Smart Places Today 2015

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UKAuthority

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Department for Communities and Local Government

Foreword

Julian Bowrey

Deputy Director, Digital and Corporate Communications
Department for Communities and Local Government

Smart cities are a hot topic at the moment. Across the world City Leaders are exploring how they can respond to the challenges posed by the revolutions in Digital, Big Data and the Internet of Things. This interest is driven by two interrelated processes; the continuing growth of cities, especially large cities as people move to take advantage of economic and social opportunity, and the potential of networking technologies to make cities better places to live and, perhaps more optimistically, easier to manage.

As a member of the Government's Smart Cities Forum for the past 18 months I've been lucky to have played a part in this new movement. There's been a real sense of excitement about the enormous potential of the different smart technologies to improve the quality of life of citizens and some great case studies from the UK and around the world showcasing these technologies in action. But as challenging has been getting my head around what this means practically for the residents and their city governments, and what the policy levers are that we should be using to make this happen.

This is especially the case in UK cities which often have at least a millennium of physical infrastructure investment and despite the recent spate of City Deals, fragmented city governance. Having read Jane Jacobs' influential books on urban studies many years ago I have a lot of sympathy with the critics of smart cities who foresee a top down managerial approach out of kilter with the complex, anarchic reality of city life. We need to remember that cities are for people, and that smart approaches must recognise citizens' rights to contribute to their living environments and city governments – and not to have 'smart' imposed upon them.

Another concern along similar lines is that while most of us live in towns and cities, most leading Smart Cities are very large cities: London, New York, Singapore, Barcelona, and Vienna… We need to be careful that smart is not portrayed as only suitable for large, globally renowned cities, but as relevant to all of us, wherever we live.

I'm delighted that the Local Digital Campaign and UK Authority are addressing this important issue, and also delighted that some of my excitement and questions are shared by others!

Contents

1. Comment

Neil Carter

Local & Regional Government Director
Microsoft UK

This survey conducted by Local Digital gives us useful primary research about the reality, opportunities and challenges of smart places today.

Those places – our villages, town and cities – matter because of the people who live and work in them. Everything we provide in these places should make life a little bit better for people. But that lesson can be easy to forget when we're talking about the latest innovations.

Big Data, the Internet of Things and all the other technologies discussed in this survey are important. Not because they're new and exciting – innovations come and go. These tools matter because they have tremendous potential to help us transform infrastructure and operations, engage citizens and local businesses, and accelerate local innovation and opportunity. We can understand how people in a given place live and work – and how we can make their lives better.

Since launching our CityNext initiative in 2013, Microsoft and its many local partners have worked with a growing number of public sector leaders to help enable "what's next" for their region, city, organisation or community. In discussions, we see that a 'smart' agenda can very often quickly turn into a conversation about technology and data. We believe that it is important to take a people centric approach – putting the person in the centre of technology and data – to break down departmental silos, connect disparate functions, and improve decision-making, operational efficiency, and citizen services.

Another common misunderstanding about 'smart cities' is that it is all about the Public Sector. 'Smart places' are made up of all facets of a community: public services, third sector, community groups, businesses (small and large). In times of austerity, we are moving from a centralised top-down provision of services to a more bottom-up, networked approach of an eco-system of service provision enabled through collaborative working. Technology can support devolution by equipping a community with data to create an 'information democracy' where communities can be empowered to use and share data to make local decisions. This is clearly an emergent discussion.

Data access used to be tightly controlled. This survey highlights how attitudes toward data are shifting and how greater access to data is improving services and ensuring resources are allocated effectively – whether that is open data, shared data or personal data (all requiring different but linked technologies).

How we use data is also changing. We don't have to be an expert now to see not only *what did happen*, but also *what is happening* and *what will happen,* with simple new tools underpinned by sophisticated analytics. We know that unlocking data through the power of visualisation can accelerate initiatives and outcomes, and be extremely rewarding for those involved.

Microsoft is extremely fortunate to be working with all types of organisations across the public sector on these new initiatives. We are encouraged by this survey and welcome continued dialogue on how to accelerate adoption of enabling technologies or to support the more challenging areas, such as data sharing. As we talk about ways to be more 'smart', to better collect, share, analyse and act on data, we need to remember the people behind it all. Otherwise, we've rather missed the point.

Microsoft CityNext

2. Executive summary

Helen Bedford Olsen
Head of Communications, Local Digital Campaign

Dan Jellinek
Research Editor, UKAuthority

Our survey confirms, if there were any doubt, that in austere times local digital services and digitisation are seen almost universally in a positive light in local public services. Smart Cities – city governments or partnerships which use live data analysis, embedded sensors, predictive algorithms and other technologies to learn, grow and run themselves more efficiently and sustainably, like a giant living organism – have captured the imagination and been the focus of much research and experimental projects in recent years.

"Being smart is about being more efficient: expensive up front, [but with] massive savings long term."

Furthermore, as smart cities have moved from the realm of fantasy to become reality in pioneer locations across the world, another realisation has developed: that the techniques involved are just as applicable to suburban and rural areas and across whole regions. Smart transport, for example, makes sense in a city area. But it also makes sense across remote areas where more responsive transport services might save long miles of wasted travel, or smart care dictate more cost-effective location of hospitals and clinics.

"I can easily see investment doubling in all areas, but this is based on efficiencies being created elsewhere."

What we are talking about, in other words, is not just smart cities but smart places: a new, exciting and rapidly expanding area of digital activity of relevance to all types of public service in all parts of the UK.

"Making benefits clear to elected members (is key) to ensure resource, both staff and funding, when industry still isn't clear what the benefits are to them."

So what exactly defines a smart place? What technologies, techniques, strategies and plans are needed to make a place smart?

In November 2014 we surveyed 60 senior local public service directors and managers about their views on smart services; the current state of play in their own organisation's development; and plans for the future. The fascinating findings cover increases in spending, shortfalls in practice and skills, and the extent of plans to fill the gaps.

"Digital is only one small part of being a smart city. There are wider community issues that also need to be included. The new PAS181 standard [a 'smart cities framework' from BSI the British Standards Institution] is a good model."

Below we set out the highlights of our findings, followed by answers to all questions in detail with analysis in the main body of this report.

2.1 Spending

- The proportion of technology budget spending on smart services is predicted to rise over the next three years from 5% to 12%

Among the most revealing findings of our survey are its spending predictions. In the current climate of harsh budget restriction, every penny of spending on new technology must be scrutinised, measured and justified painstakingly and repeatedly.

This makes our first key finding all the more significant: our respondents estimate that in the short to medium term – a timescale of just three years – the proportion of councils' technology budgets spent on running or developing smart services is predicted to more than double from 5% now to 12%.

Of course, proportion of budget does not equal cash amount, if budgets as a whole are falling, but a rise of this magnitude means we are likely to see a significant rise in both the amounts spent on smart services and their relative importance within budgets. Smart services are set to hit the mainstream.

- In the same timescale, the proportion of budgets spent on maintaining service levels is predicted to drop from 60% to 51%

In a finding which could be linked – though more detailed research would be needed to verify this – the proportion of spending allocated to merely 'keeping the lights on' – maintaining services at their current levels – is predicted to fall from 60% to 51% in the same timescale.

Clearly, respondents expect services to be running more efficiently in three years' time, and smart services – along with greater sharing of services and movement of infrastructure to the cloud – could well play a part in this.

2.2 Big and open data

- About three-quarters of respondents (75.8%) feel that big data handling to address complex challenges is a key part of smart services. However only about one in five (19.4%) report current activity, though half (46.8%) are working to introduce it

Starting to look at the detail of what makes services smart, one key element according to three-quarters of our respondents is the handling of big data to address complex challenges - from transport to social care. In a finding echoed throughout the survey, however, actual current implementation is not that high (19.4%) although much larger numbers have identified the area as important and are actively working to address it.

In this case, almost half (46.8%) are working to introduce big data acquisition and handling systems.

- About one in five (21.0%) report already using data analytics to predict service demand with a view to anticipating times and locations of highest demand

Next we wanted to know - what is big data used for exactly? One answer is demand prediction. This is the field which has already generated media headlines in pioneer locations worldwide - from ambulances placed at hotspots before anyone is actually taken ill, to live traffic management changing minute by minute.

About one in five respondents say they are already using data analytics to predict service demand, with a view to improving efficiency in areas such as transport and social care. This is a similar proportion of respondents as that implementing big data systems in the first place, suggesting that prediction could be the main use of big data analytics in smart places.

- Some 68.2% of respondents say they either already publish (29.8%) or are working on publishing (38.3%) all possible data sets that they hold

Clearly, we have entered the age of open data - with almost seven in 10 respondents stating they either already publish or are working on publishing all the possible data sets they hold. The arguments for openness by default, when it comes to publishing data held by public bodies, have been won. This is further good news for those looking to create smart services based on analysis of the current position.

"Smart places must deliver fast internet access free or at low cost via Wi-Fi or 4G, both in buildings and communities via meshed coverage. Customers and citizens are then provided with the opportunity to be digitally connected, rather than digitally excluded."

"When senior colleagues call for borough wide Wi-Fi, you can imagine that this does not stand out as a priority in a deprived borough such as ours."

"Needs a champion as much as other initiatives such as healthy lifestyles."

"'Smart' requires behaviour change."

"We need to recognise the different assets that the people, organisations and environment have in our local areas, not just digital assets."

- Fewer say they facilitate publication of data from other sources to help businesses innovate. Just over a half (54.9%) say they are doing this or working on it

We do have a little way to go however before public bodies see themselves as broader data access providers and enablers for their local residents and businesses. With only around a half of respondents saying their organisations see their open data remit as extended beyond what they hold to other relevant local and national data providers, there is clear room for improvement in this area.

2.3 Internet of Things

- The placing of sensors in buildings, roads, transport assets and other objects is viewed by almost everyone (88.4%) as essential for smart places

It is clear from this finding that the future of smart places is closely intertwined with the development of the equally hotly anticipated 'Internet of Things'. The development of new cheap, net-connected, sensors and their embedding in parts of public infrastructure from utility pipes beneath roads to lampposts and driverless cars was seen by almost all those we surveyed as essential for smart service development.

- However there is little implementation – just 11.6% report already having sensors embedded, while just under one third are working on it (30.2%) or are at the planning stage (30.2%)

This shows we are still some way off realisation of an 'Internet of Things', when it comes to service infrastructure. However it also shows that significant work has started or is planned in this area, and that more and more embedding of sensors should therefore be expected as smart services develop.

- There is more progress with creation or promotion of smart buildings, with almost two-thirds (65.3%) either implementing (19.6%) or working on (45.7%) these

With some elements of smart technology such as energy and light efficiency having been part of modern building design and indeed construction law for some years, smart building design and use is running ahead of other areas of smart infrastructure. This ties in with further findings about flexible working in local authorities and local public bodies: smart buildings boost smart working practices.

- When it comes to building smart infrastructure into planning policy, however, the numbers are much lower: only 4.5% of respondents say they are doing this

What is not running ahead, however, is planning policy. While efficiency, business innovation and sustainability are part of planning policy and strategy in all areas, the connected field of smart infrastructure appears not to have registered yet in almost all policy development processes.

This is surely an area where planners will have to start connecting the dots and bringing smart service visions alongside planning for more established goals of better infrastructure and housing.

2.4 Everyone online and engaged

- About three-quarters of respondents (75.9%) say that helping all households online is part of being a smart city, though only just under half (48.3%) have achieved this

For a city or place to truly be smart, every one of its citizens must have access to the internet. This would seem to make sense, given that public services must reach everyone, and the most socially excluded – including the digitally excluded – are often among the biggest users of public services. Just over three-quarters of respondents agreed that universal access is an essential part of being a smart city, with public bodies duty bound to help the process. Only about a half have actually achieved this so far, however, hinting at a potential barrier to progress for the smart services agenda as a whole.

- Just under one third (27.5%) of respondents report free or low cost Wi-Fi or fixed broadband already across their areas, with a further 45.0% saying some work is underway

As a sub-section of ensuring all households are online, about 30% report free or low cost Wi-Fi or broadband in their areas. This accounts for a large proportion of the 48.3% who report achieving universal access in their areas, this is likely to go some way towards improving the connectivity situation.

- Fewer than one in five of respondents (17.5%) say they have successfully engaged citizens in decision-making processes, though most (57.9%) say they are working on this

Seen as another key part of smart service provision by most respondents, less than one in five (17.5%) claim to successfully have engaged citizens in the decision making process. The majority are, however, working on this. Of course, connectivity is simply the first step - offering people meaningful chances to be engaged in local decision-making, boosting their skills and incentivising them to do so in these times of general political disenchantment and disengagement is another matter entirely.

A figure of 17.5% is clearly too low however for today. If citizens are not engaged in deciding how smart services are run, how can those services be designed to fully meet citizens' needs?

2.5 Smart working

- Integration of the back office with citizen-centred services is already in place in 29.8% of areas, and in development in 48.9%, making a total of 78.7% in place or developing

When it comes to smart working, the areas where most activity is already taking place are internal. Nearly four-fifths of respondents (78.7%) reported either having front and back office system integration already in place, or said it was in development.

Smart working inside local service organisations is needed to tie in with smart service provision to those outside: so this is an encouraging finding. It is likely that progress levels are so high here because front and back office integration has been seen for some time now as a key way of generating budget efficiencies.

- The survey found surprisingly low take-up of cloud technologies. Only 31.4% said they use cloud solutions to cut costs and boost flexibility. A further 40.5% are working on cloud implementation, however, and most of the rest (26.2%) have plans

A slightly greater number of respondents – 31.4% - said they already use cloud solutions to cut costs and boost flexible working, although this is still relatively low the majority are either working – or planning to work on – cloud implementation.

- For secure information sharing between bodies, only 22.9% already have such arrangements in place and a further 37.5% report them in development

When it came to externally-facing collaborative and smart working, however, the figures were lower. Secure information sharing between public bodies – surely another key part of a smart service environment, where the citizen will not be interested in knowing which organisation is catering for their needs at any particular time as they move about the city or area – is active only in just over one-fifth of places.

Although a further 37.5% report sharing in development, even taken together these figures suggest that here could be another major barrier to smart service development in many areas. Privacy, data protection, security and silo working, not to mention the widespread perception that such problems are bigger than they actually ought to be, could all slow down the smooth development of smart services across an area.

- Underpinning internal smart activity lags behind

Some key underpinning smart activities are running behind, including the ability to gain a consolidated and transparent view of finances (reported as in place in 18.6% of organisations); automation of performance data (17.4%); and realisation of a '360 degree view' of service users (4.7%). With finance and performance data a possible key to realising further cost savings within organisations, these would seem strong areas for focus in the coming months.

2.6 Skills and capacity

- Only just under one in five (19.6%) have the capacity to explore new smart technologies and processes, though double that number (39.1%) are working on putting it in place

When it comes to the initial stages of exploring new smart technologies and processes, we found a shortfall in capacity and capabilities – including staffing resources, skills, knowledge and experience. This would seem to mean that currently those wishing to begin implementing smart services are in danger of falling at the first hurdle. Budget cuts and staff shortages may be hitting hardest in this kind of area – the experimental and the innovative.

- Once a technology is identified for investment, a quarter (26.1%) have the capability to make informed choices about applying it to meet user needs, and 34.8% are working on building this capability

Respondents are a little more confident they have the internal capability to make informed choices about applying technology to meet user needs, once they have identified the right areas in which to invest. However this still means that only one in four are currently confident they have this capability; surely another serious barrier to smart service implementation.

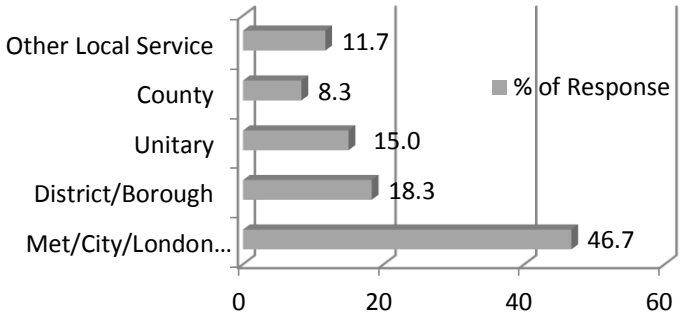
- As for the capacity to actually implement technologies, however, just 15.2% report this is already in place, though 45.7% have plans to address the gap

Finally, the skills shortfall appears to be greatest where it matter the most: implementation. Just 15% of respondents said their organisation currently has the capacity to implement smart services: a sobering note on which to end our summary and a reminder that without the right skills to innovate, the public sector will be unable to take full advantage of the cost efficiencies available from better – and smarter – ways of delivering modern services.

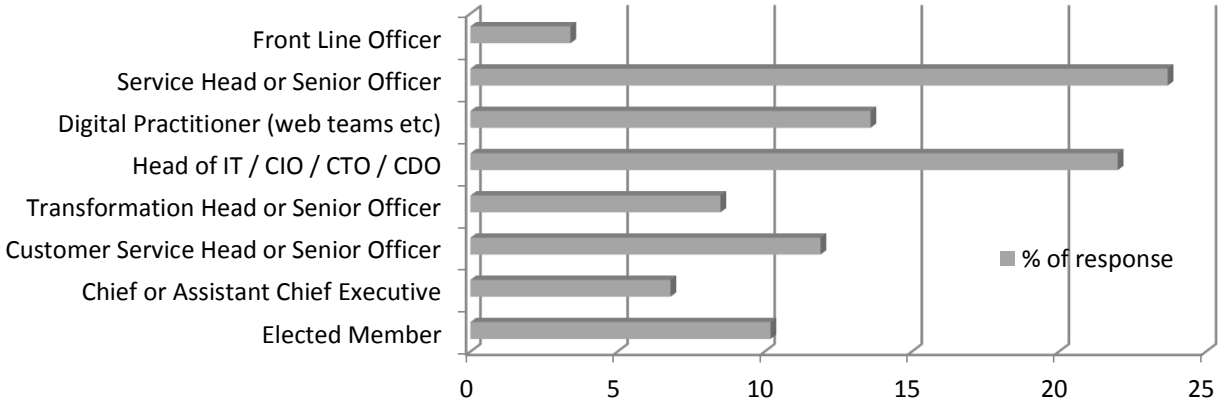
3. Results

3.1. What type of organisation do you represent?

Sixty local service organisations participated in the survey. Just over half were from city or metropolitan councils and London boroughs (46.7%), with a further 15% representing unitary authorities – some of which were cities in their own right. However, just over one in ten (11.7%) were from local services such as police, fire, health, housing and transport executives.



Responses came from a wide selection of local service officers – from senior service heads, chief or assistant chief executives / officers and elected members to web teams and frontline officers.



3.2 Engaging and serving citizens and businesses

A smart city...	Is part of being smart	We are planning	We are working on	We already have	No response
Has a high percentage of internet-connected households	**75.9%**	8.6%	34.5%	48.3%	8.6%
Successfully engages citizens in its decision making processes	**73.7%**	17.5%	57.9%	17.5%	7.1%
Provides accessible and inclusive services for all its citizens and business	**72.4%**	15.3%	66.1%	18.6%	0%

Provides online access to all appropriate services for its citizens and business	**69.0%**	6.9%	72.4%	19.0%	1.7%

More than two-thirds of respondents agreed that our four elements of smart citizen engagement – internet connected households; engagement in decision-making; accessible and inclusive services; and online service access are all a part of being a smart city.

However none of these features have yet been achieved by a majority of areas and only one – a high percentage of internet-connected households – was reported as being achieved by about a half (48.3%) of respondents.

In the other three areas, most respondents – somewhere around about two-thirds in each case – are still working on achieving them, with the lowest current achievement level of 17.5% for successful engagement of citizens in decision-making processes.

To date, it seems, the smart city movement is being driven from the centre, though again a significant majority of respondents do say they are working to address these issues or already have these capabilities.

3.3 Big data

A smart city...	Is part of being smart	We are planning	We are working on	We already have	No response
Uses travel and other data to inform decisions to minimise transit and pollution for sustainability	**78.3%**	35.0%	23.3%	11.7%	30%
Uses data and analytics to help address complex challenges (such as troubled families)	**75.8%**	24.2%	46.8%	19.4%	9.6%
Uses data and analytics to predict service demand (such as for social care and transport)	**74.2%**	30.6%	40.3%	21.0%	8.1%

Even higher average levels of respondents – about three-quarters (74%-78%) in all cases – felt that big data handling capabilities are an inherent part of smart service planning.

However there are low levels of current achievement.

About one in five (21.0%) report already using data analytics to predict service demand in areas such as transport and social care, with a view to improving efficiency by anticipating times and locations of highest demand. A further two in five (40.3%) say they are working on such capabilities, but this means that a similar number (38.7%) are either only at the planning stage or did not respond to this question.

This would seem to indicate that service demand prediction is set to be a major growth area as local services work together to identify savings and predict service demand.

The figures are similar for use of data to help address complex challenges such as troubled families – a policy area often cited by politicians as a test-bed for data sharing and collaborative approaches that have the potential to save a great deal of public money by addressing problems now which could end up getting worse and costing many agencies large amounts of money in future. Here, again only about one

in five respondents (19.4%) report current activity, though a larger proportion, almost half (46.8%), say that they are actively working to introduce it.

Interestingly, whilst almost eight in ten (78.3%) identified the use of travel and other data to inform decisions to minimise transit and pollution as 'part of being smart', one in three (30%) were neither working on nor planning to work on such applications of big data.

3.4 Open data

A smart city...	Is part of being smart	We are planning	We are working on	We already have	No response
Facilitates publication of open data from local and national sources to help local businesses innovate	**79.6%**	22.4%	28.6%	26.5%	22.5%
Publishes all possible data sets that it holds (subject to legal restrictions)	**74.5%**	10.6%	38.3%	29.8%	21.3%
Ensures its officers understand data protection and security issues	**71.4%**	7.8%	33.4%	58.8%	0%

We have truly entered the age of open data, with 68.2% of respondents saying that they either already publish (29.8%) or are working on publishing (38.3%) all possible data sets they hold, subject to legal and privacy restrictions. This kind of activity level would have been unthinkable just a few years ago; but as about three-quarters of respondents (74.5%) indicate open data publication is another key element of smart service provision, it seems they are moving to get ahead of the curve.

Slightly lower levels of respondents, however, say that their authorities broaden their open data remit further and facilitate publication from other local and national sources – become an open data hub, in other words, to help local businesses innovate and become part of a cross-sector smart ecosystem. Just over a half (54.9%) say that they are either already doing this or actively working on it, including the just over one quarter of respondents (26.5%) who say they already do this.

Encouragingly, the highest levels of all say they are ensuring their officers understand the data protection and security issues that are so crucial in publishing data openly to the world. Around three in five (58.8%) say that they already make sure their staff have these vital skills; with a further third (33.4%) working to do this. The remaining 7.8% have plans in place to start this work, though this does perhaps point to a few significant cybersecurity gaps which remain in the local public sector. This could be seen as a concern in the current climate of heightened awareness of these issues.

3.5 Smart technologies

A smart city...	Is part of being smart	We are planning	We are working on	We already have	No response
Uses sensors (Internet of Things) to monitor the environment and citizen well-being	**88.4%**	30.2%	30.2%	11.6%	28.0%

Offers Wi-Fi or wired broadband across its area	**80.0%**	22.5%	45.0%	27.5%	5.0%
Uses mobile solutions to enable staff to work on the move / flexibly	**73.3%**	7.4%	37.7%	54.7%	0.0%
Uses social media to interact with citizens and businesses	**73.3%**	2.0%	30.0%	68.0%	0.0%
Uses cloud solutions to cut costs and boost flexibility	**64.3%**	26.2%	40.5%	21.4%	11.9%

When it comes to looking at specific smart technologies it seems putting sensors in buildings, roads, transport assets and other objects across the city – building the Internet of Things – is viewed by almost everyone (88.4%) as essential for smart services. However there has been little implementation on the ground so far – just 11.6% report already having sensors embedded in some instances, while just under one third said they were either working on it (30.2%) or merely at the planning stages (30.2%). Clearly this is another field with massive growth potential.

Next most important was the capability to offer Wi-Fi or fixed broadband internet to citizens and businesses across the organisation's whole area, something which is further down the track to widespread implementation with just under one third (27.5%) of respondents reporting this already in place and a further 45.0% saying some work is underway. So in all some 72% of respondents said ubiquitous internet access was either here or on the way in their area.

Almost all places either already offer or are working on the next two most important technologies cited for smart cities: mobile solutions (54.7% have, 37.7% working on it) and social media activity (68% have, 38% working on it). These penetration figures reflect the relative maturity of the mobile working and social media sectors compared with the more recent emergence of the sensor-enabled Internet of Things.

However, the much lower current use of cloud technologies reported might come as more of a surprise. Only 31.4% of respondents said that they already use cloud solutions to cut costs and boost flexibility. A further 40.5% said they are working on cloud implementation, however, and most of the rest (26.2%) have plans to do so.

3.6 Smart working and collaboration

A smart city...	Is part of being smart	We are planning	We are working on	We already have	No response
Uses digital solutions to improve areas as diverse as health, education and policing	**84.8%**	15.2%	45.7%	4.3%	34.8%
Uses digital solutions to share information securely with partner organisations (eg Multi-Agency Safeguarding Hub, housing)	**77.1%**	20.8%	37.5%	22.9%	18.8%
Has a '360 degree view' of citizen and business service users	**74.4%**	30.2%	39.5%	4.7%	25.6%

Has a consolidated and transparent view of its finances and can model areas for reinvestment	**69.8%**	18.6%	34.9%	18.6%	27.9%
Integrates back office and citizen-centric services to improve delivery and achieve savings	**66.0%**	19.1%	48.9%	29.8%	2.2%
Has efficient HR systems to ensure best use of its talent	**65.1%**	18.6%	44.2%	23.3%	13.9%
Automates performance data on how its services are delivering against targets	**60.9%**	26.1%	37.0%	17.4%	19.5%
Has effective procurement systems to drive efficiency and transformation	**60.0%**	15.6%	48.9%	26.7%	8.8%

The majority (84.8%) view use of digital solutions as part of 'being smart' – both internally and externally. But when it comes to smart working internally and collaboration with other agencies, the areas where most activity is already taking place are internal. Integration of back office with citizen-centred services for example is reported as already in place by 29.8% of respondents, and as in development by 48.9%, making a total of 78.7% in place or developing.

Respondents also reported high levels of existing implementation of effective procurement systems, at 26.7%, with a further 48.9% in development – so 75.6% in place or developing. And efficient HR systems are in place in 23.3% of organisations and in development in 44.2% - totalling 67.5% with live activity of some kind.

When it came to externally-facing collaborative and smart working, however, the figures were somewhat lower. For secure information sharing between bodies for example – considered as a key part of smart working by some 77.1% of respondents – only 22.9% already have such arrangements in place and a further 37.5% report them in development. Making a total of 60.4% in place or developing, this is set a little behind those areas of internal work outlined above.

The results show there are also a few other areas of internal smart activity that run behind the others, however. These include gaining a consolidated and transparent view of finances (reported as in place in 18.6% of organisations); automation of performance data (17.4%); and realisation of a '360 degree view' of service users (4.7%). With finance and performance data a possible key to realising further cost savings within organisations, these would seem like strong areas for focus in the coming months.

3.7 Smart streets and smart buildings

A smart city...	Is part of being smart	We are planning	We are working on	We already have	No response
Promotes and creates smart buildings to manage energy consumption and track carbon footprint	**80.4%**	15.2%	45.7%	19.6%	19.5%

Engages citizens in participatory planning using new media	**80.4%**	19.6%	28.3%	21.7%	30.3%
Builds a smart future into planning policies	**79.5%**	31.8%	31.8%	4.5%	31.9%
Installs and uses sensors to boost efficiency in areas such as congestion, pollution, street lighting, waste collection and emergency response	**76.1%**	21.7%	34.8%	15.2%	28.3%

Overall, levels of activity to date in what we might call the intersection between smart cities and the Internet of Things – smart buildings, sensors and smart city infrastructure planning – are relatively low. However, over three quarters view such developments as part of being 'smart', and at least half of respondents are either working on or implementing activity in all the four areas we examined.

The creation of smart buildings for their own use, or promotion of smart building use by others, tops the list: 80.4% say this is an intrinsic part of 'smart' and almost two-thirds (65.3%) are either already implementing (19.6%) or working on (45.7%) smart buildings.

Exactly one half of respondents (50.0%) are either implementing or working on plans for installing and using sensors to improve the efficiency of services in areas as diverse as waste collection logistics; street lighting; and traffic control.

When it comes to building smart infrastructure into the modern planning system, however, the numbers are much lower: only 4.5% of respondents say they are already building a smart future into their planning policies, with the remainder split into roughly equal thirds between working on it; planning it; and no plans or no response. This would suggest the planning system is running behind the state of the art of technological development when it comes to smart cities, smart services and smart infrastructure.

At least when it comes to planning consultation, new technologies are being explored: just over a half of respondents (50.2%) report engaging or working on engaging their citizens in the planning process using new media.

3.8 Capability and capacity

A smart city...	Is part of being smart	We are planning	We are working on	We already have	No response
Has the capacity to explore new technologies as they emerge and apply them to benefit citizens and communities	**73.9%**	13.0%	39.1%	19.6%	0%
Has the internal capability to make informed choices about applying technology to meet user needs	**69.6%**	17.4%	34.8%	26.1%	0%
Has the capacity to successfully implement today's technologies to efficiently meet the needs of their citizens and communities	**69.6%**	15.2%	45.7%	15.2%	0%

Our survey highlights a clear shortfall in capacity and capabilities – including staffing resources, skills, knowledge and experience – to identify, explore and realise the potential of smart service development.

This is no doubt partly a reflection of a shortfall in technology skills in general in the public sector, given tough competition from the private sector and massive pressure on budgets. But, judging by the high levels of respondents reporting ongoing work in this area, there is a hope of addressing at least some of these shortfalls in the months to come.

When it comes to the initial stages of exploring new smart technologies and processes, only just under one in five respondents (19.6%) report they already have the capacity to do this, though around double that number (39.1%) say they are working on putting it in place.

Respondents are a little more confident they have the internal capability to make informed choices about applying technology to meet user needs, once an area has been positively identified for projects and investment: just over a quarter (26.1%) say they can already do this, and a further 34.8% have plans in place.

In the third and most crucial area of capacity to actually implement technologies however, the shortfall is greatest: just 15.2% report this is already in place, though 45.7% have plans to address the gap.

Overall this paints a picture of a major skills gap in the smart public services sector. How far the plans reportedly in place to address this are genuine and set to be effective will be another issue worth watching very closely in the coming months.

3.9 Focus of technology spend

APPROXIMATELY what percent of your organisation's...	Approximate current percentage	Approximate future percentage (ie moving towards in next three years)
Technology budget is spent on maintaining today's level of services?	60%	51%
Services are accessible digitally?	36%	53%
Technology budget is spent devising new and innovative services for citizens and businesses?	14%	21%
Technology budget is spent tackling public health and social care demand?	13%	18%
Technology budget is invested in a smart future ie building the digital and smart place services for tomorrow?	5%	12%

Responses to this question provide some fascinating insights into people's views on or predictions for changes in the medium-term focus of their organisation's technology budget – levels they feel they are moving towards in a three-year timescale.

Even in such a relatively short period, respondents felt the proportion of budgets spent simply on maintaining today's levels of service – what is often called "keeping the lights on", referring to maintenance tasks such as running servers – will drop from 60% to 51%, perhaps reflecting moves towards greater sharing of services and movement of systems and infrastructure to the cloud.

This gain might be the source of some of the similar predicted increase in spending on devising new and innovative services for citizens and businesses, predicted to be set to rise from 14% to 21% of budgets. The amount of technology budgets spent on tackling (presumably rising) health and social care demand is also predicted to rise, by 5 percentage points from 13% to 18%.

And in our own area of focus for this survey – smart services – the proportion of technology budget spending is also predicted to rise, from 5% to 12%, more than doubling in its importance to councils, in other words, over the next three years.

And all these areas of increased focus are predicted to underpin a general rise in the overall proportion of local public services which are accessible digitally, to their citizen and business users, from an estimated 36% now to 53% in three years' time.

Of course, all these figures represent proportions of budgets, not absolute spending levels – which are set to continue to fall across local government, though possibly not always within ICT departments – but nevertheless offer insights into future spending focus and hence organisational focus.

3.10 Further comments on the challenges or benefits of building smart places for our communities

Unsurprisingly, the issue of funding crops up in the section where respondents were offered free comments on all or any of the topics covered. A few responses cited tight budgets as a possible barrier to developing smart services, but pointed out that the investment was likely to pay off.

"Being smart is about being more efficient: expensive up front, [but with] massive savings long term," said one respondent. And another said: *"I can easily see investment doubling in all areas, but this is based on efficiencies being created elsewhere."*

Another said that the key to freeing up money would be to ensure that policymakers understand the potential benefits: *"Making benefits clear to elected members to ensure resource, both staff and funding, when industry still isn't clear what the benefits are to them."*

And one said it would be hard to identify precisely what spending was going on smart services, when the agenda is integrated across many others: *"I have no idea about spend [as] we are seeking to ensure smart [working] is integrated into how services are delivered, so may not easily be able to define a figure."*

A few respondents pointed out that the development of smart services must link widely across a community's policy priorities, and include much more than digital technologies and assets.

"We need to recognise the different assets that the people, organisations and environment have in our local areas, not just digital assets," said one. And another said: *"Digital is only one small part of being a smart city. There are wider community issues that also need to be included. The new PAS181 standard [a 'smart cities framework' from BSI, the British Standards Institution] is a good model."*

Some respondents returned to the suggestions that free Wi-Fi provision or internet subsidy could or should be an inherent part of becoming a smart service location.

One was bullish: "Smart places must deliver fast internet access free or at low cost via Wi-Fi or 4G, both in buildings and communities via meshed coverage. Customers and citizens are then provided with the opportunity to be digitally connected, rather than digitally excluded."

But others sounded a note of caution: *"On internet access, I get the feeling we should all say 'Yes it's part of being a smart city', but when we do it's as if we're saying we should now be part of rolling out Wi-Fi across our boroughs. Personally, I think that this is no more sustainable than saying that we'll also provide free water, gas and electricity,"* said one.

And another respondent from a London borough with areas of severe social deprivation said*: "Most of us are moving towards digital delivery, but we're a member of the 'have-nots' club... given that we are NOW making cuts of 40% starting in April, our focus is on survival. For my area this takes the form of driving customer contact to digital channels. When senior colleagues call for borough wide Wi-Fi, you can imagine that this does not stand out as a priority in a deprived borough such as ours."*

Other comments highlighted areas respondents thought will need to be the focus of activity if the smart services agenda is to succeed.

These included "*Building strong collaboration with key organisations"; "Involvement of the academic community in developing suitable algorithms to piece together disparate data streams and make sense of it all";* and *"Needs a champion as much as other initiatives such as healthy lifestyles."*

And one simply suggested that in common with many other public sector technology developments in the past: *"'Smart' requires behaviour change."*

4. Response

4.1 Participating Organisations

Adur District and Worthing Borough Councils
Allerdale Borough Council
Basingstoke and Deane Borough Council
Bath & NE Somerset Council
Blackburn with Darwen Borough Council
Bracknell Forest Council
Bradford Council
Brentwood Borough Council
Brighton and Hove City Council
Bristol City Council
Bury Council
Calderdale MBC
Cambridge
Cardiff Council
City of Edinburgh Council
City of London Corporation
City of York Council
Darlington Borough Council
East Herts Council
Greater Manchester Police
Hertfordshire County Council
Islington Council
Kent County Council
Lancaster City Council
LB Barking & Dagenham
LB Southwark
Leeds City Council
Liverpool City Council
Manchester City Council
Medway Council
Milton Keynes Council
Muir Group Housing Association
Norfolk Library & Information Service
Nottingham City Council
Nottinghamshire Healthcare NHS Trust
Oxfordshire CC
Perth and Kinross Council
Peterborough City Councill
Preston City Council
Reading Borough Council
Rotherham MBC
Shepway District Council
South Yorkshire Passenger Transport Executive
St Albans District Council
Suffolk County Council
Tandridge District Council
Wandsworth Council
West Somerset Council
Wigan Council
Wolverhampton City Council

4.2 Job Titles

Assistant Chief Constable
Assistant Director (3)
Business and Development Manager
Chief Operating Executive
CIO / Head of ICT (6)
Corporate Communications and Marketing Officer (Digital Communications)
Corporate Director Environment
Councillor (5)
Customer Access Manager (2)
Customer Change/Safeguarding Manager
Customer Service Client
Customer Service Transformation Manager
DevOps Digital Services
Digital Coordinator
Director for Customer Service
Director of Customer Access and Digital
Director of Strategy
Economic Regeneration Manager (2)
Electronic Library Manager
Head of BSS
Head of Corporate Services
Head of Development Management
Head of Information, Parking and Customer Services
Head of Service Innovation & Development
Head of Sustainable Energy & Climate Change
ICT Change Manager
ICT Manager (2)
ICT Service Manager
ICT Strategy Manager (2)
Insight & Design Manager
Interim Planning Executive
Leader of the Council
Policy and Development Manager
Policy Officer
Principal Enterprise & Broadband Business Development Officer
Programme Manager, Customer First
Research & Design Manager
Resilience Officer
Senior Economist
Smart Cities
Social Media & Digital Marketing
Transport Research & Economics Manager
Web Developer

5. The Local Digital Programme

The Local Digital Programme supports the delivery of excellent local public services by:

- Amplifying the best of digital innovation and culture change to accelerate use of digital to deliver better services and save money
- Creating a lasting community and two-way sharing between central and local public services
- Discovering, co-designing and nurturing development of:
    - Common digital standards
    - APIs to transform central-local service delivery
    - Local government as a platform
    - Plug and play technology
    - Real-time digital services based on attribute exchange

5.1 Four main streams

- **Discovery, co-design and & co-creation:** Working with central and local government to investigate the end to end digital impact of service transformation and identify, co-design, co-create and launch common solutions to blockers identified.
- **Skills:** These events aim to improve the digital skills of local authority employees, focusing on the key digital skills in demand in local authorities.
- **Futures & thought leadership**: We investigate the impacts of near-future technologies that may impact public service delivery alongside practical digital skills and capabilities training.
- **Local Links:** Councils supply deep links to us, so that visitors to GOV.UK who are looking for services provided by local government can go straight to the right part of the council website.

5.2 Outcomes 2015

In 2014 the campaign ran **41 events** attended by **1,838 delegates -** 95% of attendees would recommend our events to a colleague.

The programme identified hundreds of millions of pounds of potential savings for the public purse. We are working with departments and councils to realise these in 2015:

- Verify, check, deliver… automatic local-central attribute checking to transform service eligibility checking and delivery
- Standards and an Application Programming Interface (API) for council waste departments and suppliers
- A ‘deferred payments calculator’ to help citizens considering their options in paying for care
- Accessing Land Registry property data to reduce fraud
- Sharing DVLA data with local authorities to fill information gaps and deliver savings
- ‘Caresupermarket.com’ to pull together sources of information about care
- Service Transformation Locator

Meanwhile we are working with further departments to identify further opportunities for savings through central-local digital collaboration.

5.3 Campaign Amplification

We communicate the work that we do and engage with our community through our own Local Digital Campaign channels. Almost 13,000 visit our web blog each month, 8,500 open our e-newsletters, over four thousand video views and, in 2015, over 7.5 million twitter impressions.

www.localdigitalcampaign.com

www.localdirect.gov.uk

6. Microsoft CityNext

Microsoft CityNext

Microsoft engages with cities, towns and regions around the world through Microsoft CityNext – a people-centric approach to helping our communities become more sustainable, prosperous, healthier and safer. The focus is on accelerating innovation and opportunity, engaging citizens and businesses, and transforming operations and infrastructure. The solution is tailored to the organisation through a combination of partner solutions, entrepreneur and skills programmes, and an integrated platform of cloud, big data, mobile, and social technology.

For more information please visit *www.microsoft.com/citynext*.