A new era for European public services
Cloud computing changes the game
Digital government is on its way and cloud computing is the next logical step towards it.
Contents

4 Executive summary
6 European governments are facing conflicting IT challenges
10 Cloud computing brings some key advantages
14 Five ways cloud will change the way governments run IT
16 What public sector cloud computing might look like
18 Cities are the new driving force for cloud computing
20 How governments can overcome the barriers
22 Three different ways governments are moving to cloud
28 What does this mean for European governments?
31 Sources
A new era for European public services

1. European governments are facing conflicting IT challenges
Goverments across Europe face two conflicting challenges. First, they need to invest large amounts of taxpayers’ money to provide public services. Second, they are having to work with ever-tighter budgets. The only way they can reconcile these two challenges is by harnessing new technology, serving citizens more efficiently and effectively. But there is one further hurdle; many governments have legacy IT infrastructures, which are compartmentalised across departments. This makes it extremely difficult to work more efficiently, as governments cannot share systems, information and costs.

2. Cloud computing brings some key advantages
Citizens expect low-cost, high-quality public services. Governments have to take an innovative approach, making sure that services are cost-effective, scalable and responsive to people’s needs, while also being flexible and secure. Cloud computing brings these attributes and introduces four main benefits: lower capital and operating costs; flexible capacity based on need; the chance to bring new services to market quicker; and high performance computing power. Thanks to these benefits, cloud computing can help government agencies move towards “digital government”, which our research shows is supported by a number of citizens.

3. Cloud computing is fragmented across the continent
Most European governments are piloting cloud computing. Yet there are huge differences between each country. So although many European countries have begun to virtualise for private cloud infrastructure, no two approaches are the same. In fact most European countries are switching to cloud independently, not focusing on the bigger picture or the chance to share information in the future. So far, the only common ground is the desire to cut costs and move towards a digital environment.

4. The current situation is little more than a roadblock
In most European governments, IT is divided between three bodies. First, a president or prime minister’s office focusing on overall state reform; second, ministries or departments that are focused on meeting their own needs; third, an IT infrastructure that works across the government to introduce efficiency and operational standards. Cloud computing can cut across these three separate bodies, introducing a new, more efficient way of working. However, the three bodies do not often work together, or even communicate. In the current situation, each introduces its own cloud initiative, with little sense of the big picture. That is why many governments are now trying to introduce a more coordinated approach.

5. Concerns over data privacy and regulatory issues are a further barrier to cloud adoption
Concerns over compliance with EU data protection laws present further challenges to European governments’ cloud adoption programmes. Another issue is data location and associated concerns over access by third country authorities regarding data held in the cloud, which has made European governments wary of using public cloud services. It is hoped that proposals to update EU data protection rules will provide greater clarity and facilitate decision-making on the use of cloud services. Meanwhile cloud security is constantly improving. We believe that moving to cloud can increase security, as it gets rid of any existing weak spots and introduces tighter controls across the whole IT picture.

6. A new landscape for public sector cloud computing emerges
When it comes to cloud, a public service organisation can choose to be one of three things: a user, a provider, or both. We believe that the market will evolve to let government bodies decide what role is best for them. All the key players can get involved, including regional government, citizens and service providers. Cloud will also help to bring “digital government” across Europe, delivering flexible and responsive public services while cutting costs. Many countries are already seeing cities drive the move to cloud, while governments are working to overcome the security challenges.
7. Cloud computing will usher in a new way to run IT

Moving to cloud will have a major impact on three factors by which every government will be judged: Speedy service delivery, the agility to react to events and a consistent long-term strategy. Any IT function working across a government will have to adapt the way it works to reflect this change. For example, instead of creating bespoke systems, IT will have to choose and manage pre-configured components, becoming a data custodian and services director for the whole of the government. Skills in IT service will no longer matter as much as visionary service strategy, and managing technology suppliers.

8. Three new types of government evolve: Cutters, builders and enhancers

Accenture recently carried out some research into how governments across Europe are moving to cloud, and found three different approaches:

- **Cutters** – With high public debt, these governments are focused on cutting expenditure. Examples include the United Kingdom (UK), France, Italy and Ireland. We found quick cutters, such as the UK, which is rapidly moving to the cloud to cut costs and headcount, and slow cutters, like France and Italy, who are moving more slowly via internal transformation.

- **Builders** – These governments, with growing Gross Domestic Product (GDP), are focused on building their infrastructures. Examples include Russia and other Central and Eastern European countries.

- **Enhancers** – These governments have high GDP but low public debt, and are using digital technologies as well as the cloud to encourage citizens to engage with government. The Nordic countries are good examples. Belgium is a fast enhancer too, driving progress forward at national, regional and city levels. Germany is moving more slowly, harnessing cloud at a regional and city level, while holding back at the federal level because of people’s concerns about privacy.

9. Good cloud sourcing strategies: Develop private, think hybrid. And do not forget cloud brokering.

Most European governments are already investing in cloud infrastructures. Virtualisation tends to be the first step, and then it is only natural to move to sharing community clouds with other government bodies. Secure cross-border community clouds could help European states meet some of the challenges of government. One promising sign is the recently announced Cloud for Europe initiative, which involves 11 countries that will develop a set of procurement requirements together. Over time, governments may well build their cloud solutions, and the signs point to the fact that there will ultimately be a hybrid solution, with a mixture of private and cross-government community cloud, as well as legacy systems and public cloud. In the US, the Department of Defense has created a model for the future by appointing the Defense Information Systems Agency (DISA) as its cloud services broker. We believe European countries will follow suit.

10. Our eight recommendations

A digital single European market could bring so many benefits to European countries and citizens. Cloud can play a key role. To make that happen, we recommend eight key steps for European governments:

1. Proactively adopt a “cloud first” policy.
2. Develop private, think hybrid – and ultimately consider cloud brokering.
3. Invest in common infrastructure, services and pilot projects.
4. Create a platform to consume government-wide services.
5. Consider individual targets for cloud-enabled government services.
6. Proactively set the style of IT governance – local, regional or city level.
7. Attract and encourage private investment in European cloud-based services.
8. Provide clarity around data privacy and security at a national and EU level.
European governments are facing conflicting IT challenges

Many governments are looking to use modern technology to serve their citizens better. However, this brings two conflicting demands.

First, governments have to make sure they invest enough to maintain and improve standards. Second, they must work to ever-tighter budgets, finding cost-effective ways to tailor services. It is the classic dilemma of introducing efficiency while also driving economic growth.

If the situation was not complicated enough, many governments have legacy IT infrastructures. Most were developed by different departments to meet their own specific needs, so they tend to be inflexible and expensive.

It is time to innovate

To meet these demands, governments need to start providing services in a new and different way. Cloud computing can introduce a cost-effective and scalable approach, while also being agile, flexible and secure.

As the Accenture Technology Vision 2013 states, “Every business is a digital business”. So the question is no longer whether organisations are using cloud computing, but how. Cloud is now at the very heart of the private sector, and more and more in public services too.

The Accenture Technology Vision 2013 pinpoints seven key trends in technology, including moving “beyond the cloud”. Many are crucial to public sector organisations, but judging from the huge benefits cloud could bring to governments and citizens, it may be the most relevant of all.
Governance: Who is in charge?

To make the most of cloud, government officials have to make some important decisions. First, what about governance? Who is in charge of adopting cloud, and of making sure it has an impact? Second, what is the business case? Governments will have to show the benefits and returns their nation will enjoy. We will look at governance first.

Three elements usually exist in any European government:

- A core entity, such as the president’s or prime minister’s office, which is responsible for any changes to state services.
- Departments or ministries, which normally source and develop their own IT systems to meet their own specific needs.
- A core IT function, which is normally consistent across governments to make IT efficient, consistent and standardised.

Unfortunately, these elements often work against each other. For example, government-wide IT is meant to encourage departments to share and spark new ideas. But departments want to protect their autonomy and budgets, and are worried that sharing data might compromise security. Each element can end up competing rather than collaborating, which makes it impossible to work together to drive efficiency and deliver services.

The Accenture Technology Vision 2013: Seven global megatrends

Every year, the Technology Vision team at Accenture Technology Labs looks at the emerging technologies that will have the biggest impact over the next few years. This year the team has pinpointed seven key megatrends that are already having an effect:

1. **Relationships at scale**: Moving beyond transactions to interactions.
2. **Design for analytics**: Creating valuable insights from data by getting the right data from new sources or objects.
3. **Data velocity**: Minimising the gap between insight and action.
4. **Seamless collaboration**: Embedding collaboration into business processes.
5. **Software-defined networking**: The last mile of virtualisation.
6. **Active defence**: Adapting defences to threats.
7. **Beyond the cloud**: Weaving the cloud into the enterprise to create business value.
A new model
Cloud computing cuts through the inefficient segregation across the organisational structure. With reusable components as well as shared architectures and applications, it encourages people to work together. This new way of working delivers convenient and flexible services to end users across any government.

Figure 1 shows how governance will operate in a new cloud-enabled way of working. Public service administrations currently have their own separate IT arrangements, which duplicate resources and push up costs. With cloud computing, government at every level can benefit from an ecosystem where scalable resources and pay-per-use costs are shared in the cloud.

With systems consolidation, cost savings and greater speed and agility, cloud makes a compelling business case. Which brings us to the second area that governments have to address before moving to cloud environments.

Figure 1: How IT governance looks at the moment – and how it will look in the cloud

Today...
Each public administration (PA) has its own IT

Tomorrow...
Public administrators will share IT in the cloud

Local

Regional

Central

Municipalities and local agencies
Regional cloud providers
Regional PA cloud “ecosystems”

Ministries and central agencies
Central PA cloud
Central cloud provider
For me, cloud computing has to deliver responsiveness, scalability and flexibility with security.
Cloud computing brings some key advantages

When it comes to the business case, there are four main reasons why more and more public service organisations are now thinking about cloud computing:

It cuts costs
- Lower capital and operational costs help to restore public finances.
- Pay-as-you-go pricing lets governments pay for what they use.

It is scalable
- Governments can choose capacity when they need it.
- It adjusts for peaks and troughs in demand.

It is speedy
- Piloting and testing new projects is much quicker because cloud fosters rapid test-and-learn cultures.
- Governments can provide speedier services to citizens.

It is high performance
- The cloud offers more capacity than traditional technology infrastructure.
- Governments can benefit from “infinite” capacity if the need arises.

Most European governments have been investing in cloud because they want to realise economies of scale and cut costs. But by focusing on costs, most governments have not yet explored just how cloud can transform their services. So the full benefits to the taxpayer are not being realised. And those benefits can be dramatic. For instance, the Norwegian government’s Altinn³ cloud platform has been used by nearly 90% of companies for submitting documents to public bodies.

Not only that, focusing on costs means that governments are concentrating on “private cloud” models by introducing virtualisation. This is a first step towards cloud, but falls far short of transforming services. On a positive note, it helps people get used to the cloud experience, and creates a platform for moving towards transformation in the future.

Now is the perfect time for European governments to plan ahead for cloud, as we are seeing more and more compelling arguments explaining its potential. For instance, the European Commission’s Cloud Strategy, published in September 2012, shows how cloud computing could boost productivity, growth and jobs. The strategy shows how cloud could create 2.5 million new jobs across Europe, as well as an extra 160 billion EUR per annum/annually to EU GDP by 2020.

A new era for European public services
“Cloud computing has brought about a step change in the economics and sustainability of Information and Communication Technology (ICT) enabled service provision. Government is committed to the adoption of cloud computing and delivering computing resources to users as needed (an on-demand delivery model). By exploiting innovations in cloud computing we will transform the public sector ICT estate into one that is agile, cost-effective and environmentally sustainable.”


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<th>France</th>
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Table 1: Western Europe government sector cloud and hardware virtualisation adoption, 2012–2013 (%) (Survey run in 3Q 2012)

Many speeds, many paths

With such opportunities available, no wonder most European governments are already planning to move to cloud. Every country’s programme is different, moving at different speeds and in different directions.

Recent research by IDC shows that Spain and the UK are leading the way. However, IDC adds that Spain’s score may appear higher than it should as some data centre consolidation and virtualisation programmes have been categorised as private cloud. The research adds that “The UK government has arguably the most mature approach to cloud computing among all Western European governments.”
Cloud computing explained

At Accenture, we define cloud computing as a service that lets companies access IT-based services via the internet. It is not a specific type of technology, but a model of how things work. It normally means that companies can acquire technology quickly, with lower capital investment, lower operating costs and variable pricing that is directly tied to use.

There are many different cloud computing services. For instance, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS) and Business Process as a Service (BPaaS). Each has its own specific implications for governments and the people who use their services. This is particularly important when it comes to privacy and security.

The main types of cloud are:

Private clouds
Organisations build private clouds when they want to introduce virtualisation within their own data centre. Private clouds are not shared with external agencies, so governments tend to see them as more secure for their own information and for people’s personal data.

Public clouds
Public clouds boost a data centre’s capabilities by enabling third parties to supply IT services over a network. Data and processing can be located anywhere in the world, on infrastructure that is shared with the cloud provider, with other customers, or with “tenants”.

Hybrid clouds
These blend public and private clouds. The exact proportion of each depends on how sensitive the data is, and what applications are involved. Organisations using hybrid clouds need a platform (such as the Accenture Cloud Platform) that manages governance, orchestration and integration of all the services involved. They also have to make sure that users receive the services consistently and securely. The cloud platform may evolve into what is known as a “services broker”, which can be developed and operated by an organisation itself, or by a third party.

Community clouds
When a number of organisations have the same requirements and needs, they may join forces to set up a community cloud. They can then share the costs. Community clouds can be hosted internally or by external third parties.

Public “sovereign” cloud
This is a new type of cloud that is becoming more and more popular, in response to concerns over compliance with data privacy rules and access by third country authorities to data in the cloud. With a sovereign cloud, a public cloud provider keeps data and processing within a specific jurisdiction, so it can adhere to regulations.
With systems consolidation, cost savings, greater speed and agility, cloud makes a compelling business case.
Five ways cloud will change the way governments run IT

Cloud computing can help governments work faster, be more agile and save money. Not just in IT, but across a whole government. That means public services are more efficient than ever before, and more connected to the end user. In our experience, Accenture has found that the move to cloud has five key implications for how governments run their IT.

1. IT will have to evolve to secure its own future

Moving to cloud will have a major impact on three major deliverables for any government: Speedy service delivery, the agility to react to events and a consistent long-term strategy. Any IT function working across a government will have to adapt the way it works to reflect this change. Otherwise, it risks being sidelined and even becoming redundant.

For the IT function to stay relevant, Government IT leaders will have to evolve quickly, particularly when it comes to choosing and managing suppliers, or managing risk and governance. It will have to work closely with end users across the government. That means understanding their needs and then meeting those needs through sourcing, managing and integrating a wide range of cloud-based, internal and legacy services.

2. It is not about building any more, but managing

By using cloud, a government does not have to rely on systems built in house. Instead, what will really make the difference is being able to bring the right components together to meet customer needs at the right cost. That means radical change for government IT organisations. Until now, they have mainly built, operated and maintained bespoke systems. Now they will have to combine technical skills with other key skills such as understanding users’ needs and managing relationships with suppliers. To find this talent, recruitment will have to change.

3. IT must become the "data custodian" for the whole government

Moving to a virtual world generates a huge amount of data. The organisations that make a success of it are those that can collect, manage, protect and analyse this data. Of course, for many governments a lot of this data is sensitive and personal information, so security is paramount.

With cloud, data will be shared across a number of services. Someone has to become "data custodian", looking across the whole of the government to protect data as it moves through systems and processes. The logical candidate is the IT function, which is already working across the government as a whole in an optimal situation.
4. IT must become a “services director and integrator”

With the shift from building systems to managing components, IT is going to have to manage a vast range of IT services. These can be sourced internally or externally, and could be legacy systems or in the cloud. Success will be built on identifying, sourcing and bringing together pre-configured solutions that make good business sense.

Over time, IT may become a “services broker”, taking responsibility for sourcing and managing IT services across a wide range of government bodies. This means delivering on three points: First, selecting services, (e.g., making sure that services match end users’ needs). Second, integrating services, (e.g., ensuring they are consistent and cost-effective). And third, providing support, (e.g., making sure everything is secure and that end users can get the most out of the potential).

5. IT has to operate in a different way

To create the first four changes highlighted above, IT has to change how it works forever. The table below shows some of the skills that a government’s IT organisation will need to have.

There will have to be less emphasis on pure IT expertise, and more focus on management skills, such as managing suppliers and service strategy. To stay up to date with trends and best practices, the IT organisation will have to keep investing in training people and adding skills.

Figure 2: A simplified operating model for a typical IT function in a government harnessing cloud

Source: Accenture analysis
What public sector cloud computing might look like

When it comes to cloud, a public service organisation can choose to be one of three things: a user, a provider or both. We believe that the market will evolve to let government bodies decide what role is best for them. All key players can get involved, including regional government, citizens and service providers.

Figure 3: A suggested structure for European governments using the cloud
Source: Accenture analysis
In the future, we anticipate cloud providers and cloud customers will interact via what we are calling a “cloud federation”. This federation gives everyone a clear view of what services they can use. Any qualified provider can supply services to the federation, including other government agencies and third-party providers.

Governments will have to keep a watchful eye on this new structure, monitoring and approving every service. Meanwhile, they will have to let providers compete, so that market forces drive down costs.

The new landscape will have some important features:

**A consolidated infrastructure**
The IT solutions of today are fragmented. In the future they will be much more efficient, with just a few agile data centres. We are already seeing this happen. Italy is looking to reduce 4,000 data centres to fewer than 100. France is hoping to consolidate more than 100 centres government data centers to a much smaller base.

**Everything as a service**
Services are currently available via a tangled web of interfaces. In the future, people will be accessing and providing services in a coordinated and cooperative way. Central government IT will still own some key services, like digital identity or digital payments. But “mutualisation” agencies will offer other services such as e-procurement or public HR as a service, so that all agencies and departments can use them.

**Extended ecosystem**
To expand participation and enable a wider range of providers – including small and medium-sized enterprises (SMEs) – to service government in the cloud, the ecosystem will encompass and integrate entities including public service agencies at all levels, external suppliers, small and large businesses, and universities. Eventually it will extend to inter-country connectivity or even EU-wide connectivity using “smart borders”.

**Citizen-centric**
The citizen end user must be able to use services quickly and transparently. Ideally, they will only see one entry point to government services, no matter what they are and who is providing them. Everyone will have their own, integrated access to cloud services, which can work across a number of channels. They will be able to see their contact history, and share data, whether they want to use online, mobile or physical media.

**Integrated public services**
For everything to work smoothly, the cloud ecosystem will need to be fully integrated. That means central government will have to make sure public bodies are cooperating at all levels. From central government to regions and cities, and across departments like tax, education and pensions, it all has to mesh.

**The “service broker” role**
To keep everything working, one party will have to take responsibility for cloud services. It will be their job to select, manage and integrate a wide range of cloud services. This will involve five key tasks:

1. Identifying and choosing services to set up a catalogue for users to choose from.
2. Validating services against the standards for which a government is looking. For example, checking that a new service meets regulation regarding data protection, security and intellectual property rights.
3. Providing services to users across the government and beyond, making sure they can access everything they need.
4. Keeping track of who uses which service.
5. Billing and paying for service and access, both within the government and beyond.

There are three ways a government could introduce the service broker role. First, they could develop and run cloud within their own IT function. Second, they could ask a third party to set it up for them and then run it themselves. Third, they could ask an external third party to take care of cloud brokering for them. Different governments will obviously make different choices.
Cities are the new driving force for cloud computing

Cities across the world are driving the move to cloud services, both as consumers and providers.

As consumers, many smaller cities are moving to IT as a service. Some are using it to provide all their IT needs, while others are focusing on a particular function, such as finance or human resources (HR). And as providers, cities are bringing innovative services to residents and businesses. Berlin’s goBerlin is an excellent example.

The digital city of the future

By consuming and supplying cloud services, cities can become “smart” digital spaces. Pilots show that cities of any size and budget can support sustainable and fulfilling ways to live and work. A coordinated digital environment can spur innovation, improve public services and meet environmental challenges.

The trick is to integrate cloud with elements like social media, mobile, machine-to-machine communications and remote sensors. Get the mix right and anything is possible, including everything from smoothing traffic to making electricity grids more efficient. We could even see a “city in a box” as a service, with full information and communications technology for a small city being provided off the shelf.

goBerlin: Berlin’s cloud marketplace for public services

Germany’s government has held back from adopting cloud services, mainly because citizens are worried about data privacy and security. However, the country’s devolved structure means that regional Länder and individual cities have made more progress.

One good example is goBerlin, a cloud-based marketplace that gives Berlin’s residents secure access to public and commercial services. The project builds on the existing cloud infrastructure of public IT services provider ITDZ Berlin. By providing Software as a Service (SaaS) for small and medium-sized businesses and local authorities, it will help these entities play a key role in developing and using IT services.

During a pilot period across the Berlin metropolitan area, residents can make the most of the integrated cloud service using an e-identity card. A key goal of the project is to create strong user and developer communities, which will encourage goBerlin to thrive and grow.
Today’s examples

There are already a number of city projects across Europe.11 In Paris, the municipality has joined forces with a third party to build a cloud-based intranet. Secondary schools are using the cloud to share course materials and other information.12 In Belgium, the city of Ghent has introduced a cloud-based HR management solution. And in the UK, Teesside University’s Centre for Digital Excellence and Entrepreneurship13 is encouraging new technology, R&D and open innovation.

There are plenty of examples further afield to inspire Europeans too. New York City’s “Roadmap for the Digital City”14 highlights requests from residents to “Create a public cloud using the city’s existing IT infrastructure”. The Roadmap also explains that developers are calling for a cloud-based application programming interface for public data and services.

Cities really are ideal for delivering cloud. They already have dense populations, vibrant economies and extensive mobile internet coverage. The need is there too, as they want to deliver services at low cost and high speed. Cities look set to drive cloud forward in the future.

Get the mix right and anything is possible, from smoothing traffic to more efficient electricity grids.
How governments can overcome the barriers

Looking at how much they currently spend on IT, countries across Europe could save a lot of money for their taxpayers by moving to cloud. The move will be good for their budgets too. For instance, the UK government announced in 2013\(^\text{15}\) that “Off-the-shelf products from the cloud can be up to 30% of the cost of bespoke solutions”. It added that IT reforms and spending controls saved the UK taxpayer £316 million (approximately €372 million) in 2011-2012.

Potential showstoppers – and how to overcome them

Across Europe, the savings could be massive. But moving to cloud can be stopped or delayed for any number of reasons. We take a look at few of the barriers to cloud uptake?

There is a widespread misconception that cloud computing is less secure than in-house systems. That is why many governments are focusing on private cloud models, virtualising their in-house data centres rather than moving to community or hybrid models.

Security in the cloud

However, cloud solutions are not inherently insecure. In fact we believe they can be more secure than legacy systems. Cloud security is constantly improving, as providers invest in staying free of potential threats. Not only that, when governments open up their existing systems to the Internet, for instance to let people use mobile services, it can open up new points of vulnerability. Moving to cloud can strengthen security and remove these vulnerabilities. It also makes it easier to keep security consistent and rigorous across the whole IT infrastructure.

Data protection and privacy regulations – including data location

Governments have several data privacy concerns that have prevented the uptake of public cloud services:

- Different implementations of data protection rules at a national level have led to an increasingly complex regulatory landscape across the EU. Compliance may therefore be considered too burdensome by European governments to allow for the use of cloud services based outside their own country.

- In addition, all EU countries have restrictions on transferring personal data out of the EU. There are EU mechanisms to overcome these restrictions but not all countries have recognized these mechanisms or have imposed additional requirements on their use. In some countries there are specific restrictions on transferring certain types of public sector data out of the country, thus preventing the uptake of public cloud services based outside of the country.

- Another concern, is data location and potential access by third country authorities to data held in the cloud. Many countries have laws in place that allow law enforcement authorities to access personal information hosted by third parties in cases involving the protection of national security. This issue has made many wary of using public cloud services.

- Finally, under data protection laws, the cloud customer remains responsible for the security of data in the cloud, but cloud customers may have difficulty in practice in securing contractual data security requirements for commoditized cloud services.

Ultimately, data security may come down less to the location of data than the security of the encryption keys needed to access it. Proposals to update EU data protection rules may help to clarify things, providing a European-wide set of rules under which European citizens’ data can be stored in the cloud. Governments can add even more security by providing data encryption not just for stored data but for data in transit too.
Data ownership and sharing
European governments have tended to operate their IT in a segregated way, with separate budgets and plans for each department. Ministries do not share data or applications as they want to retain control and do not want to expose themselves to any security risk. Some governments have started to share, but this practice is still very limited.

To make cloud really work, governments will have to take a more open approach. Keeping things segregated simply increases inefficiency and expense. But by taking control of data and ensuring privacy and security are up to the job, governments can share information across departments and beyond. This means a connected government for citizens.

Intellectual Property (IP) rights
Organisations are often wary of moving to cloud because they are not sure who owns the underlying applications. This is particularly the case when an application has been adapted so that it can work on a particular cloud platform. Through sound management of platforms and applications, governments will be able to guard against any disputes over IP to stay safe.

The people’s choice
Recent security breaches and debates over personal data show that people are still not 100% happy about digital society. Some people may protest against more digitisation of public services.

However, recent research Accenture has carried out among 5,000 citizens worldwide shows that most people are hoping for more digital services, not fewer. As Table 2 shows, a number of people across Europe are already using digital government services, and are looking forward to seeing more of them.

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<th>Percentage of respondents using digital channels today (very or fairly often)</th>
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| Percentage of respondents who think it is important for the government to provide more services through digital channels in the future (very or fairly important) |
|---|---|---|---|
| 70 | 70 | 73 | 80 |

Table 2: The proportion of people already using digital channels and looking for more digital services in the future (%)
Cutters, builders and enhancers

Our study shows that the different characteristics of each country shape how they approach the digital world and cloud computing.

Cutters
These are developed economies that have been severely affected by the volatile global economy. They have a high GDP, but are going through a period of sluggish or even negative growth. These countries also have a high budget deficit that they are hoping to reduce by cutting back on government expenditure. Meanwhile the amount they spend on government information and communications technology is slowly rising.

France, Greece, Ireland, Italy, the Netherlands, Spain and the UK are all cutters. Further afield, Japan and the US also fall into this category.

Builders
These are developing economies with strong economic growth. They are looking to build infrastructure that will serve their economies and society well in the future. They have high GDP growth from a relatively low per-capita base, as well as a moderate budget deficit. The amount they spend on government information and communications technology is rising rapidly.

Countries that fall into this category are emerging economies outside of Europe, including Brazil, China, India, Indonesia, Mexico, Saudi Arabia, South Africa, Thailand, Turkey and the United Arab Emirates. Some Central and Eastern European countries could also be seen as builders, including Hungary, Poland and Russia.

Enhancers
These are developed economies that have remained relatively unaffected by the financial crisis thanks to their strong economies. They normally have moderate GDP growth, a relatively high per-capita GDP and a low budget deficit. Their governments tend to be gradually increasing the amount they spend on information and communications technology.

Typical European enhancers include Austria, Belgium, Denmark, Germany and Norway. Australia, Canada, Malaysia, Singapore and South Korea also fit into this category.

The next steps for moving to the cloud

Each of these three types of government has different goals. And each is showing a different way of migrating to cloud computing.
Figure 4: Three different types of approach to cloud computing

<table>
<thead>
<tr>
<th>Cutters</th>
<th>Builders</th>
<th>Enhancers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High GDP and public debt.</td>
<td>• Growing GDP and low public debt.</td>
<td>• High GDP but low public debt.</td>
</tr>
<tr>
<td>• Base digital infrastructure in place.</td>
<td>• Base digital infrastructure in place.</td>
<td>• Base digital infrastructure ready.</td>
</tr>
<tr>
<td>• Focus on reducing government expenditure to balance the budget.</td>
<td>• Seek to build infrastructure to serve their economies and society in the future.</td>
<td>• Potential for digital capability enhancement given the strength of the economy.</td>
</tr>
</tbody>
</table>

Cutters

We have found two distinct types of cutter. “Quick cutters” are looking to achieve lower costs and higher productivity very quickly. They are outsourcing as quickly as possible, and cutting their headcount. The best example of a quick cutter is the UK. The second type is the “slow cutter”, such as France and Italy. These countries focus less on outsourcing but instead are concentrating on transforming the way they work internally. This obviously has less of an impact on jobs.

For quick cutters, moving to a full cloud solution will involve three crucial steps:

• Step 1 – Outsource services and processes to cut costs. This means using IaaS and replacing any legacy applications with PaaS and SaaS.
• Step 2 – Consolidate applications, and cut down certain channels by taking a “digital by default” approach.
• Step 3 – Introduce new cloud-based services, including social media and mobile solutions, to give citizens even better service.

A “quick cutter” under the spotlight: The UK

The UK is a perfect example of public sector cloud migration. Cloud is helping to cut central government costs, and helping small and medium-sized enterprises (SMEs) sell more services to the public sector. A new core IT group called Government Digital Services is driving departments to rapidly transform their IT. The group is attached to the UK Cabinet Office, and is encouraging departments to cut costs and rationalise data centres, while also introducing competition between internal and external providers to bring down costs.

The UK now has a government “G-Cloud” and CloudStore where government agencies can buy cloud services from over 700 companies.

Over 80% of these are SMEs. The government also expanded its G-Cloud supplier framework in 2013 and introduced a “cloud first” policy.

This means that anyone in the public sector looking to buy IT must look to the cloud first. For central government, there is no other option, while for the wider public sector it is strongly recommended.

The UK government’s auditor, the National Audit Office, has pointed out that the UK government’s IT reforms and spending controls have saved the taxpayer £316 million (about €372 million) in 2011 to 2012 alone. The rapid saving shows just how quick a cutter the UK really is. The government is now looking at how it governs IT to see if it can be more agile and more efficient (e.g., delivering day-to-day IT services over the cloud).
The “slow cutter” approach: France and Italy

France is taking a slow cutter approach, reflecting the government’s desire to avoid the social effects of cutting spending and jobs too quickly. France is also committed to keeping all data and services hosted within its borders. Consequently France is taking a slower approach to cloud adoption, basing the move mainly on internal transformation.

France’s strategy has two strands. First, the Directorate of Legal and Administrative Information (DILA), which is one of the branches of the prime minister’s central administration, is working with Accenture to build a private cloud. DILA will use this cloud and offer it to other government ministries, creating a classic model of cloud provision “by government for government”.

The second strand involves sponsoring the creation of two private sector “sovereign clouds” run by major communications operators. These are CloudWatt, which is managed by Orange, and Numergy, run by SFR.

This will help ensure that public, multi-tenant cloud services are available to French private and public sector organisations within France.

Italy is looking to follow the French model, taking a slow cutter approach. Italy’s recently formed Digital Agency is leading the way, and has issued a tender for cloud connectivity services, with five more tenders to come. Local government is particularly important, and the Italian government is looking to cut its 4,000 data centres to fewer than 100.

Although France and the UK’s approaches are different, their objectives as cutters are similar. Both want to target cost efficiencies, moving from physical transactions to e-services across areas like taxes and benefits. Ultimately this will make government “digital by default”, with more and more use of cloud. France will take longer to reach its goals, but may face less disruption along the way.

Builders

Countries defined as builders have the chance to leapfrog the stage of bespoke systems development. Instead, they are looking to leverage cloud platforms to quickly roll out new capabilities. However, builders need to make sure they have enough network infrastructure and bandwidth in place.

The journey to cloud maturity for builders includes three main steps:

• Step 1 – Accelerate the development of government technology infrastructure by using PaaS and/or SaaS solutions, and think about using private PaaS solutions.

• Step 2 – Build a “cloud broker” function that includes a consolidated service catalogue.

• Step 3 – Roll out new cloud services over time.

Other aspects of digitisation show other ways builders can leapfrog earlier stages. For instance, the Cambodian government has moved to digital, successfully reducing reliance on paper money by embracing mobile e-payments.

In Europe, the Hungarian government is looking at cloud computing to improve its IT efficiency, and has set up national and local cloud projects. In Poland, the Ministry of Finance is moving to a private cloud platform based at a new EU-funded data centre. And Russia has built a national private cloud platform called “07” which is shared by federal and local government agencies.
Enhancers

Our research shows that enhancers are 47% more productive than cutters and builders, and 20% ahead of them in terms of engaging citizens. Building on the infrastructure they already have, they can use cloud to engage citizens even more and create an open, agile and networked government.

Enhancers tend to take one or two steps on the way to cloud maturity:

• Step 1 – Introduce new strategies to satisfy and engage users, and implement these strategies quickly using a service and tools like social mobile analytics.

• Step 2 – Set up services across administrations, or services are produced by one country and used by others.

There are many good examples of both steps. For instance, many countries are moving education to digital online platforms, which is an example of step 1. And in Austria, a typical enhancer, the Austrian Federal Data Center has said it aims to be the cloud provider for the whole of central government within the next 5 to 10 years.

The Altinn initiative in Norway is a good example of step 2. This cloud-based platform is enabling over 40 government agencies, administrative bodies and regional authorities to offer 130 self-service electronic services. Thanks to Altinn, over 400,000 companies no longer use paper forms to submit declarations. Other governments may choose to copy the initiative, creating a “Nordic Cloud” or even a wider European government cloud. Belgium is another good example of a European enhancer. Germany is a cautious enhancer at the federal level, but more adventurous when it comes to state and city initiatives.

An “enhancer” taking a multi-track approach: Belgium

In Belgium, the government is moving to cloud step by step, creating key digital building blocks like digital identity, signature and archive functions. It will then use these blocks to support new cloud infrastructure, applications and services. Meanwhile, government organisations are introducing cloud projects and pilots at all levels, including federal, regional and city administrations.

The central government has issued requests for information (RFIs) for external providers to help them move applications to the cloud and provide back-up and disaster recovery.

It is also looking for a service provider to define and manage service levels for cloud solutions, similar to a “cloud broker”. For example, the city of Ghent is working with Accenture to introduce SAP’s cloud-based Successfactors for human capital management. At a regional level, the Flanders region has already taken steps to outsource systems infrastructure, and aims to become an “infrastructure-light” cloud broker.

A slow and fast “enhancer”: Germany

Following people’s concerns about their data privacy, Germany is cautious about cloud computing at the federal level. For the past two years, the government has been talking about consolidating contracts with its five biggest IT providers into a structure like the UK’s G-Cloud. However, it hasn’t taken any decisive action yet.

Some examples of migration to cloud at the federal level exist, as some data centres have been virtualised, and some cloud pilots are underway. However, states and cities are taking to cloud much more readily. Berlin has been especially active, with the launch of the goBerlin cloud marketplace. The city is also planning for a government cloud to be managed by an external provider.
Over time, cross-border community clouds may well emerge to tackle areas like border control and anti-terrorism efforts.
Cloud sourcing strategies for governments: “Develop private. Think hybrid.”

Whether they are cutters, builders or enhancers, most European governments are already investing in virtualisation and private cloud infrastructures. All are keen to realise some of the low-risk benefits of cloud, but this can be just the first step. The next logical step is to share community clouds with other government bodies, encouraging reuse and cross-fertilisation while introducing more cost benefits too. A number of organisations can benefit from sharing community clouds. For central governments, they could be useful for handling non-core tasks, while for municipalities they can eliminate duplication. Public service organisations like the police can share clouds too.

Over time, cross-border community clouds may well emerge to help tackle shared issues across Europe. For instance, border control, anti-terrorism or international policing and defence. These would of course have to have security in place. One promising initiative is Cloud for Europe, with 11 countries agreeing to work together to set up procurement requirements for the public sector.

European governments’ cloud environments might act as a first step on the way to introducing even more cost savings and a more agile service. We could imagine private cloud solutions expanding, alongside other forms of cloud such as private and community, as well as legacy non-cloud systems and applications. At the same time, cloud solutions could develop all the way up the scale from IaaS via PaaS and SaaS to finally reach BPaaS. This could be set up internally or externally, within a country’s borders or beyond.

While governments will move at different speeds, the paths they might take are shown in Figure 5. As the diagram shows, any next step very much depends on a government’s approach. For instance, “quick cutters” like the UK would probably take route C, moving very quickly from IaaS to widespread adoption of external cloud services. Alternatively, “slow cutters” like France and Italy will probably take a more modest route through paths A and B, moving from internal cloud to arrive at the same goal of external cloud. Meanwhile, smaller-scale cutters, like Flanders in Belgium, that are focusing on outsourcing ICT would move directly via route D.

Whatever the route a government takes, the outcome will be a hybrid environment that includes private and cross-government community cloud, along with legacy systems, and probably some public cloud. With this path in mind, our view is that governments must focus on developing private cloud solutions today, while keeping their options open to move to a hybrid environment tomorrow.

**Figure 5: Governments’ potential routes to cloud maturity**

Source: Accenture analysis

**Summary**

- **A** Evolve current infrastructure to an internally hosted cloud-like architecture
- **B** Leverage services from a Saas or IaaS provider in a cloud model
- **C** Outsourced provider evolves to a cloud-like architecture
- **D** Leverage maturing services from external cloud providers to augment an internal cloud
What does this mean for European governments?

European governments need to overcome a number of barriers before adopting cloud computing. Some of these are structural issues at the national level, such as the fragmented approach to procuring, contracting and budgeting for IT services. Others are more global, such as concerns over data privacy and varying regulations across the world.

One thing that is certain is that a digital single European market could bring many benefits to countries and their citizens. The cloud is ideally placed to help this happen. Across Europe, people’s lives are becoming more and more digitised, and people now expect that transactions with organisations like banks, shops and governments should take place online. Digital citizens feel empowered. They can take control of how they interact with their governments. And there are many benefits for governments too, as cloud can engage citizens more, build trust between public bodies and the population, and bring down the cost of interactions.

Accenture’s eight recommendations

Cloud can play a central role in helping any government seize the opportunities available. We are proposing eight key steps for European governments.

1. **Proactively adopt a “cloud first” policy:** Communicate and regulate a behavioural change in the way services are procured. As the UK has already done, update the national technology strategy to mandate and embrace a “cloud first” approach.

2. **Develop private, think hybrid:** Develop private cloud services that a number of agencies can use, and make sure they can integrate with legacy systems. Over time, private clouds will become community clouds as government bodies share cloud components and work together.

3. **Invest in common infrastructure, services and pilot projects:** Appoint government agencies to take the lead on various initiatives. For instance, identity and access management, data centre consolidation, desktop virtualisation and SaaS and BPaaS shared services. Draw up a catalogue of commodity services, provided by the public and the private sectors, for the government to use.

4. **Create a platform to consume government-wide services:** For governments to make the most of cloud, they will need to have a consistent and well-managed platform where services can be accessed across government agencies. The ultimate answer could be a cloud service brokering model. A first step towards this could be to have one government entity selling its services directly to others. In the US, the Department of Defense has created a model for the future by appointing the Defense Information Systems Agency (DISA) as its cloud services broker. We believe European countries will follow suit.

5. **Consider individual targets for cloud-enabled government services:** These should cover how public and private cloud are used. The US federal government’s target for cloud adoption spurred agencies on to adopt cloud and enjoy the benefits.

6. **Proactively set the style of IT governance – local, regional or city level:** Decide whether cloud services will be governed centrally, or at a local, regional or city level.

7. **Attract and encourage private investment in European cloud-based services:** Help to build a thriving cloud services industry by fostering innovation and managing procurement choices.

8. **Provide clarity around data privacy and security at a national and EU level:** Differing national interpretations of EU rules and uncertainty over applicable laws, combined with concerns over data security and access to data in the cloud by third parties, are hampering the adoption of public cloud services by many government bodies across Europe. Greater clarity would facilitate decision making on the benefits, costs and risks of using cloud.
It's my choice how I want to interact.
I can be a cloud provider, cloud user, or even both.

Cloud ensures all my important data is secure.
Sources


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