access and compliance of data storage specifically. The priority order will be personal to your organisation’s values and brand and also dependent on the use case. For example; test and development services may be high on cost with less emphasis on security, but if security is a big part of brand that may trump business logic.

Questions to ask yourself

- What services could we build on top of rather than build from scratch?
- What services do we have that we should be sharing and monetising through a business platform-as-a-service?
5. Design with intelligent networking in mind

Digital services and a more agile way of working are putting pressure on the network. Software defined wide area networks (SD-WAN) and NFV services are helping deliver more agility into the network by optimising traffic routing to get the best out of internet and IP paths, whilst fully integrating with IP services to enable access, class of service and secure cloud connectivity. Network technology is constantly evolving and becoming smarter but it’s important to use these dynamic network services for the right reasons and not just for the sake of new technology. Keep in touch with service providers to ensure you are aware of what’s coming on their roadmaps and how they can help you use these services optimally.

Questions to ask yourself

- Have we got the right agile network in place to use multiple clouds services securely?
- Do we know what future networking technologies are coming in the next 5 years?

6. Integrating security from the start

As customers demand instant access to data from any device, any network and any country – combined with this data being stored both in the cloud and on premise – security becomes even more important and potentially complex. With the growth of cloud services comes a growth of your potential attack surface. Deploying security controls across many different internal, public and hybrid cloud environments offered from different providers can be a huge challenge, and the integrity of the security measures may not always be in your control.

If you haven’t already, you should consider the level of visibility you have of your data and your ability to protect it. Enforcing a uniform enterprise security policy in a multi-provider and diverse environment is a must. This ensures that there are policy-based virtual host and application protection defending systems, and applications against intrusions and cyber-attacks on all the cloud platforms you use.

Focus on security that travels with the data, going from one cloud environment to another. These cloud-based security services are vital for managing compliance risk, particularly with the introduction of new regulations such as General Data Protection Regulation (GDPR).

Questions to ask yourself

- Do you truly know what your critical information assets are and what visibility of them do you have?
- How confident are you in the controls for these information assets? Both yours and those that are managed by third parties?
- Are you fully prepared for the introduction of GDPR next year? Have you designed data protection into your business processes and can you demonstrate that they have the necessary capability and controls to protect personal data?
In conclusion

CEOs and CIOs know their choices today will determine the speed and success of the business in the future. But with seventy-five per cent of organisations still taking incremental steps¹, it’s time to accelerate a solid digital strategy by investing in the right skills and services if you want to move ahead of the pack.

Integrating secure cloud services and intelligent network capabilities into your overall strategy means you can be confident that your infrastructure is agile enough to exploit future business opportunities and manage the knock on requirements. Whether it be a whole new business model, a transformation of communications, or a new acquisition, the investments you make now will mean you can respond quickly and seamlessly.

It’s important to remember that you don’t need to build everything yourself. Accept your organisation cannot transform to a purely cloud-based model overnight. However, by using a carefully thought out hybrid model and arming your organisation with a more agile culture and secure infrastructure, you can thrive in the digital economy.

Integrating secure cloud services and intelligent network capabilities into your overall strategy means you can be confident that your infrastructure is agile enough to exploit future business opportunities and manage the knock on requirements.
BT as a digital business partner

BT is ready to support its customers as they embark on digital transformation. Our Cloud of Clouds strategy is a powerful combination of cloud services, IT integration skills, global network and professional security expertise. It means you can connect easily and securely to the applications and data you need, wherever they’re hosted and wherever your users are based.

Central to our strategy is our BT Personalised Compute Management System (PCMS) ‘business-platform-as-a-service’, which leverages the capabilities of our existing BT Compute Management System (CMS) self-service cloud-based management platform. Rather than start from scratch, PCMS allows organisations to approach digital transformation with confidence, taking advantage of our ready to run platform to seize opportunities to compete in fast growing digital markets, both consumer and business to business.

Finally, our networking vision and roadmap will help CIOs extend all the flexibility and agility of the cloud to their global communications infrastructure to make sure their network can enable their growing cloud consumption. This will build you a business that can flourish in the digital age.

“With CMS (and now PCMS), it always envisaged a dynamic environment for both hosting and consuming services, for internal enterprise applications and for a B2B2B supply chain. BT can rightly position PCMS as a BPaaS capable of enabling digital transformation.”

John Marcus, Current Analysis, 2017

BT’s digital transformation journey

We have transformed our own organisation over the last five years, as we become a digital business. Driven by our move into new markets and focus on delivering a leading service to our customers, we’ve been digitally transforming our organisation.

In just ten years, BT TV has added one hundred and fifty channels and one and half million viewers, and BT Sport has grown rapidly to five million viewers in just 4 years. We’re setting new boundaries with Ultra HD, multi-screen viewing and TV content on mobile devices. We now manage ten times as many visits to our webpages, as well as millions of online transactions. We also own and deliver a range of different content, have evolved our customer equipment, and have transformed our network to manage the move to 4k TV.

This is all underpinned by our cultural transformation to be a digital business.
References

1. Are businesses really digitally transforming or living in digital denial? Progress Global Survey, May 2016
2. Three Reasons Why CEOs Need To Be More Vested In Digital Transformation. Forbes, Diorio, 2017
3. Leading from the front: CEO perspectives on business transformation in the digital age, BT, 2017
5. Platform economy: Technology-driven business model innovation from the outside in, Accenture, 2016

Glossary

Containers or Self-contained System (SCS): is a software architecture approach that focuses on a separation of the functionality into many independent systems, making the complete logical system a collaboration of many smaller software systems.

General Data Protection Regulation (GDPR) (Regulation (EU) 2016/679): is a regulation by which the European Parliament, the Council of the European Union and the European Commission intend to strengthen and unify data protection for all individuals within the European Union (EU). It also addresses the export of personal data outside the EU. The GDPR aims primarily to give control back to citizens and residents over their personal data and to simplify the regulatory environment for international business by unifying the regulation within the EU.

Hybrid cloud: a composition of two or more clouds (private, community or public) that remain distinct entities but are bound together, offering the benefits of multiple deployment models. Hybrid cloud can also mean the ability to connect collocation, managed and/or dedicated services with cloud resources.

Microservices: is a software architecture approach where services should be fine-grained and the protocols should be lightweight. The benefit of decomposing an application into different smaller services is that it improves modularity and makes the application easier to understand, develop and test. It also parallelises development by enabling small autonomous teams to develop, deploy and scale their respective services independently. It also allows the architecture of an individual service to emerge through continuous refactoring. Microservices-based architectures enable continuous delivery and deployment.

Network Functions Virtualisation (NFV): is a network architecture concept that uses the technologies of IT virtualisation to virtualise entire classes of network node functions into building blocks that may connect, or chain together, to create communication services. NFV relies upon, but differs from, traditional server-virtualisation techniques, such as those used in enterprise IT. A virtualised network function, or VNF, may consist of one or more virtual machines running different software and processes, on top of standard high-volume servers, switches and storage devices, or even cloud computing infrastructure, instead of having custom hardware appliances for each network function.

Platform-as-a-service (PaaS): is a category of cloud computing services that provides a platform allowing customers to develop, run, and manage applications without the complexity of building and maintaining the infrastructure typically associated with developing and launching an app. PaaS can be delivered in two ways: as a public cloud service from a provider, where the consumer controls software deployment with minimal configuration options, and the provider provides the networks, servers, storage, operating system (OS), middleware (e.g. Java runtime, .NET runtime, integration, etc.), database and other services to host the consumer’s application; or as a private service (software or appliance) inside the firewall, or as software deployed on a public infrastructure as a service.

Private cloud: is cloud infrastructure operated solely for a single organisation, whether managed internally or by a third-party, and hosted either internally or externally.

Public cloud: is a cloud infrastructure where the services are rendered over a network that is open for public use. Public cloud services may be free.

Software Defined Wide Area Network (SD-WAN): SD-WAN simplifies the management and operation of a WAN by decoupling (separating) the networking hardware from its control mechanism. This concept is similar to how software-defined networking implements virtualisation technology to improve data centre management and operation. A key application of an SD-WAN is to allow companies to build higher-performance WANs using lower-cost internet access, enabling businesses to partially or wholly replace more expensive private WAN connection technologies such as MPLS.

Source: [www.wikipedia.org](http://www.wikipedia.org)