Policy briefing

Digital trends in local public services 2021

February 2021

Socitm

MAJOR CITIES
OF EUROPE
IT USERS GROUP

LOLA Linked Organisation of
Local Authority ICT Societies

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Introduction

I'm delighted to introduce our Digital Trends 2021 briefing after a year like no other. Our briefing is distinctive in its focus on local public services and place-making outcomes that are meaningful for people, communities and their environments.

In the face of the 2020 Covid-19 pandemic, it was the more digitally mature local public sector organisations that fared better than those with a traditional IT focus. This was not because of 'clever technology', but because of how IT was used.

However, in practice, everyone has adapted. Public sector IT teams have been universally praised for rolling out new tools with unprecedented speed, enabling rapid changes in working practices and service delivery.

Most CIOs contributing to this review observed that success was due to more than just IT. Rather, it was the wider organisations' and leaders' acceptance of new ways of working, new risk appetites and immediate, targeted IT investment that laid the foundations... all things that CIOs had been requesting for some considerable time before the pandemic.

This briefing builds on Socitm's work with its international partners (LOLA and MCE) during 2020, including:

> Planting the Flag – a new local normal; and

> Covid-19 Digital and ICT impact survey.

Looking ahead to 2021, investment in digital ways of working and IT will be needed to deal with legacy infrastructure and to consolidate the many and rapid changes made during the pandemic in 2020.

But this briefing goes further. We offer insights for public sector CIOs that take us beyond the pandemic to reset, reform and renew public services and support the emergence of communities and places that are resilient in meeting the societal and environmental challenges ahead.

The past year's acceleration of digital working and practices has demonstrated how important and prescient has been the digital policy and practical advice offered by Socitm with its international partners. This work is available in Socitm's resource hub, which houses a growing number of collections and publications, including:

> Digital ethics

> Accessibility

> Harnessing data

> Smart places

> Location intelligence

> Remote council meetings

This trends briefing would not have been possible without the contribution of many practising CIOs and other professionals from around the world. I am particularly grateful to those who gave their time and expertise.

Samantha Smith
Socitm President

Executive summary

There is a view held by some that we've 'just slipped a year'... in other words, we can soon dust down last year's predictions and strategies and pick up where we left off.

But this would be a mistake, particularly in overlooking some of the big changes in digital priorities brought about in 2020.

For example, traditionally, the public sector has not been seen as 'agile'; it has tended to be cautious, slow and rule-bound, which all conspire against successful and rapid digital implementation. This changed dramatically in 2020, with the need to adapt and adjust policy and working practices in timeframes that would have been unimaginable a year before.

CIOs in the public sector led the rapid development of a range of applications to support staff, citizens, businesses and communities, overcoming many of the constraints that held back the pace of development previously. Now, the majority of public service organisations are revisiting their plans, and not just in terms of IT priorities. Whilst there is much to be built upon from previous plans, much is new, and the emphasis and culture has changed.

Notably, expectations have changed about acceptable risks and the 'millstone' of legacy IT applications. **Remote working and automation** have required new **services** to be 'up and running' in days rather than months. **Inclusion and equality** of access to basic needs – housing, care, food and education – have risen to the forefront of CIOs attention. In 2021 this expectation will continue. The public sector CIO will embrace a new risk model and one that is founded upon the understanding and support of the wider organisation more than on IT practices.

With cuts and pay restraint looming for many public services, and public expectations of digital delivery accelerated, there is a difficult balancing

act for CIOs and digital leaders ahead. There will be a growth in IT budgets, as found in a recent poll of CIOs across the public sector by the CIO Crowd,[1] but this is likely to come with strings attached in terms of the clear contribution IT and digital practice can bring to boost productivity and efficiency.

Local public services CIOs are also having to **consolidate** the 'unfinished business' of accelerated rollout of digital methods in 2020, coupled with **renewal** – a fundamental shift to **localism and urban redesign**, brokering and facilitating better, sustainable outcomes for people, and places. CIOs also expect to have to contend with increasing demands for technologies and data to address the **social, economic and environmental** challenges that have been magnified by the pandemic. Supply chains and suppliers will need to be rethought to match the exigencies of the times, creating ecosystems of trust and innovation.

Data has become a major consideration. The need for ethical, open and transparent harnessing of data has never been more apparent in building public trust, confidence and behaviours. The flow of timely, granular data from central to local government has been a major barrier to targeting support for vulnerable residents, access to digital services and remote schooling, test and trace, disease outbreak management and vaccination take-up. Timely and accurate data will be a major consideration as local governments seek to lead place-based renewal and resilience.

Finally, the attention given to emerging **technologies** will accelerate during 2020, including: cloud, IoT, cyber security, low code development, artificial intelligence, video conferencing, 5G, drones, driverless cars and mobility as a service, and gamification.

2020 has been a pivotal point in digital development and cultures in the public sector, including a more open attitude towards risk, sharing and collaboration. It has also created a truly exciting possibility – a genuine digital culture in organisations as the basis for purposeful IT investment from 2021 onwards.
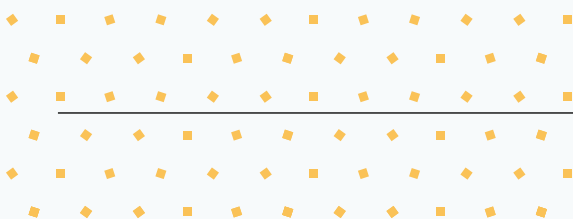
2020 – a year of challenge, discovery and innovation

It is always with some trepidation that previous predictions are reviewed and never more so than in a year of such devastating consequences as 2020. The last twelve months have been ones of unprecedented challenge, discovery and innovation as local public sector organisations have sought to build resilience in the face of Covid-19, economic downturn, climate change and fluctuating levels of public trust.

Yet, there is much in what we predicted previously that has proved accurate, including:

> the growing (and changing) role of IT

> dependency on 'digital' for better public service outcomes

> adoption of specific technologies, such as collaboration tools and cloud

> unprecedented levels of local collaboration and innovation.

The accuracy of last year's predictions, if not the pace, was partly because our Digital Trends briefing focuses less on the technology (as many others seem to at this time of year) and more on the impact and opportunity of new technologies for public service delivery, informed by practising CIOs and their teams.

This year's briefing again combines the intelligence and experience of CIOs and digital leaders from Socitm's networks spanning a variety of countries to draw its conclusions.[2]

Socitm's key policy themes, set within an ethical, digital place-making model (see Figure 1), are standing CIOs in good stead. The components of this model, based as it is on the 'doughnut economics' framework[3] and circular economy models,[4] that have assumed even greater relevance in preparation for the societal and environmental challenges that lie ahead in 2021.

Figure 1. Socitm's ethical, digital place-making model
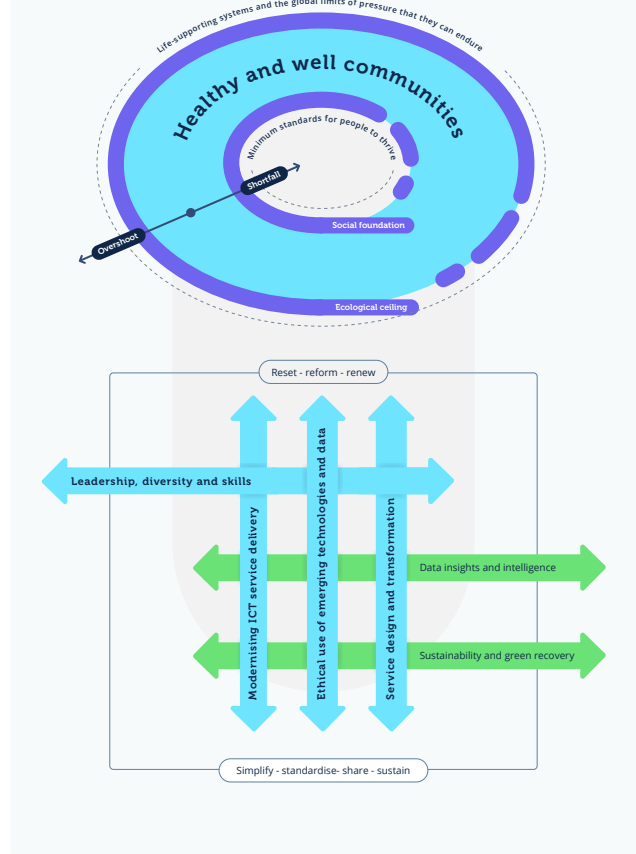
In support of this, Socitm has been proactively researching and developing a growing range of publications and resource hub collections[5] that are helping to inform and nurture collective wisdom across key issues such as:

> Digital ethics

> Accessibility

> Harnessing data

> Smart Places

> Location intelligence

In addition, Socitm and its partner associations (LOLA and MCE) published a prospectus for change (see Appendix 1) mid-2020 'Planting the Flag – a new local normal'[6] that presents eight key building blocks to

Reset, Reform and Renew public services in order to build resilient communities following the pandemic. For more data and useful facts on the digital and ICT impacts of Covid-19, Socitm and its partners undertook a detailed survey in mid-2020.[7] The results of the survey are summarised in Appendix 2.

Whilst most of what we said last year remains valid for the forthcoming year, there are some stronger trends emerging with a focus on cyber, data, cloud, IOT and AI, to underpin digital public services and resilient local places. In response, Socitm will continue to be proactive in addressing and championing ethical use of emerging technologies and data in local public services in ways that are shaping the 'new normal' (see Appendix 1) and helping to lay the foundations to 'build back better'.[8]

KEY MESSAGE:

2021 is set to be a truly exciting year. 2020 was the catalyst, accelerating a more open attitude towards risk, sharing and collaboration. It has opened the door to a genuine digital culture in organisations as the basis for purposeful IT investment from 2021 onwards.

A period of consolidation and renewal ahead?

A number of the CIOs involved in this research talked about 2021 being a period of consolidation and renewal – the chance to review changes made in 2020, and effectively 'paint the digital fence posts' that have been rapidly installed during the pandemic. The pressure on CIO's to do more with less, and to consolidate and modernise public services further, will feel like a whirlwind in the coming year.

"2021 will bring new challenges for local and central government; there will be a need for a repurposed public service, with more emphasis on providing essential support to a growing number of vulnerable citizens, alongside reducing budgets. A predicted increase in supporting higher volumes of complex needs, driven in part by a rise in mental health issues, will add to these challenges.

Similarly, there will need to be a greater focus on economic regeneration, supporting failed and failing businesses, creating an environment to encourage new businesses to grow and develop and helping to drive a move to re-employment – moving from a 'survive' to a 'thrive' approach for our SME communities. As a result, public services will need to consider further innovative and collaborative service models to help meet this increased demand – and try and deliver this from a reduced (financial) supply."

Kevin Taylor
IT Service Manager, West Suffolk council

Alongside a degree of consolidation will be a need to reset the purpose for IT services to reform models of service delivery and enable the renewal of local places, for example reflecting more flexible and home-based working, adapting to the acceleration of online retail, reshaping the purposes and functions of the high street, reconfiguring office spaces, etc.

Based on the findings from this research in all the participating countries, the following steps are likely to be prioritised by CIOs in public services.

2021 steps for CIOs in public services

Cyber security and data protection prioritised

Data science, predictive analytics and data exploitation become a new discipline

New models for digital and IT investment including changing the role of IT defined

Digital consolidation from 2020 turmoil

Service redesign to embrace digital methods

Accelerated AI, IoT, RPA, and exploiting data potential become strategic imperatives

New models of collaboration with staff, partners, suppliers and the public are introduced

KEY MESSAGE:

There is a need to consolidate and build on the energy and changes made in 2020 to embed the new ways of working. The pressures facing public sector CIOs will increase, not level off in 2021, but so will the opportunities.

Workstyles

Whilst all organisations are working more flexibly than before, the new emphasis on remote, collaborative and automated methods is not yet always fully incorporated into the business models including the definition of work, office space design and utilisation and working practices in areas such as call handling. That will be the digital priority for public service organisations in 2021 – building on the changes in workstyles from 2020 and consolidating them, so that the productivity benefits of digital operation are not lost.

We predicted changes in workstyles – the nature of work, workplaces and the workforce (see below) - in our Trends Report for 2020.[9] Remote working and

automation will remain a high priority for how HR, premises and IT professionals will need to work together.

## Workplace, workforce and work redesigned for 2020

Work – Redesigned for a digital model, not just automating old practices. Including supply chains and partnerships with optimised working practices.

Workplace – Smart hubs, intelligent and adaptive buildings, home working, partner sites – all optimised for individuals not for processes.

Workforce – Digitally skilled and provided with the right tools to work productively, collaboratively and with personal wellbeing embraced.
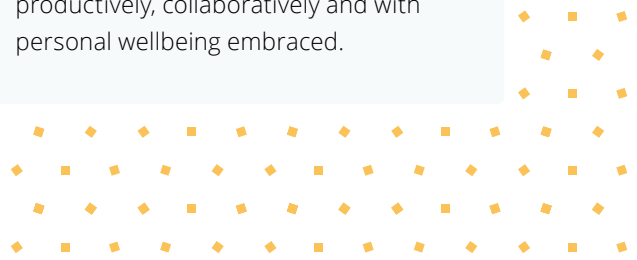
What we did not foresee was the scale and reach of the seismic shift towards more flexible working and a total redefinition of the workplace demanded by the pandemic. It has not just been a steady increase in adoption of collaborative tools, but a wholesale migration to them.

It is likely that this will go much deeper during 2021. For example, new technologies already in place for devolved collaboration will allow the building of a more diverse workforce by supporting different working patterns and employee needs. It will also allow scarce resources to be brought in more quickly and cost effectively, for short periods or to reduce the dependence on long-term outsourcing and extended consultancy contracts.

This will be particularly important for CIOs and their public service organisations as they seek to maintain and create the capabilities needed to manage the risks and opportunities of digitally enabled renewal in 2021. CIOs will need to work with a broad range of service leaders, procurement specialists and decision-makers to advance these opportunities in their digital plans.

With more staff working remotely, there will be a renewed focus on estate rationalisation – closing offices and sharing, repurposing and redesigning premises – throughout local public services. Greater flexibility in how buildings are used, and intelligence in how they function, can in turn support priorities such as health and social care integration, as described for example in the recently published NHS UK Long Term Plan.[10]

In 2021, the public sector CIO will need to focus on the technologies that support new hybrid working models and the role that 'smarter' and more flexible working can play. This includes addressing issues arising from remote working, such as staff well-being, equality of opportunity, physical health and safety, data protection, cyber resilience and the loss of innovation that comes from team interaction.

There will also be a redesign of buildings for smarter use, including public buildings in general.

Smart working places

Intelligent buildings – Building in intelligence for smarter and more flexible use of office and other spaces, such as ensuring that town and village halls have good Wi-Fi and broadband and video conferencing facilities, including faster adoption of IoT.

Buildings strategy – Deciding which buildings to retain and how they should be used in future. This includes considering more shared spaces and hubs, working across sectors and between different local organisations.

Smart hubs – The creation of 'smart hubs' – in other words, as the lure of cities reduces due to pandemic fears and the attraction of remote working grows, there will be new models of civic infrastructure emerging.

Safer buildings – Making buildings safer for future pandemics, with more outside spaces equipped with public Wi-Fi, redesign of spaces for outdoor use – such as simple rain coverings for those queuing outside.

KEY MESSAGE:

Some organisations are well advanced in a redefinition of the workplace and the nature of work. For many there is more to be done to integrate new ways of working into business practices. In 2021 CIOs will need to work with a broad range of service leaders, procurement specialists and decision-makers to advance these opportunities in their digital plans.

Inclusion and equality

In the UK, the 'levelling-up' rhetoric of central government has had a hollow ring to it as the pandemic has taken hold and societal divisions have increased. Arguably, (and in the UK in particular), growing inequality and hardship could increase social unrest in the coming year. The combined impact of Brexit and Covid-19 is generating greater inequality, loss of trust and increased social exclusion, with some individuals, families and communities suffering more than others.

On a more positive note, aided by the immediacy of social media and sometimes assisted by well-known advocates e.g. footballer Marcus Rashford in the UK, citizens have been able to voice their perspectives as stakeholders rather than as mere consumers of services. This has led to better targeting of resources, including digital accessibility.

However, the underlying social problems and disruptions brought about by the pandemic will continue to require intervention from local public services. These interventions will include increasing levels of support to vulnerable individuals and families. Measures will also be needed to combat the wider regression in inequality brought about by the pandemic and the limitations of public policy responses in 2020.

In practice, this may take years and, in some cases, generations to resolve, creating new challenges for local government and health services, in particular:

> A new dependency on home technology for distance learning and schooling, with many children unable to afford the same facilities as the better-off families in areas with good connectivity.

> Some employees lack space and provision for home-working or have partners and other family commitments that make it hard to work at home effectively – or they just have poor or non-existent broadband.

> Citizens are not always able to understand or even to access digital services when face-to-face is no longer possible; they often need new types of mediated support and intervention to be able self-serve safely and effectively.

> Applying for jobs, promotion or just accessing services requires competency in using video conferencing tools and digital methods that can be harder for some people, for a variety of reasons – financial, technological, physical, or just fear or unfamiliarity with technology.

> An increase in the prevalence of loneliness, exacerbated by poor broadband and/or inability to communicate electronically with family and friends during lockdowns.

This new digital divide is not the same as in the past, where the concern was focused simply on those with no access to devices or the internet.

In 2020, many who had internet access have nonetheless become excluded because the digital bar has been raised. Having a smartphone and 4G mobile data is no longer enough, for example, with many services requiring larger screens for homework and video calling, and with demands for much higher bandwidth. Many services are now only available online, with more 'live chat' and limited telephone responses.

There will always be some who cannot access or use new digital methods, and extra steps will need to be taken to support them.

"In West Suffolk Council, we are reviewing our services to seek to make them more customer-centric, to simplify and ease access to 'standard' service information by improving accessibility through better use of tech and creating more capacity within customer services teams to help meet the increased demand for more complex support."

Kevin Taylor
IT Services Manager, West Suffolk Council

KEY MESSAGE:

The pandemic has created new challenges facing local public services in terms of equalities and social challenges. The gap between the more able and well off and the most vulnerable has grown, homeschooling and access to digital services being a commonly cited example. There are digital solutions to this that should be considered, including through mediated support.

Service design

One of the most significant changes during 2020 that will impact 2021 is changing public expectations. It is not just service organisations that have moved rapidly into digital and cloud working during 2020, but the public has too. As noted in the preceding discussion on inclusion, the pandemic has enabled citizens increasingly to adopt a position as stakeholders rather than consumers and customers of services, changing the way in which they engage and cooperate at a community and place-based level.

Many people who were apparently unable or unwilling to adopt digital methods before 2020, have now taken to this as the preferred method, if not the only method of working with public service organisations. They have come to expect the greater agility and responsiveness that has proved to be possible.

Public services therefore need to be designed in ways that reflect these expectations, whilst ensuring safety, security, equality and mediated access where required. In addition, technologies that promote independence and wellbeing through the use of digital services and data will be important in 2021.

Many councils such as Worcestershire County Council, have developed online facilities that allow communities and support groups to collaborate in addressing individual needs in a holistic way. Offers of help and the public's need for local support, can be matched by local governments who can signpost services and link them to needs, whilst ensuring safety checks are in place. Before the pandemic, this might have been seen as too complicated, or just too risky in terms of liabilities, or perhaps unlikely to succeed in terms of take-up. Yet now it is happening.

Public services in 2021 will need to revisit their service design strategies, using digital technologies and data more effectively to target services where they are most needed and contributing to better, local place-based outcomes.

KEY MESSAGE:

Customer service strategies and the role of digital methods within these, will need reviewing in 2021, not least because of the changing expectations of citizens. Local public services collaboration and data sharing can lead to improved services, designed around citizens' needs and preferences.

Localism and urban redesign

Many people are now working in ways that were previously considered improbable if not infeasible. The daily commute has reduced or disappeared, and local services have assumed greater importance as they work from home. City life has lost much of its appeal, and although this may return, it is likely to be in a different state and many former city residents and workers will expect to continue to spend more time in their local area.

As the previous Socitm 'Smart Places' research[11] predicted, the future opportunity for technology in our communities is much more than the 'smart cities' promoted by the big technology suppliers, with a recognition that even our city areas are part of wider local ecosystems – infrastructure, services and supplies. This wider perspective opens the opportunities to apply concepts such as 'sustainability and the circular economy'[12] and the '15-minute city'[13] that are gaining traction and are likely to drive new demands for technologies and data to support their implementation. Equally, the 'Meaningful city'[14] – narratives, meanings, values and intangibles – is becoming recognised as providing missing components in the ethical wellbeing and resilience of people, systems and places. These can be mobilised to support place-making and thriving communities through collaboration, care and stewardship; or they can be hijacked by those who would sew hate and division.

In all areas – whether urban, semi-rural or rural – we expect to see a renewed focus on civic digital infrastructure and connectivity to stimulate local economies and to improve quality of life for citizens. However, priorities may need to be reset. For example,

5G acceleration may need to take a backseat to basic broadband provision in areas that still don't have adequate public Wi-Fi or broadband. In the UK, the failure of successive governments to achieve targets set for universal gigabit capable broadband has been highlighted by the House of Commons Public Accounts Committee's report[15] on the use of scientific advice in response to Covid-19. Inequality of high-speed broadband access, affordability and accessibility have created challenges during the pandemic for home schooling, home working, on-line shopping and just being able to keep in touch with family and friends.

The coming year will also see a renewed focus on community resilience, including the protection and promotion of digital infrastructures. Technologies to support education, local supply chains, jobs, local businesses, contactless public services and cyber resilience in communities will assume importance. This brings with it a significant increase in digital dependence, making 'digital' one of the highest community risks. Consequently, local public service organisations will need to review their business continuity and emergency plans, as well as their adaptability to handling unprecedented events.

With more remote working, there is also likely to be public sector estate consolidation, with a number of offices being closed or shared. This could facilitate health and social care integration, as promoted by the UK's NHS Long Term Plan,[10] which envisions an integrated care system with funding, priorities and governance being pooled. The pressure on primary health services, will be mitigated if wider care services are truly integrated and work together.

In 2021, with more people living, working and passing their leisure time locally, local government will need to re-evaluate cultural, environmental and urban planning priorities. This could include developing local business hubs with state-of-the-art digital infrastructure, alongside changing support for local businesses, the arts, leisure facilities and shops needing to adapt in order to survive. This will mean greater integration of technologies, sharing of infrastructure, as well as introducing new smart technologies into buildings to allow them to be used more flexibly and more safely, for staff, the public and partners.
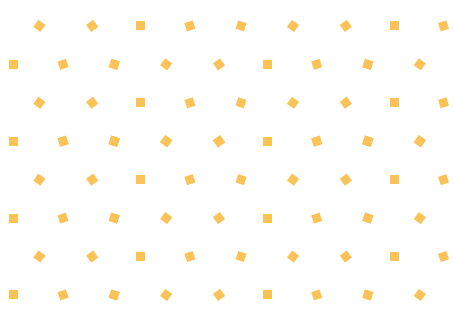
IoT will have an important part to play in these changes by providing data to support new intelligence to inform planning policy based on public use, building use optimisation and the design of new civic facilities from electric charging points to service collection points.

KEY MESSAGE:

2020 has demonstrated the importance of placed-based, digital infrastructure in civic design. Key technologies, such as IOT and other digital infrastructure, will be key design elements for the future and will need prioritising in 2021.

Economy

Service organisations are facing some severe economic and financial challenges in the year ahead. Some of this will stem from just having less money as a result of the huge contribution that has had to be made in tackling Covid-19. But there will also be issues in 2021 resulting from financial pressures on families and communities where jobs have been lost and income reduced.

Earlier this month, the Science and Technology Committee found that poor data management hampered the government's Covid-19 pandemic response.[16] Their report suggested data flows and data sharing inside Whitehall and other agencies are anything but smooth. What are the big lessons we can learn going forward?

Technologies such as data analytics can be used to be able to identify those at risk or requiring support or interventions, and this will be a growing priority for local governments in 2021, rather than waiting for crises to materialise. Developing new access channels to help those seeking support will also assist early diagnoses of issues.

For the UK there will also be added pressure from Brexit as businesses have to recalibrate. The UK is building a new relationship with the world, but, according to the World Trade Organisation (WTO)

the value of world merchandise trade was 3% lower in 2020 and growth in trading services slowed dramatically as a result of the pandemic, with the global economy shrinking by nearly 10%.

This will require greater effort to support local businesses and economic regeneration, especially in areas with a heavier dependence on commercial links with Europe. It will also lead to challenges for local politicians in trying to strike a new balance between national political ambition and local needs.

Protection of jobs and training in 2021 will be a high priority, as well as mitigating the impact of Covid-19 on supply chains and the movement of goods. Technology has a key part to play here, from simplifying and automating compliance and procedures to maximising the opportunity to use digital methods to increase education and equality of opportunity for local businesses and their employees alike.

In order to meet these challenges ,places and communities are increasingly looking to adopt principles of the 'circular economy',[17] which are based on the "idea of the economy being restorative and regenerative – that is, economic activities should strengthen rather than break down social and environmental resources."[18] The OECD[19] has identified key themes emerging in long-term recovery strategies for more inclusive, green and smart places/cities:

> › To close the gap and address structural inequality in the recovery period, cities have taken many inclusive measures, especially for local business support and employment, affordable housing construction and renovation, and support to vulnerable households.

> › Many cities are already planning for life after Covid-19 with a range of investments to pair economic recovery with environmental sustainability with an emphasis on clean forms of urban mobility and energy efficiency.

> › The pivotal role of digitalisation in emergency responses to the pandemic has pushed many cities to systematise the use of smart city tools more permanently, while staying alert and monitoring the risk of contagion. The

virtual space is further becoming integral as information, participation, cultural resources and municipal services are digitalised.

The Doughnut Economics Lab[20] in partnership with C40 Cities[21] is championing circular economy projects, tools and techniques.

Likewise leading edge examples of how these approaches are being grown across the UK are the new Circular Economy Route Map For Glasgow 2020 – 2030[22] and the work of the Resilient cities network[23] in Manchester and Bristol that offers practical steps to adopting circular economy principles and practices. Similarly, the Nesta and Collaborate New Operating Models for Local Government[24] studies and the work of London, Leeds and Belfast,[25] as part of the World Economic Forum G20 Global Smart Cities Alliance, are offering a range of emerging models for placed-based and community actions.

KEY MESSAGE:

2020 has seen massive disruption to economies across the globe. This will have a number of impacts on local public services, with the added complication of Brexit, particularly for business. Technology has a key part to play in protecting and re-stimulating local economies.

Environment

A number of the CIOs we spoke to talked about the growing priority of the environmental agenda. For some public service organisations, the focus on environmental concerns may have reduced or stalled in 2020, as they faced up to the immediate impacts of Covid-19. This lower priority will not continue during 2021. Climate change is widely seen as a global crisis and will become high on the agenda for all public service organisations in the coming year.

Cities including Philadelphia, Portland and Amsterdam are taking up the challenge of balancing environmental and societal shortfalls by applying the 'Doughnut economics' framework. In the UK, places such as Cornwall, Preston and Glasgow have been trialling the accompanying City Portraits[26] and related Circular Economy[27] resources – all themes that now feature as part of the new international Terra Carta[28] initiative that offers the basis of a recovery plan to 2030 that puts nature, people and planet at the heart of global value creation.

The president of Ireland has advocated the adoption of doughnut economics to drive national policy in Eire. Elsewhere, national governments are setting revised standards for environmental sustainability and carbon reduction. In the UK, the Government has set new targets[29] with aims for at least 68% reduction in greenhouse gas emissions by the end of the decade, on the path to net zero by 2050.

This will translate into changes locally, with digital potential being central to the development of smart buildings, more intelligent transport planning, energy use and civic design in the coming year. This will go beyond the design of public buildings such as schools, hospitals and town halls.

During the run up to UK hosting the 26th UN Climate Change Conference of the Parties (COP26)[30] in Glasgow in November 2021, Socitm will be building on its leading-edge work around ethical digital placemaking[31]

to embed the 'Doughnut economics' framework[32] into its work on digital transition and renewal of places, communities and the environments that support them.

The potential is exciting, and examples too numerous to list here, but include more intelligent energy use in buildings, street lighting, transport planning, congestion and emissions mitigation with growing adoption of renewable energy sources by public service organisations and their suppliers and partners.

Is also likely that 2021 will see greater adoption by environmental and civic planners of more sophisticated technologies, such as artificial intelligence and predictive modelling to understand climate change better at a local level, and how our actions can slow the effect.

"As 'digital' permeates every aspect of our lives, we have a deep, ethical responsibility to help lead and shape how technologies and data are employed to enable people, communities and our natural environments to thrive. The designs we use to collate, analyse, present and harness the data generated by emerging technologies are critical, whether they are in supporting vulnerable people, ensuring people have access to digital services, managing the quality of the air we breathe or conserving diverse wildlife habitats. Socitm is embracing this challenge as it positions its research advice and guidance within a framework of equitable, meaningful and fair social foundations and a sustainable ecological ceiling."

Martin Ferguson
Director of Policy & Research, Socitm

KEY MESSAGE:

2021 will see environmental challenges become high on the list of priorities for local public services once again. Digital solutions have a key part to play in many areas and local public services should ensure their environmental planning embraces these.

Supply chains and suppliers

Public services depend on a wide range of suppliers to ensure rapid and safe delivery of services, increasingly comprising a digital construct. Now, more than ever, the dependency on supply chains at every stage of public service delivery needs to keep pace with the digital changes seen across the public sector.

In particular, there are requirements on suppliers to ensure that they can conform to a wide range of digital and other principles, from data handling, to response times, agility, open architectures, corporate social responsibilities, environmental practices and ethics. These will not necessarily be the same as the requirements of the past. It is likely that, from 2021, the public sector will be seeking organisations that meet new standards of compliance in these areas.

2020 has also seen a growth in integration and collaboration across geographically connected local public services. Suppliers and supply chains will need to be sufficiently adaptable to enable this collaboration, without constricting contracts or other obstacles that can get in the way of data sharing and joint working using shared digital infrastructure.

The urgency of responding to the impacts of the pandemic, growing social inequality and environmental degradation will require faster pace, innovative solutions to be developed and applied. This will require a change in mindset and approach to procurement. 'Ecosystems of trust' will combine the expertise of entrepreneurs, service leaders and procurement specialists to explore new approaches to tackling 'hard
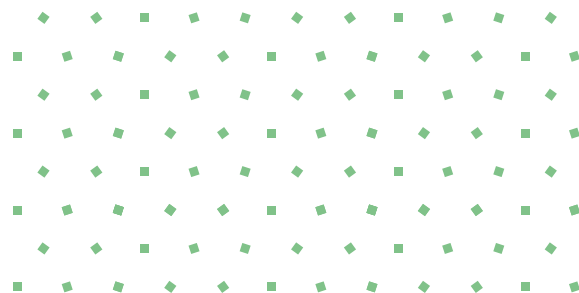
to solve' problems and offer real value for people and communities. This approach is exemplified in the work of CivTech[33] in Scotland and others around the world.
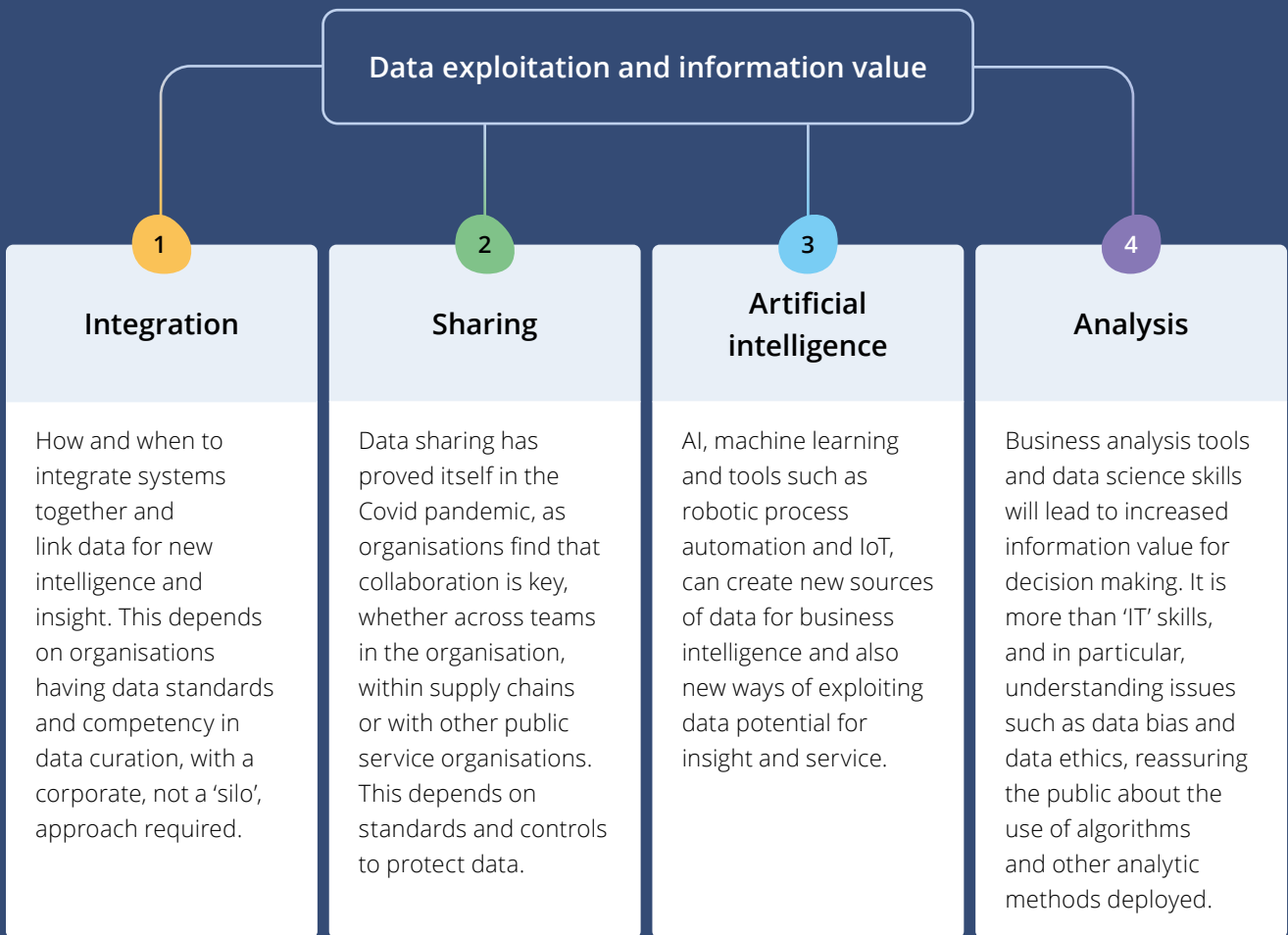
KEY MESSAGE:

2020 has seen changes to supply chains, with a new dependency on key suppliers at a local level. For 2021 there will be a priority to ensure these networks and ecosystems are nurtured and sufficiently adaptable to support collaboration and innovation, offering real value for people and communities.

Data

Every public service organisation spoken to for this research places 'data' exploitation high on their list of priorities for the coming year.

The Socitm data project – 'Harnessing data for better public service outcomes'[34] should be essential reading therefore for all Socitm members and partners in the coming year.

Four key trends have emerged for 2021 from the contributors to this research:

Data exploitation and information value

1 Integration	**2 Sharing**	**3 Artificial intelligence**	**4 Analysis**
How and when to integrate systems together and link data for new intelligence and insight. This depends on organisations having data standards and competency in data curation, with a corporate, not a 'silo', approach required.	Data sharing has proved itself in the Covid pandemic, as organisations find that collaboration is key, whether across teams in the organisation, within supply chains or with other public service organisations. This depends on standards and controls to protect data.	AI, machine learning and tools such as robotic process automation and IoT, can create new sources of data for business intelligence and also new ways of exploiting data potential for insight and service.	Business analysis tools and data science skills will lead to increased information value for decision making. It is more than 'IT' skills, and in particular, understanding issues such as data bias and data ethics, reassuring the public about the use of algorithms and other analytic methods deployed.

Apart from being able to cope with the huge expansion in data volumes, the public sector CIO in 2021 will have to contend with the changed expectations of the public in how their data is used, stored, accessed and shared. In this respect, data regulation and compliance requirements are likely to grow not shrink, and there is even uncertainty in the UK about the future for the EU's general data protection regulation (GDPR) in the UK.

There will be new data privacy risks, such as how facial recognition combined with artificial intelligence can be abused. In the UK, there is also an indication from some contributors to this briefing that EU exit could create new implications in the UK for data transfers and the hosting of data.

Above all, public service organisations must be seen to set an example in the protection of public data and its use. Loss of data is bad enough, but its abuse and manipulation from irresponsible or sloppy data handling by governments, or maleficent impacts of poorly architected (or manipulative) algorithms, will result in a loss of trust in digital public services from the coming year.

"I see three main investment priorities for the next year to increase the reliability of IT:

1. Infrastructure to reinforce the crucial role and visibility that IT has demonstrated during the pandemic

2. Increasing security and strengthening infrastructural components to support smart working

3. Overcoming data silos – during the pandemic the availability and processing of data to understand better what is going on, was crucial"

Paolo Boscolo
IT Manager, Commune di Prato, Tuscany

KEY MESSAGE:

Data – its collection, storage, management, and use – is perhaps the highest priority reported by CIOs for this trend analysis. Much remains to be done in 2021 by most public service organisations to exploit this asset in ways which maximise public value and safety.

Technologies

Our research suggests that the emphasis within our portfolio of emerging technologies is changing, with some notable differences from 2020, and not just in the use of video conferencing.

We can expect to see further development of digital channels enhanced by intelligent technology use, particularly with simplified and improved processes from the citizen perspective.

The feedback on technology priorities for CIOs in public sector organisations involved in this research has identified the following priorities:

Primary priorities for 2021	› Cloud computing › IoT › AI › Cyber security › Low-code development › Video conferencing
Secondary priorities, for 2021 and beyond	› 5G networks › Drones › Driverless cars › Gamification
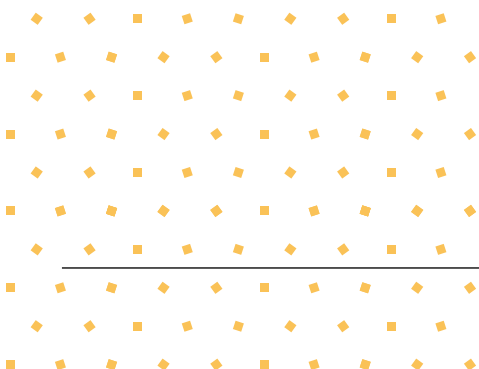
Cloud

Hybrid cloud models, in particular, feature prominently in the feedback from CIOs in all countries, reflecting the existence of legacy systems and sunk IT costs in on-premise functionality. However, there is a growing adoption of public cloud solutions, especially for collaboration, video conferencing and data sharing.

The main reason given for the continuation of on-premise services appeared to be less around physical security and more about data protection, including data sovereignty.

> *"Covid has shown us how the cloud assists flexible working, removes painful legacy barriers and drives constant incremental improvements and opportunities for our staff"*
>
> **Peter Darlington**
> Digital Business Services Manager, Tasmin Council

Whether public or private cloud, cloud computing has proved to be the de facto standard for the increasing deployment of virtual infrastructures to replace physical on-premise solutions, including a wide range of services supporting the capability and capacity for remote and flexible working.

IoT

Public sector CIOs report that they expect to see a rapid and increasing deployment of IoT devices, and low-cost wireless networks, to support remote monitoring, smart buildings and adaptive civic infrastructure. This is unsurprising and was predicted last year, but what has changed is the degree of remote access to buildings monitoring, such as hospitals, schools and other public buildings, necessitated by the pandemic.

IoT devices will also deliver large amounts of new data-derived intelligence that can help to inform policy and decision-making, especially in civic and community planning.

> *"We will see an increased amount of data collected through the internet of things, which will increase the use of Big Data, Data Lakes. This in turn will increase an organisation's ability to make use of AI and data to improve decision making and significantly increase the ability to automate."*
>
> **Kurt Frary**
> Deputy Director of IMT and CTO,
> Norfolk County Council

However, this growth will require a focus on cyber security and data protection to ensure that new IoT devices do not become a security vulnerability.

Cyber security

Security of data, systems and networks will remain top priorities for CIOs in the public sector for the foreseeable future. The specific challenges have changed during 2020, partly in relation to digital uptake during the pandemic, and also because the public sector is seen as an increasingly attractive target for criminals, given the nature of data held and the damage that can be achieved in a successful attack.

Local public services have a special responsibility to ensure systems, data and people are kept safe from this new terrorism, which often targets the most vulnerable people in our communities.

CIOs will need to brace themselves and their organisations for an increase in threats in 2021, focusing on any vulnerabilities that have been created during the past year in the rapid adoption of collaborative tools, digital services and data sharing.

Socitm predicted the growing priority of cyber security in its recent set of cyber security reports,[35] providing guidance to local public service organisations to help ensure sufficient civic cyber readiness. In particular this highlighted the importance of not relying purely on mature world-class technology protection, but on training, governance and vigilance.

The Local leadership in a cyber society[36] and Resilient public services in an age of cyber threats[37] studies highlight that, moving into 2021, all public bodies need to reassess their cyber security plans and testing regimes, ensuring that these are sufficient to:

› Keep the public and public data safe in the face of universal remote working

› Ensure partnerships and supply chains do not introduce new vulnerabilities

› Support all staff to be aware of their cyber security responsibilities

› Maintain technology protection and perimeter defences, in line with the changing threats externally, especially for remote access to on-premise services

› Prioritise cyber risk reporting and good governance, including boards and politicians.

These are all areas for which the Socitm-hosted Cyber Technical Advisory Group, bringing together WARPS and government agencies such as the National Cyber Security Centre, Government Digital Service and NHSX, will continue to provide support and help to local public sector bodies.

The National Cyber Security Centre[38] maintains an excellent set of resources specifically for public services and the public in general:

Cyber Aware

ncsc.gov.uk/cyberaware

Given the rapid and far-reaching changes in working practices and public use of technology in 2020. for many public service organisations, 2021 will be the time to review IT network architectures in general in order to improve cyber readiness in their own organisations and across their wider communities.

"Organisations have a significant amount of people working from home connecting using their own broadband which begs the question why do we need a network. I think we will see a shift to organisations planning to move to 'zero trust networking' and the only thing stopping them is legacy WAN contracts."

Kurt Frary
Deputy Director of IMT and CTO,
Norfolk County Council

Low-code development

The pandemic has necessitated the rapid development of a range of applications to support staff, residents, businesses and communities. Expectations have changed about the speed of development of digital services, with the need to get services up and running in days rather than months or years.

This new speed depends on new ways of working, such as agile methods, and faster development environments, such as low-code solutions. This was predicted as a growth area in 2020, but it has progressed faster than expected.

It is likely that 2021 will see continued growth in the adoption of low and no-code solutions, with many public service organisations developing skills and new partnership arrangements in this area.

"The pandemic has dramatically accelerated the pace of this change, requiring us to operate in an environment that is volatile, uncertain, and complex. The digitalisation projects that were ideal a year ago are now mission-critical and traditional development methods are simply not enough to meet the growing demand for solutions and software.

Here in Worcestershire, 'low-code' is no longer just an emerging tech with potential. It is a proven tool, which has enabled us to deliver across all areas of the business: from legacy modernisation and workplace innovation to customer experience transformation. Four new digital services launched within the first 4 days in this way and 22 in total have been designed, built and deployed during the pandemic to date. Without our

low-code solution, this would have been impossible to deliver. Our strategy is to continue to invest low-code technology, drawing on agile working, a more open attitude towards sharing data, a re-enthused drive for collaboration between teams and a strong sense that perfection is not always necessary or even desirable."

Sandra Taylor
Assistant Director of IT & Digital,
Worcestershire County Council

Artificial intelligence

Artificial intelligence (AI) is already being used in many public service organisations, although typically still relatively localised, perhaps supporting simple self-service and signposting.

In 2021, all service organisations need to plan to move beyond this, since using AI at the edge of a business model will deliver only limited value. AI can be used to redefine public services at scale, and this will, in the longer term, significantly improve both service and productivity, as well as creating new agility and exploitation of data opportunity and value.

AI was a predicted trend and growth area in our 2020 forecasts. In practice, developments over the last 12 months have been slower than expected due, in no small part, to the demands of responding to the pandemic. For 2021, CIOs are reporting that it is likely that the pace of adoption of AI will once again accelerate for a number of reasons, including improving data exploitation, risk management and public service interfaces.

The potential application areas for AI in public services are boundless, from supporting vulnerable people to protecting the environment or as new defences against cyber threats, which is why, for public service organisations in 2021, CIOs are seeing AI as a high priority.

2021 will also see the beginnings of empathetic and emotional AI engines being introduced, which potentially can offer new service insights and citizen support mechanisms. These could also be used to support the public and staff working remotely in completing complex tasks.

"Robotic process automation (RPA) and intelligent automation was happening in 2020 with leading edge organisations in the public sector. The ability to spin up capacity and free-up staff to deal with more urgent matters will be key in 2021, especially in the light of the Covid-19 response, and particularly in areas such as social care and special educational needs."

Philip Barbrook
Enterprise Architect, Suffolk County Council

But there are risks as well, including potential manipulation of vulnerable people through AI, that need to be carefully managed. It is these risks that will become a limiting factor in how far and how fast adoption develops in 2021 in public service organisations.

"I expect to see more use of data tools including artificial intelligence and robotics to improve the customer experience and to predict, map and to analyse issues. COVID-19 has highlighted the importance of things such as accurate ward mapping to understand our residents and community needs better, and how people want to live their lives. Much of the core population data in the UK is now out of date, so the 2021 census will offer new opportunities to improve our data analytics through the use of artificial intelligence."

Alison Hughes
Assistant Director ICT, Digital Customer,
Liverpool City Council

CIOs need to become familiar with AI both as a technology, but also the ethics and risks surrounding its practical application (see, for examples, Socitm guides to the deployment of AI in social care[39]). For example, if you don't know about GPT-3,[40] then read up about it!

Video conferencing

This may not need inclusion here, given the widespread and rapid adoption of video conferencing during the pandemic and associated lockdowns. Video conferencing is certainly not new – many public services were using it a decade or more ago. But, prior to 2020, this was mostly as an 'add on' and enhancement to telephone conferencing, rather than a new way of conducting business with integrated collaboration functionality.

While Zoom and Microsoft Teams have become universal, their dominance will be challenged in 2021 as new video conferencing and collaboration platforms emerge, especially for larger meetings and conferences. We are likely to see some significant maturing in the use of video conferencing for events, learning, telecare and a variety of other applications. In particular, there will be increasing intelligence built into video conferencing platforms, especially as new tools emerge from those that have become familiar to everyone in 2020. For example:

› Deeper collaboration made possible by tools linked to video communications, that allow more sophisticated and targeted interactive discussions and joint working at a virtual event or meeting

› A range of new solutions will become popular, complementing or even replacing the dominance of 'Teams' and 'Zoom' platforms, allowing more sophisticated interaction between individuals and the sharing of content at online events and meetings

› Artificial intelligence, enabling avatars and virtual conversations with 'emotional content', will help to improve the sensitivity between people using video conferencing, especially for citizens where face to face empathy has been lost

› Enriched functionality in application areas, such as enhanced classroom learning, that can be dampened by standard online learning tools

› Improved data integration to support more productive video collaboration, by sharing background information – for example in health and care applications.

5G

5G remains a controversial technology for some of our public sector CIOs, at least in terms of its place in the priorities of IT trends in the public sector for 2021.

For some it is a game changer – a massive opportunity for the public sector and local government in particular, which opens up new possibilities for

economic growth and service benefits, such as in health. Others see it as a costly and potentially divisive distraction from the essential focus on wider connectivity to meet basic needs for all, especially given the impact of poor connectivity on businesses and families during the pandemic.

Our predictions from 2020 remain sound – that is that 5G will be increasingly important but will take time to materialise as a priority for most of the public sector and should not compromise the priority of 4G for all first. The main benefits of 5G will initially be commerce delivered over mobile networks, and even then, it will take several years to replace 4G networks and applications.

"According to Ericsson's latest mobility report, 5G is expected to cover over 40% of the world's population by the end of 2024. This will make it the fastest growing cellular technology generation in terms of global deployment. 5G is a technological and economic project essential to the competitiveness of the territories, marking the opportunity to strengthen the attractiveness of Issy. The city launched a challenge in October 2020 for start-ups and SMEs to identify and test new uses for the city of tomorrow. But we need not forget that the usage has to step forward, not technology."

Matteo Satta
EU Project Manager, Issy-les-Moulineaux

Drones

Increasing use of drones will be driven by cost imperatives, especially for surveying work across the public sector, but also for emergency services and deliveries, planning, surveillance, security and traffic management. Their role is increasingly valuable to local public services, alongside compliance and regulation that will become essential capabilities.
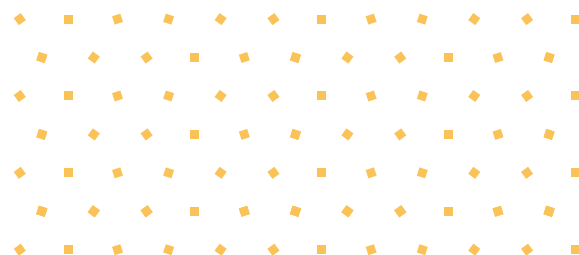
Driverless cars and mobility as a service

As this trends briefing has indicated over the last few years, driverless cars will slowly become a reality, but nothing like as quickly as the pundits have promised. Despite Gartner predicting that autonomous self-driving cars will be 'ready next year', especially for 'home-to-work' commutes and automated deliveries, outside specific and highly limited applications, they will probably not be seen much on the streets before 2025 in the view of this trend briefing.

Similarly, mobility as a service will gain ground, potentially playing an increased role in serving the elderly and physically challenged enabling them to more efficiently coordinate and schedule rides to doctor appointments, pick up prescriptions or food shopping.

In some urban centres, ride sharing will continue to grow with bicycles, electric scooters, and more flexible rental of vehicles that are charged by the hour and coordinated through apps.

Gamification and digital twins

Gamification is not a new topic. Gaming technologies have been used for designing systems and services for some years.

However, the adoption in local governments of this powerful design methodology has been limited, partly because of skills, but also prioritisation of the digital activity that would benefit from gamification to support redesign.

Gamification is the application of game-design elements and game principles in non-game contexts. It can also be defined as a set of activities and processes to solve problems by using or applying the characteristics of game elements. Gamification commonly employs game design elements to improve user engagement, organizational productivity, flow, learning, crowdsourcing, knowledge retention, employee recruitment and evaluation, ease of use, usefulness of systems, physical exercise, traffic violations, voter apathy, and more. A collection of research on gamification shows that a majority of studies on gamification find it has positive effects on individuals.

Wikipedia: en.wikipedia.org/wiki/Gamification

In 2021, given the rapid developments in 2020, this may well be a topic that CIOs should consider in how digital services can be re-designed and improved.

'Digital twins' can be used in a similar way to visualise, replicate and test out human activity in digital systems design. In simple terms, 'digital twins' are replicas of systems that allow more realistic simulations of systems to be run than traditional testing permits, and especially using data simulations to reflect real life working, harnessing AI and data analytics as inputs.

Advocated as a useful tool by Socitm, CIOs in the public sector can usefully harness this 'digital twins' method to trial new systems, increasing success in terms of reliability, take-up and value.

KEY MESSAGE:

While it's never about the technology alone, there are a number of key trends for 2021 that CIOs in local public services should consider. Decisions should always be based on a mix of risk, value and practical application. There are a number of Socitm resources to support this process: socitm.net/inform/resource-hub
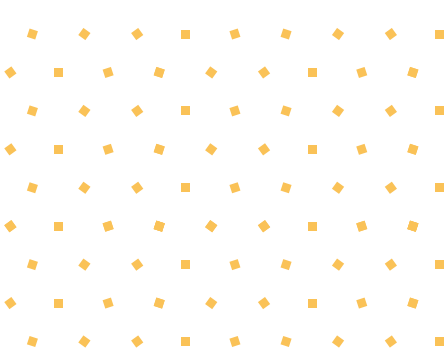
Conclusion

2020 has proved to be an unpredictable year, to say the least. Many challenges have been thrown at public service organisations. CIO's working in the public sector have risen to this challenge, delivering digital and IT solutions that have not just kept public services running but have also pivoted organisations to more flexible and virtual working arrangements.

Experience has also brought to the fore the understanding of most CIO leaders that true digital adoption can both save money and improve services if attention is paid to changing working practices and adopting new risk models. As we have said in this series of trends briefings for many years, simply bolting on new technology to existing ways of working does not optimise digital opportunity.

The real success of the digital shift during the last year was less about the technologies, such as video conferencing and collaboration tools, and more about the willingness of people to adapt, changing cultures, behaviour and leadership styles. Early digital progress gave many public services greater ability to adapt to the pandemic, especially where connectivity issues had been solved, and where homeworking was already a recognised part of working practices.

All of those involved in the research for this trends briefing noted the importance of teamwork on the ability to absorb enormous change in a very short period of time. Indeed, the success of public sector IT leaders in the past year has added to the status they hold in their organisation and the recognition of the power and importance of technology investment.

In 2021, CIOs in the public sector (and arguably all industries) face three clear priorities:

4.   Consolidate – carefully review the changed working practices introduced in 2020 that could negatively impact on security, resilience or cost, and without creating a backward step in digital progression, resolve any 'unfinished business'.

5.   Build – build on the digital momentum that has been created, prioritising further change in digital programmes and IT plans that will help the organisation to become even more adaptable and flexible.

6.   Innovate – review digital and IT strategies in the light of the new world norm – are they still credible or sufficiently innovative? Do they reflect the priorities in this briefing and of the wider organisation?

2021 will not be an easy year for the public sector CIO, and certainly not an opportunity for relaxation or space for consolidation alone. For example, in addition to unfinished business from 2020, and re-instigating digital priorities that have had to be deferred, a number of CIOs have stressed the need to review business continuity and IT disaster recovery plans if they are to maintain the digital momentum achieved in 2020.

It is likely, from the evidence that we have seen, that IT budgets will on average increase in 2021, especially with greater adoption of cloud computing
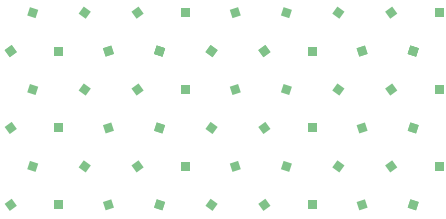
and other revenue-based IT services. At the same time, the demands on the public sector CIO to deliver 'more for less' will grow, as the public sector in general faces growing financial pressures.

> *"We live in a new world that has had to rapidly adopt digital tools in order to survive the onslaught of Covid-19. With this new era of adoption and adaption, digital transformation has been accelerated and will continue to do so throughout 2021."*
>
> **Mike Manson**
> Chief Executive ALGIM, New Zealand

Now more than ever, CIOs need to be outwardly focused, working with a wide range of stakeholders offering different and often challenging perspectives and looking at the contribution that they, their teams, and IT investment can make to digital progress and a wider 'smart places' agenda.

A consensus is building around the need to build local resilience capabilities to deal with unforeseen and far-reaching events, such as the recent pandemic, and also to address significant new challenges of economic regeneration, social pressures, inequality and perhaps above all, the environment and climate change.

All of these challenges depend on digital solutions, making the role of the public sector CIO in 2021 more demanding, crucial and high-profile than ever. In this respect, next year may just be the start of a new era, a 'digital age for public services'.

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Appendix 1

Planting the flag – a new local normal (Socitm): bit.ly/planting-the-flag

Appendix 2

Covid-19 digital & ICT impact survey results (Socitm Advisory): bit.ly/covid-19-survey-results

About this briefing

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