

State of Cloud Adoption UK Public Sector

Survey Report 2020

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INTRODUCTION

As we begin a new decade, it is exciting to think of all the innovation that will fundamentally transform the way public services are delivered – from the impact of Smart Cities on Local Authorities, to the power of data analytics and artificial intelligence to help drive better patient outcomes across the NHS ⁽¹⁾.

"It is becoming increasingly apparent that we have a tremendous national asset in the invaluable data that powers our public services. Hence, there has never been a better opportunity for the UK to protect and nurture these capabilities which will underpin future innovations that will drive better public services for citizens and business, and better value for taxpayers."

Simon Hansford, CEO at UKCloud

Fast forward ten years, and the future is very bright. But, here in 2020, the dramatic changes that are required to make that leap can seem daunting and overwhelming. Take cloud as an example. In contrast with traditional environments, cloud provides the scalability, resilience and functionality that enables organisations to become more agile, and to embrace transformative technology trends such as hyper-connectivity (5G, IoT), mixed reality and augmented intelligence ⁽²⁾. This is why the UK Government shifted to a 'Cloud First' strategy back in 2013, a strategy that has been adopted by all parts of the public sector.

Yet, despite this clear desire, cloud adoption across public sector is still patchy. The vast majority of public sector IT remains in traditional, non-cloud environments. So, to find out why, UKCloud surveyed more than 300 public sector organisations, large and small and asked them about the common issues and challenges that are impeding broader adoption of cloud. UKCloud surveyed more than 300 public sector organisations, large and small, across all regions of the UK.

The results are emphatic. First and foremost, there remains a universal desire to move IT environments into the Cloud, with almost 9 out of 10 respondents stating that if a 'perfect solution' existed, they would move all their IT into the cloud. This chimes with our own interactions with customers and partners – the conversation has shifted from "why should I use cloud?", very much to "how do I move to cloud?". Notably, the spread of challenges that public sector organisations are facing that impact the 'how' is very revealing. Indeed, given the variety of challenges, it is clear that a single cloud can never be the 'perfect solution' – different public sector organisations will require a different mix of cloud services to suit their particular constraints as regards budget, skills, pace of change and their approach to commercial risks.

This report presents the key findings from the survey along with contributions and insights from various experts. It is intended to help drive awareness of the challenges that public sector organisations are facing so that these challenges can be discussed and addressed.

1. <https://www.gov.uk/government/publications/the-future-of-healthcare-our-vision-for-digital-data-and-technology-in-health-and-care/the-future-of-healthcare-our-vision-for-digital-data-and-technology-in-health-and-care>

2. <https://www.gartner.com/smarterwithgartner/cloud-shift-impacts-all-it-markets/>

3. See page 16 for more details on the survey methodology

KEY FINDINGS

01. STRONG DESIRE FOR CLOUD SOLUTIONS

The majority of the organisations surveyed (87.2%) agreed that they would move their IT to the cloud if the perfect solution existed.

The result is clear, nearly 9 out of 10 of those surveyed would move all their IT into a 'perfect cloud'. Organisations are certainly keen to adopt cloud, demonstrating that cloud has become the 'new normal'. Few organisations are still debating whether they should adopt cloud, most are considering exactly how they can adopt cloud – especially for traditional applications in existing environments.

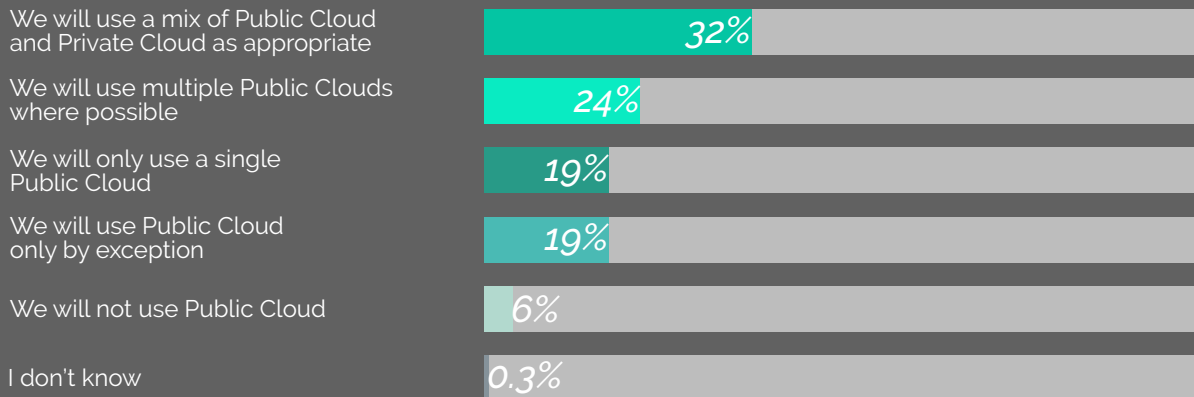
The results to the other questions (covered later) reveal that the 'perfect solution' doesn't just have technical challenges (e.g. support for traditional workloads) but also non-technical challenges such as commercial risks, skills & capabilities, funding, and so on.

Figure 1: If one perfect solution existed, I would move all of my IT to the cloud



In addition, when asked whether they would "prefer a multi-cloud vendor", 85.5% of participants either agreed or strongly agreed. Interestingly, this hasn't entirely translated into policy as 'only' 55.9% of responses state their policy is to either mix public and private clouds or use multiple public clouds (see Figure 2). Fewer than 1 in 5 (19.4%) have a policy to only use a single cloud – this ranks even below the percentage of organisations (24.3%) that have a policy not to use public cloud if at all possible.

Figure 2: What's your organisations policy on cloud?



Other evidence of strong desire for cloud includes the 85.2% of respondents that agreed that "if there were dedicated cloud hosting technologies that could mirror their existing environment, they would move more workloads to the cloud", again indicating demand for private cloud platforms based on proven technologies such as VMware and Cisco.

Almost half of those surveyed (44.1%) also confirmed that there is strong support from the leadership team by strongly agreeing that "The C-suite understands and values progressive technology in the workplace" – a sentiment that was even more pronounced in Local Authorities (59.1%).

A concerning finding in this context is the large number of respondents that cite "lack of clear policy/strategy" as a factor that is impeding cloud adoption. 40.1% of those polled stated they 'strongly agree' to that, with another 38.8% stating they 'somewhat agree'. 44.2% of IT professionals expressed stronger concern about this than 36.3% of business leaders – indicating that the 'lack of clarity' is likely to do with practical implementation – for example, migrating traditional and sensitive systems from on-premises environments to the appropriate cloud.

'This Survey has proved what we believed to be the case – that digital transformation is inevitable but is happening too slowly. The issues raised in the report are being addressed at a policy level in government at the moment. There is no perfect cloud solution – rather different clouds to meet different needs. UK Public Sector Organisations need choice and options in order to meet demand for cloud-based data and workloads.

Organisations understand Cloud First is not cloud only. Some of them like the Food Standards Agency have already fully moved to the public cloud. Others like the Ministry of Defence have a hybrid, multi-cloud strategy. Public Sector understand the detail of the policy, including the fact it enables organisations to form a cloud strategy that's right for them. Different organisations face different sets of challenges when it comes to cloud, and there is not a one-size-fits-all solution.'

Simon Hansford, CEO at UKCloud

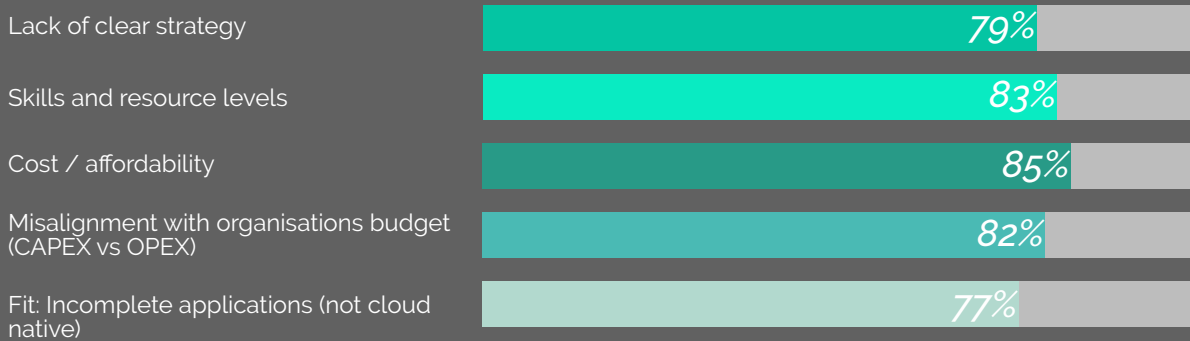


02. MISALIGNMENTS OF IT BUDGETS AND PUBLIC CLOUD ECONOMICS

84.5% of respondents agree that cost / affordability is the biggest impediment to cloud adoption and digital transformation

The issue of cost and affordability attracted the strongest consensus amongst those surveyed as the biggest impediment to cloud adoption with almost 85% in agreement. This majority rises to 87% in Health and Life Sciences and 97% in the Police and Justice sector. It is felt more strongly by IT professionals than business leaders.

Figure 3: Do you agree that the following factors are impeding your cloud adoption and digital transformation?

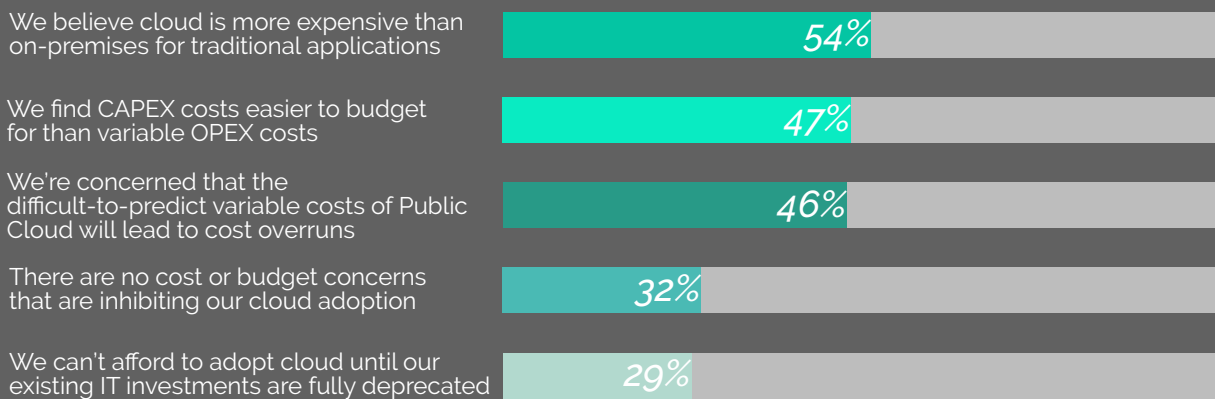


There are a number of aspects to this as shown in Figure 4.

First, 54% believe that cloud is more expensive than on-premises for traditional applications (this rises to 64% in Central Government and Local Authorities). This might be a reason why so many respondents now recognise the value of multiple clouds (Figure 2) as private clouds are often a more cost effective alternative to on-premises environments than public cloud.

Second, 47.7% of those surveyed (54% in Health and Life Sciences) find CAPEX costs easier to budget for than OPEX costs. Again, whereas public cloud solutions are optimised for OPEX budgets, organisations need to turn to multi-cloud and private cloud in order to make best use of their CAPEX budget. On a related note, 40% of Defence and National Security respondents (29.3% of overall respondents) said that they could not afford to adopt cloud until their existing IT investments and fully depreciated.

Figure 4: Which of the following statements apply to your organisation?



Third, nearly half the respondents (46.4%) are concerned about cost over-runs due to the inherently variable costs of public cloud. Indeed, nearly 4 in 5 respondents (79.9%) agree that the fear of runaway costs is hindering the buy-in of cloud adoption within their organisation. These findings explain the rise to concepts such as 'cloud repatriation' and specialist cost optimisation products such as VMware CloudHealth.

In the Public Sector cost management is of utmost importance, but also a complex challenge in the context of providing increasingly digital services and solutions. Organisations across the sector are under immense pressure to invest in innovative new IT solutions that deliver added value, but also sit within constrained budgets. This can disrupt ongoing efforts to digitally transform business, particularly the adoption of cloud computing, which mandates commercial models based on operational rather than capital expenditure. Such models have created uncertainty in a sector that has traditionally relied on fixed, pre-determined annual budgets with little room for flexibility.

The migration and refactoring of applications, and the potential incremental cost challenges that this can bring, are therefore front of mind for many public sector IT leaders. As the public sector continues to invest in digital transformation initiatives, leveraging technologies such as Cloud Health that help manage cloud costings, governance and performance will become invaluable.

Louise Fellows, Director, Public Sector UK&I at VMware

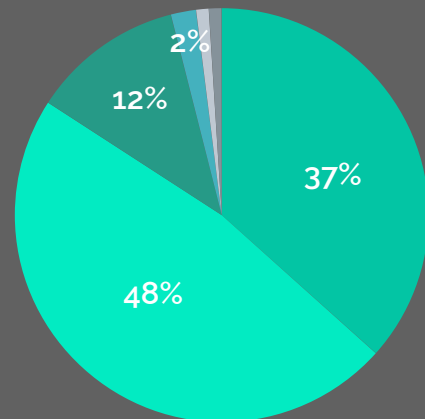


03. PUBLIC SECTOR RECOGNISES THE RISKS OF BECOMING OVER RELIANT ON CLOUD

85.2% agree that their organisation is reluctant to move workloads to the cloud due to risk and security concerns

The results show that concern over risk and security causes public sector organisations (85.2% of those surveyed) to cautiously move workloads to the cloud – with 90% of respondents in Defence & National Security agreeing that this is a concern.

Figure 5: My organisation is reluctant to move workloads to the cloud due to risk and security concerns

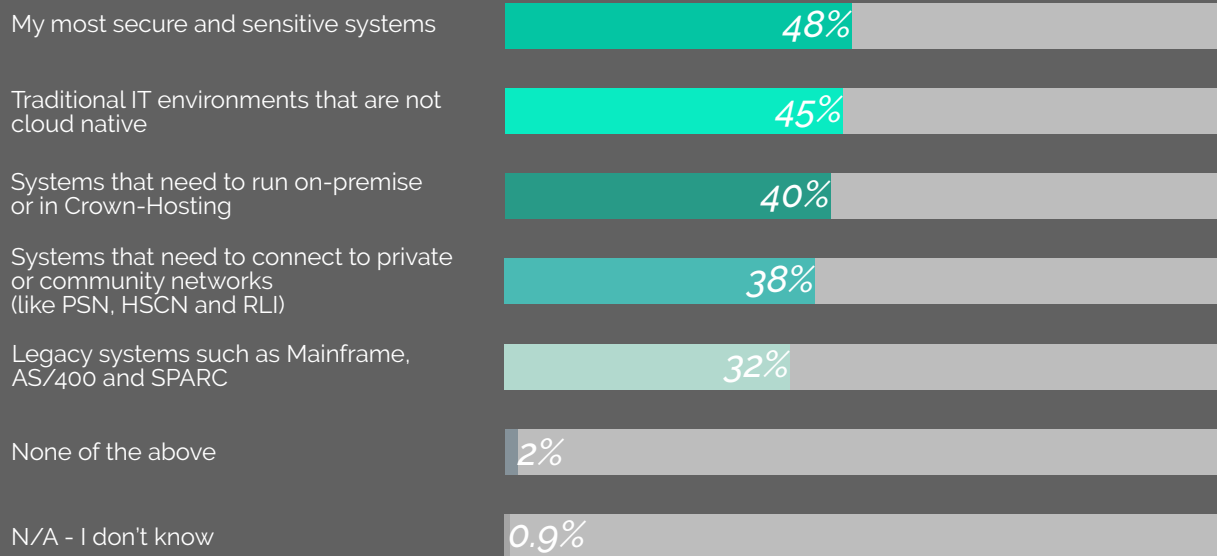


When we look to break down what organisations mean by 'risk' and 'security' we find the following.

In terms of risk, 72.7% of respondents agreed that "compliance is an ongoing struggle in my organisation", and there was broad agreement that "fear of failure" (73.7%), "Fear of vendor lock-in" (78.3%) and "Over reliance of one sole partner" (79%) each hinder broader cloud adoption.

In terms of security, Figure 6 shows that nearly half (48.7%) of those surveyed (rising to almost two-thirds of Local Authorities) would not consider using public cloud for their most secure and sensitive systems. In particular, respondents identified "systems that need to run on-premises or in Crown Hosting" and "systems that need to connect to private and community networks (like PSN, HSCN and RLI)" as those which they would not consider to use a public cloud for. This indicates demand for multi-cloud solutions which enable organisations to use private clouds and secure clouds for systems like these.

Figure 6: Which of the following would you NOT consider using Public Cloud for?



Attitudes towards cloud security continue to evolve as a result of an ever maturing set of technical, commercial and legal controls. Only a few short years ago, it would have been inconceivable to operate workloads such as those delivered by the Police National Computer in the cloud and yet today this migration is occurring. It is critical that our public services are protected so security concerns and risks shouldn't be dismissed, however there are now a wide range of mitigations available to help organisations take advantage of the huge benefits that cloud can offer.

Concerns when migrating to the cloud often stem from a loss of visibility. However, this issue is readily addressed through both cloud-native monitoring capabilities as well as solutions like Cisco AppDynamics, Tetration or Stealthwatch Cloud - providing deep insights across the application stack helping organisations manage not only cyber risk, but also operational risk.

With a multitude of cloud offerings in the market, there is apprehension about the ease with which workloads can be migrated between providers, or indeed how multiple providers can be utilised concurrently. The advent of multi-cloud solutions can mitigate the lock-in risk, allowing organisations to adopt a wide-range of providers without increasing operational complexity.

Cloud is unlikely to ever be a panacea, but it has delivered truly transformational benefits to the sector and is continually evolving to help de-risk adoption.

Mark Jackson, Principal Information Assurance Architect at Cisco Systems



04. LACK OF SKILL AND RESOURCE IS A SIGNIFICANT CHALLENGE

Organisations lacked the skills and resources, such as DevOps and automation, needed to both build (78.3%) and manage (77.31%) cloud-native applications

Figure 7a: My organisation lacks the skills (e.g. DevOps & Automation) and resources to build and operate cloud native applications



Figure 7b: My organisation lacks the skills to manage cloud native applications



The survey found that 83% of respondents agreed that "Skills and Resource levels" were a major impediment to cloud adoption – rising to above 90% in regions such as the North East and Yorkshire and the Humber.

79% of those surveyed agreed that "struggling to find the right professional skills hinders cloud adoption in my organisation". This rises to 81% in Health and Life Sciences and is a concern for 82% of the C-Level executives we surveyed.

The skills shortage seems particularly acute for cloud native capabilities with 78.3% of those surveyed agreeing that "My organisation lacks the skills (e.g. DevOps & Automation) and resources to build and operate cloud native applications to replace our existing applications". Despite this, 84% of respondents agreed that their organisation is more focused on developing new applications rather than optimising existing ones. It seems that many organisations are choosing the build new applications rather than to tap into the skills and resources inherent within specialist Software-as-a-Service providers. Further, there seems to be little consideration of 'lift and shift' solutions available from multi-cloud providers, as 85% of those surveyed agreed that "if there were dedicated cloud hosting technologies available that could mirror my existing environment, they would move more workloads to the cloud."

These results validate what Red Hat are experiencing directly from both our existing and prospective clients. Red Hat have known for some time that reducing costs, and becoming an enabler for adopting transformative technologies such as AI and smart cities, is a positive driver for cloud adoption. The counter view to this view was balanced by legitimate concerns over data security and the desire to not be locked into a single cloud provider.

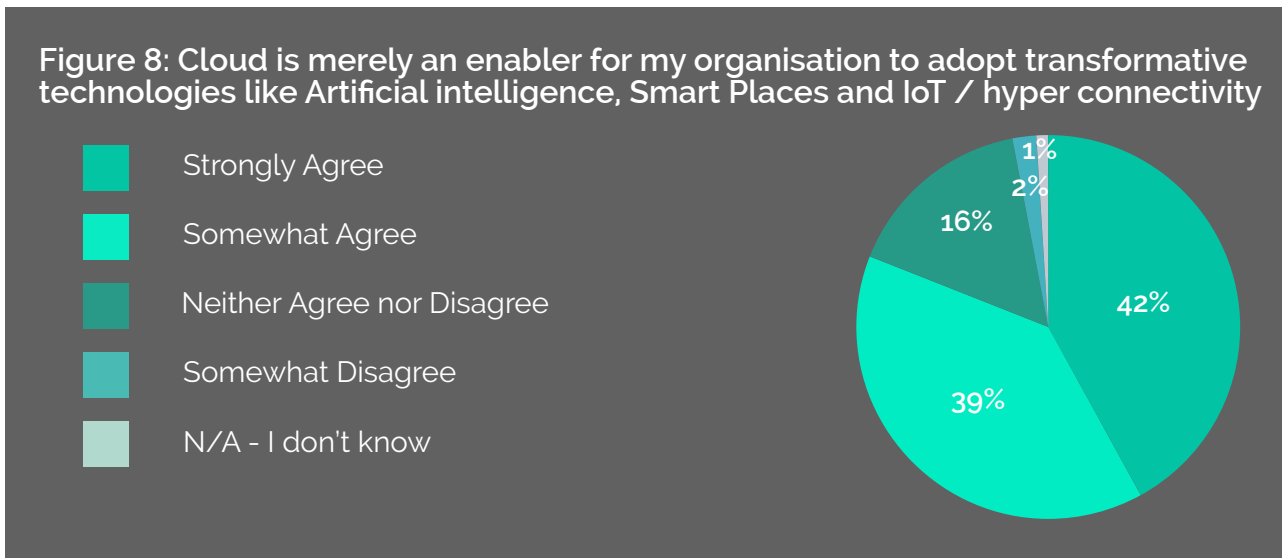
The view from a growing number of public sector leaders, globally, is that Digital transformation to deliver improved citizen services will be delivered though the adoption of open source technologies delivered on cloud infrastructure, these are a given! Where they ask for the most support is in changing the culture of the organisation, which includes having the right skills, mindset, structure and processes. This maps directly to (Key Finding 4) and is an area in which we are seeing tremendous growth. It is a particular challenge for public sector, which has traditionally operated in a top-down, command and control style. Cloud, agile development, the collaboration between developers, security teams and operations, to create DevSecOps functions fundamentally challenges the old world, and is fast becoming the "new normal" to rapidly deliver citizen facing, cloud native services.

Jim Craig, Senior Product Marketing Manager Public Sector, Red Hat



05. CLOUD IS MERELY AN ENABLER FOR BROADER TRANSFORMATION

Four in five respondents (80.9%) agree the cloud is an enabler for their organisation to adopt transformative technologies such as AI, smart places and IoT / hyper connectivity



Of those we surveyed, 90.9% of C-Level agreed that cloud is a key enabler whereas in senior management this decreased to 76% so businesses are not quite aligned – Those at the C-level are likely to be focused on the outcomes that cloud enables rather than selecting one cloud over another.

This percentage drops further to 69% in Central Government, but rockets to 100% in Critical National Infrastructure so it seems there is further misalignment or misinformation across communities within Public Sector or does this link directly to the skills, cost and risk and security concerns we discussed in earlier sections?

Could it be that those transformative technologies seem too far out of reach? As we mentioned in Figure 3 on page 6, that incompatible applications i.e. not cloud native are an impediment for cloud adoption and digital transformation for 77% of those we surveyed. Or perhaps it links directly to the lack of clear policy on cloud as we have shown in Figure 2 on page 5.

Despite the conflicting factors and differing opinions, its positive that four in five respondents can see the benefits of adopting cloud to enable these transformative technologies and drive better outcomes for citizens.

It's been many years since organisations first started to embrace digital transformation, with this openness to evolution and new ways of working now critical to maintaining competitive advantage in any industry. These digital journeys may have started a long time ago, but they are far from over: rapidly evolving business challenges mean that constant innovation and agility are the way forward. Look at the way AI and automation technologies are developing for evidence of this shift.

At the Cloud Industry Forum, we have been monitoring the adoption of cloud-based services across the UK for the past ten years. We have seen unprecedented change take place in that time, with many companies now realising the potential of cloud services helping them fulfil their digital transformation goals. That said, the role of cloud services in all of this is by no means clear cut and has evolved over the years just as much as the businesses themselves.

Building this understanding means not just looking at the current state of play in terms of cloud adoption, but also what businesses are trying to achieve from an IT perspective. The digital skills needed are more complex and demanding than ever before, and the sheer number of IT projects being carried out is growing at an unprecedented rate. A cloud led strategy must be at the heart of any digital transformation.

Alex Hilton, Chief Executive, Cloud Industry Forum



CONCLUSION

SO HOW DOES THE UK PUBLIC OVERCOME THESE BARRIERS?

More than 300 public sector organisations responded to our survey about the State of Cloud Adoption. There was a mix of business and technical responses, from a wide variety of organisations representing different sizes, different public sector communities and different regions across the UK.

87% of those surveyed expressed a desire to shift traditional IT environments into the cloud, if they could find the 'perfect solution'. And therein lies the problem. The survey found a real mix of technical and non-technical challenges that are impeding cloud adoption, maybe because they also preclude a single cloud (such as the hyperscale platforms) from being the perfect solution. Indeed, the survey found that whereas fewer than 1 in 5 expect to only use a single cloud, more than 55% expect to use multiple clouds.

"The challenges identified by this survey indicate that public sector organisations must embrace plurality and diversity in their cloud strategy. Multi-cloud is the best way to assemble the optimal mix of private cloud, public cloud and secure cloud services to suit their technical, commercial and compliance requirements. In order to drive the next wave of cloud adoption, the GovTech community is increasingly committed to simplifying hybrid cloud and cloud operations across multiple clouds and platforms."

Hence, we encourage public sector organisations to reframe the term 'Cloud' as a plural rather than a singular, as doing so opens solutions to each of these challenges:




Nearly 85% of organisations report cost & affordability as impeding cloud adoption. In our experience, much of that cost comes from recruiting expensive contractors with DevOps and Agile skills to build cloud native applications for the hyperscale platforms. And some of the cost comes from using the wrong cloud for each workload – for example 77% of organisations have traditional applications (non-Cloud Native) which don't run cost-effectively on a hyperscale cloud and often lead to cost over-runs. This could be why more than half of organisations believe that cloud is more expensive than on-premises for traditional applications. This may be true for hyperscale clouds, but not necessarily for multi-cloud/ private cloud which drive out the waste and inefficiency of traditional pre-cloud environments whilst avoiding the operational risk of rewriting existing applications.




There are also budgeting challenges related to the misalignment of CAPEX and OPEX. Public Cloud services are perfect for dynamic and elastic workloads where an organisation only wants to pay for what they use, when they use it. Hence, Public Cloud is well suited to OPEX budgets. But there 47% of organisations said that they find it easier to budget for CAPEX spend. Multi-cloud enables these organisations to invest in Private Cloud environments which are well suited to CAPEX budgets.



83% of organisations cited skills and capabilities as an impediment. More than three-quarters specifically face challenges building and operating cloud native applications which require new skills such as DevOps and Agile. These skills are necessary for Public Cloud, but multi-cloud helps organisations avoid this challenge by enabling them to carry forward existing skills and capabilities relating to established technologies (e.g. VMware and Cisco) whilst also moving to Software-as-a-Service clouds to tap into the skills and capabilities of specialist software businesses.



Nearly half of those surveyed said they wouldn't use Public Cloud for their most secure and sensitive systems. 40% ruled out Public Cloud for systems that they need to run on-premises or in Crown Hosting. And a similar number won't consider Public Cloud for systems that are connected to secure networks. In each of these scenarios, multi-cloud's mix of public, private and secure cloud environments (hosted or on-premises) would enable these organisations to reconsider and increase their adoption of cloud.



78% of organisations cite fear of vendor lock-in as an impediment to cloud adoption, and there is a slightly stronger concern about concentration risk (over reliance on one sole cloud provider). It is encouraging that public sector organisations are conscious of the commercial and technical risks becoming too dependent on a single cloud. Again, multi-cloud helps to spread risk and channel the competitive tension between competing cloud providers (IaaS, PaaS and SaaS) to drive innovation, improved service levels and better value for money.

Whilst the survey was focused on cloud adoption, it was in the context of the amazing potential for the future of public services in the UK. Adoption of cloud begins to knock down the silos that exist across the public sector and unlock precious resources and datasets that are key to driving better insights, delivering better outcomes and harnessing the innovation made possible by digital technologies such as artificial intelligence, IoT and mixed reality. Hence, by understanding the impediments to cloud adoption the UK GovTech community can work collaboratively to provide the diversity of solutions and skills that will help the UK develop world-class national capabilities – all based on nurturing our nation's precious data as a national asset.

By Leighton James, Chief Technology Officer at UKCloud

"The challenges identified by this survey indicate that public sector organisations must embrace plurality and diversity in their cloud strategy. Multi-cloud is the best way to assemble the optimal mix of private cloud, public cloud and secure cloud services to suit their technical, commercial and compliance requirements. In order to drive the next wave of cloud adoption, VMware is committed to simplifying hybrid cloud and cloud operations across multiple clouds and platforms."

Louise Fellows, Director, Public Sector UK&I at VMware

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ABOUT THE SURVEY

This survey was conducted by Censuswide, a specialist market research consultancy, on behalf of UKCloud. There was no inducement to take part in the survey and UKCloud was not introduced as the sponsor of the survey.

The survey was conducted via telephone interviews which were completed during December 2019. Survey respondents represented a broad cross-section of senior IT and Business Owner roles across UK public sector organisations larger than 250 people.

In total, 304 individuals completed the survey:

- 102 responses were in UK Government organisations (Central Government, Local Government, Policing, Education)
- 102 responses were in Health and Life Sciences organisations
- 100 responses were in Defence and National Security organisations

Of the 304 responses:

- 147 responses (48%) were from senior IT professionals
- 157 responses (52%) were from business leaders

In terms of the sizes of organisations that completed the survey:

- 99 organisations employed between 250 and 499 staff
- 154 organisations employed between 500 and 999 staff
- 51 organisations employed more than 1000 staff

Responses came from all regions of the UK including England (93%), Scotland (4%), Wales (2%) and Northern Ireland (1%).

ABOUT UKCLOUD

UKCloud was formed in 2011 to create the first accredited public cloud platform for the UK public sector. It has been an approved Crown Commercial Services supplier since the inaugural G-Cloud framework and worked with the National Cyber Security Centre on the introduction of the Cloud Security Principles. UKCloud has supported hundreds of digital transformation programmes; from the original GDS digital exemplars to large scale shared services platforms across the entire public sector – including defence, health, policing, central government and local authorities.

UKCloud provides the assured, agile and cost-effective multi-cloud platform that enables public sector organisations to deliver enhanced public services through better use of technology. The UKCloud platform is supported by more than 300 partner organisations including global System Integrators, Solution Providers and Software-as-a-Service providers.

UKCloud delivers a comprehensive portfolio of cloud services; from advisory and assessments, through cloud migrations to cloud & cyber operations spanning on-premises, Crown Hosting and public cloud.

We believe in multi-cloud. Because there is no single cloud that delivers the choice and flexibility you need to support your diverse workloads, skills and tools, without compromise

We are open you're never locked in. Because public sector deserves to benefit from plurality, competition and flexible commercial terms

We accelerate your safe passage to cloud. Because our UK experts have unrivalled experience of delivering government grade multi-cloud solutions

We enable collaboration within communities. Because the ability to access, share and reuse promotes maximum innovation and efficiency

Additional information about UKCloud can be found at www.ukcloud.com or by following us on Twitter at @ukcloudltd



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UKC-GEN-432