

Water Industry

Benefits of moving to Cloud technology

Prepared for
Water Sector Organisations

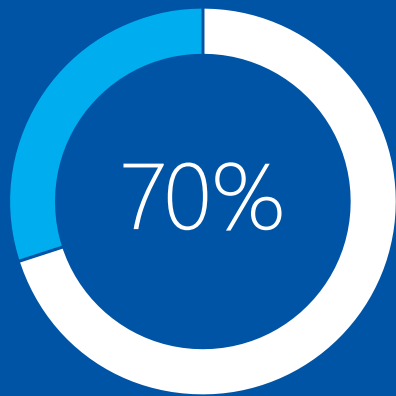


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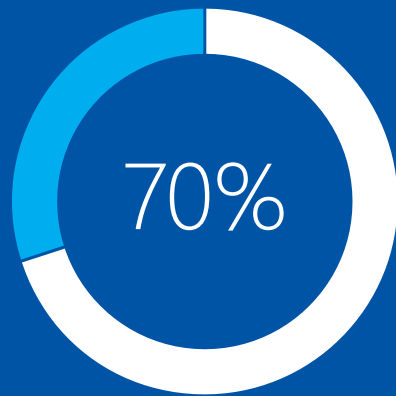
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Executive Summary

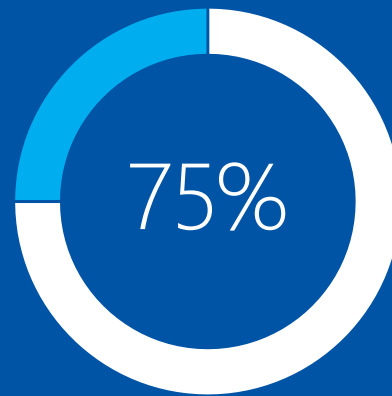
The cloud is becoming widely accepted across most industries – a few statistics that articulate this:



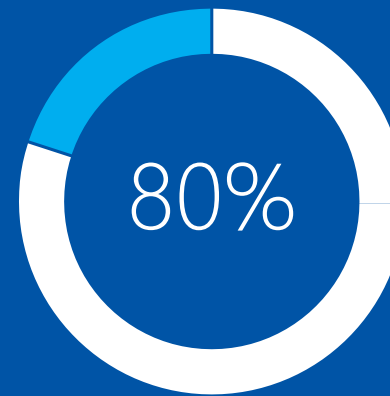
70% of organisations are using or investigating cloud computing solutions.



70% of CIOs will embrace a 'cloud first' strategy by the end of 2016.



Millennials will make up 75% of the UK workforce by 2026. They have grown up relying on cloud services for social interaction and gaming and expect the same in a work environment.



Traditional on-premises data storage is four times the cost of cloud data storage and it is predicted that the amount of unstructured data will grow by 80% in the next 5 years.



1.3 billion

The world's mobile population will reach 1.3 billion people this year. There is growing expectation that users can work 'anywhere, at any time, on any device' for both work and personal activities.

Cloud momentum continues to accelerate



"By 2020, a corporate 'no-cloud' policy will be as **rare** as a 'no-internet' policy is today"¹



"The question is no longer: 'How do I move to the cloud?' Instead, it's 'Now that I'm in the cloud, how do I make sure I've **optimized my investment** and risk exposure?"²



"By 2020 clouds will stop being referred to as 'public' and 'private'. It will simply be **the way business is done** and IT is provisioned."³

¹Gartner: [Smarter with Gartner, Why a No-Cloud Policy Will Become Extinct, February 2, 2016](#)

²KPMG: [2014 Cloud Survey Report, Elevating business in the cloud, December 10, 2014](#)

³IDC: [IDC Market Spotlight, Cloud Definitions and Opportunity, April 2015](#)

Moving to the cloud is part of Digital Transformation

Water sector organisations have started their Digital Transformation journey but will need to accelerate to deliver benefits in AMP 6 and beyond.

These benefits include increased customer engagement, improved workforce enablement and more efficient operations.

Here are some typical challenges:

Digital Customer

- How are customer preferences and behaviours changing?
- How does Digital Transformation address the expectations of a water customer?

Digital Workforce

- How does Digital Transformation improve workforce productivity?
- How can we measure the increase in productivity and business benefits?

Digital Assets

- How does Digital Transformation improve operational efficiency?
- How can Predictive maintenance reduce costs and improve longevity of assets?

There are a number of benefits that a move to the cloud will provide

➔ **Reduction in costs.** Cloud technologies provide the ability to 'pay for what you use'. Cloud technology allows for a quick start to projects without the initial spike in setup costs; compute power can be scaled up or down on demand; and prototypes can be provisioned for a 'fail fast' ability.

➔ **Improved Security.** Cloud providers invest vast sums of money in creating a secure environment for customers' information. Microsoft has invested \$18B on the cloud so far. Customer expectations are maturing and they expect online (cloud) interactions for enquiries, services updates and real time interaction with organisations. Almost everyone already relies on cloud services every day, for example: online banking tax return submission, retail purchases.

➔ **Business Agility.** The cloud allows for rapid deployment of products providing companies with the ability to respond to new opportunities quicker. It lessens or removes the requirement to manage IT infrastructure.

➔ **Reduction in IT maintenance** through 'Evergreen' environment. Cloud suppliers constantly upgrade their infrastructure through small updates which are mostly transparent to their customers, removing the need for companies to carry out expensive and time-consuming upgrades every few years.

➔ **Build on existing IT investment.** Cloud technologies can be used to provide additional capabilities to build on current IT investment.

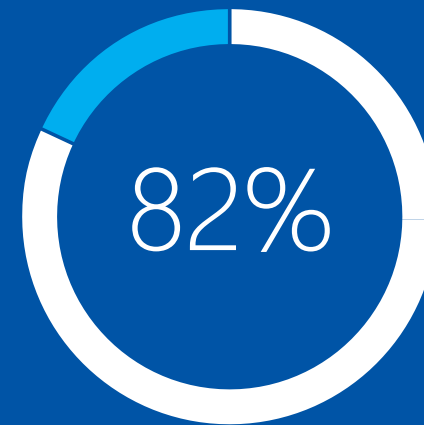
Adopting the cloud does not have to be a 'big bang' project, and does not have to cover the whole enterprise

→ You could choose a hybrid approach where new products (workloads) are delivered in the cloud and interact with the existing on-premises products and data.

→ You could move existing applications from your datacenter into the cloud one-by-one, gradually freeing up your data centre operatives to work on new projects to drive increased innovation.

→ You could use the cloud computing capability to gain insight from data already being held within the company. For example: detecting trends through the telemetry data that water companies gather every day.

→ You could use the cloud to speed up development and testing. It is straightforward to create test environments for building new, or enhancing existing, products. These can be moved to production environments or deleted once development and test are completed.



82% of Fortune 500 companies have purchased Office 365 in the past year

Cloud benefits for Utility organisations

By moving to the cloud there will be increased demand on OPEX. This aligns with water industry conversations on the benefits of moving to a TOTEX model. The cloud can assist in delivering on more outcomes-based measures, help with innovation and can be measurable across a number of criteria, such as improved efficiency and cost savings.

There is a wealth of information published by many organisations that is stored in, and accessible via, the cloud that could be of use for the water industry, e.g. rainfall, climate modelling, population demographics. Advances in cloud technologies such as Machine Learning enable the analysis of huge amounts of data from a variety of sources to assist in the detection of trends and enable better forecasting of events.

Bain & Company have published a document called *'Adapt and adopt: Digital transformation for utilities'*.

The introduction says:

"Utility executives are accustomed to planning 5, 10 or even 20 years out. But now many find themselves learning to move at a faster pace to keep up with digital technology. Bankers, retailers and media executives are already a decade into their industries' digital transformations.

Now, as digital innovations take root in the power sector – things like online customer engagement, smart sensors and better use of analytics – utilities are beginning to adopt and adapt, motivated by a range of forces, including digitally savvy competitors, new regulations, innovative business models and evolving consumer preferences."

[Read the full document here.](#)

Sample Business Benefits

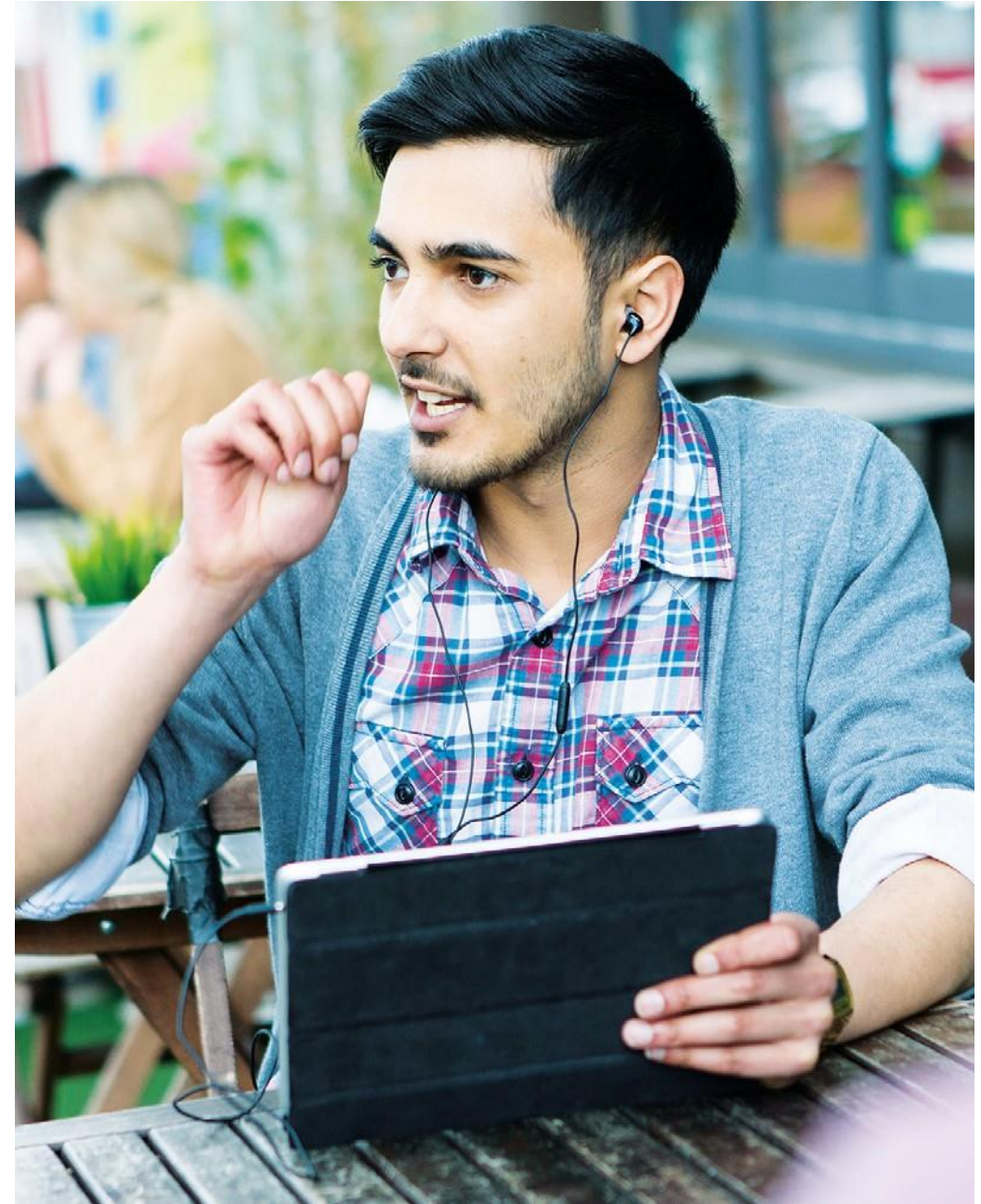
This section provides examples of how cloud technologies could bring tangible business benefits to water sector companies and their customers.

Smart Meters

With the increase in metering within the water industry, there is a real opportunity to gain more interaction with customers through cloud-enabling the information collected from automated or smart meters.

By offering customers a way to monitor their own usage in (near) real-time and to control their usage and costs, water companies can improve customer satisfaction and achieve water-usage reduction targets at the same time. With the impending likely opening of the domestic market to competition in the coming years, it is important for water companies to build a relationship with their customers where customers feel they are benefiting from being with that particular water provider.

Providing customer with visualisation and control of their usage, on their chosen device, could be a game-changer.



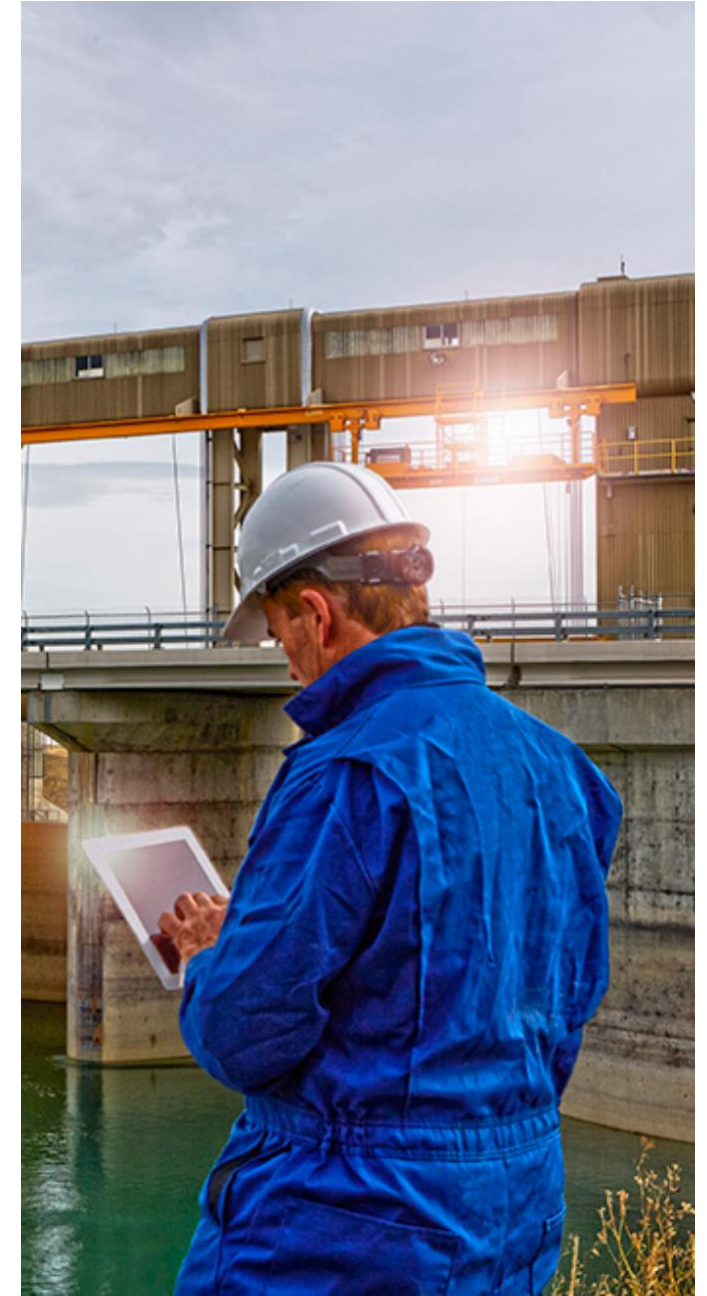
Increased Productivity and Collaboration

Work anywhere, at any time, on any device.

Every day engineers and other field-based workers deal with a wide variety of issues, from visiting domestic properties, to maintaining and upgrading infrastructure in remote environments, to dealing with emergencies such as water leakages.

Information and data exchange can be difficult, especially given some of the connectivity issues experienced today, but with online and offline app capabilities, cloud technologies can bring many benefits, such as:

- The ability to access, review and amend CAD drawings in real-time
- Engineers' ability to take photographs or videos of issues and identify potential resolution in real-time
- Dynamic updating of work schedules and job status
- Ability to search a knowledge-base to see if a particular issue has occurred before and how it was resolved
- Creation of best practice recommendations based on experience
- Options for real-time collaboration between colleagues on problems onsite, allowing a better chance for First Time Fix.



Predictive Maintenance and Remote Monitoring

The ability to analyse and visualise massive quantities of data collected by sensors and pumps, and to combine that with historical information about assets, enables Proactive, Predictive and even Prescriptive maintenance scenarios.

Understanding likely timescales for component failure – for example predicting pump failure in real-time – helps to reduce maintenance costs, increase staff productivity and improve customer satisfaction.

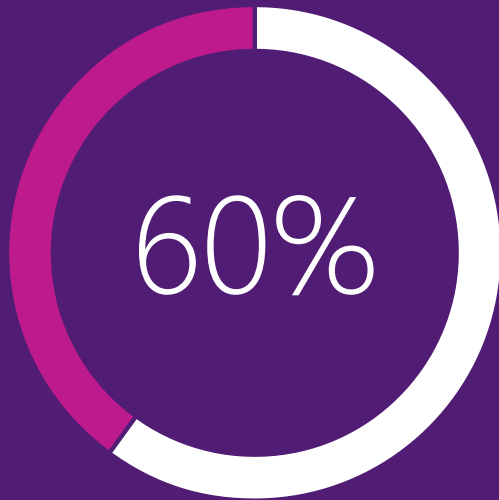
The ability to collect some of this information remotely also enhances the Health & Safety position for the workforce, as assets may not have to be visited so frequently.

Another example could be for flood defence – sensors could detect heavy rain, rising water table, rising river levels etc., providing insight to allow route closures or diversions.



Mobility

Smartphones and tablets have become the new norms of computing.



More than 60% of people now have three or more connected devices. Applications are expected to work well on these mobile devices for different needs. Users of mobile devices include sales people onsite with a customer, an engineer in the field, a plant manager at a treatment site etc.

However, there are challenges with supporting this modern, and increasingly mobile, way of working, such as:

- **Security risks:** How can you control your users' access to corporate data and applications to ensure that security and compliance is maintained?
- **Access issues:** How can you ensure that your users any of their devices from different locations in a seamless and integrated way?
- **Device management:** How do you maintain control over the mobile environment should phones or tablets be lost or compromised? How do you ensure all the devices are compliant and up-to-date?
- **End-to-end productivity:** How do you ensure that your users have a familiar set of productivity tools to help them seamlessly stay in sync with their documents, content and colleagues?

Addressing Mobility Concerns

- **Device Management.** It is important to safeguard access to data and applications while meeting user demand for a simple sign-in process. Device management delivers strong authentication with a range of easy verification options – phone call, text message, or mobile app notification – allowing users to choose the method they prefer.
- **Work anywhere, anytime, on any device.** Many modern productivity tools allow users to work anywhere, at any time, on any device by storing data in the cloud. The data can be accessed directly or (subject to permission) through a web browser. For example, some field workers have to contact HQ at regular intervals to ensure their personal safety. GPS location and heartbeat can be tracked using mobile devices and sent back to HQ via the cloud.

- **Bring your own device.** The increasing volume of 'bring your own device' (BYOD) and corporately-owned devices being used in organisations today, require a corporate strategy in order to manage their use. Executives, who are constantly on the move, or office-based workers may have the flexibility to use their own devices for work activities, whereas field workers often have mobile devices provided to them by the company.

Connected vans (those that have their own WiFi hotspot) would provide the ability for field workers to be in constant contact with HQ and allow for two-way communication of data.

Microsoft provides guidance at the following site:

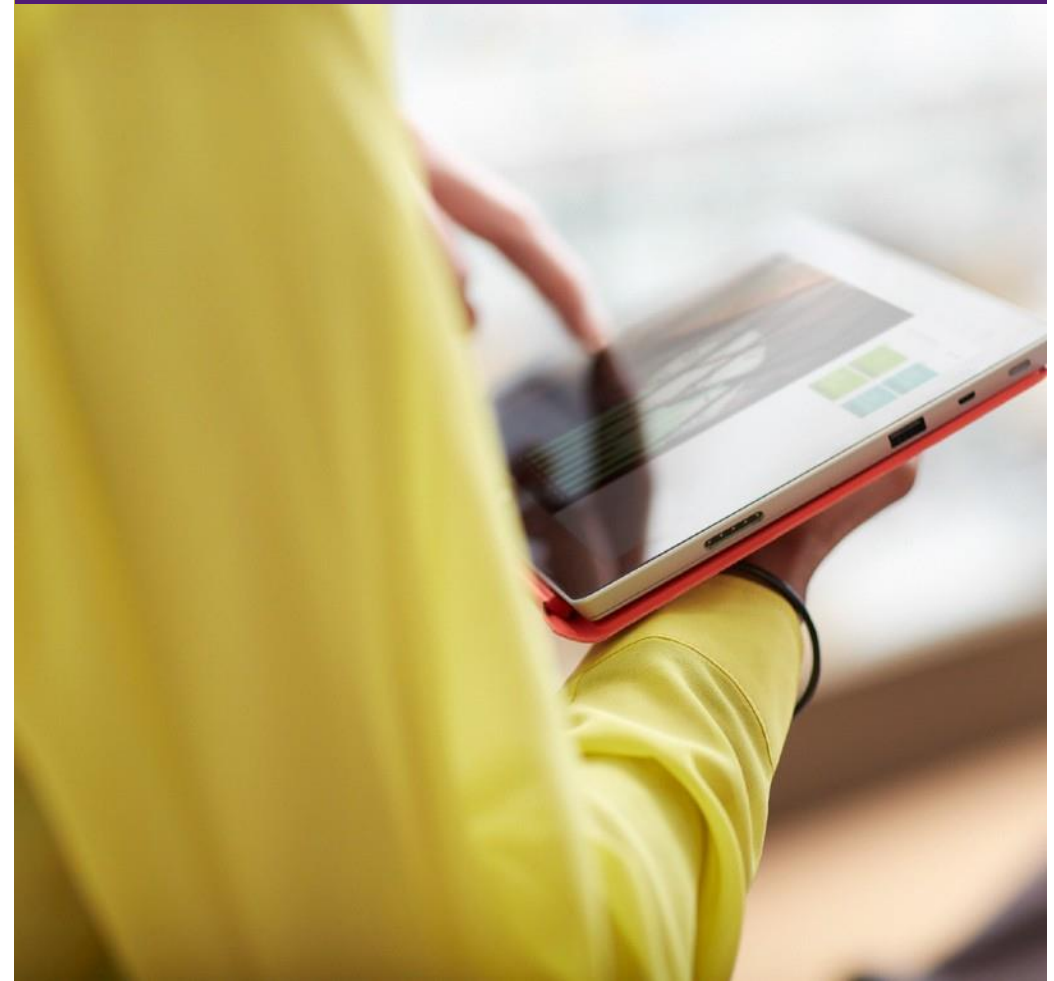
<https://azure.microsoft.com/en-us/services/security-center/>

Line of Business Applications


There will inevitably be a number of existing Line of Business (LOB) applications, such as billing or customer contact systems, that need to work in, or be migrated to, a new cloud environment. It is likely that companies have a major dependency on these products but do not have the time or budget to redevelop them for a cloud environment. Cloud providers have a variety of tools and processes to help with this, such as enabling the cloud infrastructure to extend into the customer's current on-premises physical environment – this is the Hybrid Model.


There are also likely to be requirements for current LOB applications to integrate with a variety of existing or external cloud services. Most cloud providers have a variety of tools and industry-wide interfaces to enable integration.


Rather than these LOB applications blocking a move to the cloud for the entire company, you may be able to host them in a Virtual Machine, on a cloud environment, or enable cloud-based products to interface to these applications in a Hybrid Model.




Line of Business Applications

 **Predictive scenarios.** Capabilities such as Data Analytics and Machine Learning help to simplify manual tasks and provide additional insight. Integration to third-party information such as the Weather Forecast data from the Met Office add more insight in forecasting and predictive scenarios. Adding sensors providing additional data streams through the Internet of Things (IoT) can bring even more insight – as well as providing additional alert / alarm and control capabilities. These sorts of cloud enabled systems are essential to gain the operational efficiencies needed in AMP 6 and onwards.

 **Mobility.** Connectivity is often an issue and companies are looking at new ways to help achieve it. In addition to the use of Connected vans and other wi-fi hotspots, companies are looking at the reuse of the 'TV White Space' spectrum for long range WiFi. This could help with remote monitoring as well as improving connectivity for workers at remote sites.

 **Make information available.** OFWAT requires water companies to collect, store and make information available on a regular basis. If water utility companies stored information in a cloud environment and made it available this would make it easier for OFWAT to detect trends across the industry. OFWAT could compare data from Water utility companies and other organisations, store the data in the cloud, analyse the data against various criteria and share the results more widely.

 **Sustainability.** With the combined needs to reduce operational costs, drive efficiency and reduce CO₂ emissions, many water utilities are turning to renewable energy sources such as solar panels, wind turbines, anaerobic digestion, etc. By monitoring these via the cloud and using weather data, production flow data and other relevant data sources, renewable energy usage can be optimised and traditional energy usage minimised.

Line of Business Applications

➔ **Better customer engagement.** Storing information in the cloud will enable the water companies to understand individual customer usage and detect trends, which will help future forecasting and reduce the number of incoming customer calls thereby improving Service Incentive Mechanism (SIM) scores.

➔ **Online booking tool.** Customers could use an online tool to book an engineer visit. The customer could select a date with a time window for their convenience and have it confirmed immediately.

➔ **Online chat.** Customers could interact with a specialist to answer questions or diagnose simple problems. For example, if a customer has an issue such as a blocked pipe, the underlying issue and possible quick fix could be identified, thus avoiding the need for an engineer visit.

Chatbots could also be used to improve immediate response times and reduce the need for direct specialist interaction.

➔ **Ability to log a fault online.** Customers could have the opportunity to log an issue via an online form, allowing the company review and provide a response, via the customers preferred contact method.

➔ **Social engagement.** There is frustration in the water industry that messages around water conservation and efficiency are not landing effectively with consumers. Social Listening tools can be used to give companies earlier visibility of issues, understand customer sentiment and help evaluate the impact of individual PR / advertising campaigns against budget spent. They can also be used to make customers aware of an event, such as local flooding. Customer posts/tweets can also act as an informal early warning system of problems in their local area.



General Cloud Benefits

Cloud benefits align with the overall business strategy of water sector companies



Get more done. Integration tools, pre-built templates and managed services make it easier to build and manage enterprise, mobile, web and apps faster.



Compliance. Microsoft and certain other cloud suppliers have committed to comply with current standards and security requirements.



Extend existing IT. A hybrid cloud solution can give companies the best of both worlds: more IT options, less complexity and cost, and the ability to integrate with existing IT.



Make smarter decisions. The cloud provides the ability to make smarter decisions, improve customer service and uncover new business possibilities from your structured, unstructured and real-time data.



Prototyping. Development and testing environments can be created in a matter of minutes, used and then taken down on completion of the project.



Scale when you need to, pay as you go. 'Pay as you go' services can quickly scale up or down to match demand, so you only pay for what you use.



Protect your data. Microsoft and certain other cloud suppliers have committed to comply with EU privacy laws.

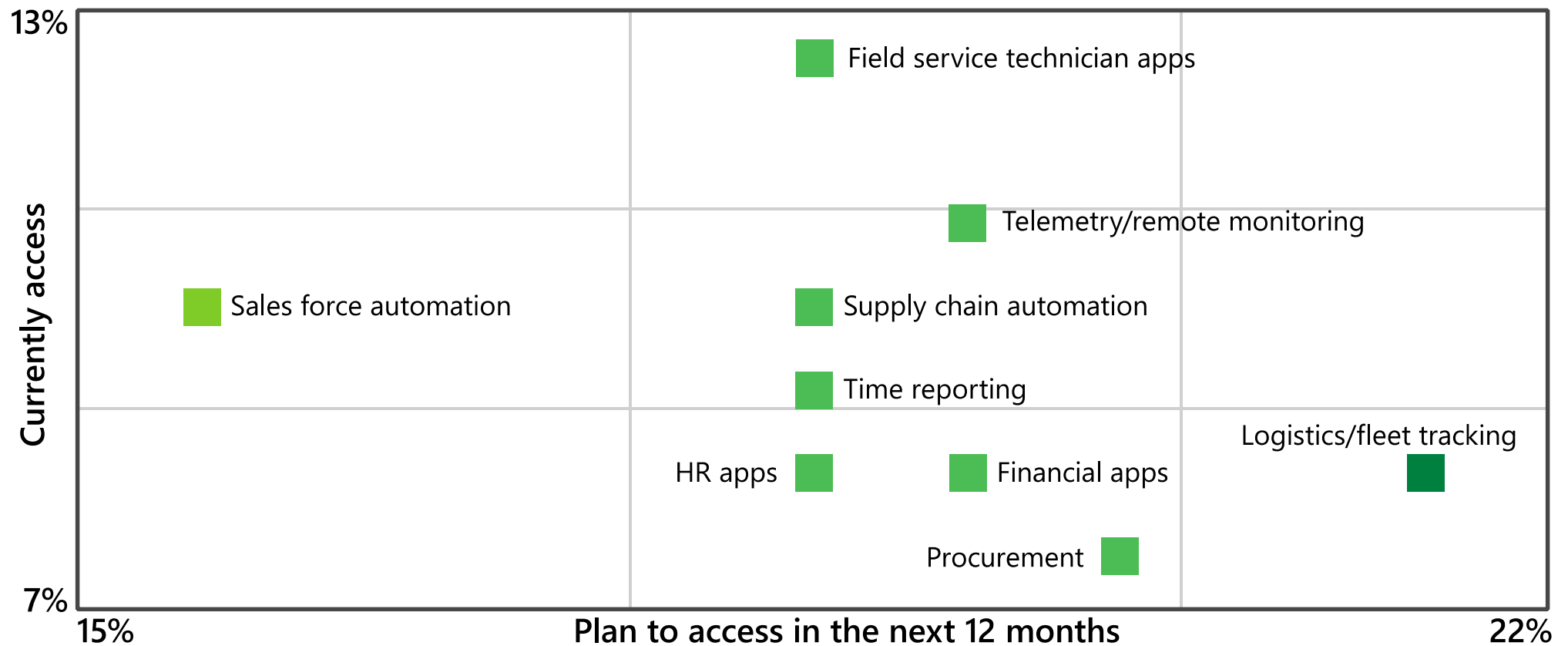


Data security. Data security is a key design principle for cloud providers as any breach would cause significant loss of confidence with customers.

Cloud service adoption trends

Applications for field service technicians are the most leveraged corporate mobile applications. Logistics / fleet tracking is expected to see a significant boost in usage

Do employees in your organization currently access the following corporate applications via handheld devices? Or do you have plans to enable this?

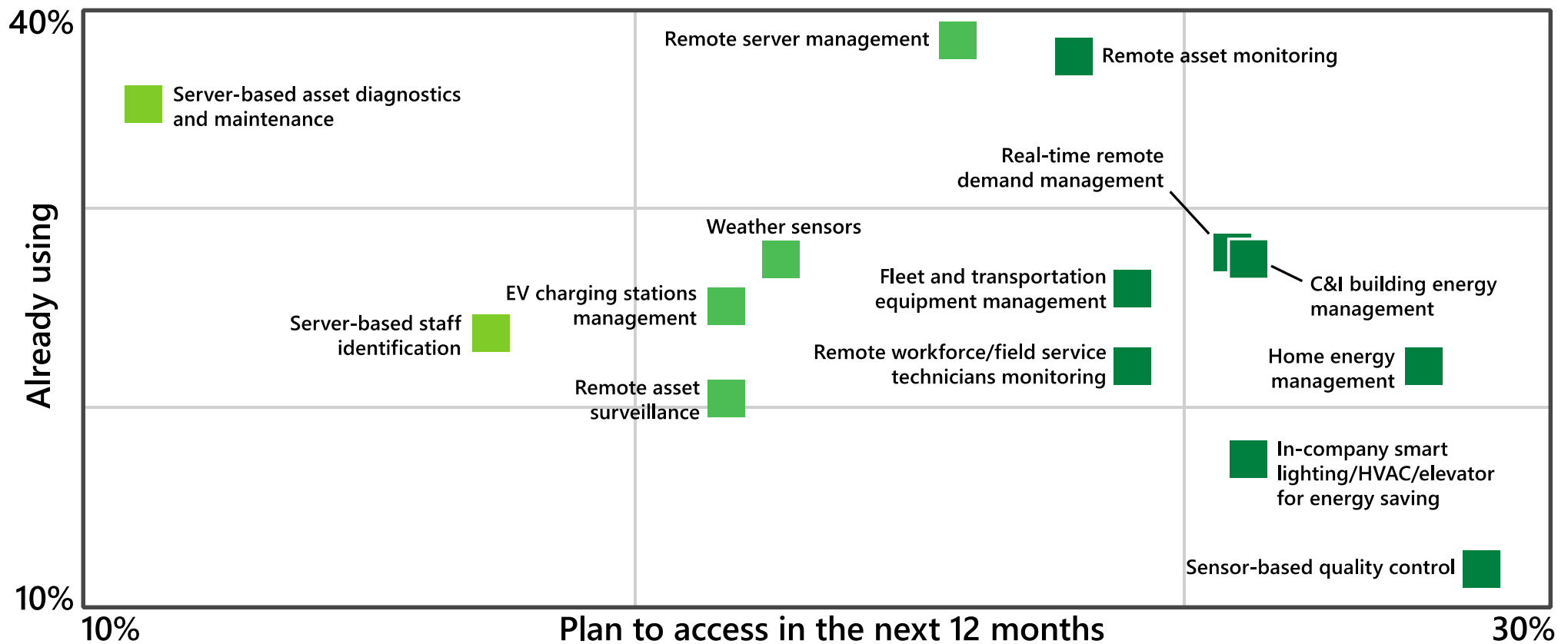


Cloud service adoption trends

The top areas of current cloud investment are remote meter management and remote asset monitoring.

It is expected that sensor-based quality control and home energy management will be increasing areas of investment.

Regarding the Internet of Things (IoT), are you using or planning to use the IoT in the following areas?



Change Management

Change Management is an essential requirement for the successful adoption of any project

→ The cloud can bring about 'new ways of working' such as better collaboration, working anywhere, faster and providing better access to data. These opportunities are likely to require changes in the way that people work.

→ New ways of working should be introduced in ways that allow people to adapt to and adopt these changes as quickly and effectively as possible.

→ It is likely that these new ways of working will introduce some cultural change to the organisation. There will be a requirement to engage with your workforce, including 3rd parties such as trade unions, before widespread roll-out.

→ The current and future User Experience should be well designed and understood so that questions such as "why change?" and "what's in it for me?" can be addressed.

→ Collaboration and change management planning between the various business and IT stakeholders is critical for successful adoption of the cloud.

Summary

A move to the cloud can provide many benefits for a business, its staff and its customers. The majority of Fortune 500 companies have already embraced the cloud and have plans to expand their usage of, and reliance on, cloud solutions.

Digital Transformation provides companies with the opportunity to realise business benefits, update working practices and demonstrate company & industry innovation, whilst ensuring security and confidentiality are improved.

Putting customers and employees at the centre of the cloud strategy, rather than technology, will provide greater opportunity to deliver on business strategy, improve workforce collaboration & productivity and deliver better customer service.



Next steps

Microsoft can help you:

- Identify the business challenges that could be addressed with cloud solutions
- Define a cloud adoption strategy
- Shape a cloud adoption roadmap
- Design specific cloud solutions
- Deliver on your business strategy through industry and technology expertise

For further information:

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