



**ENHANCING PUBLIC
SERVICE DELIVERY
WITH MODERN
CLOUD ANALYTICS**



A CITIZEN-CENTRIC APPROACH

Cloud analytics technology can help the public sector gain faster and smarter insights into its huge quantities of data, in turn enabling it to enhance public services by focusing its increasingly stretched resources where they are needed most

The public sector is always being asked to “do more with less”. At a time of global belt-tightening, inflation and spiralling energy costs, with growing pressures on essential services such as education, health and social care, this remit has never been more true.

The Covid-19 crisis meant many citizens turned to online and mobile channels for their public services. Now that restrictions have eased, expectations have been set that government organisations will continue to accelerate the transition to being digital-first.

However, many public bodies have a complex mix of systems and processes that make digital transformation particularly difficult. This exacerbates the challenges of turning the vast quantities of data into better public service delivery.

Nonetheless, IT leaders in the sector realise they need to take advantage of technologies

such as cloud and self-service analytics, augmented with machine learning (ML) and artificial intelligence (AI), to become more efficient through a citizen-centric approach that can put resources where they will make a difference to people’s lives.

The public sector data challenge

In many public sector organisations, legacy systems cannot cope with the exponential rise

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public sector, EMEA region, Tableau

in data and are incapable of analysing data efficiently to extract business insight and value.

Boris Grantcharov, partner solutions architect at Amazon Web Services (AWS), says the data challenges this brings are only growing. Historically, the focus on data management was around three aspects: volume, velocity and variety, he says. But even that is no longer enough.

“Data challenges are now linked to volume, velocity, variety, security and process – and also come in the face of a skills shortage,” explains Grantcharov.

In the past, batch processing of data overnight was acceptable, but citizens accustomed to the experience of using digital private sector services expect capabilities that can be delivered only by near real-time data integration. All too often, technology and processes in public organisations with limited budgets struggle to support those expectations.

“It used to be acceptable to open an Excel flat file as the easiest way to access information. But now you can’t open Excel in the first place because the data volume is so big, it is not readable, and bigger than a human is comfortable with. We need a better approach, tools and storage,” says Grantcharov.

Public bodies also tend to be organisationally siloed – specialist departments focusing on particular citizen services – which leads inevitably to data silos.

“Data silos exist across regions and between regional and central government as well as within departments. The exchange of data is uniquely hard and lacks good data taxonomies,” says Francois Zimmermann, field chief technology officer for Europe, Middle East and Africa (EMEA) at Tableau Software.

Healthcare organisations, such as the UK’s NHS, offer an example of the data challenges organisations are grappling with, says Rita Tenan, area vice president, public sector, for

the EMEA region at Tableau. “The NHS has thousands of systems that are a variety of ages, which is a challenge when trying to build a single patient record. But the data challenge is not just a collection problem – it is trying to get a 360°, joined-up view of the citizen and all the services they engage with,” she says.

A modern data-driven approach is also difficult for organisations that operate in a traditional in-house datacentre, where projected data increases of 10-15% a year make forecasting future workloads a challenge, bringing uncertainty around resource levels and hardware needs.

Furthermore, the specialist skills required for analytics and data science are in high demand – and typically with the private sector offering better salaries. The public sector needs a smarter way to access the resources and skills it needs.

The data opportunity

Data transformation requires better analytics to empower the workforce to make informed decisions, from the back office to the executives driving policy decisions, all the way to the frontline workers. Public bodies can deliver a consistently excellent experience by finding opportunities to modernise services. This is only possible through integration of data and pulling it into a single source to get a full view of the citizen.

“For the public sector, it is important to be able to demonstrate what technology can provide in a simple yet efficient way and continuously show the art of the possible. The public sector has so much valuable data that adopting a strategy and tools that are outcome-based can make a near-immediate difference,” says Tenan.

“In the private sector, if you don’t deliver outcomes and are not competitive, you fail. If the public sector focuses on a data strategy to implement successful projects, they can be much more innovative, transparent and provide

the value in each service that citizens and businesses systematically expect.”

The public sector is moving away from a historic approval-based waterfall approach, where years-long projects hope to build a data lake to answer every question, only to find new questions it cannot answer. Instead, organisations need to adopt agile approaches, aiming towards an end goal, where the return on current and future data assets can be maximised.

“The public sector can find new ways of working with data. It doesn’t have to get all

the data together before getting value,” says Zimmermann.

In contrast, modern cloud analytics from AWS and Tableau provides the public sector with the flexibility and scale it needs to make better use of its data.

“AWS offers a variety of services that abstracts the public sector from the technical challenges and does the heavy lifting of setting up infrastructure and machines and buying licences. With less technical in-house experience, you can get to the same level of activity quickly and

CASE STUDY: NHS DIGITAL

When the Covid-19 pandemic hit the UK, NHS Digital’s open data and visualisation team needed to quickly gather, analyse and share data for rapid decision-making, policy creation and to inform the public.

NHS Digital worked with AWS and Tableau to ask the key questions to drive the project and the two suppliers together enabled rapid scaling of resources.

AWS was used to store and process the data, with Tableau providing the means to analyse and visualise the data and insights in the form of dashboards for the relevant stakeholders.

Before the availability of mass Covid testing, secure and anonymised data from people reporting symptoms was used to visualise how the virus was spreading and to identify hotspots to prepare public health services in those areas.

“In just nine days, the first dashboard went live by focusing on a few high-value questions that every citizen needed to answer,” says Francois Zimmermann, field chief technology officer for Europe, Middle East and Africa at Tableau Software.

Post-pandemic, the focus moved to repeatability rather than firefighting. “The lesson learned is how to deliver value in short cycles. As more datasets are integrated, data strategy evolves into something more than a bunch of independent projects,” says Zimmermann.

A modern cloud analytics platform with the capabilities to scale and to provide agility and elasticity, alongside a shift in culture towards democratisation of data, was key to success.

“Decentralisation of empowerment with lots of people able to self-service and not wait for approval is vital,” says Zimmermann. “Public sector organisations, like NHS Digital, that are committed to building a data culture, can expedite and benefit from modern cloud analytics.”



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don't have to maintain infrastructure and software in the background," says Grantcharov.

AWS and Tableau working together

AWS and Tableau together offer democratisation of data, in a secure and compliant environment, with access privileges in place, so the public sector can do more with less, faster and more efficiently.

Tableau integrates with AWS services through direct connections to Amazon data sources, including Amazon Redshift, Amazon Aurora, Amazon Athena and Amazon EMR. Tableau provides a platform for analysing the data on AWS in an environment that does not compromise data integrity, governance or security.

For example, Amazon SageMaker for Tableau takes advantage of ML and AI for the public

sector to forge ahead with insight from data, with an easy-to-deploy integration using Quick-Start – automated reference deployments built by AWS.

When looking at the five data challenges of volume, velocity, variety, security and process, the combination of Tableau on AWS is compelling.

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Boris Grantcharov, partner solutions architect, AWS

“We deal with all five items from each side of the coin. AWS handles massive volumes of data and different formats, while Tableau creates the visualisation and ability for individuals to interact with that data. Both offerings have a responsibility to work together and are best in class, which is why our partnership is so successful,” says Grantcharov.

Data is ingested, classified and cleansed and can be easily visualised and interrogated by business users to extract insights in a secure environment.

Security and compliance

A data-driven public sector must keep security and privacy as a priority and follow all legislation and compliance rules. While access to data must improve, it is essential to ensure the right access levels and privileges remain in place.

AWS is architected to be the most flexible and secure cloud computing environment available today, with SOC1, SOC2, SOC3 and PCI DSS Level 1 compliance. Tableau’s enterprise-grade security and governance models keep data in the right hands at all times. Together, they provide secure and scalable cloud analytics without compromising data integrity, governance or security to enable democratisation of data.

“As data is democratised, it becomes a bigger challenge,” says Grantcharov.

“Instead of two departments requiring access, we now have 50 departments. In an ideal world, everyone who needs data to make decisions should have the right to see it and be able to innovate and create business value based on data sharing. It is key to increasing productivity and the way resources are allocated to what needs to be done. Otherwise, it is a struggle to see what needs most attention and for the workforce to prioritise the things that matter.”

In a data-driven public sector, where public concerns over data privacy are paramount, it is

vital to have all the consents in place around the personal information of citizens.

“The EU has the notion that every citizen should be able to view the data about them. Consent management and sharing data with citizens is critical. The flip side is that you also need mechanisms in place to reduce the risk of data leaking,” says Zimmermann.

He suggests that anonymising data should be the default in the public sector, unless there is a strong requirement to view details. “We are talking about privacy by design. Most public sector organisations are interested in the cohort – not the individual. In healthcare, planning beds or planning capacity is at the cohort level, for example,” he adds.

“It is important for people at the front line to have data embedded in applications on a daily basis, so data is closer to where the decision is being made”

Rita Tenan, area vice president,
public sector, EMEA region, Tableau

Not only does this practice of transparency keep government departments accountable, it also promotes a culture of trust between the government and the people it serves.

Improving services through automation

By dealing with data challenges head on, the public sector can automate elements of citizen-facing services to free up its internal workforce to focus on people with the greatest need.

“The public sector can find opportunities to deliver citizen-centric services so it can focus

time and resources on innovation rather than mundane drudgery. But to do this, you must have your house in order with data sourced and classified,” says Grantcharov.

“To have a 360° view of the citizen is a challenge for the public sector everywhere. People should be able to serve themselves with citizen-centric, end-to-end services in the digital space with minimal effort and no human intervention required. This means deploying technologies such as AI and ML.”

The way forward

By adopting modern cloud analytics, the public sector can get more business value from its data, in less time, to focus on what really matters.

“There is a transformation and cultural challenge in leaving a comfort zone, and people have to all move in the same direction, but the public sector has the opportunity to do more for its citizens with its eyes opened to a new world of possibilities,” says Grantcharov.

By developing the mindset to ask the key questions it wants answered for outcome-based projects, the public sector can establish a successful data culture.

“Make sure datasets are reusable for the next project, so you only have to integrate once. It is important to define datasets and taxonomy and to aim for reusable connectors and datasets that can be easily combined for self-service,” says Zimmermann.

Public sector decision-makers working with AWS and Tableau can log on to Tableau and explore data assets through visualisation, and with the power of AI they can work out hypotheses around datasets.

“I do not see data as an IT topic. I see data as a mission topic. If we start looking in that direction, data takes on a different meaning and a different journey – it becomes the foundation for

better services, more efficiency, transparency and a better citizen outcome overall,” says Tenan.

It is critical that everyone in the public sector who needs access to data has it – with the correct permissions in place.

“Connected data and connected pathways means data can be leveraged and the public sector can work as an ecosystem”

Francois Zimmermann, field chief technology officer for EMEA, Tableau Software

“Democratisation of data is outcome-driven and the data element needs to permeate from the top down as much as the bottom up,” says Tenan.

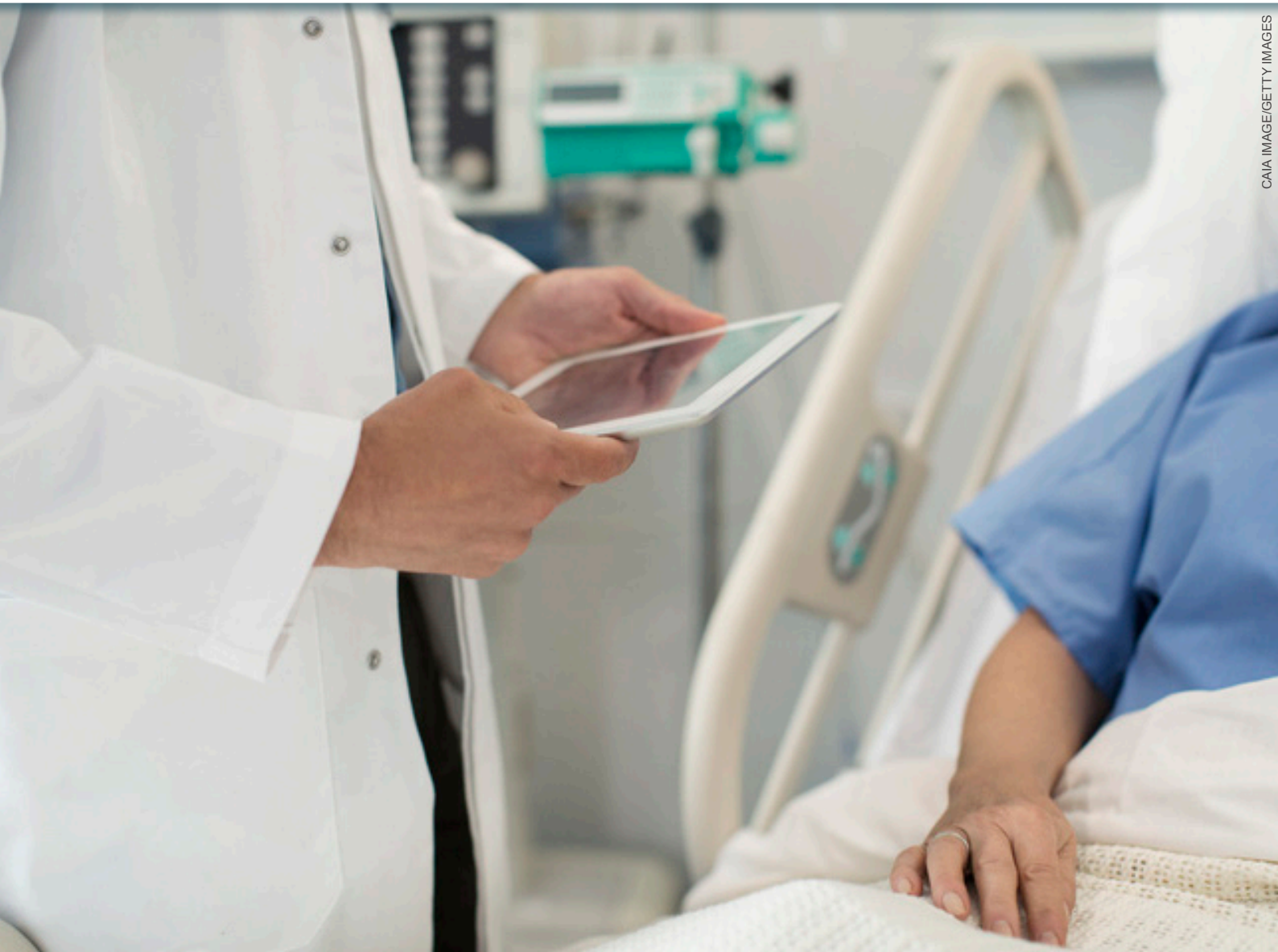
“For example, the justice department might want to know about the case backlog, or the health department might want to know about the number of beds available. It is important for people at the front line to have data embedded in applications on a daily basis, so data is closer to where the decision is being made.”

Conclusions

As the public sector gets to grips with the opportunities from leveraging value out of data, it can benefit from data sharing, visualisation and disseminating best practice.

“There are three pillars to creating a data culture: the platform, education and community. Use cases expand from within departments to different departments from top down and bottom up and value becomes obvious,” says Tenan.

Data champions must be allowed to lead, in parallel with building a data strategy that is



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pragmatic and encourages innovation to bring real benefits to citizens and society.

Data champions and practitioners also benefit from engaging and learning from the community. Tableau Public, for example, offers a free platform to explore, create and publicly share data visualisations online.

“Citizens need joined-up journeys and for that the public sector needs to have the data at the right level,” says Zimmermann. “It is possible to see the availability of core resources to deliver real economies and prevent problems such as bed blocking, where an expensive service is traded for a relatively cheaper service because there is no joined-up perspective between

the hospital and social care. Connected data and connected pathways means data can be leveraged and the public sector can work as an ecosystem.”

The public sector is starting to realise the value of data and is moving in the right direction, so governments can be proactive and predictive. Data lies at the heart of improved public services by providing transparency, value and outcome-based solutions.

Together, AWS and Tableau drive secure and rapid analytics across the public sector, resulting in richer, faster, smarter insights for better decision-making – and improved welfare for citizens.