

NTT DATA

Cloud advisory framework:

Leverage success in cloud adoption



Section 1: De-risking and accelerating your journey to cloud

Moving to cloud

Business leaders were long ago convinced of the practical arguments for adopting cloud: lower fixed costs, shorter time to market, greater agility and enhanced operational efficiency. They have been slower to understand the wider implications of cloud for their organizations. When operating in the cloud you need:

- A different set of skills, which may require you to recruit different kinds of people, manage and motivate them in new ways, while developing new capabilities.
- Change management at a strategic level, enabling positive transformation without causing business disruption and risk.
- New processes and working methods, tuned for operating in ecosystems and shared technology environments.
- To rethink strategies for everything from data democratization to joint product development to relationships with customers.

The point about cloud is that it changes almost everything, and you need to be ready for that. Business leaders tend to focus on the most urgent requirements first: how to streamline operations and take cost out of the business; how to fine-tune products and offers, targeting customers more accurately and gaining competitive advantage.

They do not always consider the wider implications of change. The benefits of new working practices and organizational models are significant, but before you can gain the benefits, you need to build those new models, implement them, and ensure they are stable and fully operational.

The default position for cloud adoption is often to move rapidly to a hyperscaler platform, and these are set up to be sole providers, ensuring that new customers conform to their norms and operate in their way. This may not be to the customer's long-term advantage. They need more freedom in cloud, not less.

This helps to explain why most enterprises need specialised help in carrying out a successful adoption.





Challenges of transformation

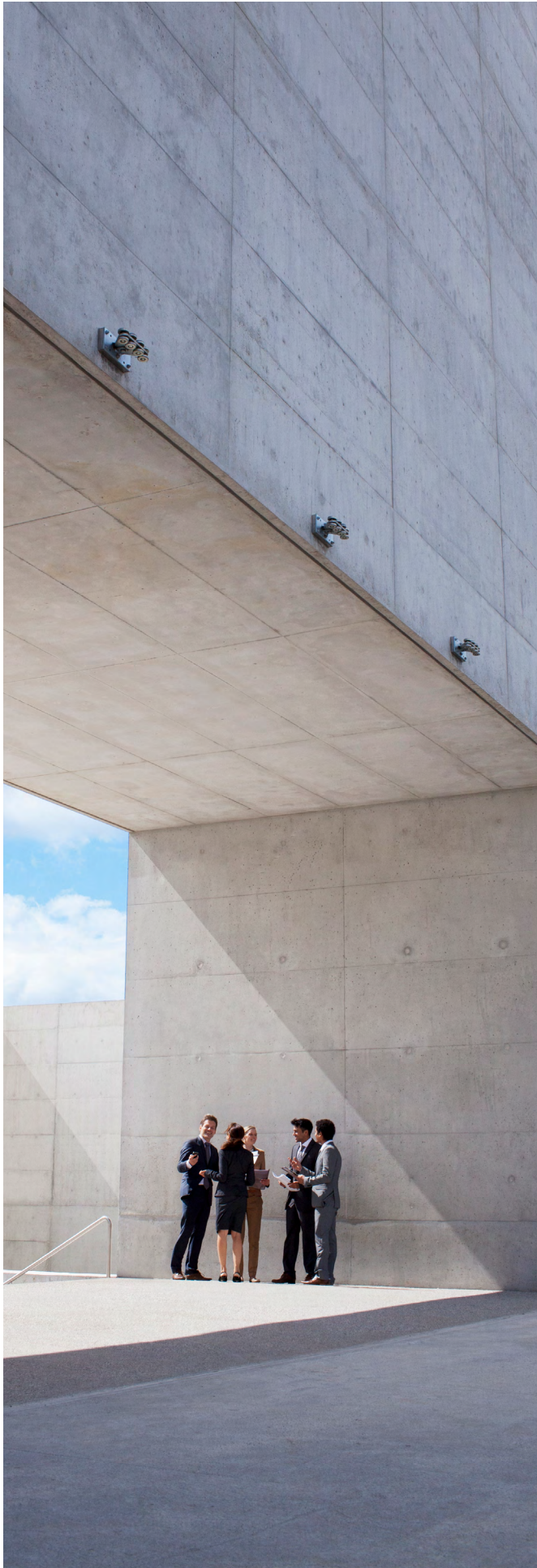
Let's summarise the challenges of strategic change as they apply to enterprises moving to cloud.

First, transition from existing IT environments to any cloud platform (hyperscaler, private, hybrid...) requires a major change project. Such changes are likely to involve high costs, significant risks of business disruption, and the need for organisational and cultural rethinking (which has the potential to be the biggest challenge of all). This involves:

- Short term cost increases, as it is necessary to maintain the legacy environment during the change period, as well as covering the costs of the new platforms, together with the change project costs, themselves.
- Organisational changes, as enterprise leaders consider how best to structure their own business for the future environment, together with different ways of working.
- Comprehensive review of assets, from the virtual (the application environment) to the physical (building, datacentres...), in order to redefine what they need to own and what is best outsourced or shared within the cloud.
- Culture and people change, as the business rethinks who they need to employ, what capabilities are required in-house, what partnerships are needed, and how they need to manage a different form of business for the future.

Second, it is possible that moving to a hyperscale platform may simply lead to a new kind of vendor lock-in, in which some of the well-known problems of enterprise IT and corporate applications are replicated through long-term outsource agreements. In other words, you can move your systems environment onto another platform without necessarily gaining the full potential benefits of cloud transformation.





The need for advisory services

Defining a strategy, despite its many challenges, is far easier than executing it. That's because transition and then transformation in the cloud involve so many variables, so many unpredictable events and influences, that it is not possible to plan it all in advance. You can define your direction of travel and (most of) your key goals, but it will be necessary to review, revise and iterate plans in real time as you move forward. Continuous re-evaluation and improvement are a basic necessity. This is what makes cloud transformation different from, and more difficult than "normal" change programmes.

That explains why every major enterprise is likely to agree on is this key point: it is best to work with trusted partners, who understand this landscape in real depth, in order to avoid obstacles, eliminate the need to "reinvent the wheel", and get to their end goal (a high performing organisation in the cloud) as quickly and painlessly as possible.

Doing it alone, therefore, or just relying on input from a combination of hyperscale and enterprise applications vendors will not always give the customer the solution that is best for their needs or most appropriate for their business priorities.

That's the reason why NTT DATA has created its Cloud Advisory Hub, which now deploys a NTT DATA Unified Cloud Advisory Framework (NuCAF) that incorporates all the experience, capability, and knowledge we have gained as a pathfinder, pioneer and acknowledged leader in the transition to, and transformation in, the cloud.

In the next section of this paper, we look at the advisory framework in more depth and analyse how it works in accelerating transition, reducing risk, and unlocking value.

Section 2:

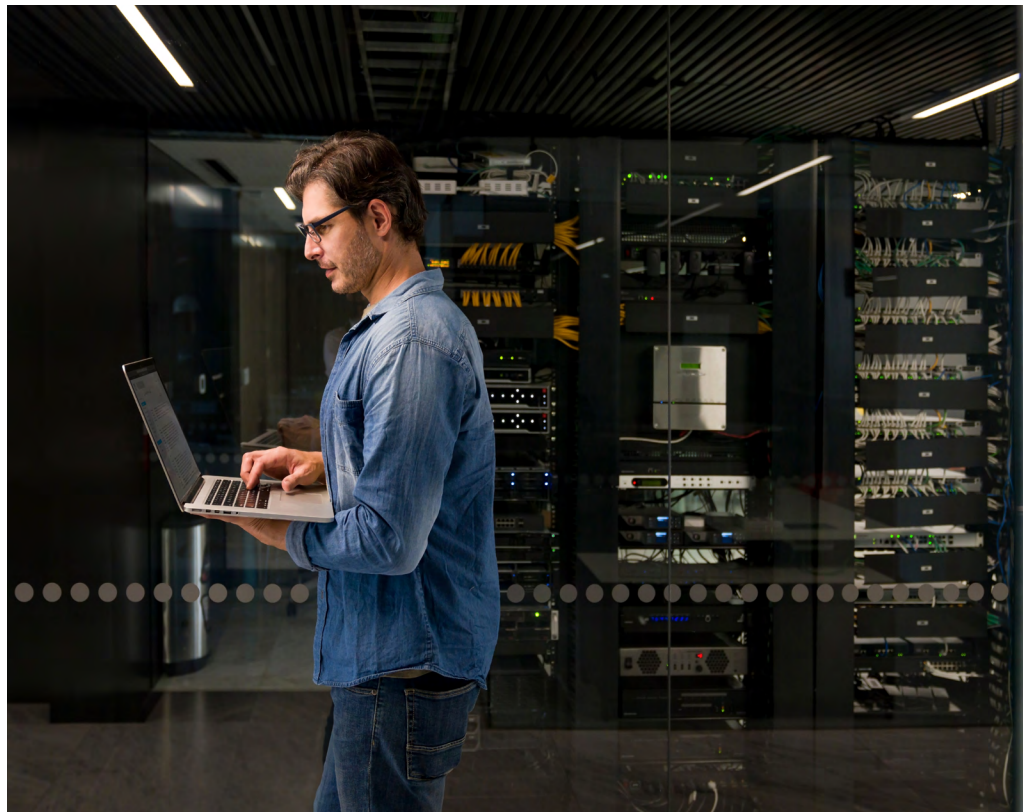
The advisory framework

The Advisory Hub

NTT DATA created the Cloud Advisory Hub in response to growing demand for expert help and support coming from enterprises considering their move to the cloud. The hub brings together our collective know-how, expertise, and capability in every aspect of cloud transition and transformation, from initial consulting, right through to long-term service management.

The Advisory Hub mobilises capabilities, experience, and know-how from teams across the entire NTT DATA organization into a single, customer-facing and customer-defined service and solution set. The Advisory Hub incorporates:

- Cloud strategy team, providing long-term consultancy support to evaluate, build and manage plans for maximising the value delivered by cloud to the wider business.
- Cloud technology team, with access to best practice tools, methods, thinking and partner input, including such key concepts as the AWS Well-Architected Framework, together with deep understanding of equivalent toolsets from other vendors.
- Leadership in strategically essential activities such as Data Modernization, Applications Modernization (building on privileged working relationships with key enterprise app vendors, such as SAP).
- Thought leadership in key areas of the enterprise, such as FinOps, DevSecOps, and virtualised development platforms.



NTT DATA is one of the largest R&D investors in the world, leading original research into key cloud-related concepts, including disaggregated networks, open standards, and intelligent networking. We use this strategic leadership as the basis for Centres of Excellence in key capabilities, enabling the Cloud Advisory Hub to access all of them, enriching services to clients with the best and most advanced innovations.



Benefits from advisory services

Advisory services are designed to propose the best and most appropriate course of action needed to help a client organisation achieve its goals in the most effective and efficient manner. It will normally include both top level strategic advice and guidance, together with detailed recommendations, normally based on templates developed through real-world experience.

By using expert advice in this way, enterprises will:

- Reduce their own risk, by using proven methodologies based on real use cases.
- Cut costs, by building on experience, using options that are known to be effective.
- Yet will remain fully in control of their own strategy, as all recommendations will be precisely targeted to suit their own unique requirements and status.

Advisory services must build on frameworks, templates, and experience in order to maximise reuse and best practice.

Framework outline

So, what do we mean by a framework? First of all, a framework is not a complete methodology, imposing a “one size fits all” approach to the most complex requirements. A framework is best thought of as a comprehensive toolkit, to be used by expert practitioners in helping customers gain maximum advantage from their experience of cloud.

Our definition of our own cloud advisory framework is:

- A structured and standardized approach that guides the delivery of Cloud Advisory services to clients.
- This serves as a comprehensive set of methodologies, best practices, and tools that enable NTT DATA to deliver consistent, high-quality, and effective advisory services.

Our framework, therefore, is about consistency of outcomes (always client-focused, always defined by client priorities) and best practice in execution (deploying the best of our capabilities from global centers of excellence, ensuring that the client receives a service crafted precisely for their needs).

This approach is essential for successful cloud transformation because it is not available, understandably, from hyperscale vendors. Their approach, which is entirely logical, is based on helping customers to understand their (vendor) services and capabilities deeply, through a guide to services and advisory support designed to maximize the potential of what the vendor in question has to offer.



Client-centered approach

NTT DATA, as an independent expert consultant, with its own extensive original IP in cloud and networking, understands hyperscalers well and is also able to build client-centered solutions using the best that different vendors can offer, blending them into a coherent, focused solution.

We know that different hyperscalers have their own strengths and weaknesses, and that, for a large enterprise, an optimal solution requires capabilities from them all, together with specific solutions custom-designed for the client. We also know that each organisation is unique and at its own, often very specific, point of maturity. Recommendations and actions must be crafted with the utmost care to suit each different use case.

NTT DATA Cloud Advisory Services uses our own framework to help us explore current client status and priorities, long-term vision, organizational and human issues, and then build a coherent, practically deliverable roadmap for change. The framework is a key tool in this process.

The indispensable, differentiated element, however, lies in the combined human expertise, corporate experience and advanced technology capability that will be deployed, in exactly the right strategic format, for each specific client's needs. The framework provides the tools, therefore, while the Advisory Team provides the experience, and mobilises the expert engineers that put the tools to work. Now let's take a closer look at the framework, itself.

Section 3: Positioning the cloud framework

We have described the framework as a form of comprehensive toolkit, designed to give simplified and structured access to the capabilities, resources and experience needed to help deliver a successful cloud transformation process. We provide a simplified, top-level view of the framework in figure 1 below:

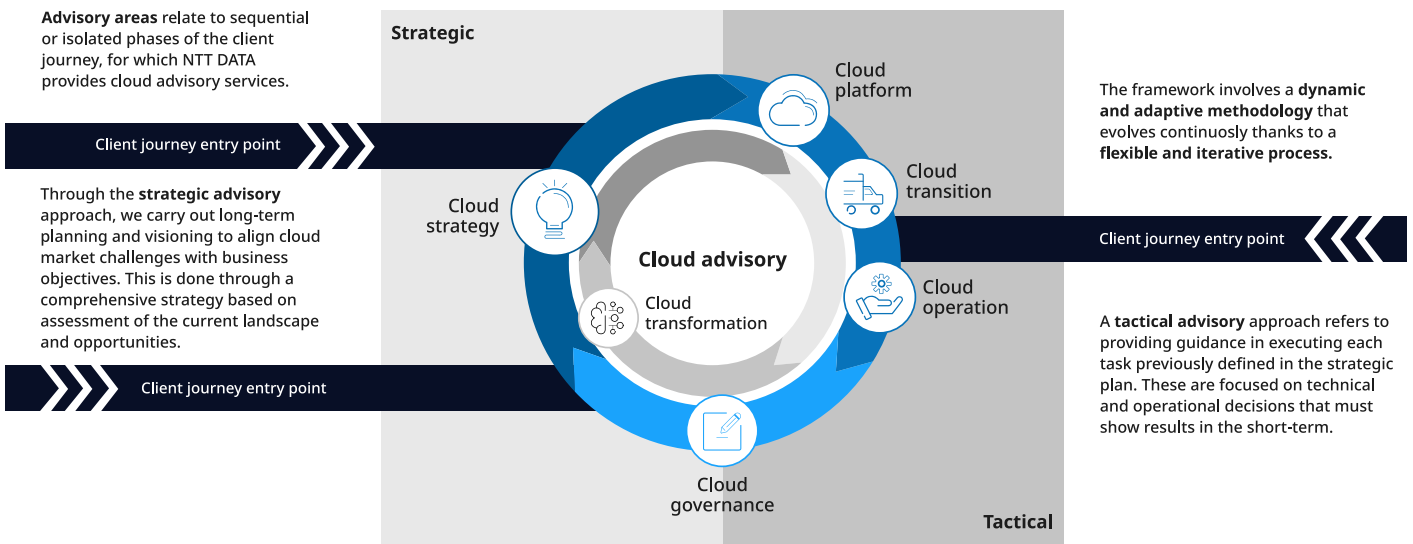


Figure 1. The key areas of activity covered by the framework.



Key building blocks

The framework includes six practical, clearly defined business deliverables. These reflect the different stages of development and evolution of the transition & transformation plan. Each is managed as a separate, measurable activity, but they all interconnect and form part of the integrated strategic approach.



1. Strategy. Where client business leaders, our own consultants, and technology specialists from client and NTT DATA teams work together to set the direction, establish a clear roadmap, and agree priorities. This is critical to long-term success because the strategy is rooted in reality, reflecting maturity, definitions of success and what is actually possible.

2. Platform. This is where the joint team starts to execute against the strategy, building the future cloud platform while continuing to manage the as-is, legacy environment. The platform is not restricted by any limitations based on vendor or technologies. The strategy defines the most appropriate option: the platform stage puts this into practice.

3. Transition. The move to the new platform takes place here, ensuring the proposed cloud capability is in place and fully operational. The legacy platforms and applications may be decommissioned at the end of transition, though many or most will stay operational in some form in the cloud.

4. Operation. This is the Run phase, where the new cloud environment goes into action, so that its performance can be monitored, evaluated and where any necessary adjustments are made. The framework requires external expert teams to stay engaged at some level so that proper review can take place.

5. Governance. Designing the future governance approach will be a fundamental part of the strategy process, and an agreed governance approach should be in place by the time that transition begins. Oversight is a critical part of cloud operations and there will be significant areas of difference between cloud and non-cloud governance. The new approach must also be tested in action and reviewed.

6. Transformation. This is the final stage of activity, and it is where we invite clients not simply to Think Cloud but to Rethink Cloud. In other words, to look at the transformational changes in all aspects of the business that cloud can make possible. This is likely to involve DevSecOps in virtual collaborative platforms, a move to composable solutions and a much higher level of ecosystem working. Strategic thinking and expert consultancy are likely to be needed here, just as it is in the initial phase.

The framework is therefore designed to offer an end-to-end combined vision and engagement activity, focused on delivering the smoothest, fastest, most appropriate way of maximising the potential of cloud for the client- and to ensure that continuous optimisation is a way of life.



Continuous development

The most important development lies in the way the Advisory framework has now expanded to move beyond a notional “hand-over point”, at which consulting guidance transforms seamlessly into operational support, and instead provides advisory input all through operational commencement and long into the Run phase of cloud enablement. That is why our diagram is in the form of a wheel. Continuous evolution, development and improvement is built into this approach as a design feature.

This change has been driven by our increasing understanding of the need to ensure that high level strategic guidance remains embedded in the service at all times. We know from long-term, hands-on experience, that moving to the cloud does not have a defined firm conclusion. Once the first stage has been completed, and operations have moved into the Run phase, a lot of change remains likely (virtually certain) to happen.

As with all major change projects, transition does not lead to completion or an end to evolutionary development. Transition implies a move forward to the point where Transformation can begin, and it is only in this phase (of ongoing change and continuous improvement) that the real benefits of change can be realised. The NTT DATA framework is designed to ensure that a systematic, best practice approach is always taken, but that maximum flexibility is built into our methods.



Supporting tools

The strategic stages of activity covered above are delivered with support from capabilities in three other areas: **Assets**, **Dimensions** and **Non-functional requirements**. This is a subject that deserves detailed explanation but at this stage we will give a top-level introduction only.

01. Assets (shown in figure 2 below) include the different types of supporting materials and components used to help decision making and implementation at every level.

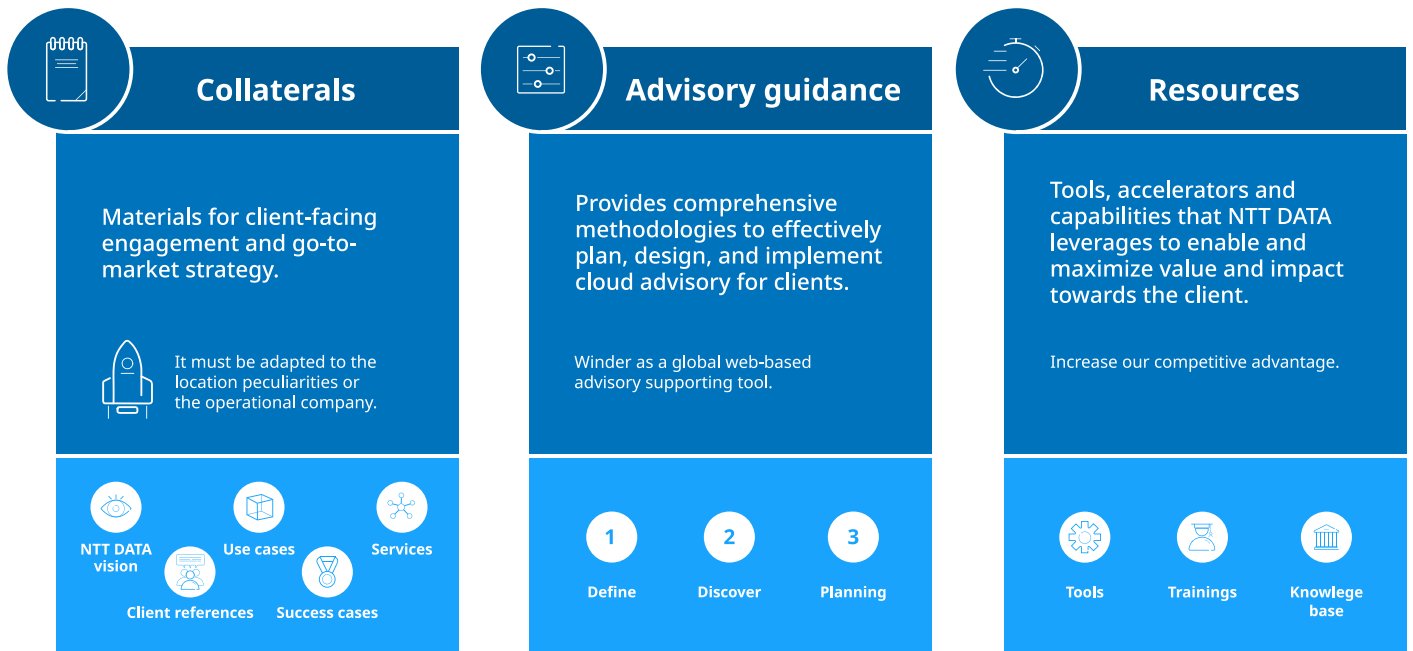


Figure 2. The growing library of assets that supports the Advisory strategy.

These cover:

- **Collaterals:** includes the growing library of experiences, use cases and guides to enable a fast start and ensure our content is always up to date. A specific example could be a best practice use case, in which we provide a step-by-step guide to the ways in which cloud adoption can be managed, with reference to real-world examples, leading to defined outcomes.

- **Advisory guidance:** comprising methodologies for key activities from the earliest phases on. At this stage, for example, we will provide a template and methodology for executing comprehensive discovery of the as-is client status, enabling us to ensure that strategic goals are connected to the operational realities.

- **Resources:** proven, constantly updated tools, including a range of accelerators to speed adoption and development. These resources form part of a constantly growing and developing, carefully curated library, in which each element is kept current with emerging best practice, while providing change professionals with a toolkit that simplifies and speeds up each stage of activity.

The asset base is growing all the time, giving clients the assurance that every experience in the market acquired by the NTT DATA team will be used to enhance and improve their own project.

02. Dimensions (shown in figure 3 below) is the term we use to define the three major aspects of the business we need to cover for a successful move to cloud. The focus here is therefore not just on the technology, but also on business results and organizational structures.

In headline terms, there are three key dimensions:

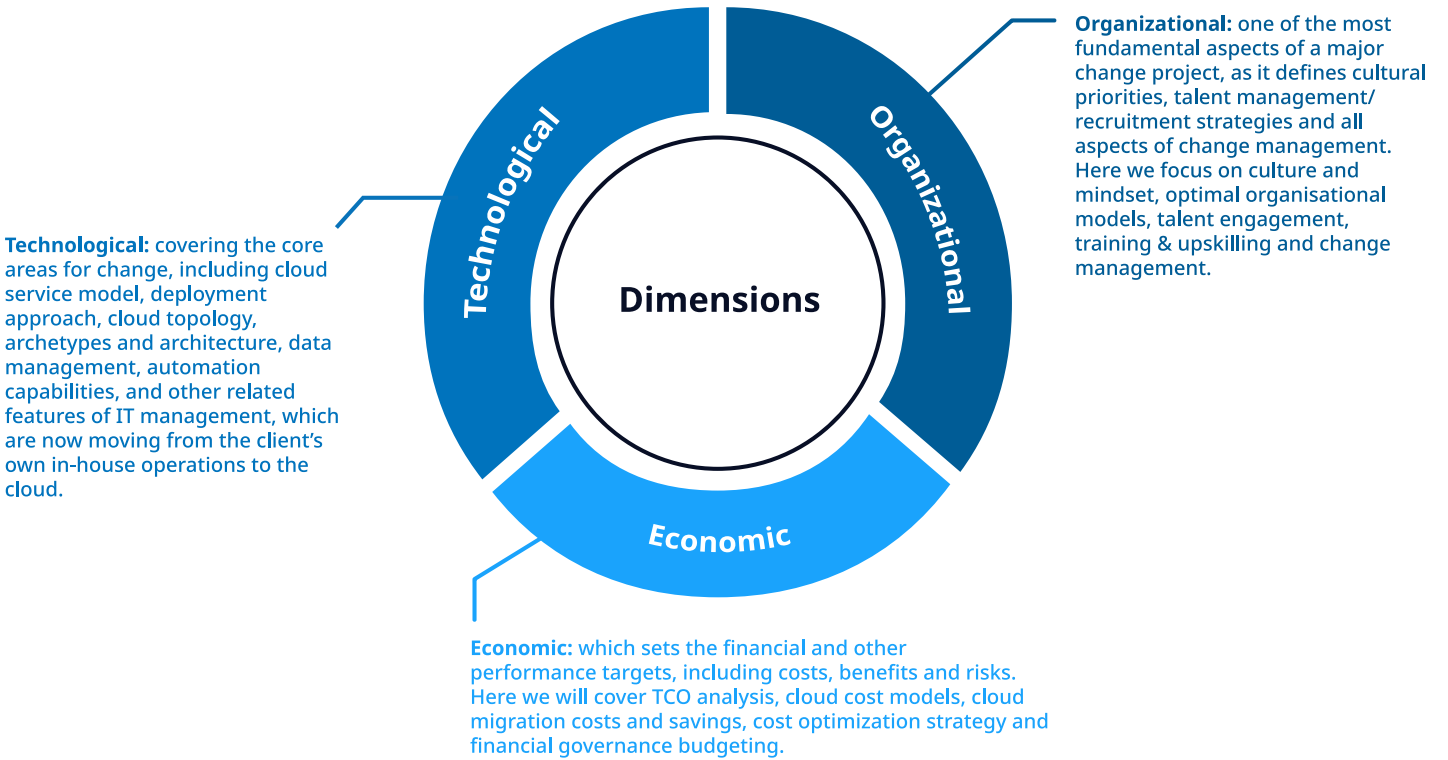


Figure 3. The dimensions of transformation.

We always stress that cloud transition and transformation is a multi-dimensional exercise. Managing technology change (a major undertaking in itself) is not enough. Change has to be affordable and deliver competitive advantage, and it must work in the context of the organisation and its people, as well, or it cannot deliver on its targets.



03. Non-functional requirements (shown in figure 4 below) are the key enablers that make change effective, achievable, and secure.



Figure 4. Non-functional requirements.

In brief, these cover:

- **Security:** ensuring that the move to cloud does not lead to any compromise in the integrity of systems, commercial information, or access rights. This means that moving to cloud needs to be supported by new thinking around the security methods used (moving to Zero Trust, for example), with a whole range of new technology options implemented (encryption, secure access, and authentication controls...).
- **Sovereignty & compliance:** which is a major concern, as all enterprises operating in the cloud need to meet data sovereignty rules (covering where data is processed and stored) and ensure they can prove full compliance with regulatory regimes that are becoming more restrictive all the time.
- **Sustainability:** is an increasingly urgent and essential requirement, and it will become more important in the immediate future. Moving to cloud must be used as a catalyst for reduction in total power use and carbon emissions. In other words, we cannot simply outsource emissions: we need to prove the genuine environmental improvements are being delivered, with a long-term strategy that aligns sustainability and business goals through optimization.

Non-functional requirements set the context in which positive change can take place: delivering on these is a basic necessity.





Making sense of complexity

We have noted the fact that cloud platforms can range from a pure hyperscaler solution (which simplifies transition but limits development) right through to a more complex hybrid solution, with services and components provided by different vendors, and with some hosted in collaborative, shared environments.

NTT DATA's strategy is to ensure that client vision, needs, evolutionary roadmap, and business priorities always come first. Our framework is designed to simplify progress to the cloud environment that is best for the client, which may involve a high level of complexity. We believe that clients must always have the option to select customised solutions that can include components drawn from different sources. We believe this is the best way to open up and make the best use of the development potential that cloud offers. In simple terms, our focus is on transformation: reimagining, rethinking what an enterprise can (perhaps should) be in the cloud.

In the context of our framework, this means that consulting services, including strategizing, analysis, and design, have an unusually high profile at all points in the process of change that we help deliver for clients. It is not enough to impose even the best and most well-proven template on a requirement that is dynamic, complex, and always changing.

Transformation is above all an act of imagination. This is the key to making complexity deliver value. It informs the way we use our tools and resources, led by experience, insight, and consultancy skills.

In the final section of this paper, we explore some of the factors that make our advisory service operate so effectively.

Section 4:

Engagement and support

Operational principles

The existence of the Advisory Hub and its framework is an aid to efficient, accelerated, and low risk change management and long-term operations in the cloud, but a toolset is only as effective as the experts that use it. NTT DATA has built its framework through a number of activity stages:

- 01. Build the asset library.** The first stage of development is to identify relevant components and experience, in order to build a “library” of knowledge, assets, real-world interactions and methods.
- 02. Feedback and improvement.** Now we evaluate the existing tools and assets against established KPIs to test their applicability and effectiveness. We apply feedback loops from the market to review and refine all components within the framework and identify opportunities for improvement.
- 03. Adoption.** We build a rational process for adoption of the Framework, matching the core components against client maturity levels to provide a simple, effective method for identifying when Advisory support is needed, where it is unnecessary and, where indicated, what level of support is required.
- 04. Evaluation and monitoring.** When the framework is deployed, we also (at the initial stage of roll-out) identify evaluation criteria, agree a process and timing for monitoring reports, make sure client SMEs are aware and supportive of this approach, gather data in real time, then analyse, reach conclusions and feedback (with improvement options).

In this way, the Advisory approach forms a flexible, “living method”, in which continuous feedback and learning is built into the entire basis of work we do for clients. The stage-by-stage process for adoption is designed to ensure consistency across the entire NTT DATA business, worldwide. This is a key factor in delivering success for our clients.

The Advisory Hub offers a global centre of excellence, providing leadership in applying the framework, while also ensuring consistency in how our core principles are maintained, evolved, and applied. The purpose of the Advisory Framework and Services is to make sure that we can deliver the right results to all clients, based anywhere in the world. Our approach keeps accountability where it should be: in the delivery units, at the point of client contact. The Advisory Hub provides oversight, guidance, advice, input of best practice capability where needed, and a drive to continuous improvement.



Execution and reporting

An engagement based on our Framework is built on dynamic interactions at every stage and involving every part of the client business (and multiple elements within NTT DATA).

Figure 5 below shows in the form of a mind-map one view of how this operates:

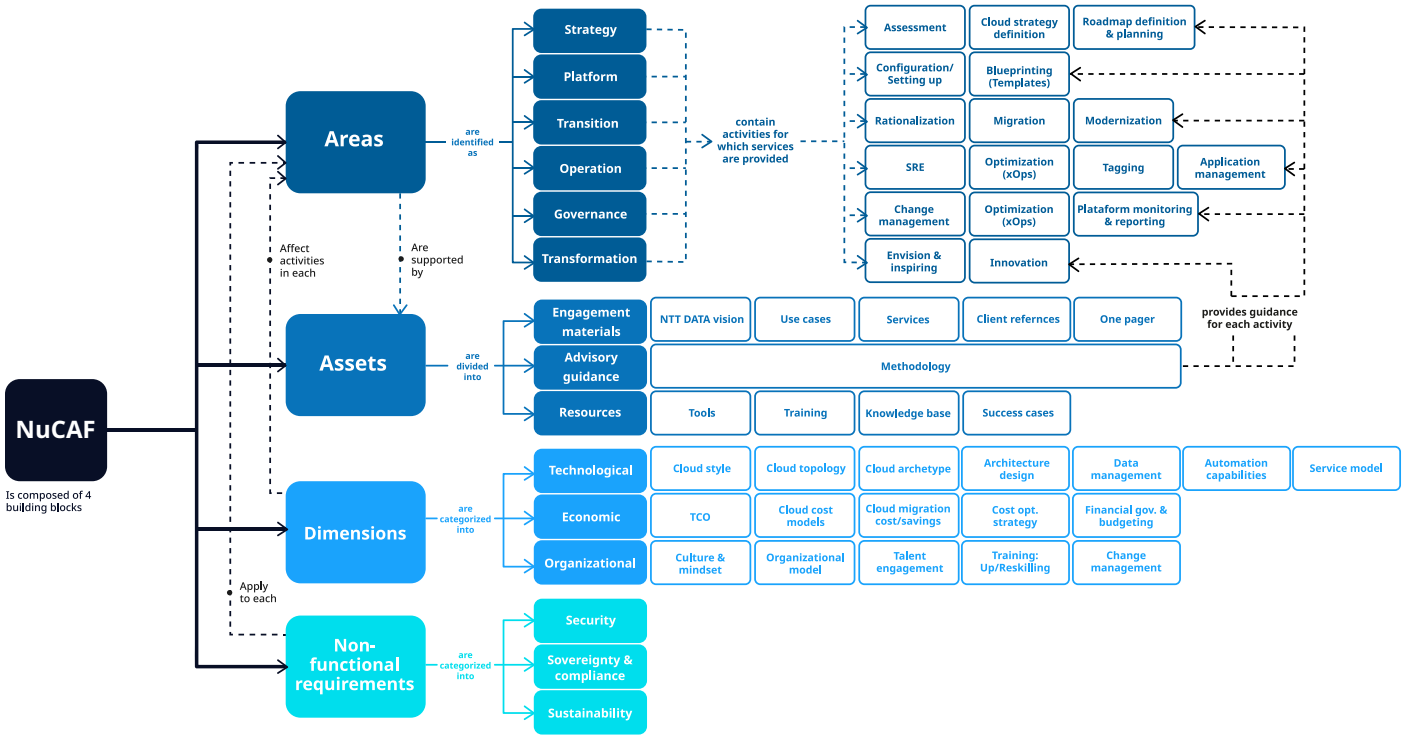


Figure 5. Interactions across the entire enterprise landscape.

In this image we see how the 6 Areas (and stages of activity) are connected directly to a set of services, which provides support to each area. Some of these services apply most particularly to one area: innovation and envisioning, for example, are more relevant to creating new concepts via transformation- though innovation, of course, is always relevant at all stages!

Others are fundamental to every stage of activity: blueprinting, for example, or monitoring and reporting. Services will call upon specific supporting assets as needed. Advisory services, for example, together with our portfolio of training options, and the growing corporate knowledge base for cloud, will always be relevant at every stage.

The processes used in every engagement are essentially bi-directional, with (to give one example) the knowledge base providing examples of good practice based on current status, but then itself being updated and upgraded with the new insights provided by the current engagement. Our Advisory Hub curates each addition to the knowledge base to ensure that the next engagement profits from revised, updated best practice. The same is true of our training activities, with content subject to revision and enhancement as awareness and understanding grows.



Section 5: NTT DATA as your partner

Systematic approach

As this short paper demonstrates, NTT DATA has taken a strategic, considered approach in building a consistent method for moving to cloud. We have applied some important basic principles to everything we have done:

Deploying our global resources. NTT DATA operates across the world and, as the ongoing merger between all our businesses continues, is building an international IT services powerhouse of approximately 195,000 professionals, operating across the Americas, Europe and Asia.

Building on multiple engagements and experiences. We know that advanced capability and a great knowledge base are not enough in themselves to be seen as a leading adviser, guide and professional implementer of complex engagements. The NuCAF provides a comprehensive framework, with tools, assets, templates and governance methodologies for deployment at speed.

Thought leadership. It is very important to be clear about just how central the wider NTT DATA Group really is to the evolution of cloud as a concept. We are networking experts, founders of the alliance defining open standards for RAN, leaders in core concepts for transmission (photonics), processing (quantum computing), rapid network roll-out (5G) and sustainability (neutral infrastructure). Many of the core concepts that will define the cloud of the future are being developed either directly by NTT DATA or in consortiums in which we play a leading role.

That explains why our approach to Cloud Advisory Services, and to the frameworks we use, is evolutionary in nature. As cloud evolves, so does our strategic approach.

Managing the emerging trends

Finally, let's take a closer look at how we are incorporating new thinking and technologies into our advisory service. There are many concepts that are intrinsic to our approach. This is not an exhaustive list but does reflect some of the changes that will reshape cloud in the next few years.

Composability. This is a framework, not just for building new products and service offers from standard building blocks (normally using automated tools for speed and accuracy), but also for reconfiguring businesses and their sub-units at high speed to take advantage of new opportunities. A composable business is itself made from interchangeable elements, and requires a strong focus on four principles: higher speed through discovery; greater agility through modularity; better leadership through orchestration; and higher levels of resilience.

AI. It has been obvious for many years now that cloud will become more distributed in construction and involve a higher level of pervasive intelligence. This can be provided through IoT data sensors and MEC (Multi-Access Edge Computing), as well as through use of ML algorithms and other forms of AI. Enterprises need to take an informed view about what their own future cloud investments will need to do, their scope, roadmap to the future and evolutionary paths. This is our home territory and we are well placed to advise on it.

Servitization. Businesses are now increasingly “wrapping” their products in value added services, delivering complete “packages” to the market, including core product and service-related concepts. These range from built in predictive maintenance to smart lease, to retro-fits and upgrades to remote management and support and beyond. Cloud-based services will be expected to cover these far richer and more complex client-partner relationships.

Sustainable cloud. As we become more used to the fact that climate change is real, so the need to drive down emissions, energy use, environmental impact (through recycling and onward use) will become extremely important, both in terms of regulation and for brand reputation. Cloud makes it easier for enterprises to meet their environmental goals, and NTT DATA will help ensure that auditable proof of compliance is always available.

Compliance and sovereignty. Cloud brings concerns about data sovereignty and other regulatory requirements, which are subject to rapid change and have the potential to cause difficulties for companies either based or trading internationally. There is no easy solution to this: enterprises need to be advised by experts whose business it is to identify relevant changes and make sure the right investments and choices are made.

Security. The emerging networked/distributed cloud is of its nature highly collaborative. This is excellent news for speed, agility and easier access to specialised capabilities, but the need for a zero trust approach to security is also very obvious. Security is absolutely integral to our cloud advisory services and is a non-negotiable component of every solution we offer.

Immersive technologies. The world is developing new ways to manage interactions, interfaces, training, sharing of ideas and new experiences, all of them based on a more immersive approach to content of every kind. The low latency and growing bandwidth offered by 5G is opening new possibilities, which need to be factored into all future cloud strategies.



Last thoughts

Most enterprises are moving to cloud, that is now a fact of life. But cloud itself is changing at speed, becoming richer in content, service options, devolved intelligence and access to self-service, user-driven options. Cloud will continue to evolve, which means there is no right way to transition or transform business in the cloud.

The NTT DATA Advisory Hub, deploying the constantly developing and updated NuCAF framework offers enterprises a secure way to move along the road the cloud, securely, quickly and at low risk. Our framework provides a best practice toolkit to skilled advisers, but the key to delivering value to clients lies in the combination of tools and methods, with the expert staff deploying the framework on or clients' behalf.

Moving successfully to cloud and transforming there is not a predictable or "mechanical" process. It requires the ability to learn, iterate, evolve, and develop plans to fit in with constantly changing operational conditions. The human element is the key differentiator here. The Framework provides a powerful theoretical structure for managing change, but the added value lies in the skills, expertise, and long-term experience of our advisory team. That is what makes our Advisory Service different, special, and proven to be highly effective.



NTT DATA