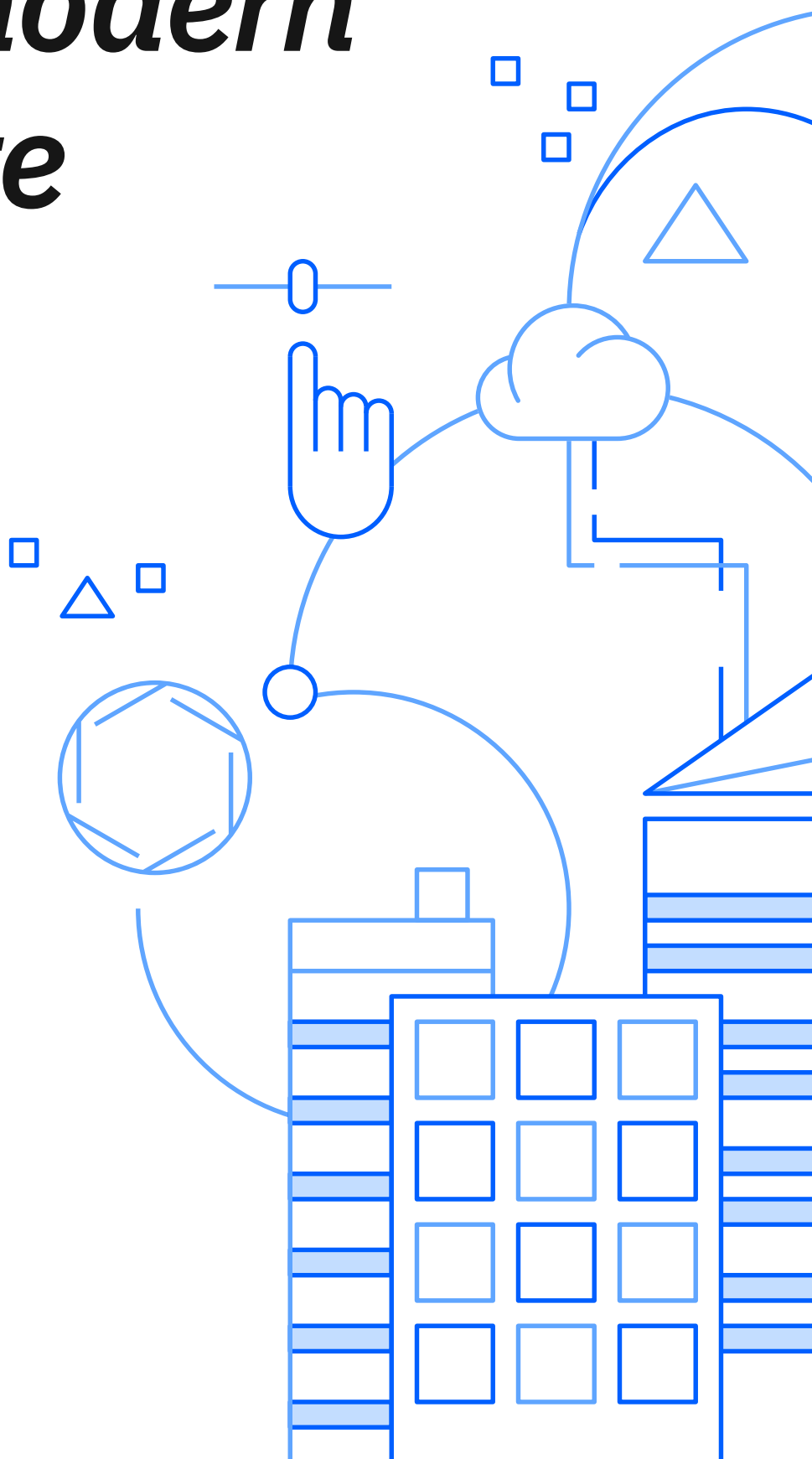
Welcome to the era of ***modern compute***



How to drive value in the era of modern compute

A paper for CTOs, CIOs and CFOs navigating value from IT today

Dan Bailey
IBM UKI CTO and Cloud Leader

IBM

Can you self-fund value?

01

Can you self-fund value?

There is a new way to break the chains of your existing systems, processes and technology. It's not a silver bullet, but we believe it is possible to increase revenue, market share and retention, while reducing cost, time to market and risk.

As industry leaders you are constantly balancing investment to drive value (see Figure 1), and IT plays a big part in helping you achieve that. But for many reasons, which we will explore in this paper, executing on that value can be siloed and only focus on one area at a time. This can result in lower levels of value achievement.

What has this siloed approach to value resulted in? Let's look at cloud as an example. The initial focus was on lifting workloads to the cloud. But issues such as the complexity of the existing estate, regulations and security made that journey harder.

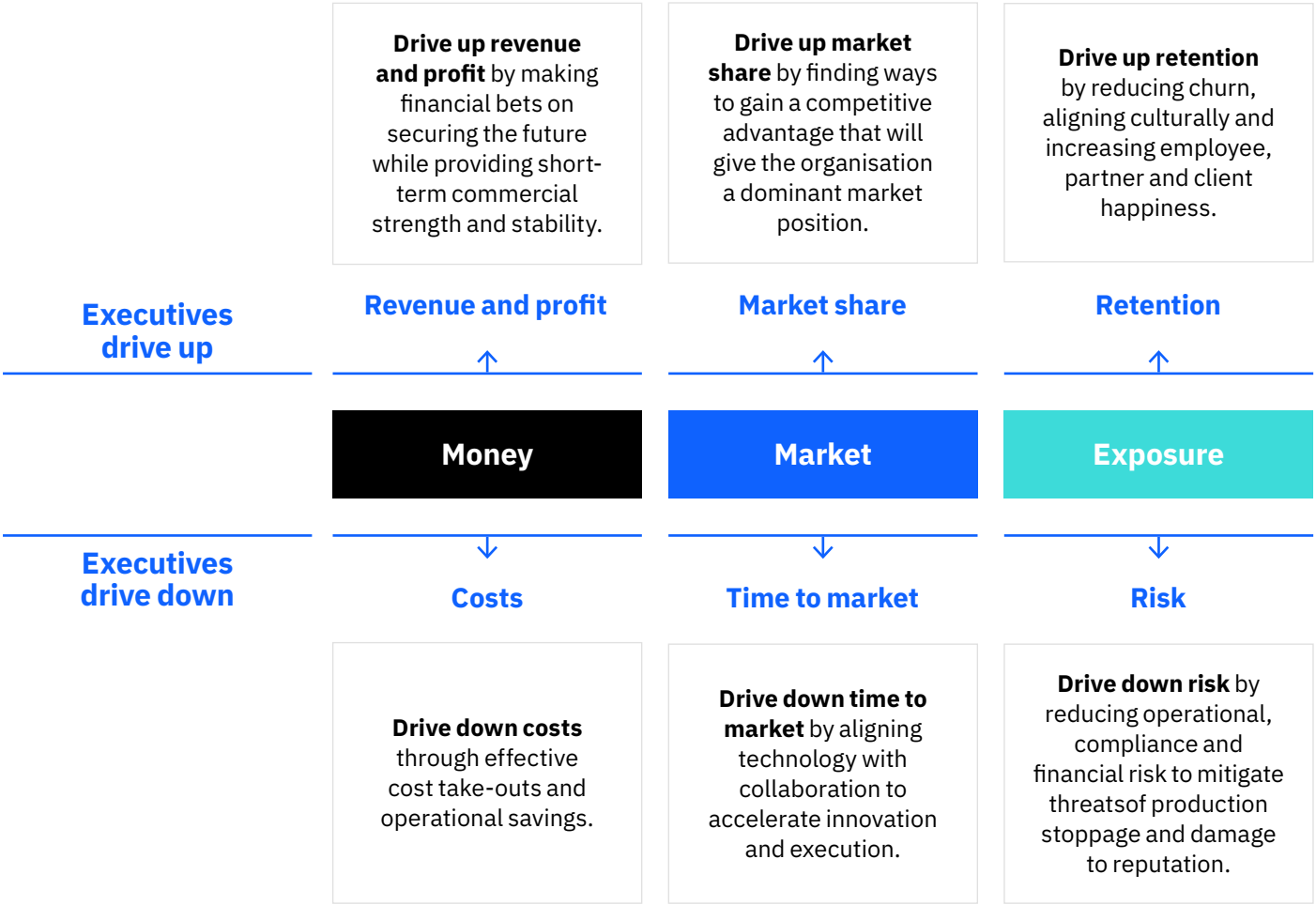


Figure 1: Core focus of value in enterprises

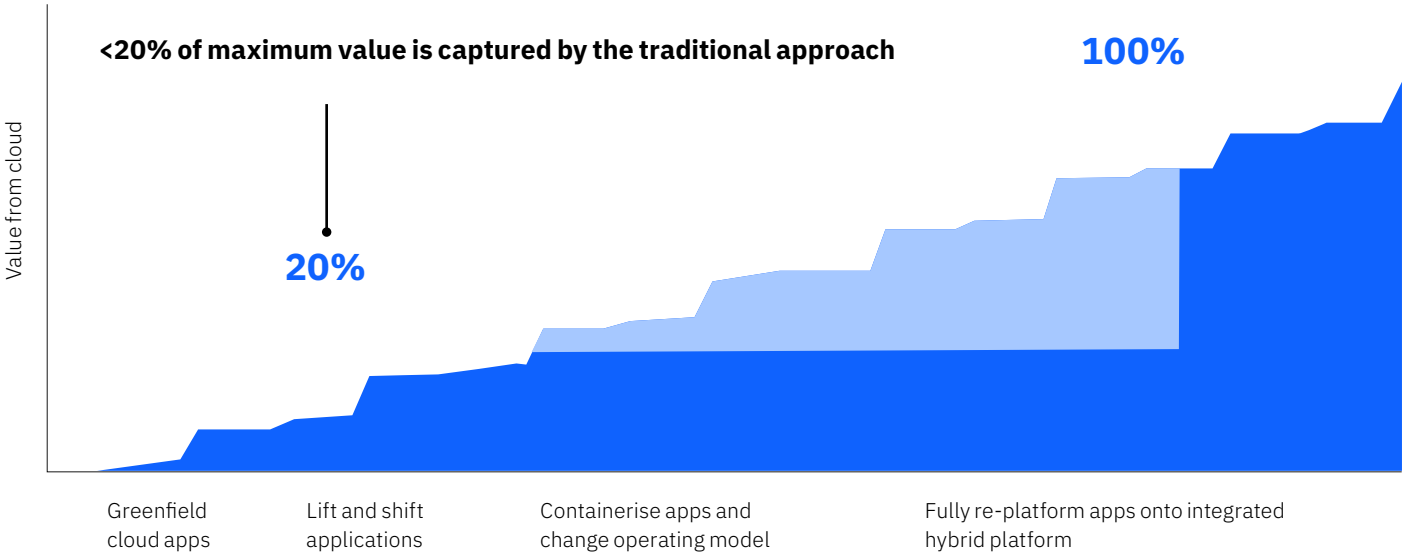
Reference: Data Story by Nancy Duarte

Meanwhile, individual business units have greater autonomy to make IT decisions that support their goals. The prevalence of cloud has enabled them to move forward with the new, incorporating new trends such as AI – but they have forgotten how to turn off the old.

Modern compute is more than cloud. Cloud is often seen as a destination at the end of a journey; modern compute is how we work.

This led to a strong focus on cost only – rather than a broader consideration of the full value of what modern compute technology could provide across all value streams.

So what is modern compute? With a combination of cloud computing, open technology and bi-modal compute, we have been able to codify some of what we had to do before as engineers to enable faster, more robust ways of working.



The remaining 80% is unlocked by embracing a hybrid platform approach

Hybrid platform approach offers:

2.5x more value than traditional cloud strategy

... across five sources of value...

1. Business acceleration
2. Developer productivity
3. Infrastructure cost efficiency
4. Regulatory, compliance and security
5. Strategic optionality

... allowing enterprises to:

Jump start innovation with architectural flexibility

Reduce cybersecurity and regulatory risks with single pane of control

Eliminate duplicative tools and processes

Figure 2: The full spectrum of value

What used to take years to complete can be achieved in far shorter times, more robustly and in increments. The tooling and ways of working make it much easier to build assets to continuously improve.

Why does this matter? As we rush on with our journey to cloud, AI and data, the modern compute approach allows us to drive value no matter what the current estate looks like and across all of it.

This moves us to a save-to-invest model where we no longer look at value as just one of the value pillars but across them all, and the outcome is that we build platforms.

We can only achieve the real value when we look at the following:

Rewire the enterprise for agility and scale

Empower your workforce with new ways of working, skills, modern tooling and agile culture required to scale transformation to every part of your business.

Accelerate business imperatives

Mitigate the risks of transformation through partnership models that manage the transformation with you and not to you, and are committed to your success. Do this with a partner who will become part of your team.

Overcome investment hurdles

Unlock the IT transformation that modern compute can yield, embrace the existing complexity and explore how a measured, hybrid approach can introduce faster time to value and more savings to open up innovation and broader value.

When we take a broader perspective, we can drive 2.5 times more value for the business (see Figure 2)

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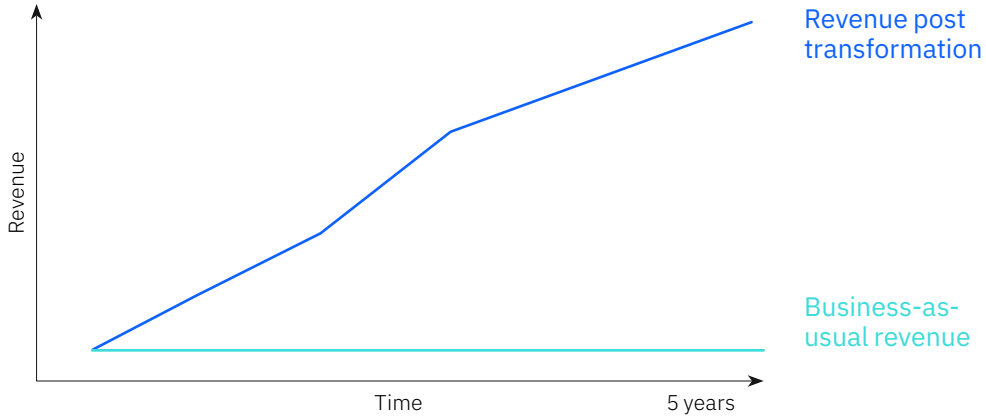
Focus on ***broad value*** beyond cost take-out

02

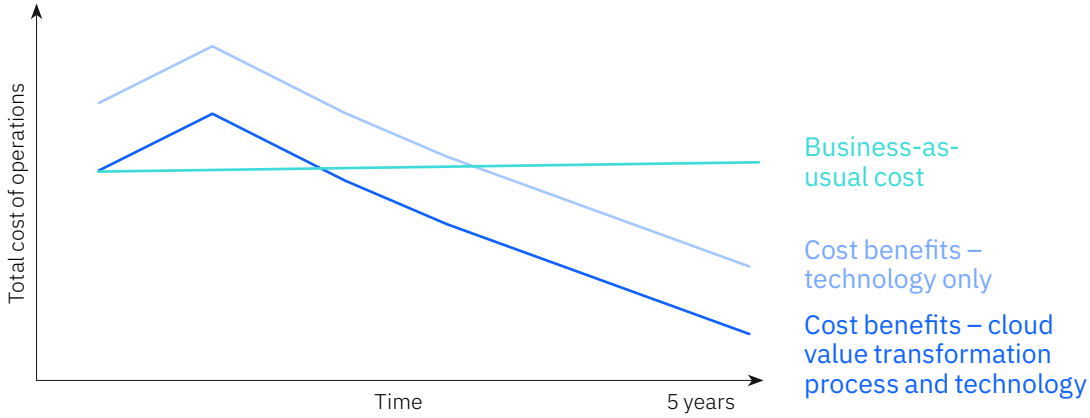
Focus on broad value beyond cost take-out

When we focus on the value to be gained beyond the goal of moving to cloud and cost take-out, the spectrum of what we can achieve gets much wider. Cloud can be an amazing enabler of agility, innovation and cost reduction. But with modern compute, it is possible to fund the transformation too.

Business growth potential
Up to 6% revenue growth and 70% increase in speed to market



Cost reduction potential
Up to 40% reduction in operating cost and 20% decreased risk



1-6% ↑
Business innovation

50-70% ↑
Enterprise agility

10-20% ↑
Increased stability

30-40% ↓
Cost optimisation

1-5%	New business models drive revenue growth
20-25%	Improve customer/employee experience
40-50%	Reduce process run costs (OPEX)
~70%	Enhance time-to-market and release frequency
20-30%	Reduce total cost of ownership of apps and infrastructure through rationalisation/modernisation
10-20%	Improve business/IT staff productivity
10-20%	Independent software vendor/software as a service enabled cost reductions
10-20%	Improve efficiency by metrics/operating model
30-40%	App and infrastructure productivity and labour optimisation
10-30%	Incident/ticket reduction
20-40%	Data improvement
10-20%	Reduce data compliance and security costs
30-40%	Infrastructure cost reduction through optimised cloud solution
30-40%	Improved cash flow in first two years through IBM balance sheet

Figure 3: Levers for creating value

* Metrics based on benchmarking data and previous engagements

Using past projects and industry benchmarks across full IT solutions, IBM has explored models that use the cost optimisation of cloud to fund new innovative solutions (see Figure 3). By looking at the full value these models can bring to the enterprise, we no longer talk about the technology, instead we can successfully execute the business platforms needed for future success.

Each of the companies described in Figure 4 used the levers listed in Figure 3 to help fund, create and execute the platforms above. All these projects started small and built out fast. When done right they don't talk about the technology they talk about the outcomes.

Next generation cloud platforms and intelligent workflows enable enterprise transformation

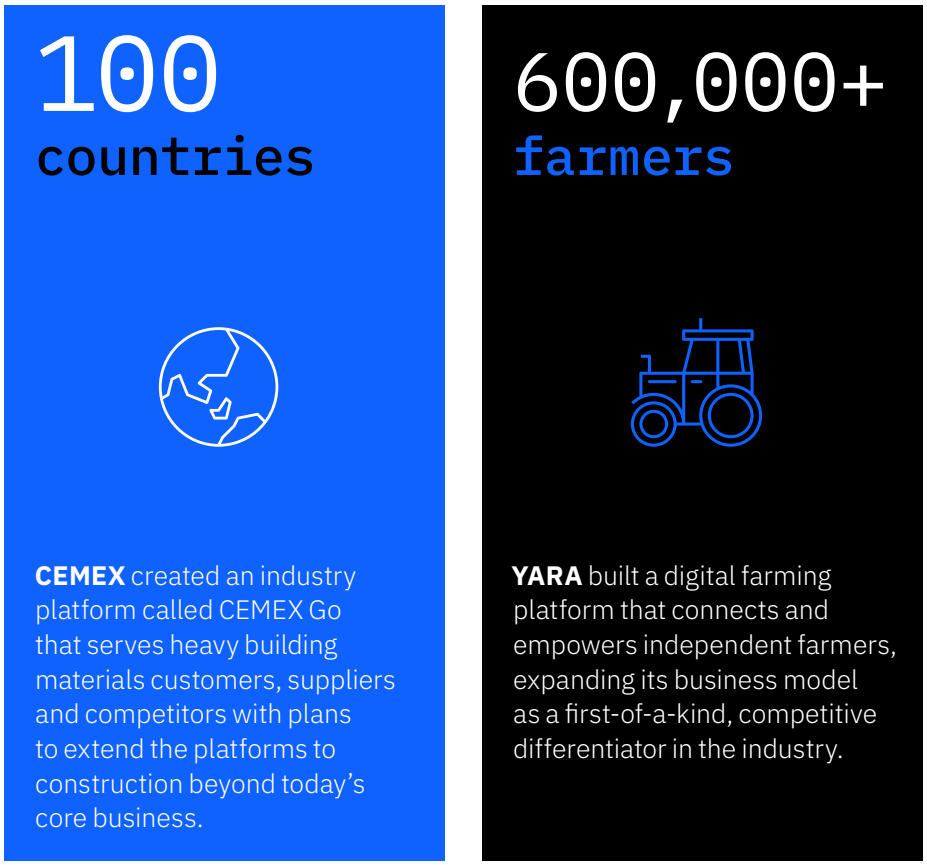


Figure 4: Two case studies

Understanding ***modern compute***

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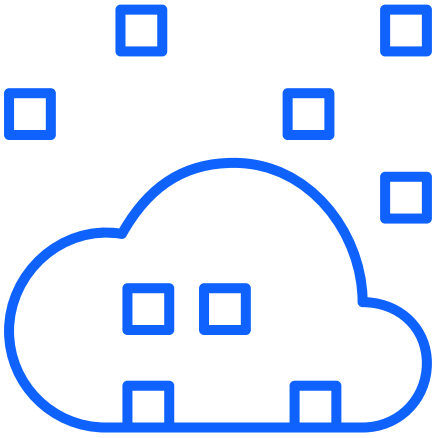

3.1 Cloud is an end point, not a way of doing things

Modern compute is more than just cloud; the open innovation built behind cloud platforms is critical to achieving transformation objectives. This open innovation has driven tooling that enables us to do the following:

- Innovate anywhere, with anyone's technology
- Tap into a broad ecosystem of collaboration
- Execute faster, more successful technology deployments
- Improve team productivity
- Accelerate time to market
- Optimise costs and efficiencies
- Enable business unit individualisation

We have moved through several phases of compute. The modularity of what we build has become simpler, moving from operating system footprints through to application footprints, reducing the size of compute needed. The definition of how systems have been designed has moved from external to internal to the code, enabling faster scaling. The operational layer has moved to a much higher level of open standards, immutability that provides flexibility in placement and robustness in system image. When this is done right, we see a reversal: instead of IT trying to keep up with the business, the business has to keep up with the capability that IT can drive.

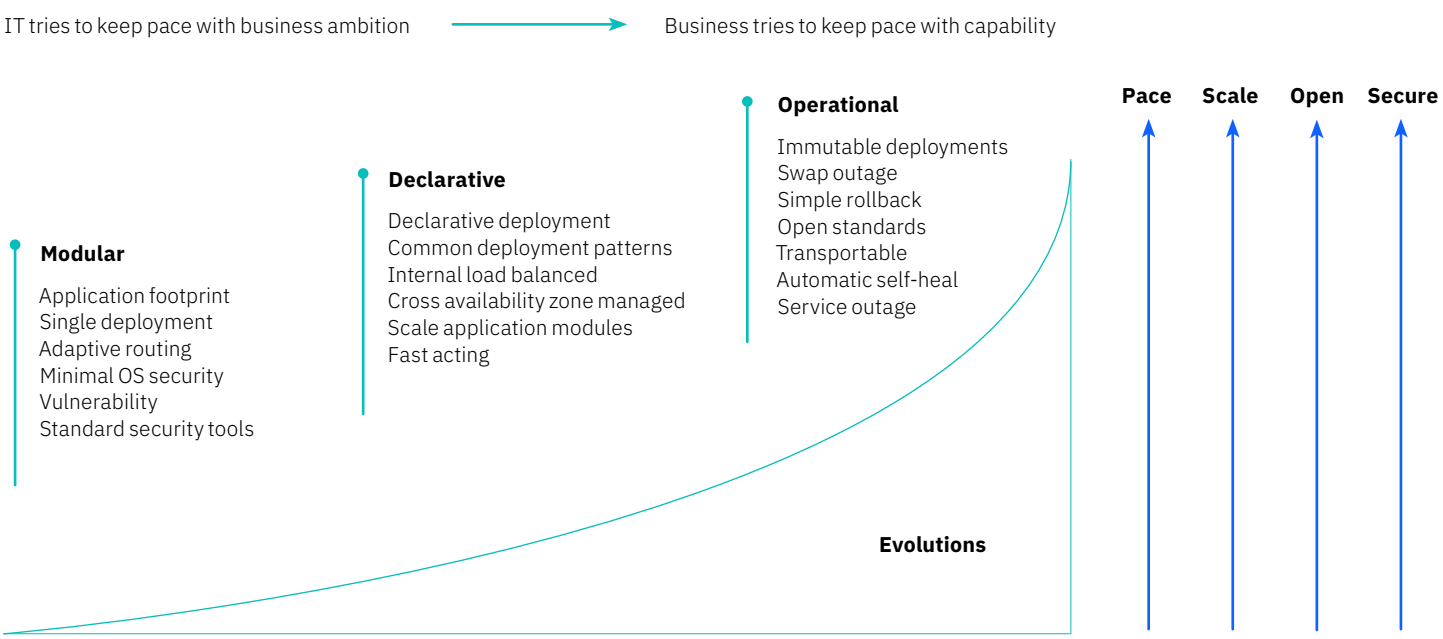

Figure 5: The evolution of modern compute

These changes don't only help with DevSecOps, automated test, wider automation, system operation and more. They also help us to create assets and actually build upon the learnings of each implementation.

IBM has a global network of innovation centres, each with 40-50 engineers creating proof of concepts (PoC) to demonstrate the art of the possible. In the past, these PoCs would have been disposable, but now they are just part of a growing asset base. When we start a new project, what would have taken weeks to get going takes hours.

This is the difference between how we operate today and the way we used to build IT. The time it took to get going and get past the PoC phase has decreased drastically. It all translates into faster execution and return on investment.

3.2 Why make this an exclusive way of working with cloud?

Imagine if all this open technology could be accessible within your existing data centres – and not just exclusive to cloud. It can be. This is the primary reason IBM believes in the hybrid multi-cloud approach.

You are likely to be managing a complex IT estate that has built up over the years and, depending on your industry, will have regulators and security leaders constraining how fast you can go. In this case, Red Hat OpenShift opens up many of the values listed in Figure 3 in your current data centre. It enables us to be far more flexible about the transformation but to keep up the pace of transformation from savings faster than any other route.

When we combine moving to the cloud with modernising the existing data centre, we can reduce server costs, licensing costs and more, no matter where the workload runs. These tools do not constrain us to moving applications or running infrastructure. They also enable us to build production-grade solutions rapidly for user experience, commerce and AI.

Defining the full value and how to drive it

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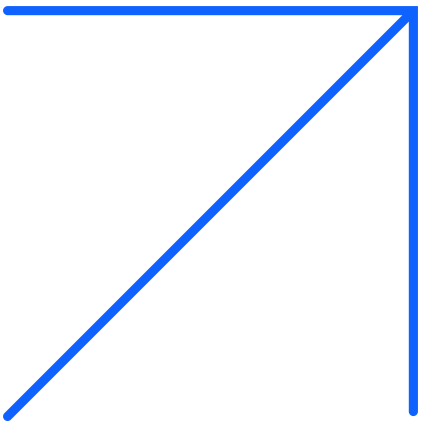


Defining the full value and how to drive it

There are a number of steps that will help us to build business cases and execute the value from them. We should begin by identifying the investment case from the savings and exploring all the possible opportunities for transformation. We don't have to act upon all these insights straight away, but having a big picture that can then be tested and iterated as we go through the modernisation process can really help.

Before we start, it is wise to validate the business case to determine the best way to progress. Here is where we need to really understand the complexity of what we are doing and make trade-offs against transformation and the self-funding cost take-out. Part of this step will be to explore exactly which workload should remain within the existing data centre and be modernised so it can move when the regulators allow.

After that, it's all about execution. Too often people talk about inserting a cloud centre of excellence (CoE), but for this to truly work requires a change in culture. CoEs typically become areas of support but not change. IBM believes this work needs to be executed with you and not to you, with your teams at the heart of the delivery process. That is why we use a "co-creation, co-execution and cooperation" approach involving both your team and our team.

4.1 Finding the value

A lot of the insight to the value you can derive is already at your fingertips, and much of the models for determining that value have been created. This phase is important, but doesn't have to take long to execute. In fact, it is better to make this an iterative value case, retaining the flexibility to focus on key areas but pivoting as you learn more.

4.1.1 Dream big

IBM has created the following framework to help identify areas to interrogate for value. Alongside the obvious areas seen in most journeys to cloud, this includes:

- Open hybrid cloud platform creation
- Application modernisation and cloud-native builds
- Application and infrastructure management

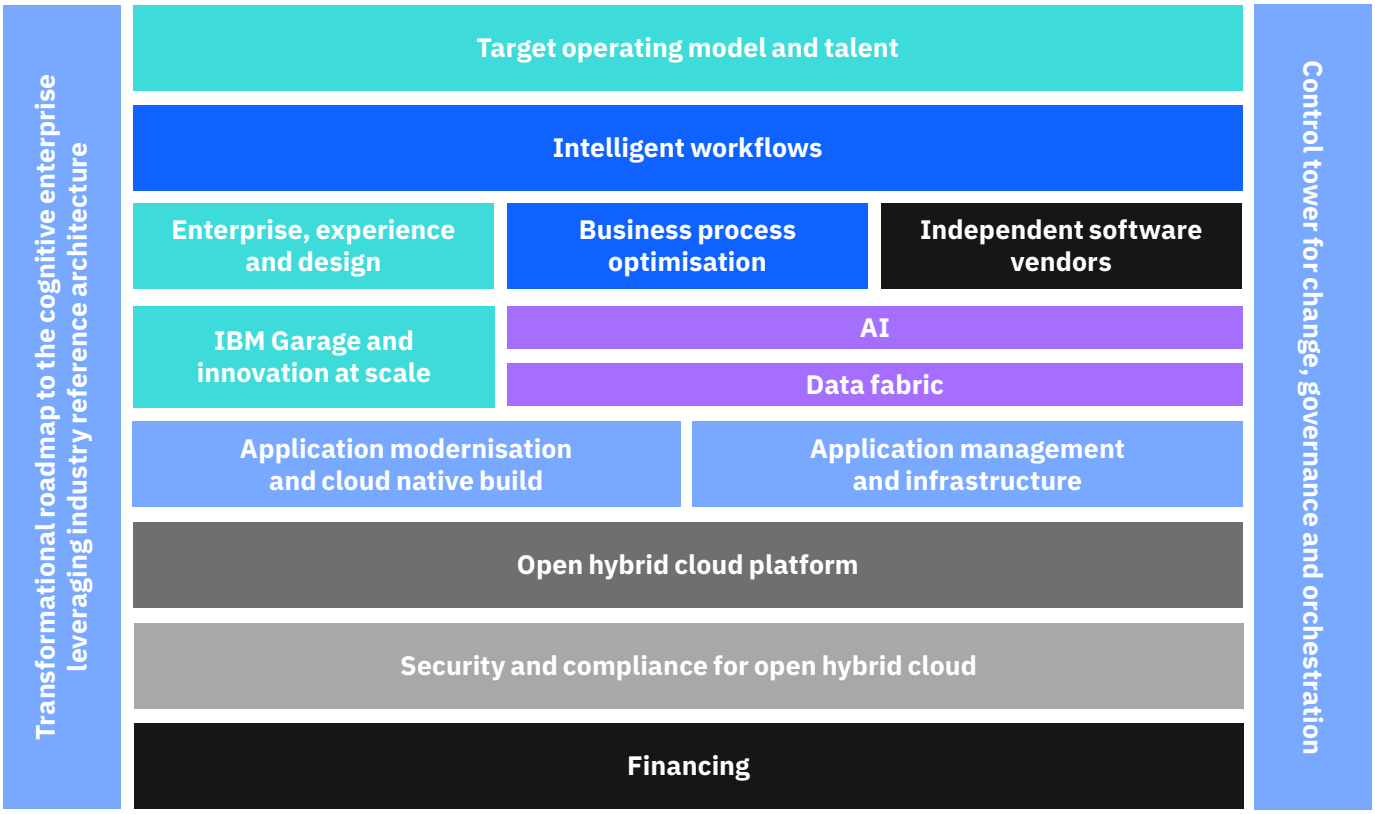
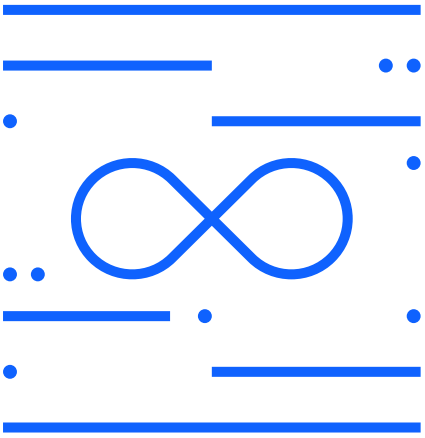


Figure 6: Framework for finding value



We have also seen value come from the following areas:

Security and compliance

Through assets we have been able to get regulated workload pre-approved for certain clouds. This can save years of work and will enable more workload to move to the public cloud even in highly regulated industries.

Financing and value-based pricing

When looking at the whole picture of value, new models for paying can open up. This doesn't mean all parts need to be bought at the same time.

IBM Garage and innovation at scale

It is no longer about just taking the same old apps and modernising their IT software. It can be better to reassess the processes and build new. The IBM Garage approach works with you to innovate new workflows and applications that can drive net new business.

Data fabric and AI

While exploring application modernisation it is very easy to forget the data that powers those applications. Moving databases to data as a service (DaaS) will drive cost reductions. But this is also a good time to determine new data lakes that could be created to enable the data to be used in new ways and drive different insights using analytics or AI.

Enterprise experience and design

The process of reducing cost through moving to containers, cloud and more is a great opportunity to explore what people are using those apps for. Modern compute enables us to rapidly deploy new user interfaces that take data exposed in the data fabric and either build new versions of the processes and apps or create brand new experiences.

Business process optimisation

Quick efficiencies can be found to free up cost to move into areas of change.

Intelligent workloads

When we look at things holistically, we can not only modernise processes but also get new insights from data broken out of legacy applications and apply AI to the processes to drive new value.

Target operating models and talent

Modern compute is about the way we work. Change can be made incrementally as programmes are kicked off. We have found several models to make this work; the highest value is the *do with not to* model described in section 4.3

4.1.2 Focus on the levers of change

The saving levers

Dramatically reduce the total numbers of servers and reduce the costs per unit to impact the total cost of ownership (TCO). Save to invest; use the reduction in run costs to pay for the journey to cloud and technical debt remediation and save money over a seven-year business case.

Remove the waste

In any large IT estate 10-20% servers can be decommissioned. These are servers left on from a project shutdown six months ago or IT infrastructure refresh projects where the old servers were never fully decommissioned.

Reduce underutilisation

20-30% of servers will be oversized, meaning they only use 10% of the asset for which you paid 100%. Containerisation will remove 3/4 servers by removing the space capacity.

Saas and DBaaS

Business projects usually have their own direct funding, so you have many of the same services across the IT estate such as Windows SQL servers. When moving to public cloud 10-20% servers can be consolidated to database as a service (DBaas), saving application and infrastructure support costs.

Turn off non-production environments when not required

Most public cloud vendors work on a 730-hour month. If you plan to have 100% development on 8am-6pm five days a week you only have a bill for 25% of the monthly services cost. Production service on 100% workloads on public cloud at one year reserve instances ~ 30% off.

Managing out the technical debt

Technical debt has to be the responsibility of application teams with the support of infrastructure teams. Most applications have a frequent upgrade plan. By putting the application roadmap alongside the infrastructure obsolescence plan you can see which systems will need to be upgraded by the infrastructure team and tested by the application team.

Rapid migration

If you migrate in three years or less it allows two full years of saving to be included into a five-year business case.

Impact of removing a server

Removing a server means a reduction in hardware maintenance, software maintenance, operating systems, people, faculties, storage, back up, achieve and data recovery. The greater the reduction in servers, the higher TCO saving.

Figure 7: The saving levers

4.2
Shape the solutions

4.2.1
Determine your capability

At IBM, we use two models to help focus effort, as below:

1. A map of all things we believe a CTO or CIO needs to consider when running a modern compute environment. We call this the business model of cloud.
2. A business version of the map in Figure 8, tailored to the industry.

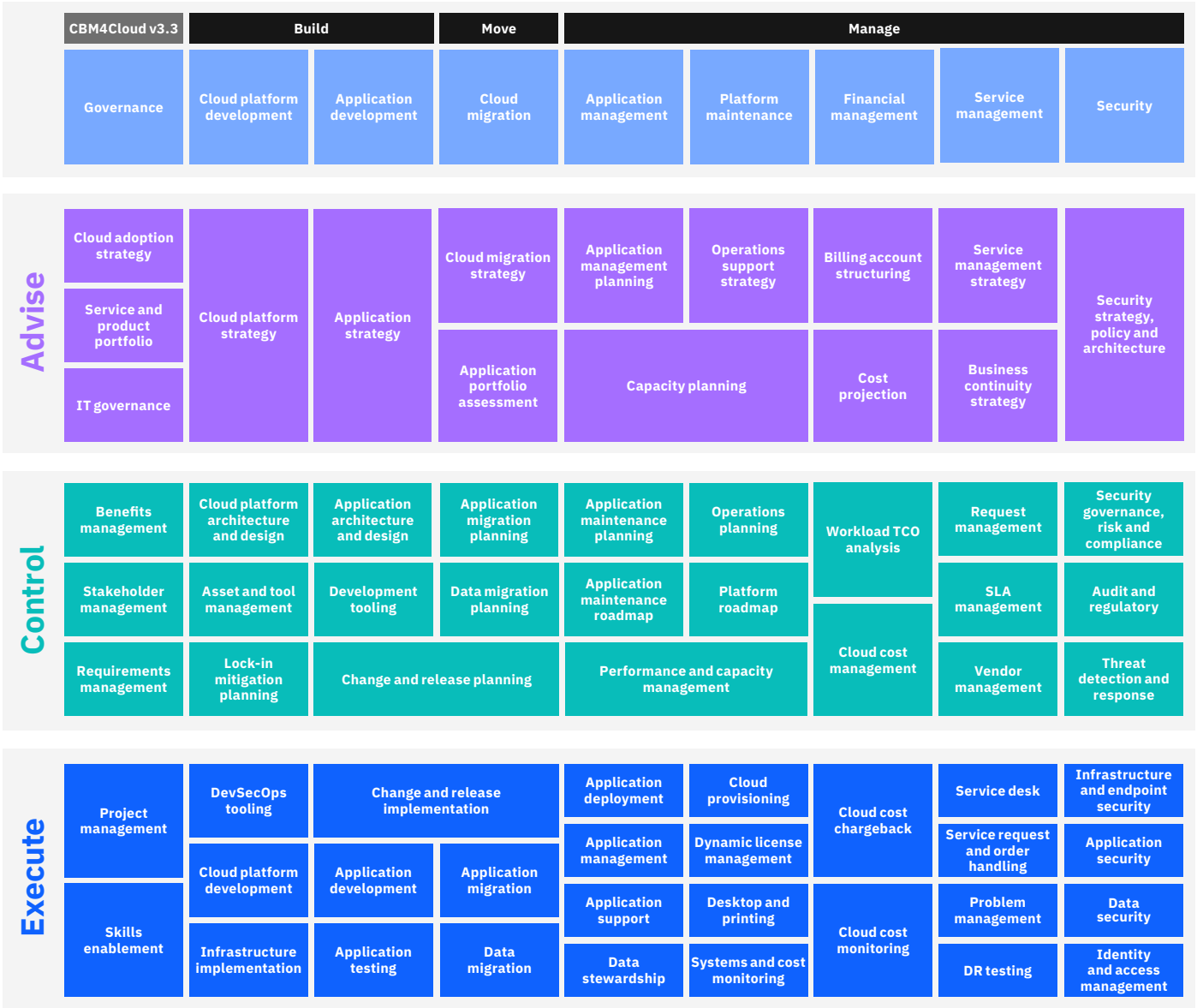


Figure 8: The business model of cloud

These models are effective ways to explore areas of data value and complexity before we jump in with tools. They enable us to explore everything from setting the strategy (advise), through managing the environment (control) to actually building and running it (execute).

4.2.2 Embrace the diversity of IT

Embracing modern compute across your whole IT estate will increase your time to value and the amount of value you can achieve.

Modern compute forces us to think more about the process: which tools we need, what values we want and how we work to get there. Through this we are forced to take a broader approach and go beyond infrastructure changes – to apply intelligent workflows or create new data lakes that can spawn new business models.

When we focus on the breadth of technology we have and can access, we are not tethered to a platform or a way of working. This is why IBM starts with a hybrid multi-cloud approach. We can find the value whether it is at the edge, on a public cloud or on existing systems – and we can use the best tools to get there.

This requires a different perspective on what the goal may be and a different approach to realising it.

4.3 Do with not to

The way we work today is far more iterative than it has ever been. This gives us time to test and learn, while getting to production fast. However, it only works if you pick a supplier who will work *with* you, bringing your team on the journey then empowering you to go it alone.

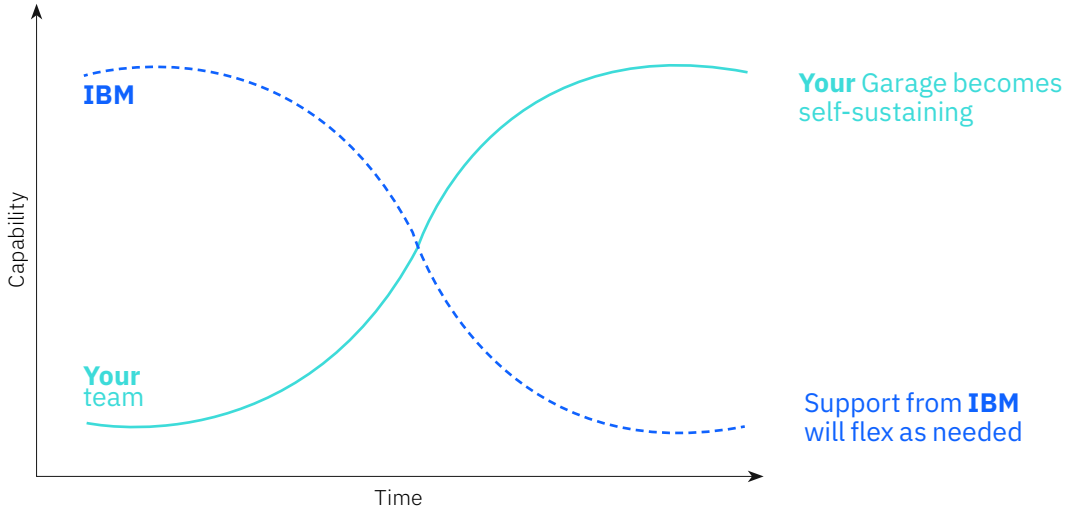


Figure 9: The IBM Garage partnership

We do this through IBM Garage. We form joint teams who continue to validate that value is being created and look for new sources of value. These teams then spawn into technical teams who can turn value statements into minimum viable products that scale. As the products scale, so do the teams, with the overarching aim that your teams become self-sustaining.

This is where the value of modern compute drives speed to market. The iterative and collaborative approach, coupled with a vast asset pool and tooling, means that no code is wasted; every iteration will increase the asset pool and therefore the amount of production-ready code. What once took six weeks to build now takes days, so the rest of the time can be focused on more function.

Time to embrace ***modern compute?***

05

If value is what you are looking for and you have struggled in the past, perhaps it's time to try an approach that builds on what you have and the modern compute your enterprise is likely already embracing.

Critical to the success are some of the following:

Business units must be committed to the cloud journey and see business benefits and savings

This is to ensure business units do not get double charged for the annual old IT cost and impact of the new monthly cloud cost.

The old operating model must be prohibited

Business units cannot be allowed to operate in the old ways even if they are paying the bills. This includes buying physical servers for projects. This leads to project failure and large inefficiency in the current data centres, for example, physical and virtual servers only being used 10% for 100% purchased assets.

Make it magnetic for business units to consume cloud

The cloud journey only works when driven by the business in harmony with internal IT, IT suppliers and cloud vendors.

Project prioritisation

We understand business change, security change, regulatory change all has priority over this project. Managing the congested change windows to achieve success is paramount to success. There is a limit to how many servers can be changed per month.

Exploit open transformation

The open community goes way beyond j ust the technology; there is an entire open ecosystem and open culture to be exploited.

Public cloud must be easy to use

For business units and internal IT. Automation to spin services up in minutes is critical whilst adhearing to security, compliance, resiliency approval.

This can be achieved by ensuring we have the following:

Engineering skills

Successful migration requires deep engineering skills spanning legacy systems and processes as well as modern environments. We are still measuring the distances from cloud data centres to make sure applications perform and those types of skills are still required.

Architecture

Architecture is key to driving pace and unlocking benefits. Having the right architectural approach enables us to build our own production-ready asset base and exploit the best open tooling to get the most value from modern compute.

Partnership

It is essential to get the most from our partners and understand the new value chains they create. This includes cloud providers and the systems integrators.

Industry skill

Coupled with your own team, industry skills will help to identify the key processes and applications to move.

What ***next?***

06

What next?

IBM has built many of the systems that run our businesses, banks, shops and governments today. The engineering mindset we used to build those systems is still needed today.

Through embracing modern compute we have been able to scale our teams and improve quality through the open technology and communities we are actively involved in. We have codified a lot of the best practice in assets and approaches that can enable you to move faster.

IBM can help you get started:

- We'll show you what modern compute looks like
- We'll create a value case for you
- We'll help you assess where you are and start your strategy

Then to execute we have the methods, the assets the teams to do it.

Let's talk

Want to know how this can work for your business? Get in touch with our experts for a one-to-one consultation.

Dan Bailey
CTO and Cloud Leader
IBM Services UKI
Dan.Bailey@uk.ibm.com