



Cloud Fluent

Helping you thrive in a digital world



Cloud. **Fluent**



Cloud. **Fluent**



Introduction

Section 1: Cloud. **Defined**



- What is it and why is everyone talking about it?
- How Cloud works
 - Cloud spotting – Cloud deployment models
 - Cloud services
- Who's who in the Cloud market?

Section 2: Cloud. **Impact**



- Cloud-based transformation in action
- How Cloud and emerging technologies are changing business together
- The risks of Cloud
- Cloud in action

Section 3: Cloud. **Challenges**



- Cloud adoption challenges
- What about security?
- How can Cloud affect IT functions?

Section 4: Cloud. **And you**



- What can I do with Cloud?
- Making Cloud work for your business – a practical roadmap:
 - Cloud strategy
 - Risk management
 - Business case
 - Governance
 - Cloud migration
 - Cultural change

Contact us

Cloud. **Fluent**



Introduction

While you've been busy getting on with things over the last few years, the Cloud has come of age: it's moved from being the preserve of the technologists to become a mainstay of everyday life. It's everywhere. Literally.

But what is it? What's it for? Why is it so useful and how can you best take advantage of it?

This guide has been created to answer all of those questions and more: to provide you with enough information to be able to engage in meaningful conversations about how the Cloud can shape and support your business.

Of course, most businesspeople know a little about the Cloud – some even know a lot. But we think that all businesspeople need to become 'Cloud fluent'. That is, to understand it from the ground up, and use that understanding to determine how Cloud could transform their business.

But, as everyone knows, fluency demands an understanding of the language and, in this case, we're talking about the combination of technology and consulting – two of the most buzzword-rich business sectors on the planet.

So, this guide is both a primer and a reference – accessible and, hopefully, engaging. It will help you to understand the basics of Cloud, the different types of Cloud set ups, the opportunities, challenges and some of the lessons we've learnt along the way.

By the end, you should be well on the way to Cloud fluency – and be primed for the kinds of conversations you should be having about the Cloud and your own business.

Let's get started.



We think that all business people need to become 'Cloud fluent'.



Section 1

Cloud. **Defined**



Cloud. **Defined**



What is it and why is everyone talking about it?

'The Cloud' is really just a way of describing software and technology services that you rent, instead of own. But 'Cloud' sounds better doesn't it? More ... inspirational.

Building on this simple description, there are five key characteristics of Cloud:



1. **Shared** – delivered by a common pool of technology resources including servers, data storage and networks.



2. **Elastic** – it scales easily. The Cloud can adjust to the need of an organisation or individual user, so that data storage and resources aren't wasted.



3. **Metered** – users pay as they go and only for what they use. This optimises infrastructure while keeping costs low.



4. **Agile** – you can jump right in with 'out-the-box' solutions that help you innovate faster and develop new products and services.



5. **Secure** – data is protected and backed up so nothing is lost.

In some ways, we could stop right there. It means accessing the very latest high-end facilities and processing power when you need to, but not having to pay for them to sit idle when you're not using them, or having to keep paying to upgrade when technology moves on.

But most people are less interested in what the technology is and more focused on what it can deliver. And Cloud has the potential to deliver transformational advantages to businesses. So here's a summary of what Cloud can bring. This is also your primer, if you still need one, on why you need to become Cloud fluent:

- **Speed and power** – Cloud deployment enables new agile ways of working, delivering solutions more quickly and in smaller bite-sized chunks.
- **Increased flexibility and cost effectiveness** – Cloud's pay-as-you-use billing model allows you to access advanced computational capabilities without the capital expenditure.
- **Scalability and sharing** – Cloud enhances your ability to vary computational and data storage capabilities according to demand and business needs. It also enables you to share data at all levels – personal, workgroup, enterprise, and industry.
- **Cutting-edge capabilities** – Cloud enables you to access the latest technology – such as artificial intelligence, machine learning, or augmented reality – to solve business problems.

The technology sector and, dare we say it, the consulting sector too, is apt to make a lot of noise about 'the next big thing'. But in the case of Cloud, the hype has been thoroughly warranted – Cloud is helping to transform business.

Cloud is helping to
transform business.



Cloud. **Defined**



How Cloud works

Cloud itself is a set of data centres around the world containing large numbers of servers – providing vast amounts of data storage capacity and all the innovative services you can use to solve business problems.

This “Cloud” can be accessed from any device – it could be a computer, mobile device or increasingly IoT devices embedded into physical equipment on a shop floor or building.

But what does that mean for you? Let’s use an example from everyday life – like Apple iCloud:

- Data is easily accessible because it’s seamlessly uploaded across all connected devices – your iPhone, iPad, or Apple computer.
- Users experience productivity gains because data is not restricted to one device. For example, if you create a document on your computer, you can view it on your phone or tablet later while on the move since the two are automatically synced.
- There’s virtually unlimited data storage for personal or professional use – allowing for more photos, videos, documents, etc.
- Daily data-backups of all content across devices maintain integrity, so you don’t need to worry about losing your priceless photos.

So, there are clear benefits to using iCloud, and that’s just one simple example of the Cloud at work. There are lots of others but to understand them we really need to look more closely at the Cloud and how it operates – or, more precisely, how it is operated.

Cloud spotting: Cloud deployment models

To understand Cloud better, it’s important to recognise that there are different ways to use the Cloud.

Who has access? Where are the servers located? It depends on the Cloud deployment model, and in general terms there are three:

Public Cloud

Public Cloud is hosted at the Cloud provider’s location, where typically, the provider makes resources such as virtual machines, applications, or data storage available over the internet. Public Cloud, offered by the likes of Amazon Web Services (AWS), Google Cloud Platform (GCP), and Azure, allows users to consume IT and related services on a pay-per-use model, the speed of access to resources, and the flexibility to increase/decrease capacity. For most business applications, public Cloud has excellent security and so is suitable for most types of information.

Private Cloud

Private Cloud is dedicated to a single organisation. Serving as the organisation’s data centre, private Cloud is suitable for confidential information that requires a very high degree of security. Private Clouds are usually hosted at the business organisation’s location. Examples of private Clouds include any Cloud services used by companies dedicated for their employees only such as an intranet or a Cloud-based payroll service.

Hybrid Cloud

Hybrid Cloud is a mix of on-premises private Cloud and third-party public Cloud that work together. It allows partitioned use so that sensitive data can be kept secure while shared data is easily accessible. Hybrid Cloud is ideal for supporting dynamic, highly changeable workloads. Hosting is shared between the business organisation’s location and the provider’s location. Office 365 is an example of a hybrid Cloud: users can execute work publicly through public Cloud or on the private Cloud using an application like SharePoint.



Cloud. **Defined**



Cloud services

Over years of helping business leaders with Cloud, we've seen a number of different analogies to help explain different Cloud set ups. The house analogy compares Cloud to different living arrangements offering different levels of control and flexibility; the pizza analogy compares the ease, effort and results of different levels of meal preparation at home. But we thought from the house (different living arrangements offer different levels of control and flexibility) to the pizza (cooking at home to a fully catered party), we've seen a few.

But we thought for this guide, we'd keep it simple. So below are the main types of Cloud set up:

☑ **IaaS**

IaaS stands for Infrastructure as a Service. It's the most basic Cloud service model – instead of buying and maintaining your own infrastructure, such as servers and data storage, you do it through providers like Amazon Web Services (AWS), Google Cloud Platform (GCP), and Azure.

☑ **PaaS**

Platform as a Service (PaaS) comes with resources that allow you to deliver everything from simple apps to entire Cloud-enabled enterprise applications. Like IaaS, PaaS includes infrastructure – servers, data storage and networking – but also middleware, development tools, and database management systems.

With PaaS, a business gets access to the foundational infrastructure and key platform components of the Cloud provider, enabling it to run and manage applications without the complexity of building them from scratch but with the option to tailor them to its specific needs.

☑ **SaaS**

The Software as a Service (SaaS) model is where software applications are hosted by the Cloud provider and consumed by customers on a 'pay-as-you-go' basis.

SaaS gives users access to software through a subscription model, which usually means lower upfront costs, as well as regular updates and easy maintenance. With SaaS, the positives are ease of adaptation, predictable expenses, and higher speeds and benefits. Salesforce, Workday, or ARIBA are good examples of large SaaS platforms.

Who's who in the Cloud market?

Unsurprisingly, there are now a number of major Cloud providers and they are all broadening the range of solutions they offer. All of them offer lots of add-ons and options – data analytics, machine learning, Virtual Reality/Augmented Reality, Internet of Things (IoT). The major players such as Amazon, Google and Microsoft are constantly evolving: each one now offers in excess of 100 solutions. Basically, if there's a buzzword in IT, you'll find a Cloud solution for it. Shop around to find the solution that best meets your needs – there will almost certainly be more than one contender. And you don't have to buy all your Cloud solutions for the same provider – lots of businesses take a pick 'n' mix approach, working with different providers for different elements of their requirement and, in doing so, avoiding putting all their eggs in one basket.

Benefits of Cloud

So, we've looked at what Cloud is and how the different models compare. So far, so good, but also, so what? In the next section, we explore the potential impact of Cloud.

Basically, if there's a buzzword in IT,
you'll find a Cloud solution for it.

Section 2

Cloud. **Impact**



Cloud. **Impact**



In section one, we looked at what Cloud is and at the different forms it can take. In section two, we are going to look at how Cloud is transforming business and powering a new wave of innovation.

Cloud has without question already changed the way businesses operate, in some areas profoundly so. That impact is only going to grow as more organisations lock on to its transformative power – and as new technologies become available to deliver yet more services and functionality. Through Cloud, businesses can now deliver their services to customers anywhere in the world through a subscription or pay-as-you-go model.

Cloud's capacity to deliver processing power, data storage, network and software services is enabling business to rethink many different aspects of their activity and consider new business models. Cloud is also enabling businesses to adopt new operating models using automated and/or customised IT services to suit the needs of the whole business as well as the departments, teams and individuals within it.

This dynamic provisioning of resources, deployment of applications, platform independent services, and the massively shortened timeframes required to launch new services is empowering organisations to refocus their thinking: moving away from what they can accomplish with their infrastructure to figuring out what their customers want. Or, if you prefer, from selling what they have to producing what people want.

Cloud-based transformation in action: Netflix

In 2016, Netflix migrated to Amazon Web Services' Cloud (AWS) and, in doing so, laid the foundations for a ground-breaking transformation of its business. AWS provides Netflix with:

- the data storage space for its vast collection of content.
- the computational power required to process requests from its millions of users.
- the network to stream 150 million hours of content every day.

Netflix also uses Cloud-based AI to identify patterns in its customers' viewing behaviours and make relevant recommendations for what they might want to watch in the future.

By breaking free of the limitations of its own IT infrastructure and leveraging the power of the AWS Cloud, Netflix was able to expand into 130 new countries. Simultaneously.



Cloud has without question
already changed the way
businesses operate.

Cloud. Impact



How Cloud and emerging technologies are changing business together

Cloud has helped to support the emergence of many new, transformative technologies. The integration of emerging technologies such as AI, VR and machine learning into the solutions provided by the major Cloud platforms is driving a new wave of innovation and spawning a host of exciting opportunities in business, for example:

- The major Cloud providers such as AWS, Google Cloud Platform, and Microsoft Azure now provide 'out-of-the-box' solutions that make it easy for businesses to access AI and machine-learning capabilities, accessible through APIs.
- Rather than building a 'recommendation engine' from scratch, e-commerce companies can now simply access and plug in an off-the-shelf engine.
- Using readily available video intelligence modules, developers can now extract actionable insights from video files, without having to develop machine-learning or computer-vision models themselves.
- Similar modules can now provide a fully managed service to easily and securely connect, manage, and analyse data from globally dispersed IoT devices. Modules like these could be used to support a huge range of services, for example to create a system that automatically detects cracks in pipelines and alerts maintenance engineers to attend.

Most of these solutions are data intensive and require immense processing power, which makes them very suitable for Cloud. So, as well as combining with emerging technologies to provide sophisticated new solutions, Cloud is, in itself, a key enabler for building these solutions.

The key point here is that a better understanding of the native capabilities of Cloud platforms is important for all business leaders because it can inspire different thinking – a wider understanding of what might truly be possible for your business. Ultimately, this is the power of Cloud fluency.

The risks of Cloud

Cloud undoubtedly offers many advantages, but it's not without its challenges and risks. These vary in nature and scale, from deployment costs to security and operational challenges.

Many of Deloitte's clients are moving to the Cloud, and as they do so we are guiding them on how to minimise the risks and determine which of their processes are best suited to migration and which Cloud model is the most appropriate – private, public, or hybrid.

The risks that you will have to consider can be grouped into the following categories:



Technology risks

- Inadequate security controls and procedures could expose your data to cyber attack.
- Migrating the wrong aspects of your workload to the Cloud could result in less-than-optimal use of Cloud resources.



Security risks

- The Cloud does not automatically ensure your technology and data are secure. This needs a much consideration as any other technology solution.



Operational risks

- Integrating your current infrastructure with Cloud-based solutions could present a range of integration issues and pose risks of data leakage and loss.



Financial risks

- Improper usage or inaccurate estimation of usage volumes can pose financial risks. Incorrect configuration of technology within the Cloud can be very costly, very quickly.



Regulatory risks

- Emerging data-protection laws mean that organisations must maintain a close and constant eye on compliance or face the commercial, financial and reputational risks that go with regulatory failings.



Strategic risks

- Migrating to the Cloud demands a coherent strategy: going in half-cooked is unlikely to deliver the anticipated ROI.
- Any strategy that is based on dependence on a third-party services provider exposes you to risks – it's no different with Cloud services providers.

Cloud. **Impact**



Cloud in action

Hopefully, by now, we've established what Cloud is, that it has huge potential for your business, and that there are some challenges and risks that you need to consider. How is that playing out in the market?

Migrating IT services to the Cloud

A lot of businesses initially engage with Cloud as a means of addressing technology-based challenges. Typically, they move from a model where they buy, manage, and maintain their own servers and equipment to a model where they run on top of a Cloud service provider's environment but continue to manage the infrastructure themselves.

From a financial perspective, this new model allows far greater flexibility; taking the organisation from a capital-expenditure-heavy model to an on-demand, operational-expenditure-based model. That will make sense for many organisations, provided they have accurately predicted those usage-based costs.

But there's another, more fundamental and more liberating way of looking at this model. The growing potential of data has encouraged many organisations to develop huge in-house technology capabilities alongside their core business. But now, the power of Cloud means that businesses can shift that focus back onto their core areas of business.

In-house technology capabilities means that 99% of clients will have technology that has aged, is difficult to maintain and support, and is getting more expensive and difficult to operate. This is known as "Technical Debt". It is not easy, or cheap, to escape technical debt but the Cloud does offer a potential way forward for organisations in this situation.

Innovating with Cloud

So, we have a technology-inspired change leading to a more far-reaching organisational change. But increasingly, we are seeing organisations that have made the migration for IT reasons being empowered to make much more profound changes – transformations. They are harnessing the speed and relative cheapness of Cloud technologies to innovate far more rapidly and across a wider range of fields, effectively placing more bets, knowing that the risks are lower.

In a traditional IT on-premises model, organisations have to have a high degree of confidence that their investment in an idea will pay off: it's costly to buy equipment, it takes a long time to set it up, and those costs are going to be around for a long time. So, ideas that are progressed are, usually, pretty sure bets.

But with Cloud, the rules are different. It's cheaper and faster to experiment on-demand. So, organisations can afford to place more bets; they can tolerate failure – because there is less sunk cost, and; they can find more successes. At the same time, Cloud service providers are themselves competing with each other to deliver more, better and faster out-of-the-box capabilities.

These new capabilities are like new raw ingredients. Previously, you would have to build these yourself in an expensive, slow advanced technology solution. With the Cloud, you can skip all the way to step seven or eight to build your solution.

So, Cloud is enabling organisations to experiment and innovate; to take risks at lower cost and to explore more widely with greater speed and potential return on investment, not just in their IT divisions, but across any and all of their business units.

The power of Cloud means that businesses can shift that focus back onto their core areas of business.

Cloud. **Impact**



Let's look at some real-world examples of Cloud benefits as they impact different functions within organisations:

Product

- **Accelerated Speed to Market** – Salesforce partnered with AWS to expand internationally without building its own data centres and while complying with local data laws.
- **Enhanced product testing & development** – Stanford researchers developed a way to test new drug compounds digitally before testing them physically.

Operations

- **Lower time and process costs** – an insurance company is using computer vision and text analysis to process routine claims automatically by algorithmically analysing customer-submitted photos and descriptions of the claim.
- **Higher return on assets** – an industrial conglomerate used IoT, Cloud, and real-time analytics to tune its wind turbines to real-time environmental conditions, leading to a double-digit increase in energy output.

Finance

- **Dynamic pricing** – a manufacturer of heavy plant is implementing Cloud-based dynamic pricing tools to improve dealer relationships, profits, and sales volume.
- **Focused allocation of financial and human capital** – a manufacturer of farm machinery allows farmers to only apply herbicide to weeds, rather than applying it to an entire field, reducing the capital required for herbicide applications by up to 85%.

Marketing

- **Better customer segmentation** – a healthcare company is looking for trends in that data, including data from Fitbits, meal delivery services, genetics testing, and traditional medical records.
- **Extended customer reach** – a private equity fund is moving cattle auctions online and hosting cattle data in the Cloud; using computer vision and herd health data, it is automating video analysis of individual cattle health, rather than relying on in-person evaluations and auctioneering.

Talent

- **Improved employee performance** – a US bank is using AI algorithms to advise its sales team members in real-time on the sequencing of product offers to increase the likelihood of closing a deal.
- **Reduced siloes and collaboration barriers** – a life sciences company connected its global research departments and allowed them to collaborate on the same data sets by storing that data in the Cloud.

So, Cloud is serving as a catalyst to a wide range of innovations across different functions – in a diverse range of businesses. If that sounds exciting, it's because it is exciting – but it's also not without its challenges. In the next section, we look at some of the issues and tensions that can arise in Cloud transformations, and how to address them.

Cloud is serving as a catalyst to a wide range of innovations.

Section 3

Cloud. **Challenges**



Cloud. Challenges







Let's not be coy about this: migrating to the Cloud is a big deal. It's not easy, fast or cheap and you will almost certainly encounter challenges along the way.

Large organisations in particular can struggle to scale their Cloud programmes because of the interconnectedness of the elements that need to change: the perceived enormity of the task leads to organisational inertia (or even resistance).

So, let's address the feeling of 'it's all too much' by breaking down the challenges and obstacles into manageable chunks.

Here are some of the most common pitfalls in Cloud transformation and some steps to address them:

Cloud adoption challenge	Typical challenges	Steps to overcome the challenge
 Business case	<ul style="list-style-type: none"> • Difficulty justifying investment and incentive to undergo transformation • Inability to achieve quick wins and high ROI opportunities 	<ul style="list-style-type: none"> • Establish the financial baseline, total cost of ownership (TCO) and developed financial model to determine savings and costs to achieve • Create a financial model to analyse the environment by identifying migration costs, Cloud-related savings, Cloud-related build out costs, and migration schedule • Perform proof of concept to test business case ROI and assumptions
 Information security	<ul style="list-style-type: none"> • Difficulty aligning information security buy-in to Cloud strategy • Applying legacy infrastructure cyber requirements to Cloud • Cyber security division lagging behind the business in adoption 	<ul style="list-style-type: none"> • Adopt an integrated Cloud security strategy with controls built into the platform • Establish awareness that more security rigor and review is necessary for Cloud solutions across IaaS, PaaS, and SaaS • Create cyber Cloud architecture designs and cyber Cloud engineering blueprints
 Operating model redesign	<ul style="list-style-type: none"> • Disconnect between capabilities and IT operating model • Lack of application team incentive to migrate workloads • Unclear strategy for service model and migration path decisions 	<ul style="list-style-type: none"> • Streamline the organisational structure to evolve to a cross-functional Cloud operating model • Create a framework for placement and migration path determination • Perform portfolio-level analysis to determine application Cloud suitability
 Vendor maturity	<ul style="list-style-type: none"> • Immaturity of select Cloud technologies inhibiting stable platforms • Lack of clear platform technology roadmap • Hesitation to make major vendor investments due to rapid pace of market change 	<ul style="list-style-type: none"> • Rapidly deploy a minimum viable Cloud to iterate and build technology experience • Identify a target vendor platform to suit business and technical requirements • Develop a comprehensive financial model detailing the comparison of in-house infrastructure with various vendors



Cloud. Challenges



What about security?

One of the main risks associated with Cloud is shared responsibility between Cloud provider and enterprise:

- **Consumer/shadow IT:** businesses and consumers using Cloud with or without cyber controls
- **Concentrated risk:** Cloud providers are a bigger target because “that’s where the data is.”
- **Third-party risk:** enterprises are dependent on Cloud providers’ controls.
- **Controls gap:** traditional cyber-risk controls need to extend to Cloud at a time when many enterprises are barely keeping up with existing threats.
- **Regulatory compliance and data privacy:** compliance with worldwide government regulations require specific data access controls, protection from privileged users, separation of duties, data breach management, patient privacy regulations, and audit reporting.
- **Modern attack surface:** the walled enterprise is replaced by a hybrid, more complicated technology environment.

These are all legitimate concerns and there is no question that the incidence and sophistication of cyber-attacks is increasing. But that shouldn’t lead you to discount Cloud. Cyber-criminals are looking for weaknesses in your security wherever you are and however large or small you are. Security is a fact of life and an issue that should be permanently at the front of your mind – but it’s no reason to decide not to transform. It’s like driving: there are risks, but you don’t stay at home to avoid them. Instead, you take precautions, drive vigilantly and go where you want to.

Addressing Cloud cyber security

It may sound obvious, but the best approach to cyber-security is to design your security requirements into your Cloud services architecture and test them during the migration. We’ve put together this checklist to help you get started – watch out, here comes the science:

- Integrate cyber security into the organisation’s objectives, risks and structures.
- Attract/develop appropriate cyber security talent.
- Establish a baseline – understand which elements of your technical estate are most critical to your objectives.
- Understand the nature of the potential threat.
- Integrate cyber security into operational risk management, be realistic and don’t make risk reduction the only measure of success.
- Start with a cyber security baseline – NIST/10 Steps/ISO27k.
- Review current measures, tailor defences to highest priority risks and don’t ignore the threat from within.
- Require assurance from suppliers and Cloud providers and consider the implications of any compromise to their cyber security.
- Develop a comprehensive response plan for a range of potential attacks.

Cloud. Challenges



How can Cloud affect IT functions?

This guide isn't really about technology or technologists. As we've said, despite being rooted in technology, Cloud transcends the label. However, the significance of Cloud and its impact is both a symptom and a driver of a fundamental change in the role of technology leaders within businesses and it feels right to briefly explore this theme.

In the past, CIOs have been viewed as the trusted operator, delivering operational discipline by focusing on efficiency, reliability, and cost. They provided enabling technologies and aligned these with business strategy.

All that's changing and CIOs need to shed the perception that they are purely operationally focused. Instead, they need to reposition themselves as business co-creators – driving business strategy and enabling change within their businesses, and change instigators – taking the lead on technology-enabled business transformation and focusing on delivering emerging technologies and supporting business strategy.

Let's look at a few of the developments that are driving this change and highlight the resulting challenges for CIOs:

Disruptive shifts in IT



Cloud-enabled solutions are changing how IT builds, procures, and maintains system applications and support functions.



Agile and **DevSecOps** are transforming traditional workflows and becoming the new normal of increased collaboration across IT and with the business.



Rapid advances continue in **process automation**, self-service, and **cognitive/AI**.



Talent is increasingly sourced from **the open economy** (beyond managed service to gig and crowd).



Exponential proliferation of technologies are requiring **greater tech fluency** across the enterprise, not just in the IT function.

These two pattern types will contribute to the two mandates of the CIO in the future: transforming business operations and driving top-line revenue and growth.

As a result of these changes, we anticipate a new business model emerging that will look a bit like this:

- Everyone from the board down is Cloud fluent.
- There is no distinction between business and IT.
- Businesses are insight-driven, and data and algorithms are now assets.
- “No Ops” – the IT environment has become so automated and abstracted from the underlying infrastructure that there is no need for a dedicated team to manage software in-house.
- Cloud features are being exploited to drive revenue growth and competition.

Organisation & talent implications



How will the **work** of IT shift as Cloud, automation, AI and cognitive technologies rebalance how humans and machines work together in the tech ecosystem?



How will IT reimagine and recompose its **workforce** (FTEs, managed service and other contractors, gig, crowd) so it can continuously access the *right talent* with the *right skills* at the *right price*?



How should the physical and virtual **workplace** change so IT can maximize collaboration for quality and speed?



How will the IT **leadership** team enable the culture to embrace ways of working that are truly digital?



What will IT's future **operating model** look like? Thinner? More tightly integrated with the business?

Section 4

Cloud. **And you**



Cloud. **And you**



In the previous three sections we explored what the Cloud is, how it is shaking up the business world and supporting the emergence of new business models and new services, and the risks and challenges of moving to Cloud-based solutions. Now we're going to look a little more closely at how Cloud could help your business and how to get the best from it.

What can I do with Cloud?

The big take away so far, as if you needed reminding, is that Cloud is a potentially transformative phenomenon that transcends its technology label. Its impact extends across all facets of business:

Strategy	<ul style="list-style-type: none">• improve your speed to market• provide business agility• unlock next-generation talent model
Investment and financial	<ul style="list-style-type: none">• improve ROI• reduce opportunity cost• adjust cost of capital
Customer engagement	<ul style="list-style-type: none">• generate unique insights• analyse data• deepen customer engagement
Operations	<ul style="list-style-type: none">• improve reliability• implement responsive operations• build an agile supply chain

We could talk a lot about how and where Cloud can impact your business but since every business is different it makes sense to focus on thematic impact. Cloud has the potential to yield significant benefits across a number of key strategic priorities:

Cost	<ul style="list-style-type: none">• lower your capital requirements• increase automation• reduce your total cost of ownership of IT
Innovation	<ul style="list-style-type: none">• rapidly build new businesses• improve time to market for new products and services
Standardisation	<ul style="list-style-type: none">• drive standardisation and faster business adoption
Agility	<ul style="list-style-type: none">• accelerate the introduction of new capabilities• improve business agility with faster time to market

Cloud. **And you**



Making Cloud work for your business – a practical roadmap

Adopting Cloud is neither an IT issue, nor is it simply a project: it is a fundamental change to the DNA of your company. That's a bold claim but as we have already seen, Cloud has the potential to impact almost every aspect of the business. To benefit fully from the advantages it brings, you need to embrace the idea of transformation rather than change. There are numerous approaches to Cloud implementation that highlight the key considerations in such a transformation. At Deloitte, we advocate an approach that comprises six phases:

- | | | |
|-------------------------------------|-----------------------------------|-------------------------------------|
| 01. Cloud strategy | 03. Business case | 05. Cloud migration |
| 02. Risk management | 04. Governance | 06. Cultural change |

1 Cloud strategy

- **Define your Cloud vision** – take stock of your current IT infrastructure, define your objectives and where you intend to get to by adopting Cloud.
- **Clearly articulate the anticipated benefits** – greater operational efficiency, flexibility, agility, increased revenue generation, reduced costs, enhanced security, better risk management, return on investment, and so on.
- **Align your Cloud strategy with your IT strategy, which in turn should align with your business strategy** – Cloud initiatives should always be linked to business value and fit with the overall corporate strategy.
- **Perform an application rationalisation** – review your business applications across your entire business and identify which can or should be migrated to the Cloud.

What kind of Cloud is right for you?

Your choice of Cloud model will be significantly shaped by an assessment of your business circumstances and requirements. In section one, we looked at the qualities of the Cloud models – private, public or hybrid – but now that we're considering them in the context of your own business, it makes sense to highlight their relative merits:

Public Cloud

Engineered for modern applications with pre-approved, compliant, and scalable services, do-it-yourself models, and innovative technologies.

When to choose Public Cloud?

- Rapid scalability is a key business requirement.
- Business operations are distributed across geographies.
- Workload demand is unpredictable or highly seasonal.
- New applications or architecture is being introduced.
- Products have short lifecycles and require rapid changes.
- You need access to the latest technology and the ability to easily test, learn, and innovate is a priority.

[More](#)

Cloud. **And you**



Private Cloud

Designed for legacy workloads and those not suitable for public Cloud; ensuring highest data security, availability and integration across regions.

When to choose Private Cloud?

- Regulations restrict the usage of public Cloud.
- Classified or sensitive data is being handled.
- Latency requirements of the workload cannot be met by the public Cloud.
- A particular use case or functionality is not provided by the public-Cloud provider.
- Your target activity is contractually forbidden by the public Cloud provider.

Hybrid Cloud

Combined on-premises infrastructure/private Clouds with public Clouds so that organisations can achieve benefits of multiple platforms.

When to choose Hybrid Cloud?

- Regulations/localities restrict public Cloud usage.
- You need to maintain a private infrastructure for some certain sensitive assets.
- There are multiple on-premise and public data requirements.
- You need to apply a phased migration over time to Cloud to avoid an overwhelming Cloud transition.

In reality, it's likely that you will choose a hybrid Cloud platform because it will enable you to benefit from the best aspects of both private and public, giving you greater control and flexibility at the same time. For example:

- **Safety and soundness** – you'll get the tighter physical control over data and assets, and the internal back-up and recovery strengths of a private Cloud. And, you'll also get the increased data storage for more frequent back-ups and enhanced automated data security that go with a public Cloud.
- **Efficiency and effectiveness** – you'll get the faster automated provisioning that comes with both private and public, along with the elasticity to respond to demand that goes with a public Cloud.
- **Business agility** – you'll get the flexibility and control over application architectures that come with private Cloud as well as access to off-the shelf capabilities that offer faster delivery and greater consistency.

... it's likely that you will choose a hybrid Cloud platform because it will enable you to benefit from the best aspects of both private and public.

Cloud. **And you**



2 Risk management

Adjust your operational risk management framework to take account of any new or special circumstances arising from Cloud service adoption. After all, it's your business so accountability for risk will always be yours, even when you have transferred responsibility for some risk management to an external provider. Remember, migrating to the Cloud is a form of outsourcing so it is essential to understand the operational and compliance risks. Here's a quick breakdown of what you need to do:

- Classify your information assets – intellectual property, customer databases and financial information – so that the inherent risks can be managed.
- Include within your service contract terms that define the right to audit the Cloud environment.
- Prepare:
 - a business continuity plan covering the full scope of the Cloud service;
 - IT service management procedures and controls; and
 - an exit strategy with associated contractual conditions in case your new Cloud arrangements don't work out.
- Consider legal and regulatory compliance during your risk assessment – compliance with national laws and regulations on data is a challenge that you have to address, particularly since the introduction of GDPR. Who owns the data? In which countries should the data be stored? Who is permitted to access the data stored in another country?
- Analyse risks into categories or 'risk domains' and map them to operating model components in order to ensure monitoring and controls are effective. This holistic approach will help to mitigate third-party risks stemming from a Cloud service provider.
- Redesign your operating model to ensure the right team structure and capabilities are in place to manage the Cloud services.

3 Business case

If you're thinking about Cloud-based transformation then you will already have started to develop a business case for doing so. Work it harder. Make sure that you consider the longer-term benefits as well as the short-term, easy-to-quantify ones. While moving to Cloud isn't a purely financial decision, financial measures will almost certainly be one of the ways that you judge its success.

- Develop an analysis that includes the cost drivers – the high-level benefits of embarking on a Cloud transformation and how these benefits will be realised.
- Develop a business case to justify the migration of workloads to a Cloud environment, in order to mitigate risks relating to cost management and analyse the quantitative financial benefits of transition to the Cloud.

4 Governance

Establishing governance and controls early will help you provide direction for the adoption of Cloud.

- Consider controls for business processes, applications, data, infrastructure, and organisational management.
- Define how decisions specific to Cloud solutions will be made
- Develop governance processes relating to the use of Cloud services:
 - who is able to request them?
 - how many resources can be provided?
 - what approval(s) are required?
- Ensure that your governance is sufficiently flexible to support innovation and cost reduction while still managing risk.
- Ensure proper due diligence and security to avoid introducing new risk.
- Specify standards to determine which services are permissible and which are not. In practice this could mean allowing the integration of business services if, for example, they are built on Microsoft or Google Cloud components and the service vendors have been pre-approved by your company.

Cloud. **And you**



5 Cloud migration

‘Migration’ means more than simply moving applications: it refers to the recasting of your infrastructure to suit your chosen Cloud solution, so you need to decide how you are going to go about changing or reorganising your existing infrastructure – not just the end goal but the process by which it will take place.

- Establish the minimum viable Cloud for your business, the scale below which there is no value in proceeding.
- Design a secure public Cloud environment with at least one application that you can use to demonstrate the viability of Cloud services and engage all necessary stakeholders.
- Decide whether you are simply transferring existing applications into a Cloud environment or reconfiguring them. Applications can follow different migration paths, ranging from a simple ‘lift-and-shift’, where applications are re-hosted in a Cloud environment unchanged, to a complete rebuild of the application using ‘Cloud native’ components. A complete rebuild could be more expensive, but it will also allow you to fully leverage the Cloud’s capabilities, such as elasticity, high availability and high resilience. Re-platforming applications on Platform as a Service (PaaS) is a compromise that suits many organisations, since it can deliver many of the benefits from the Cloud but without the full expense of rebuilding the application.
- Consider creating an Application Migration Centre of Excellence – we sometimes call this a ‘migration factory’ – to capitalise on efficiencies and economies of scale. This is especially valuable in the case of large-scale migrations. After migrating, make sure you shutdown legacy on-premise systems to avoid parallel operations and costs.

6 Cultural Change

It’s important to recognise that moving to Cloud is not just about technological and business transformation: it’s also about adapting your corporate culture to use the Cloud, and adopting a new mind-set for working and collaborating in order to leverage the technology. Transformations are, by definition, substantial. Your business will have to change across a number of dimensions simultaneously and you will need to engage and carry your people with you to be successful.

- Develop and follow a culture-change roadmap to bring people along and ensure that introducing Cloud fosters an end-to-end transformation across all dimensions of your business.
- Make it easy for people to get on-board with the idea of transformation and Cloud-based working by explaining what you’re doing, why you’re doing it, what changes they are going to experience and how it’s going to benefit the business. Show the benefits and the costs. You need the active support and involvement of senior executive management and board, and the best way to achieve this is to show them what the business stands to gain by going through this process. Help them to become Cloud fluent and turn them into advocates for the transformation.
- Encourage people to start thinking ‘Cloud’, for example by adopting DevOps practices – agile ways of working that bring development and operations teams (hence the name) out of their siloes to work collaboratively on every stage of the application lifecycle. This will streamline the lifecycle from development to production.
- Incorporate your Cloud strategy into your overall business plan, and consider the impact on human resources – a Cloud transformation can lead to a shift in the headcount and skill requirements.

So, what should you take from this guide? If nothing else you should have a conceptual understanding of Cloud – what it is; and a basic understanding of how it could impact your business, and; some insight into the steps you need to take and the challenges you may encounter.

Most importantly, get your people Cloud fluent. We said it at the outset and now we’re saying it again: Cloud isn’t the preserve of the technology team; it’s a technology platform that will transform your business – so everyone needs to understand it. You can start by sharing this guide and the accompanying presentation. Once your people have a better understanding of Cloud they will be better able to adjust to it and better able to take advantage of it.

Contact us





Contact us



Tony Burton

Partner | Consulting

☎ +44 20 7303 4278

✉ tpburton@deloitte.co.uk

Richard Forrest

Director | Consulting

☎ +44 20 7303 8547

✉ rforrest@deloitte.co.uk

Paul Mordue

Partner | Consulting

☎ +44 20 7303 4133

✉ pmordue@deloitte.co.uk

John Starling

Partner | Consulting

☎ +44 20 7007 2389

✉ jstarling@deloitte.co.uk

John Winstanley

Partner | Consulting

☎ +44 20 7303 4121

✉ jwinstanley@deloitte.co.uk



This publication has been written in general terms and we recommend that you obtain professional advice before acting or refraining from action on any of the contents of this publication. Deloitte LLP accepts no liability for any loss occasioned to any person acting or refraining from action as a result of any material in this publication.

Deloitte LLP is a limited liability partnership registered in England and Wales with registered number OC303675 and its registered office at 1 New Street Square, London EC4A 3HQ, United Kingdom.

Deloitte LLP is the United Kingdom affiliate of Deloitte NSE LLP, a member firm of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"). DTTL and each of its member firms are legally separate and independent entities. DTTL and Deloitte NSE LLP do not provide services to clients. Please see www.deloitte.com/about to learn more about our global network of member firms.

© 2020 Deloitte LLP. All rights reserved.

Designed and produced by 368 at Deloitte. J19163-3