



# Thinking Digitally about Local Government

**Making things better for residents, workers and visitors**



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## Thinking Digitally about Local Government: Making things better for residents, workers and visitors

### Improving public services delivery through digitisation

#### Introduction

Local authorities have a vital role to play in enabling more integrated communities that deliver improved public services, increase productivity and attract economic growth.

Delivering smarter, more joined-up citizen services while facing seemingly ever-lasting budget reductions, leaner workforces and limited resources however can mean many public sector business leaders and IT professionals are understandably focussed on the metaphorical and real challenges of simply 'keeping the lights on' or delivering the same services for less money – and with fewer people.

Yet by looking at these challenges through a digital lens, it is possible to deliver savings, increase efficiencies and potentially generate new income streams.

Connecting the physical and digital worlds is about making things better for residents, workers and visitors. Through the development and implementation of place-based transformation plans, public sector bodies can provide higher quality services and better outcomes for citizens, employees and visitors. The increasing influence of digital technology is pivotal to successfully addressing these challenges and delivering this vision.

While our companion paper [Thinking Digitally about Health and Care](#) explored digital transformation from the perspective of health and care's increasing integration with other public sector agencies, [Thinking Digitally about Local Government](#) does so from a local authority standpoint. It also explores how Cisco can support leadership teams as they build the foundations for a more connected community, while simultaneously reducing spending and delivering better public services.

The outcomes of this approach will help public bodies deliver services at each stage of the citizen services continuum – regardless of the entry point or which services are being used. Both recipient and service provider will benefit from intelligently joined-up solutions linked through any series of interactions involving people and the services they need. This will not only enable more efficient service delivery but also reveal new, valuable insights through the connections made between previously separate data sets. The subsequent benefits to citizens will be better, more joined-up and intelligently delivered public services.

#### The Citizen Services Continuum

The series of interactions required when a person (or people) need help from a local authority and other local public services.

This could be for health reasons, social care, educational needs, police intervention, etc.

The continuum is an end-to-end succession of actions necessary to deliver the best outcome for the recipient.

It usually involves multiple steps spanning several agencies, where sharing information is critical to a successful outcome.

The continuum has many entry and exit points and can be re-joined (if necessary) at different stages during the service delivery.

Typically, this process is iterative in nature, once someone is receiving support it is highly likely they will require interventions from different public sector organisations.



## Local Government today – expectations vs reality

The most recent edition of PwC’s local government survey [The Local State We’re In 2019](#), indicates a growing recognition of the benefits technology can deliver.

*“Digital technology is enabling local government to transform everything from the back office to how they collaborate with partners and engage with residents and communities. Data, meanwhile, has the potential to underpin a shift to making earlier, smarter interventions. Councils must embrace a ‘digital mindset’ in terms of how they approach the opportunity digital and data offer to transform how they operate and change the terms of engagement with the public.”*

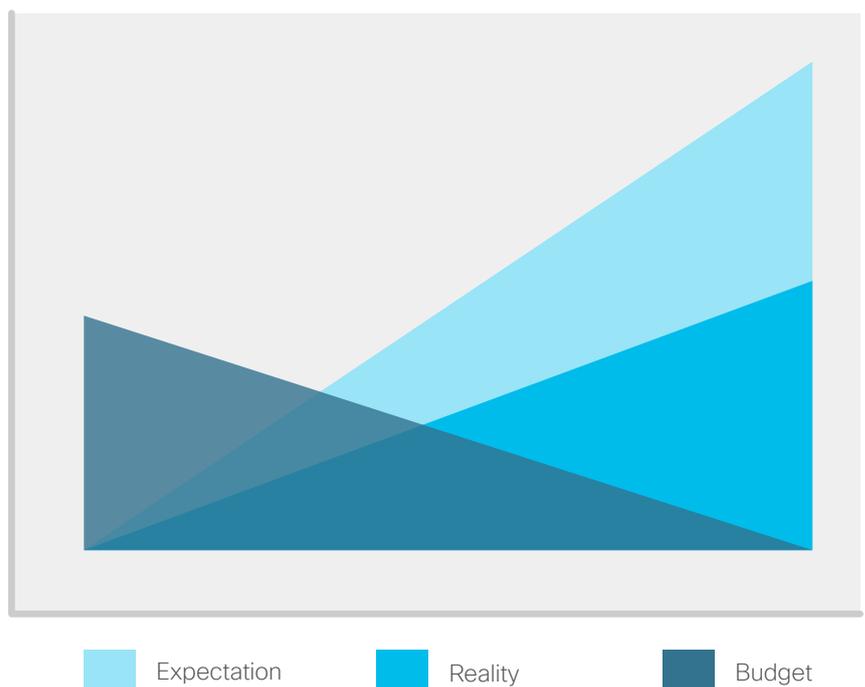
The survey highlights an “... increase in expectations on what digital can deliver” with 89% of respondents’ agreeing that “...digital will enable councils to engage in new ways with communities and residents, up from 54% in 2016.”

Yet confidence that technology is being used to deliver better public services appears to have fallen: “In 2016, 76% said that they felt confident compared to only 20% in 2019.”

Respondents also said that 80% of their organisations are not embracing new technology, and while 69% thought their local authority placed customer experience above everything else, only 40% of the public are satisfied with digital access to council services. 53% said they felt digital would help reduce costs.

Over the past 10+ years, technology companies have been accused of over-promising, under-delivering and selling ‘technology for technology’s sake.’

During the same period, budgets have continued to plummet, leading to the current situation where it is harder than ever to justify new spending on digital solutions. More and more proposals to invest are being challenged to provide business cases that are clearly linked to better business and citizen outcomes.





## Local Government today – expectations vs reality (continued)

We recognise the many challenges facing leadership teams involved in delivering public services and believe that the ones listed below can be addressed through better use of digital solutions:

- 1. Creating smarter places** – delivering more effective efficient citizen services through digital enablers to make service providers' and recipients' lives easier.
- 2. Cybersecurity** – greater use of and reliance on digital technology leads to increased risk of cyber incidents occurring.
- 3. Financial issues** – from lack of budget to continuously needing to drive down the cost of services, particularly business and ICT operations.
- 4. GDPR** – policies, processes and technical controls must be flexible and adaptable to maintain privacy obligations as use of digital technology increases.
- 5. How to drive efficiency, effectiveness and value-add** – within IT service delivery, through new operating models and service consumption models.
- 6. Insourcing versus outsourcing** – 'taking back control' by internal ICT teams.
- 7. Joining up data and providing access** – how to transform information into insight and insight into action. How do you provide access to the data and services to those who can benefit the most?
- 8. Multi-agency working** – combining the challenges of requirements and technology standardisation while bringing together multiple agencies to address shared problems, for example: the effect of traffic congestion on air quality and instances of Chronic Obstructive Pulmonary Disease (COPD).
- 9. Operational efficiency and estate rationalisation** – how to successfully reduce real-estate footprint while enabling mobility and workplace flexibility.



### It's complicated!

Towns and cities are complex environments, with many competing demands on local leadership teams. Digital solutions are often designed, developed and deployed to solve single issues, yet while this approach can address immediate requirements, the opportunity to provide the first elements of a reusable, flexible and scalable community-wide solution that delivers the foundations of a connected community blueprint, is often overlooked.

Fragmentation combined with the challenges of having to live in the 'here and now' due to budget constraints, deadlines etc., makes this approach initially more challenging, but we think that the results will far outweigh the potential pitfalls and costs.

Resolving any combination of the challenges we've identified – let alone tackling them all – may seem a daunting challenge. However, significant savings can be made in the medium-term by better utilisation of existing assets.

Delivering more integrated services is a joint responsibility shared by local authorities and other public bodies, academic institutions, commercial organisations and citizens. This 'quadruple helix' (see the following image) will lead to deployment of more community focused and collaborative solutions.



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These existing assets will act as key enablers in the delivery of smarter solutions, combined with access to new apps for both public sector employees and citizens, to transform how they interact with each other.

## The 'Whole System Approach' – a common platform for digital delivery

In many digitisation programmes the different 'smart' initiatives are only loosely linked, with individual projects brought together under a digital banner rather than delivered as an integrated regional programme. As a result, a community is unlikely to take full advantage of either cross-domain data sharing, or the associated intelligence that can be extracted from multiple information sources.

One lesson learnt from other digitisation projects is the need to take an architectural approach to digital and smart solutions in order to avoid unnecessary complexity, duplication and lack of integration between various components of digital/smart/IoT deployments. This approach can also reduce unnecessary financial burdens often placed on management teams, as multiple siloed solutions often duplicate expensive elements of overlapping technologies and services.

Our vision for this integrated digitisation methodology is based on our 'Whole System Approach' (WSA) model. This consists of a cross-community platform of secure connectivity, collaboration and data management that connects all stakeholder organisations and underpins emerging new service delivery models.

The overarching message is one of re-use and re-exploitation of your digital technology assets alongside strategic investments in new, enabling digital solutions.

This approach enhances access to information and supports collaboration across all service delivery partners, improving outcomes for both citizens and employees.

Once established, this community platform could include interoperability solutions for legacy applications and legacy datasets, smart/IoT solutions, social software, open data and business intelligence-related data management solutions, artificial intelligence (AI) and analytics that support secure, appropriate data sharing. Combining disparate datasets enables new insights to be gained from existing and newly generated data.

For more information on our WSA, see [Thinking Digitally about Health and Care](#)





## Thinking Digitally about Local Government: Making things better for residents, workers and visitors

### From vision to reality

The UK's local government organisations provide, on average, over 800 different services to communities and local businesses.

From unitary authorities to metropolitan boroughs and town and county councils, their structures can be as varied as their geographical locations and populations. Yet most face very similar day-to-day challenges and deliver similar services.

#### Typical services include:

Residents Services, Benefits and Council Tax, Business and Property, Community and Living, Council and Democracy, Education and Learning, Environment, Health and Social Care, Transport and Streets, Business Services, Property Services for owners and tenants, 'What's On' information and Local News/Events, Leisure and Culture, Policing, 'Report an incident' services e.g. Abandoned Vehicles, Faulty Road Sign or Street Furniture, Fly Tipping, Graffiti, Nuisance & Threatening Behaviour, Street Cleaning, Street Lighting Problems and many others.

As IoT comes of age and there is greater focus on the analysis of data through both traditional and new methods including AI, it is more important than ever that solutions are delivered as part of a broadly adopted digital platform rather than as individual solutions.

Public bodies have long used technology to deliver public services. The advent of smart solutions means technology now also has a part to play in addressing services not traditionally associated with digitisation, with many utilising data gathered from multiple sources:

- **Air pollution analysis:** collecting and analysing environmental data to identify the causes of pollution, potentially dramatically reducing its effect. This could reduce COPD medical appointments, reducing costs.
- **Buildings:** optimising building utilisation, tracking assets, reducing energy consumption.
- **Integration of IoT and none-IoT data sources:** such as combining crime statistics with house prices to demonstrate the adverse effects of anti-social activities on a specific area.
- **Moving from proactive to predictive service models:** for example, using AI and video analytics to predict the effect of traffic on the road surface for forward-planning and possible preventative maintenance.
- **Parking:** using data trends to predict parking space availability.
- **Street lighting:** utilising predictive analytics to enable power companies to more effectively manage power consumption and improve safety through better lighting, while also saving energy and reducing council lighting bills.
- **Traffic forecasting:** taking historic and real-time data to interpret patterns and support traffic management through short and long-term traffic forecasts.
- **Waste management:** using historic data to help refuse operators manage waste disposal effectively, for cleaner streets and minimum environmental impact.

UK drivers waste the equivalent to over **a day each year stuck in traffic** (three days if you live in London, **one of the most congested cities in the world**).

LED lighting can save 50% on traditional lighting solutions – lighting is typically 20% of a city's total energy bill.

The UK's air quality levels are among the **poorest** in the western world. **8% of deaths** in the UK each year are linked to pollution (50,000 people), with around **9,000** casualties in London.



### Digital solutions need digital operations

The many challenges we've highlighted particularly affect IT services. There are however, many existing opportunities for delivering savings and increasing efficiencies, as the role of the IT function evolves to respond to an increasingly diverse digital technology landscape.

A landscape that is shaped by embedded IoT, Smart Places (both inside and outdoors), online citizen services and integration with partner organisations.

At the same time, delivery and consumption models are changing, driven by the adoption of Cloud solutions and 'as a service' products, transforming Capex into Opex and optimising the inhouse vs outsourced capabilities of an organisation.

IT functions will therefore have to transform, becoming digital services providers. Yet while this reinvention will differ for each organisation, depending on the business drivers already mentioned, the chosen architecture will be similar.

But what does this mean for IT departments? And what are the drivers for deployed digital capabilities?

### 'Financial troubles'

#### Shared services, sourcing models, cloud and 'as a service'

These drivers have the following in common:

- driving efficiency through economies of scale and automation opportunities presented by consolidation of services and solutions
- driving flexible, component-based acquisition, delivery models and cost reduction through best-of-breed sourcing - including internal and external providers, commercial and public-sector
- optimising the mix between Capex and Opex, along with the associated choices around ownership of assets.

Achieving all the above requires IT functions to become digital service integrators to take responsibility for:

- service strategy and design
- procurement and acquisition architecture
- operations management in a multi-supplier environment.



### Digital exploitation; smarter places; operational efficiency and estate rationalisation; cyber security

Responding to these drivers needs a digital service integrator capable of:

1. Exploring the potential, feasibility and value of emerging and mature digital technologies, clearly linking the case for investment with business objectives.
2. Effectively transitioning digital capabilities (and the services needed to enable them) from innovation to full capabilities ready for deployment.
3. Focusing new applications of mature technologies to enable workforce innovation, citizen mobility and access, operational efficiency and estate rationalisation. While at the same time using emerging technologies to address the challenges of smarter places.
4. Managing security operations in a highly distributed, heterogeneous, 'zero-trust' environment in order to fully exploit digital opportunity.
5. Managing the challenges and opportunities of digital interoperability for multi-agency working across partner organisations.
6. Identifying, specifying and delivering 'platform' capabilities able to address multiple challenges and delivering economies of scale.
7. Future-proofing these digital capabilities and ensuring they are built for the long term.

### Practical steps towards a smarter place

The success of digitisation projects depends on collaborative working between different parties, including local authorities, health and care, education, blue light services and commercial companies etc. In order to do so, organisations should identify shared challenges and develop mutually beneficial solutions.

Local government should be viewed as a single entity with many inter-related, overlapping component parts. Each deliverable should be viewed as one component of the overarching regional strategy.

[The Local Digital Declaration](#) outlines a collective ambition:

*"...to co-create the conditions for the next generation of local public services, where technology is an enabler rather than a barrier to service improvements, and services are a delight for citizens and officials to use. We know that one size doesn't fit all, but by developing common building blocks, local authorities will be able to build services more quickly, flexibly and effectively. Only in this more open and flexible market will we unlock our full potential for innovation."*

It is only possible to create truly smart communities by joining up these previously separate groups.

It is also critical that any digital strategy is embedded within a business strategy rather than treated as a separate deliverable. Digital solutions are now capable of supporting many aspects of service delivery and should be inherent within newly deployed and redesigned public services.



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### Cisco's platform-centric approach

Our suggested approach for a common digital platform can result in the realisation of the following benefits:

- digitisation of traditionally non-IT related services (e.g. distributed workflows)
- a single, connected community with cross-community collaboration
- agile deployment of new services and new iterations of existing ones
- location independent working
- improved population health and wellbeing
- estate rationalisation (both built environment and IT)
- best practice sharing across different services
- improved citizen engagement
- an agile and consistent user experience
- opportunities to monetise commercially valuable data
- a local culture of Innovation
- creation of a set of re-useable 'building blocks' that can address multiple problems
- re-invention of the IT function as a digital services integrator.

### Addressing potential risks and pitfalls

Any large-scale IT programme will have risk, but a joined-up approach can help to alleviate this. Our experience of other digitisation projects has already helped leadership teams to avoid problems experienced elsewhere.

Focused leadership will also drive the success of any such project; Cisco can support leadership teams in:

- building the foundations for more connected communities
- significantly reducing spending
- delivering better services to all residents and visitors wherever possible
- shaping programme roadmaps to optimise plans and sequences
- connecting proposals for digital investment with business objectives and strategy
- delivering composite requirements across organisational boundaries.



## Thinking Digitally about Local Government: Making things better for residents, workers and visitors

### Funding

The emergence of smarter places offers great promise, but also the challenge of finding financing sources and solutions. Our approach encourages an open, extensible infrastructure with new methods of project funding where responsibility for finding budgets is no longer the sole responsibility of the community leadership team.

Digitisation can lead to new ways of generating revenue and this should be considered as a further possible source of funding.

### City Infrastructure Financing Acceleration Programme (CIFAP)

The Cisco CIFAP programme provides innovative financing solutions to cities/regions and operators of urban services in order to enable easy adoption of digital technologies. We will provide these solutions through Cisco Capital and financing partners, private equity firm Digital Alpha Advisors, APG Asset Management (APG), and Whitehelm Capital.

These solutions include:

- **traditional loans and leases:** pay for your infrastructure investment over time, while taking advantage of historically low interest rates.
- **consumption-based financing:** pay for technology based on usage and adjust capacity up and down as needed.
- **“as a service” financing:** rather than purchasing technology, consume it as a service.
- **concession financing:** gain the benefits of technology at little or no cost, while at the same time participating in the incremental revenues or costs savings generated.

As communities strive to become digital and agile, the CIFAP makes it easier to implement the right technology within financial constraints:

- **conserve capital:** preserve cash, credit capacity, and/or budget.
- **total solution:** acquire Cisco and complementary non-Cisco technology with flexible payment plans all on one invoice.
- **flexibility:** monthly, quarterly or annual payments, deferred payments or payment holidays – these flexible options provide the ability to predict and manage budget and cash flow.
- **pay-as-you-use:** secure the technology necessary to meet both anticipated and unanticipated demand spikes and only pay only for what is used.
- **pay-as-you-benefit:** pay only when you realise cost savings or gain incremental revenues.
- **technology lifecycle planning:** flexible, end-of-term options to return, purchase, or upgrade technology.



## Thinking Digitally about Local Government: Making things better for residents, workers and visitors

### What does the future hold?

**More intuitive processes.** As places become smarter, technologies and realities are increasingly layered and complex. To simplify this, we anticipate increased use of machine learning (ML) and AI, etc., to gather and analyse data. This has already started, as traditional networking is replaced by intuitive, software-defined wide area networks (SD-WAN) and intent-based networking solutions.

**AI, ML and Deep Learning (DL).** All will play an ever-greater role in creating smart places. These platforms provide outcome-based analytics via AI, powered by machine learning algorithms for cross-domain insights by sensing, measuring, tracking, and analysing time-based or real-time data on smart assets.

They also provide descriptive, predictive and prescriptive analytics to support community administrators in efficiently managing their domains.

**More apps for more services.** We expect citizens, employees and visitors to have an ever increasing number of apps at their disposal, for easier access to information and services, regardless of physical location or type of device used to access apps. This will result in more 'self-service' based interactions, freeing up valuable resources to deal with more complex and time-consuming activities.

**Low-cost IoT tech leads to wider adoption.**

As community-wide Wi-Fi and IoT technologies become commonplace and affordable, we envisage widespread deployment of low-cost fabrics such as community-wide networks of sensors and cameras used for multiple applications.

**5G and Wi-Fi 6.** With the rapid development of 5G and WiFi6 technologies and the deployment of several testbed projects the UK is ready to take advantage of a new generation of network solutions. These will accelerate the development of smart places.

**Encouraging behavioural change.** Technology is only part of the answer to the smart place conundrum; the real indication of success will be measurable changes in behaviour and improved outcomes for people, e.g. through intelligence-based advice gathered from multiple data sources.

**Agility and flexibility will be the norm.**

A flexible, extensible platform will allow local authorities to adapt in a rapidly changing environment, helping organisations avoid being locked into closed, inflexible solutions. This approach lays the foundations for the adoption of future technologies, for example, semi-autonomous and fully autonomous vehicles and robotics.



## Thinking Digitally about Local Government: Making things better for residents, workers and visitors

### Conclusion

The emerging demands placed on all stakeholders by the changing role of public sector service providers and the delivery of digital solutions are challenging enough in their own right. Combined with budgetary, headcount and timescale constraints, the requirement to “do more with less” goes beyond a cliché to represent a near-infeasible aspiration.

Closing the aspiration gap therefore requires a change in approach, where digitisation is at the heart of planning for all new citizen services, regardless of which organisation is responsible, who is in control of delivery or who will benefit most from the improved service provision.

Our proposed Whole System Approach can provide a set of underlying architectural principals necessary to develop a platform for delivery of better public services and result in a more joined-up community.

Connecting physical and digital worlds should focus on making things better for residents, workers and visitors; something that Cisco is helping to achieve in many communities, across the globe. And in our work with local councils and other stakeholders, we have found that small steps towards digitisation can make major differences that will lead to the delivery of a next generation digital experience for all.

### Want to know more?

Our dedicated Local Government and Health and Care team works closely with our customers to find the right solutions for their organisations. We're also here to support the continuing integration of public sector services and the ongoing process of creating smarter places.

This document is just the starting point for the creation of frictionless towns and cities that improve living and working conditions for everyone.

We believe the possibilities are endless, as our combination of digital capability, understanding of local government needs and many of our existing projects are already demonstrating.

### Continue the conversation

Contact [Stu Higgins](#), our Head of Smart Cities and IoT, UK Public Sector.

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