Developing the right hybrid cloud strategy to unlock innovation and meet regulatory controls

A SOPRA STERIA GUIDE FOR BANKS, BUILDING SOCIETIES AND INSURANCE FIRMS.

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Introduction

Banks, Building Societies and Insurance organisations have all in some way, shape or form adopted cloud technology in the past 10 years.

But do they have the right mix of cloud services, strategy and skills to truly unlock cloud computing's potential for their organisation, whilst meeting the high expectations of regulators and customers they serve?

The advantages of cloud have been well documented – better business agility, faster innovation, responsive cost models and real time cyber-defences for example. So why is it that many financial services institutions have only put the easy 20% of workloads into cloud environments? Looking forward, why are McKinsey so forthright in stating that up to 40%–90% of banks workloads globally could be hosted on public cloud or software as a service in a decade?

To answer these questions around cloud adoption in financial services, we need to examine the key factors that are holding many financial services organisations back from placing more of their workloads in the cloud or how they make better use of their current assets such as the mainframe. For example, is it the fact that over 40% of UK financial services organisations said they thought complex regulatory requirements were the key barrier to adopting cloud collaboration according to the 2019 Finastra survey? Is it changing customer expectations around online banking? Is it legacy applications and infrastructure holding them back? Or is it data lifecycles? Or can the answer be found closer to home around the actual cloud mix (Private, Public, Hybrid)?

> **In this whitepaper Sopra Steria's cloud experts examine the key questions concerning cloud adoption in financial services and make their recommendations for developing a true hybrid cloud environment that delivers for the business, employees and customers.**

Understanding the 'Cloud' challenges in Financial Services

Financial Service organisations are increasingly reliant on cloud technology from pure infrastructure services through to data applications and analytics.

The main motivations for moving the easy workloads to the cloud are cost reduction, innovation and flexible, agile infrastructures as and when an organisation requires it.

For example, most large banks in the UK use cloud technology for customer relationship management, human resources and financial accounting. But a growing number are looking to expand their use of cloud technology to consumer payments, credit scoring and asset management. So what's holding them back? In the table below we have identified some of the most common risks associated with cloud adoption in Financial Services.

Cloud Challenge	Key Risk Areas for Financial Services Organisations	Evaluation of risk exposure
Governance	Inability to track or troubleshoot data once it leaves the client Business continuity and disaster recovery Inability to audit cloud service provider in compliance with internal policies and regulatory expectations Unauthorised access or leak of data	How do you govern customer data internally? How long is information stored or archived? Who is responsible for information security and business continuity within your organisation? What is your disaster recovery and business continuity plan and how often is it tested around cloud? Are your information security policies made available and communicated to staff and contractors?
Audit & Compliance	Unauthorised access or leak of customer data Inability to track or troubleshoot data Inability to audit cloud service provider in compliance with clients' internal policies and regulatory expectations Vendor lock-in	Do you have an independent function which reviews processes and systems for compliance with policies? Do you support forensics and investigations on your virtual infrastructure? What is your audit policy? What are your procedures for securely migrating data to other cloud platforms or back to the organisation?

Cloud Applications	Inability to audit cloud service provider in compliance with clients' internal policies and regulatory expectations Inability to track or troubleshoot data	Does your Hardware Security Module (HSM) or HSM as a service include cryptographic mechanisms to support secure logging of transactions, data, and events to enable auditing? How do you encrypt information through the data lifecycle (create, store, transmit, process, archive, backup, destroy)?
Cloud networks and connections	Security defects in technology Unauthorised access or leak of data	Are network environments and virtual instances designed and configured in accordance with a documented network security policy to restrict and monitor traffic between trusted and untrusted connections? Are all DNS services used for the corporate and production environments secured in accordance with best practice, and monitored to detect access and changes? How do you also monitor data that is entering or leaving these networks? How do you ensure that you have a log of information about IP traffic going to and from the interfaces of your virtual networks? Are these configurations reviewed at least annually, and risk assessed to justify use for all allowed services, protocols, ports, and by compensating controls? Do you have documented information security baselines? Do you perform regular penetration testing?
Encryption	Unauthorised access or leak of data Inability to track or troubleshoot data	What are your cryptographic key management systems? Are they governed by a defined and documented cryptography policy? Is data encrypted at rest and in transit in open / validated formats? Do you use a hardware security module for cloud infrastructure cryptographic key management?

Identity & Access Management	Unauthorised access or leak of data Inability to set or enforce security policy with cloud service provider Security defects in technology	Do you have a defined and documented password policy? Are physical and logical access to locations, systems and information reviewed during defined intervals and are the requirements contained within a defined documented policy? Do you allow the use of open standards and / or identity federation standards to delegate authentication capabilities to your tenants? Do you support identity federation standards as a means of authenticating / authorising users? How do you protect access to administrative accounts that give broad access to parts of the service? Are the information and operating systems protected by appropriate organisational and technical access controls, including network access control?
Lifecycle Management	Unauthorised access or leak of data Compliance with EU regulation and legislation	How does the deletion of data work? Is data securely deleted from, but not limited to, your data centre storage, contingency sites and backup media when no longer required? Is the process for the secure deletion of data automated or is the process manually done by auditable process?
Workforce Access	Unauthorised access or leak of customer data	Do you conduct security training for the relevant staff with appropriate procedures for reporting and acting on unauthorised activity and misuse of confidential information?
Security around Physical Infrastructure	Security defects in technology	Do you have physical and logical security controls around information systems and databases to avoid unauthorised access and detect / prevent potential data leakage? What is the geographic location and legal jurisdiction of the data centre that will be storing and / or processing customer data?

Why a Hybrid Cloud Strategy is the right one for Banks, Building Societies and Insurers

So what is the answer to the cloud conundrum? As we have seen in the previous section of the paper many of the risks associated with cloud adoption come down to adopting the right cloud strategy, understanding industry regulation and having the right governance models in place.

So what is the answer? At Sopra Steria we believe a Hybrid Cloud strategy is the right way forward for banks, building societies and insurance firms. So why Hybrid?

Well for a start it is about doing things in bite sized chunks breaking down digital transformation into meaningful components that will help accelerate deployment and reduce a loss in momentum. To enable financial services organisations to become disrupters in the cloud space, it is important to remove as much risk as possible. Companies can disrupt without having to follow the exact journey 'born in the cloud' organisations like Monzo or Starling have followed. Unlike these companies, who had no legacy systems, most financial organisations have a mixed IT estate, and this is where hybrid cloud solutions are at their most powerful.

Hybrid cloud allows the on-premise and the new to integrate together, which means organisations can focus on new 'born in the cloud' applications that can give the cutting edge allowing services to be stood up in days, experiment without significant cost and more importantly not risk the core heritage applications that are keep the lights on.

Hybrid cloud adoption will provide faster quicker response time, improving customer experiences whist delivering fast to market data insight, personalisation, automation and AI. Cloud services are not an independent service, they can be a combined dependent offering that works with legacy systems to deliver big improvements.

If you are thinking that Hybrid cloud is a nice to have, or something that is on the roadmap for the future, re-think. A Hybrid cloud strategy is essential and more importantly must be executed quickly for companies to be effective.

Hybrid Cloud - isn't it an irrelevant buzzword?

No it is not and Hybrid Cloud should be part of your infrastructure toolkit. It is like your favourite screwdriver or hammer, but it isn't a silver bullet that will solve all your infrastructure problems.

Hybrid Cloud in the early days had a bit of a bad rap with the myth that workloads and data could be moved seamlessly between Cloud providers automatically to get the best value or price for the service on that day. That will never happen...well maybe not for the next few years.

What should IT Decision Makers in Financial Services consider when developing their Hybrid Cloud Strategy?

First of all IT decision makers need to make sure they are using the right Cloud for the right outcome to deliver value quickly. IT professionals should choose their cloud provider services based on the outcome they are trying to deliver.

All have their benefits, but some excel in data, AI, migration services etc. Secondly they need to consider how they maximise the value of existing on premise legacy IT investments. Creating digital services that complement the legacy rather than trying to overhaul is usually the best course of action. For example how do we get the best out of complex IT investments such as the mainframe?

But what really makes Hybrid work for established financial services organisations? Well it is about joining the old and new together. How do you make the on premise critical business system talk and share information with the new digital disruptive technologies in the cloud using clever integration services?

We can break Hybrid cloud into three main component areas:

Tweaking the old and giving it a digital face lift – What do we mean here? Rather than having to throw old technology away or tackle some high-risk long transformation programme we can look at the components that do need to be changed and are adaptable for life in the cloud. For example 80% of the mainframe is useful and does exactly what it needs to 20% should never be on the mainframe, so focus on transforming the 20% rather than the 80%. Creating those easy to maintain microservices on serverless architecture in the cloud that will make a significant difference.

Making the old and new talk more – We all know it's good to talk so if we are embarking on a cloud journey where the old is as important as the new we need to make sure that they can talk together. But integration tools have come a long way and there are some really modern API Gateway and Integration tools that can make a real difference such as Axway or Jitterbit or cloud provider tools such as Azure Integration Service.

Using the cloud for what it should be used for – Shoehorning services into the cloud normally ends in disaster. 'Lift and Shift' offers limited value and people often come unstuck with cloud costing more than traditional infrastructure. Focus on what the cloud is good for. Create digital services that should be in the cloud without having to worry about the legacy. This is where the full use of Cloud Native will help by creating microservices, serverless architecture, cloud marketplace offerings from the leading providers such as AWS and Google. It is also where a cloud readiness assessment can really help.

By using these three steps in a Hybrid cloud world you are immediately reducing your risk profile and speeding up the ability to transform quickly.

Remember technology is an important part of a Hybrid Cloud strategy

Hybrid Cloud is very much an approach and way of working to successfully execute digital transformation. But at its heart and core is technology. Don't underestimate the important of choosing the right components that go together to create the right Hybrid service for you.

- **Private Cloud is part of the Hybrid story –** and very much relevant. Some people, for regulatory and compliance or for peace of mind opt for a private cloud ecosystem. i.e. a cut down version of public cloud services but still offering some of the flexibility through on demand computing, auto scaling and some out of the box AI and Data services. The public cloud providers know this and are pouring investment into these offerings. **AWS with Outpost, Google with Anthos and Microsoft Azure Stack.** Whilst Microsoft and AWS have opted for a hardware and software solution. Google has opted to deliver Hybrid cloud services via a pure software route.

- Extending the life of **Legacy applications and hardware –** for established organisations that have applications and systems over 40-50 years old complete transformation is not an option. Focus here should be about maintaining the right level support so that they can keep going. Allowing time to de-couple and transform.

- **Integration** is key to making hybrid cloud work. We are not talking about magically moving services around cloud providers at the click of a button. We are talking about making sure the old and the new can work together to deliver effective services to the end customer. This is broken down into key components:

  - **Data networks –** essential to planning your hybrid strategy. High latency causes havoc with high transaction services. Good networks are essential but even more importantly is choosing data centres such as Euqinix that have high speed routes to public cloud providers.

  - **Data –** making sure you know where your data is at all times is pretty much critical. No-one wants to be hit with a GDPR fine! There are now many tools out there where you can manage, maintain and isolate data.

  - **Integration engines –** making sure that you can programmatically move data and information around seamlessly is the foundation of hybrid cloud management. That isn't just about API management either. It is also about using traditional middleware components such as IBM Message MQ and modern alternatives such as JitterBit, Axway and native cloud provider services.

- Maximising **Public Cloud** services – Often we see organisations 'making do' with cloud by taking their on premise applications moving them to the cloud but doing nothing with them. Lifting them as is to the cloud completely negates the value of cloud. Hybrid allows you to migrate and transform the applications that you know will make a difference or ones that are suited for cloud native development such as micro services, containerisation, cloud marketplace solutions etc. Focusing on building the skills required to deliver Cloud Native solutions is critical in a Hybrid world but also are the tools required to deliver this type of change.

- Embracing **Multi Cloud** solutions – It is always recommended that the right cloud for the right outcome should be adopted by organisations and therefore your Hybrid cloud strategy should also include a multi-cloud strategy across the major cloud platforms. Being able to operate and integrate multiple providers into a seamless solution is key to success.

It's a people game as well

So we have addressed why you would do it and the technology that is required, but how do you manage it? Change is often disruptive, but bringing in a hybrid solution can be done harmoniously.

Key to a successful hybrid delivery is a foundation target operating model that will build on and that means (if you haven't already) create a Cloud Centre of Excellence responsible for managing the Cloud. A team of multi-disciplined Cloud and DevOps engineers with infrastructure and development backgrounds are a must.

We all know digital skills are hard to find and re-skilling must be a priority over external recruitment to build this capability. It is hard but worth the effort when you have an established training academy focused on this part of the business. As SI Partners, Sopra Steria can support this transformation, by engaging to shape and deliver the projects, whilst supporting training and upskilling of existing workforce.

Managing a hybrid world is all about the consistency across both worlds. This is service support which the industry has come to term 'Mode 1' and 'Mode 2' support. Getting it right is harder than you think, but simplicity is key. Strong ITIL service management foundations are key and rather than redeveloping a second separate process for Cloud, strengthen your existing and implement a strong SIAM model to cover both. When creating your Mode 2 model allow it to be fluid don't constrain a world that needs to be done at pace. Smash both worlds together and see what happens.

Bring a solid DevOps model into the management of Mode 2 have a strong people and process plan. Make sure the existing support teams and the service management community are equally versed in agile and DevOps as they are in the old as there is nothing worse for a Cloud Native developer to have to follow a laborious change process and bi-weekly CAB board to get their daily builds approved!! But hey this is a subject in its own right.

Managing your DevOps toolchain and how you release code are important to ensuring a smooth running, available service is maintained. The recommendation here is that you let your Cloud Centre of Excellence be the custodians of the technology let them provide the management and governance so it all flows properly but make sure the business owns the overall application development and management that utilises the underlying technology.
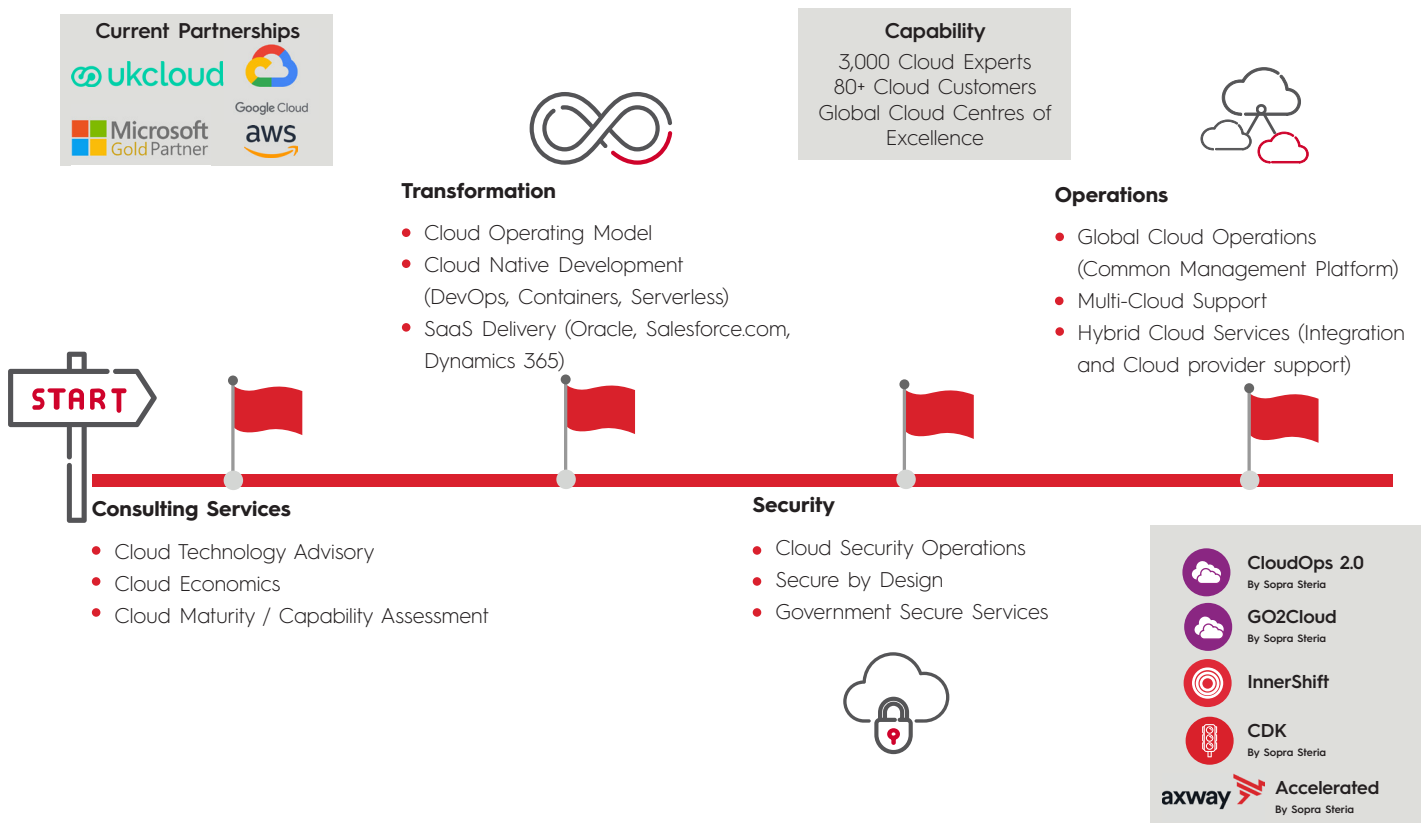
Questions to help you design your Hybrid Cloud strategy

Strategy Area to Consider	Questions to ask to help you define your hybrid cloud strategy
Service	Do you have an ITSM blueprint to support Bimodal support? Have you defined your DevOps strategy? (People, Process & Technology) Does your organisation have a defined and agreed DevOps reference architecture? Have you delivered a private cloud technology platform?
Data	Have you chosen a Cloud ready integration toolset? Do you have an API development strategy and standard? Are you moving data between different cloud providers? Do you have a strategy to govern and manage data from multiple cloud providers?
Support	Does your Cloud First strategy support the delivery of a Cloud Target Operating Model? Have you started to create a Cloud Centre of Excellence? Is your support team well versed in all of the public Cloud providers? Do you have a Cloud Native development strategy?
Capability	Do you have a structured approach for creating and developing your cloud people capability? Are you going to hire or grow internally? Are you a multi-cloud organisation? Do you have a unified way to manage Cloud Ecosystems and Billing? Will you gain support from 3rd party SI partners?
Commercial	Does your organisation operate on a Capital or Operational budget? Do you opt for large transformations and associated budgets or for small bite sized approaches? What is the expected return on your transformation budgets?
Regulatory	Do you embrace a Secure by Design approach to delivering cloud services? Does your organisation need to meet regulatory requirements? Do you need to pass stringent audits? Is there and end to end security strategy that addresses your regulatory and compliance needs?
Migration	Have you carried out any Cloud migrations? Is your first approach a 'lift and shift' or are you looking at value based Cloud transformation as the default to migration? Does your strategy require the organisation to take advantage of Cloud Native marketplace services?

Sopra Steria Cloud Services

"Transforming the legacy and underpinning future end-to-end digital services"

Current Partnerships
ukcloud
Google Cloud
Microsoft Gold Partner
aws

Capability
3,000 Cloud Experts
80+ Cloud Customers
Global Cloud Centres of Excellence

Transformation
- Cloud Operating Model
- Cloud Native Development (DevOps, Containers, Serverless)
- SaaS Delivery (Oracle, Salesforce.com, Dynamics 365)

Operations
- Global Cloud Operations (Common Management Platform)
- Multi-Cloud Support
- Hybrid Cloud Services (Integration and Cloud provider support)

START

Consulting Services
- Cloud Technology Advisory
- Cloud Economics
- Cloud Maturity / Capability Assessment

Security
- Cloud Security Operations
- Secure by Design
- Government Secure Services

CloudOps 2.0 By Sopra Steria
GO2Cloud By Sopra Steria
InnerShift
CDK By Sopra Steria
axway Accelerated By Sopra Steria

Think value, think quickly....

When it comes to tackling the legacy IT estate we need to think quickly. If you are thinking in the long term of three year transformation programmes where your business will find it difficult to keep up with the pace of change against the fast emerging cloud based organisations you are already behind the competition. If however the approach taken is a 30/60/90 days of value back to the business you probably will increase your chances of success.

Focus on what makes the difference. Transforming a training application is unlikely to make the difference. Tackle the hard stuff make it work for you and not against you. Digital transformation is successful if you think in bite size chunks and bring together multiple digital technologies to create an outcome that can help your business disrupt.

By the way what is wrong with safe?

Why is safe equated to being boring? If boring means systems never failing, or security breaches causing multi-million pound fines then give me safe any day of the week. We need to make sure that this is never lost in the systems of the future. Safe needs to be built in from day one. Making sure that we emphasise secure by design and that all hybrid systems have availability and resilience built into their core. This is way more achievable though Hybrid cloud deployments **Remember that you are more in the driving seat than you think.**

Case Study

Rabobank

In 2017 Sopra Steria undertook a design and implementation project for a large multi-national Dutch bank to move services from legacy data centres to Microsoft Azure. The business outcome was to deliver a new offering available from their internet banking platform to deliver Funding for Food programme. In 2019 the project has been completed and is successfully being delivered to the bank.

To deliver this to the bank Sopra Steria delivered a mix of consultancy to define the best approach for the customer and a strong technical advisory and implementation approach. The end to end approach was critical for the customer success.

An Ambitious Transformation

Transform IT landscape from On-premise infrastructure to a hybrid-cloud solution based on:

- MS-Azure for Channels (front-end application) and CRM-Analytics (Dynamics 365)

- Sopra Steria Datacenter (IOC) for Core Banking software

- The scope covers 250+ servers (IaaS, PaaS) and Microsoft SaaS solutions

Sopra Steria's Added Value Project and Operations

This was a very complicated transformation that was successfully delivered to the client covering:

- Extremely complex solution integration

- Mixing core-banking, web-facing, back-office and channels

- Blending 3 types of Azure Cloud services (IaaS, SaaS, Data) and non-Microsoft SaaS

- Meeting very demanding security requirements and compliancy rules from the Banking sector

- Involved international expertise from Sopra Steria and Senior Microsoft Architects

Involved Technologies

Cloud: Microsoft Azure Iaas / PaaS / SaaS : SQL Server, SSIS Server, Blob storage, Analysis Services, Data warehouse, Data Lake Store, Azure Logic App, Key Vault. Microsoft Office 365, Log Management with Microsoft Log Analytics, Azure Patch Management, Azure Disaster Recovery, Azure Active Directory, Elastic Pool DB

Containerisation: Docker / Jenkins for Web application deployment.

Security: Key Management: Cyber Arc, HSM in SaaS mode (Gemalto), SIEM : Qradar (avec Event Collector sur IaaS Azure), Vulnerability testing.

Knowledge of key challenges

The key challenges Rabobank faced are highlighted below:

Cultural alignment to Cloud – delivering cloud services requires a different operational mind-set and for this bank this meant changing very traditional views of delivering operational change and moving to an agile delivery model. This is key as one of the major benefits of the cloud is reducing Time to Market (TTM) and there for the process for setting up and delivering cloud services needs to be hours or days not weeks or years.

Operating Model to service Cloud – as we were delivering the above solution & service it became clear that the bank needed to adopt an new way of working to service cloud requirements. Again not dissimilar to many organisations a new target operating model focussed on Cloud delivery is critical for success that has team that is multi-disciplined i.e. understands networking, applications, servers and operations not just one facet or area.

Getting the value from the Cloud - part of many business cases for migration to the cloud is reduction in cost base or move to OPEX models from a CAPEX base. Again a very typical challenge was that the bank was increasing its cloud spend against budget because of not using key cloud functions. It is key when consuming cloud services to treat them like an utility model. Only use what you need. This means making sure as part of the design and implementation services are only switched on for when they are required.

Successful Cloud migration - from the beginning of the process it was understood that it would be a challenge to migrate all services from an on premise solution to the Cloud. As part of the design process it became very clear that a Hybrid cloud solution would be the answer. This is very typical for most cloud services running production workloads. Sopra Steria advocates the right location for the right workload, which includes a multi-cloud & on premise strategy.

Final Thoughts

Whilst the first wave of cloud computing may not have delivered on its promises, cloud computing today has never been more important. By selecting the right cloud strategy organisations can unlock digital transformation. Hybrid Cloud can be a key to being the disruptor rather than being the disrupted.

So what is the bottom line value of Hybrid Cloud and what does it mean for your financial services business? It allows you to de-risk complex digital transformation and deliver in bite size chunks. Research from McKinsey suggests that the most successful digital transformation programmes are the ones that deliver in incremental projects and make use of multiple digital technologies.

Hybrid cloud allows you to do that. Optimise your legacy infrastructure and take advantage of those cutting edge technologies in the cloud such as AI, Data Insight and Experience Design.

This allows you to focus on the business outcomes that are going to let you disrupt the markets you are operating in. It is going to give you a modular foundation IT platform that will service your requirements for a number of years making the legacy work harder than throw away.

Maximise the use of cloud. You get to use it for exactly what it should be used for and not trying to bend it out of shape to meet a requirement.

Is Hybrid cloud right for me?

More importantly you should ask the question, Why is Hybrid Cloud not right for me? With technology changing as quickly as it is and becoming even more important to the success of businesses can you afford to evaluate whether hybrid cloud is relevant or not. Accept that it is right for you and work out how it can work for you and how it can complement your business aspirations.

- Hybrid takes the pressure off you. You don't have to think about transformation as one big item. If you want to be successful and deliver digital transformation incremental change is key. Hybrid lets you do that

- Only transform what makes sense to the cloud and make sure it is focused on Cloud Native development. Avoid 'lift and shift' where possible it is not going to give you the value you need to disrupt your competition

- Use a holistic approach to management of the old and the new

- But above all be bold. Embrace change and focus on real transformation

- Re-develop your core applications where you need and where they will give the most 'bang for your buck'

- You can only do that if you embrace a 100% hybrid cloud ecosystem as part of your core technology services

- And accept that it is here to stay and not a mere stepping stone that will be here for a couple of years

Sopra Steria can help you through your Cloud journey with our Cloud Transformation advisory services. Please contact **pscomms@soprasteria.com** for more information and one of our cloud experts will be in touch.

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