The Power of Digital

Understanding new technology in local government

About APSE

The Association for Public Service Excellence (APSE) is owned by its members and, working on their behalf, maintains and develops a network of local government officers, managers and councillors from local authorities across England, Northern Ireland, Scotland and Wales.

Working on a not-for-profit basis, APSE is dedicated to promoting excellence in the delivery of frontline services to local communities around the UK. Through the extensive APSE network, more than 300 local authorities and organisations are able to share information and expertise on vital frontline services, ask for advice and innovative solutions, as well as develop new, viable ways forward in an effort to help one another.

APSE provides a united national voice for these authorities, supporting them in the development of strong and sustainable public services.

About Socitm

Socitm is the professional network for 2000+ digital leaders involved in the transformation of local, regional and national public services.

Nearly 70% of UK local authorities are members of Socitm. Members within these councils account for more than 80% of our overall membership. The remaining membership comes from central government, NHS, higher education, blue light, housing and third sector.

Established as an organisation for local government in 1986, Socitm's services are designed for use throughout the wider public services market.

Research Team

This research was conducted by: Matt Ellis, APSE Principal Advisor: David Ogden, Engagement Director, Socitm; Samantha Smith, Director of Institute, Socitm; with support from George Barton, APSE Communications Officer; and Alexandra Murphy, Marketing and Communications Assistant, Socitm.

The research was co-commissioned by Mo Baines, APSE Chief Executive and Nadira Hussain, Chief Executive Officer, Socitm, as a collaborative and co-produced research paper reflecting the organisational priorities of APSE and Socitm members.

Table of Contents

Foreword **4**

Executive summary **6**

Recommendations *8*

Results at a glance **9**

State of the market on digital/new technology in local government **10**

Methodology *10*

Geographical locations and areas of responsibility *11*

Which new technologies have been adopted by your service? *14*

How well do you think the technology works for your frontline service? *20*

How well do you think the technology works at a corporate level? *23*

How has your workforce adapted to digital/new technologies? *25*

How is your relationship with suppliers/procurement? *29*

How is your data collected and used? *31*

Cyber security *34*

Have you considered equalities and access issues? *37*

Conclusions and recommendations **39**

Case studies in excellence **41**

East Riding of Yorkshire Council *41*

Derby City Council *42*

Wirral Council *43*

A-Z list of digital and technology terms you need to know **46**

Acknowledgments

Thanks to the APSE member councils who assisted in completing this survey, as well as Socitm members. Thank you to all who attended the roundtable events to inform this important research.

ISBN 978-1-907388-91-0

Foreword

APSE and Socitm have a long history of mutual collaboration and shared ambitions for local government. This research, 'The Power of Digital', emerged from a series of discussions whereby it became evident that Socitm's relationships across the IT and digital sector, alongside APSE's wider focus on the frontline of local council services, created a shared vision for a research partnership.

This report is a result of that research partnership. Sharing organisational expertise from Socitm and APSE, it explores the current 'state of the market' on the use of digital improvements in frontline services, alongside an evaluation of best practice case studies and a guide to 'tech terms', which can be confusing for those outside of the tech sector. We are optimistic that this comprehensive resource will offer practical and timely guidance and insight to enable colleagues across the sector to review and rethink local public service transformation.

The public sector as a whole is not renowned for its successes in big IT projects. This situation has led many to wrongly assume that service transformation, using the power of digital, is too hard to do or indeed too expensive to achieve. However, this report finds that some simple and relatively low-cost solutions are available to frontline services. Examples from the survey results, included in this report, suggest that many services are embracing new software to improve service monitoring, efficiency and citizen access. Indeed, many service managers suggest that they are already making good progress with digital developments on the frontline.

The research also finds that resources are stretched. Even where citizens are able to access services differently, for example through online facilities and the use of apps, there is still a demand management issue to consider. Ongoing consideration as to how efficiently and quickly services can respond given the financial pressures on councils, overarching reductions in resources and the workforce, difficulty in recruiting and retaining specialist and skilled personnel, are now everyday pressures. Moreover, when it comes to cyber security risks, opportunities for fraudulent actions and penetration of IT systems, there are genuine concerns that lack of investment could leave councils open to avoidable risks.

In the Chancellor's Autumn Statement of November 2023, The Rt Hon Jeremy Hunt MP, stated that, "*Higher public sector productivity is necessary to maintain current levels of public service provision without growing the state unsustainably. To tackle this, the Chief Secretary to the Treasury is running an ambitious Public Sector Productivity Programme with all departments to reimagine the way public services are delivered.*" This report is therefore timely as APSE and Socitm believe that productivity improvements can only be realised in the public sector if digitalisation of services is embedded in delivery, adopted at scale and expanded at pace. However, for this to be achieved upfront investment is a necessary part of the jigsaw.

The current financial position of many councils places them at risk of missing invest-to-save opportunities in the digital sphere. Therefore, this research makes a number of recommendations which we hope will inform local council frontline services as to how to benefit from the better adoption and use of digital, data and technological capabilities to help improve outcomes for people and communities in places. Crucially, we call upon councils to ensure that any advances in the digitalisation of service is inclusive of all within our communities. This should go beyond the public sector equalities duty with a recognition that digitalisation can in fact improve access to public services if done in the right way.

We commend this report to you.

Mo Baines, Chief Executive, APSE

Nadira Hussain, Chief Executive, Socitm

Executive summary

For many local authorities, adapting to technological changes can present big challenges, especially on the frontline. APSE and Socitm are regularly met with a steady stream of queries from our members on how to approach digital and technological related issues such as:

- Training staff to be proficient with new technology
- Accessibility and inclusivity for residents
- Procurement routes
- Cyber security
- Performance monitoring

In response, APSE and Socitm have collaborated to create a special report on the use and potential of new technologies and digital platforms in frontline services. As well as providing an easy-to-use IT terminology glossary, this guide also includes a 'state of the market' report supported by data captured via an online survey and roundtable discussions involving our local authority members.

This report has four overriding objectives:

1. **Paint an accurate picture of the challenges and opportunities facing local authorities on the issue of technological and digital adaptation**

   This will ensure senior policymakers at local, sub-national and national levels fully understand the implications of their decisions, are alerted to any inconsistencies in their digital-related strategies, and can adjust timescales and resources accordingly.

2. **Showcase examples of best practice across the sector**

   The report is designed to ensure as many authorities achieve the best outcomes – in cost, quality, productivity and satisfaction – as possible from their digital/technological adaptation. Some frontline council services are not so advanced in their digital transition, so the best practice examples highlighted in this report may provide some straightforward fixes and off-the-shelf solutions for those at an earlier stage of the journey.

3. Make recommendations on what councils should consider when designing digital strategies

Supported by the findings from our online survey and roundtable discussions, this report makes five recommendations which we hope will inform local council frontline services as to how to benefit from better adoption and use of digital, data and technological capabilities; helping improve outcomes for people and communities across the UK.

4. Develop an A-Z List of digital and technology terms you need to know

This 'language library' of digital and technology terms provides a useful explainer for those who work across local government. It is intended to serve as a non-intimidating guide for people unfamiliar with digital and technology jargon.

As well as providing an easy-to-use IT terminology glossary, this guide also includes a 'state of the market' report supported by data captured via roundtable discussions and an online survey of our local authority members.

Recommendations

Informed by the findings from our online survey and roundtable discussions, APSE and Socitm make the following recommendations:

Recommendation 1

Leadership teams in local government, both officers and elected members, need to recognise that the 'Power of Digital' is reflected at a corporate and service level, embedding a culture of embracing new technologies to support service improvements.

Recommendation 2

Our research finds that the use of new technology and the 'Power of Digital' is embraced when it is viewed through the prism of supporting people to do their jobs better, rather than a threat to the overall workforce.

Recommendation 3

Local councils provide services across a broad spectrum of the local population. Digital solutions should always enhance accessibility in an inclusive way and should be tested to ensure people at a local level are not excluded from service access by untested technologies and systems. Test, test and test again**.**

Recommendation 4

Invest to save. As highlighted in our research case studies the right technology can improve services, create efficiencies and improve productivity. Investing in the 'Power of Digital' should not be viewed as a drain on resources but a means to future-proof services, generate improvements in productivity and service standards, and enhance the customer experience for local residents.

Recommendation 5

Local councils should make use of local networks within APSE and Socitm to share best practice at an operational and corporate level and engage with suppliers for demonstrator sessions so that new technologies can be tested, and refined before heavy investments are made. Consider collaborating with other local authorities on digital solutions.

Results at a glance

What do you see as the barriers to improving your digital/new technology capacity?	
Funding	**83%**
Lack of skills	**61%**
Councillors are resistant because they don't want to exclude groups such as older people	**26%**
How well do you think the technology works for your frontline service?	
Good / OK	**67%**
Could be improved	**32%**
Thinking about your use of data, how is this collected and used?	(agree / agree somewhat)
Data is collected at a service level	**91%**
Data is collected corporately	**58%**
Thinking about cyber risks, how do you feel about risk to your service/organisation?	(High / medium risk)
Misinformation	**46%**
Malware	**38%**
How has your workforce adapted to digital/new technologies?	(agree / agree somewhat)
Some of our traditional workers have struggled to adapt	**85%**
Our workforce feels life is made easier by the changes	**72%**

State of the market on digital/new technology in local government

For many local authorities, adapting to technological changes can present big challenges, especially on the frontline. APSE is regularly met with a steady stream of queries from our members on how to approach digital and technological related issues such as:

- Training staff to be proficient with new technology
- Accessibility and inclusivity for residents
- Procurement routes
- Cyber security
- Performance monitoring

In response, APSE and Socitm embarked on gathering real-time data on local authority digital/technological adaptation. The data was captured via an online survey and online roundtable meetings involving our local authority members. The data collected forms the basis of this state of the market report.

Methodology

Most researchers agree that combining quantitative and qualitative techniques - the mixed method approach - produces *"a richer and more comprehensive understanding of a research area"*.

Therefore, APSE conducted two online roundtables of our local authority members on 27 September 2023 and 18 October 2023. Concurrently, an online survey of our local authority members was undertaken between September and November 2023. The overall aim of these data gathering exercises was for the quantitative data captured in the survey to be combined with the qualitative data captured in the roundtables, thereby providing *"a richer more comprehensive understanding of the research area."*

The online roundtables were facilitated by Matt Ellis, APSE Principal Advisor, and Samantha Smith, Director of Institute at Socitm, both members of the research team.

The roundtables brought together a diverse range of voices from across local government to discuss the issue of digital/new technology adaptation in detail. Combined, the roundtables were attended by 50 delegates representing 40 local authorities across the UK.

The online survey was sent out to local authority contacts throughout the UK. A total of 71 respondents submitted their views, representing 63 local authorities, with a completion rate of 100%.

By using a mixed methods approach, the data used to inform this state of the market has been collected from 121 individual members of the UK local government workforce, across more than twenty different service areas, representing 90 UK local authorities.

Geographical locations and areas of responsibility

As demonstrated in Figure 1, respondents were evenly spread across APSE's six administrative areas: APSE Scotland, APSE Wales, APSE Northern Ireland, APSE Northern, APSE Southern and APSE Central. Each constituent nation of the UK is fairly represented in this survey.

Figure 1: Geographical location of survey respondents and roundtable participants (combined)

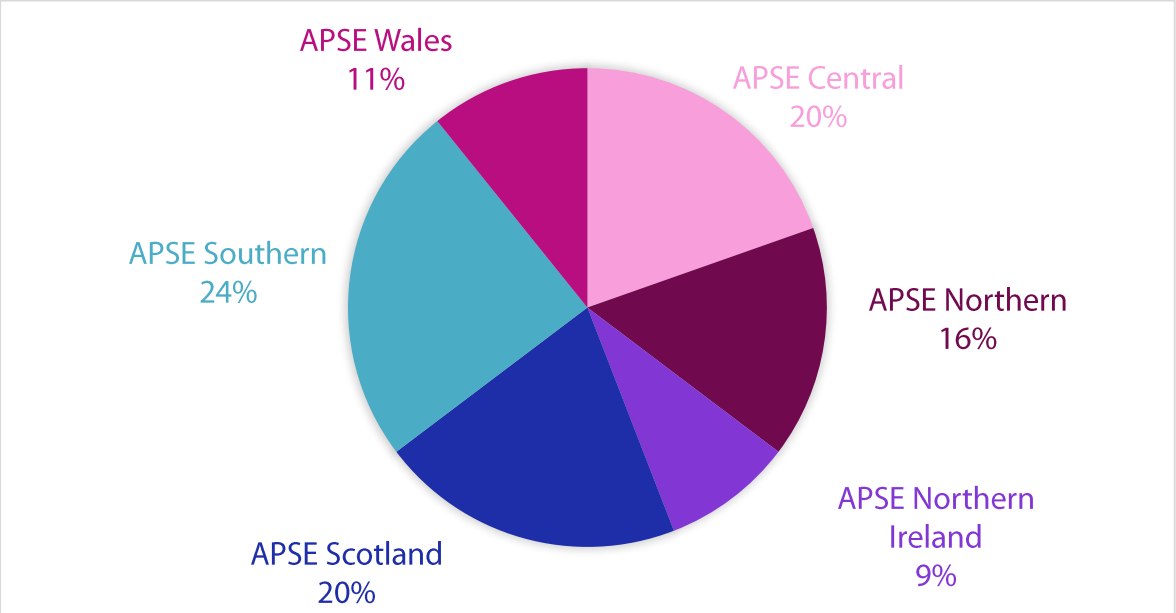


Figure 2 reveals the diverse range of responsibilities held by those surveyed, with every single service area listed represented in the survey. Many respondents ticked multiple boxes demonstrating how chief officers within local government are increasingly operating across multiple sectors. That the role of local government chief officers has expanded to cover multiple service areas provides added weight to this research; ensuring just one respondent can provide insight into the operations of several different frontline service areas.

Figure 2: Areas of responsibility of survey respondents

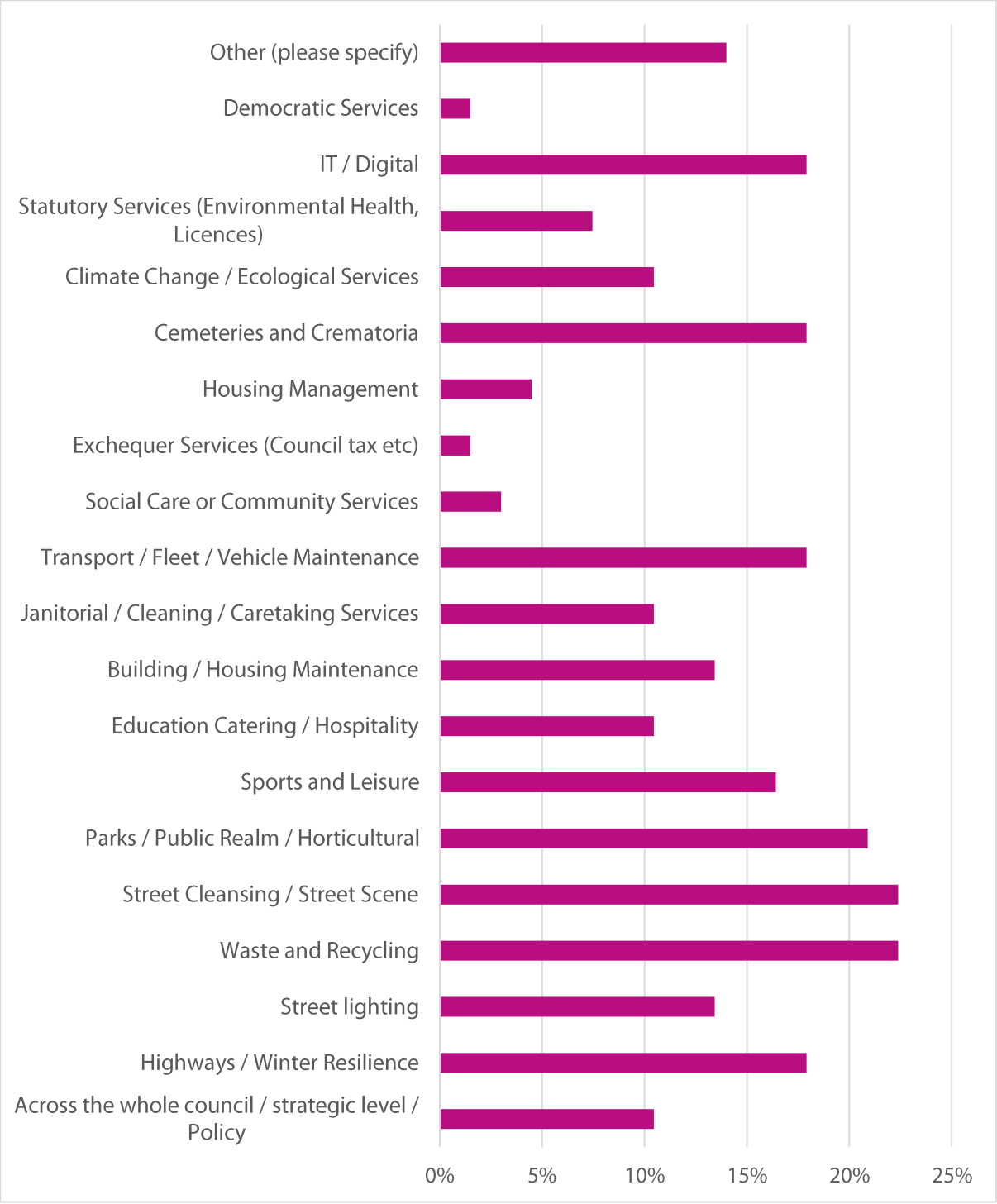


Figure 2 shows a comfortable majority of respondents to the survey cover services which APSE refers to as "neighbourhood services". These services are, for the most part, local government services which are not part of either education or social care. However, if we were to bracket "Waste", "Street cleansing" and "Parks" into one broad category – environmental services – then that represented the most common portfolio amongst respondents.

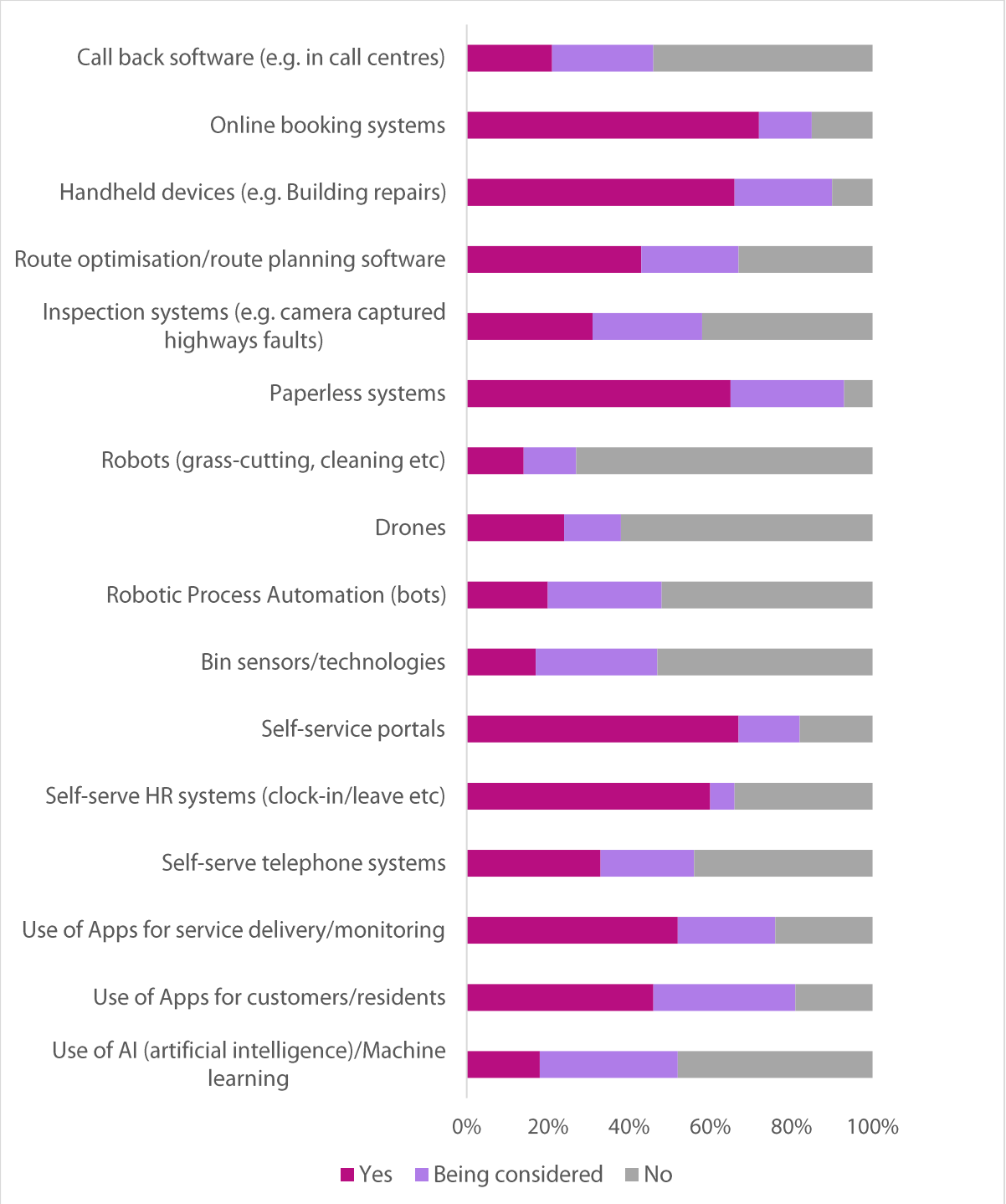
However, despite the majority of respondents working in neighbourhood services, it is worth noting the findings of this survey also encompass the experiences of those in the "back office" as well as those on the frontline. There was a big response from those who work in "IT/ Digital" (18%) – a response equal to that of "Transport/Fleet/Vehicle Maintenance" – as well as a sizeable response from those who work "Across the whole council/strategic level /Policy" (10%). Most of the responses to "Other" could also be categorised as "back office" roles, namely: communications, marketing, customer services, wellbeing, and data management.

By using a mixed methods approach, the data used to inform this state of the market has been collected from 121 individual members of the UK local government workforce, across more than twenty different service areas, representing 90 UK local authorities.

Which new technologies have been adopted by your service?

The survey asked respondents which of the digital/new technologies had been adapted by their service. The full list of technologies, and accompanying responses, can be found in Figure 3.

Figure 3: "Thinking about the adoption of digital/new technologies, which of the following applies in your service?"



Online booking systems

The pandemic was acknowledged by those in the roundtables as accelerating the shift to digital amongst residents and customers. One council officer described how, before Covid, 20,000 of the 70,000 people who signed up to their garden waste collection service did not have an email address. Now, only 5,000 are without an email address.

Figure 3 shows that online booking systems are now used extensively across local government (72%). Paperless systems have fast become the norm across the sector with local councils applying digital technology and software to transform the customer experience (65%). Only a very small number of those surveyed stated they did not have paperless systems in place in their service (7%).

In a similar fashion to online booking systems, Figure 3 reveals self-service portals have become embedded across the sector, with 60% of respondents confirming the use of self-serve HR systems in their service. When discussed at the roundtables, it was noted by several authorities that Covid, and the trend towards remote working, had accelerated a move to self-serve HR systems.

Using agile to boost online transactions by a fifth

Sevenoaks District Council

The authority has released 38 online forms, processed 29,000 completed forms and taken £600,000 online since October 2022. *"We are really small and those £600,000 of payments were being taken manually over the phone by customer services."* *Click here for more information.*

The 24/7 Funeral Director Portal

Wirral Council

The Portal, developed by PlotBox, provides 24/7 online access to crematorium calendars to provisionally book slots. This means over 90% of bookings now come via the portal, dramatically reducing backlog and phone calls, resulting in a more seamless experience for families. *See page 43 for more information or click here.*

Route optimisation software

Figure 3 reveals just under half of those surveyed use route optimisation/planning software in their service. Further analysis of the responses reveals that all those who answered "Yes" work in neighbourhood services, namely waste, transport and street cleansing.

A now seemingly integral technology within neighbourhood services, one participant in the roundtable – a Service Manager for a Scottish council – noted that:

"We introduced a new waste management software system to our refuse collection and streetscene services, which has created massive improvements. The office can send information to the crews in real time and then can do the same back to the office – we now have a constant stream of data which has help us improve on things like missed bins. It's been that successful that we are rolling out the same system to our street cleaning teams.

"Of course, there have been costs associated with setting up this system and we went a bit over budget in its introduction. However, the progress that has been made as a result has made it well worth it." ***Service Manager, Scottish Council***

Migration to a cloud-based asset management Solution

East Riding of Yorkshire Council (EYRC)

As part of the migration to a cloud-based solution, Brightly Software was able to access the Council's data and conducted a comprehensive review of how it was using the software. This included examining legacy processes and operational procedures, such as how data was captured, utilised, processed and stored across all its operational departments. *See page 41 or click here for more information.*

Paperless systems have fast become the norm across the sector with local councils applying digital technology and software to transform the customer experience (65%). Only a very small number of those surveyed stated they did not have paperless systems in place in their service (7%).

Like route optimisation software, bin sensors are also becoming an increasingly popular technology for local authority waste collection teams; with 75% of those with a "Waste and Recycling" responsibility confirming their use.

Halving bin visits by using 'fill-level' sensor technology

Derby City Council

This technology monitors how fast the bin is filling and provides an alert when the bin needs emptying. By cutting out these unnecessary trips and emptying bins only when they were needed, the Council reduced the number of visits to bins by 53%. *See page 42 or click here for more information.*

Apps

Figure 3 reveals the prominence of apps in service delivery amongst those surveyed. Just over half of those surveyed use apps internally for service monitoring (52%), with roughly the same amount (46%) using apps externally for customers / residents. APSE's own portfolio of inspection monitoring apps is used by 62 different UK local councils, across a wide range of frontline services, including grounds maintenance, street cleansing and cemeteries and crematoria.

Cardiff Gov Mobile App

Cardiff Council

During October 2021 the number of downloads of the Cardiff Gov Mobile App surpassed 50,000; a steady growth of over 800 downloads each month since its launch in June 2018. The mobile app is the most popular channel for location-based services such as fly-tipping and street cleansing and quick and simple functions like the Council Tax summary page. *Click here for more information.*

Drone technology

It is noticeable that some of the new technologies listed in Figure 3, namely robots (73%) and drones (63%), have not been adopted by the majority of those surveyed. One explanation for this may be their relative immaturity – and unfamiliarity - compared to the other items listed. However, with very low set up costs and low fixed costs, there is a growing trend towards drone technology usage in local government. Further analysis of those who answered "Yes" to drone usage reveals a diverse range of frontline services. Drones have been known to be used by councils for planning purposes, in the fight against littering, as well as infant school meals delivery.

Reimagining social housing roofing inspections with drones

Swindon Borough Council

With drones, staff members are provided with a safer work environment, significantly reducing the risk of accidents and injuries. Drones have also reduced risk in several other areas; for example, the risk of children climbing scaffolding and decreased issues with property access. Click here for more information.

AI and machine learning

On the matter of AI and machine learning, Figure 3 reveals that a plurality (48%) of those who responded are not applying that technology to their service, nor considering it (34%). Just 18% of those surveyed are using AI/machine learning in their service.

When AI and machine learning adoption was raised in the roundtables, there was a general agreement that AI, and predictive analytics in particular, has the potential to enable better outcomes for local councils and their communities. This might be through better decision-making, or from better prioritisation of resources. However, this general agreement on its potential was caveated with a general concern over computer-based decision-making, specifically around replacing human jobs, ethics and safety.

APSE's own portfolio of inspection monitoring apps is used by 62 different UK local councils, across a wide range of frontline services.

One participant in the roundtable– a Systems Development and Support Manager at a Housing Association in England – noted the improvements machine learning had made to the service in predicting damp or mould issues in a property:

"Using the data from our housing management system and from mobile surveys, we created a proof-of-concept tool, using machine learning, that could predict whether there was likely to be issues with damp, mould and/or condensation in a property. We are currently using field testing to check the accuracy of the predictions and have seen some amazing results.

"I think the key to the accuracy of this tool is ensuring that we only use high-quality data, as opposed to just maximising how much we put in. By making sure that the results are as accurate as possible, these results will be able to help us drive decision-making." ***Systems Development and Support Manager, Housing Association in England***

Using machine learning to support business rates collection

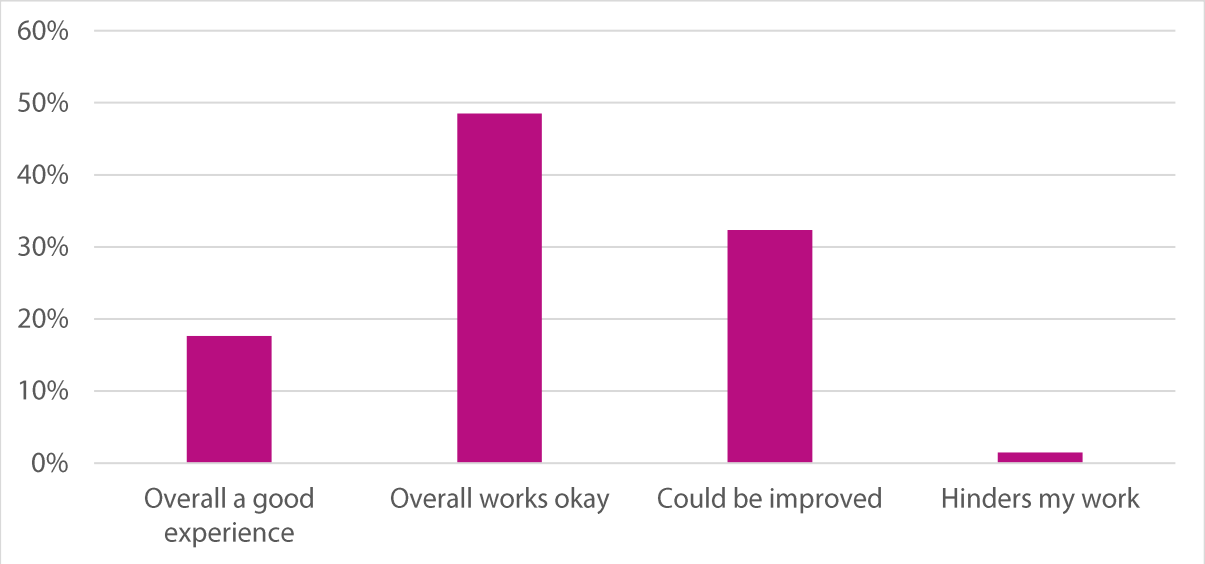
Belfast City Council

During a two-week trial, two companies used machine learning to identify previously uncollected business rates for the Council to the value of approximately £500,000. The technology identified properties listed as vacant but occupied, new businesses that have just opened, as well as domestic properties operating as non-domestic. Click here for more information.

How well do you think the technology works for your frontline service?

Figure 4 reveals that the majority of those surveyed regard their 'line of business' systems as "good" or "okay" (67%). However, a sizeable minority reflected that the systems in place in their service "could be improved" (32%). Just one respondent regarded their 'line of business' systems as a hindrance (1%).

Figure 4: "Thinking about your 'line of business' systems – such as those used in housing, planning, fleet management, street lighting etc. – please tell us how well you think they work for your own service?"



A recurring theme throughout the data collection process centred on how the biggest barrier to improving digital/new technology capacity is funding, or the lack thereof. This is borne out in Figure 5 with "lack of funding" (83%) surpassing "lack of skills" (61%) as the main barrier. One roundtable participant, a Lead Officer in Digital Services at an English council, remarked:

"I'd say the big challenge for funding for new technologies is that a lot of it is revenue based. Historically we always used to try and go for a big capital bid. But now, newer, more nimble innovative solutions are priced more for the private sector who can write

A general agreement on machine learning's potential was caveated with a general concern over computer-based decision-making, specifically around replacing human jobs, ethics and safety.

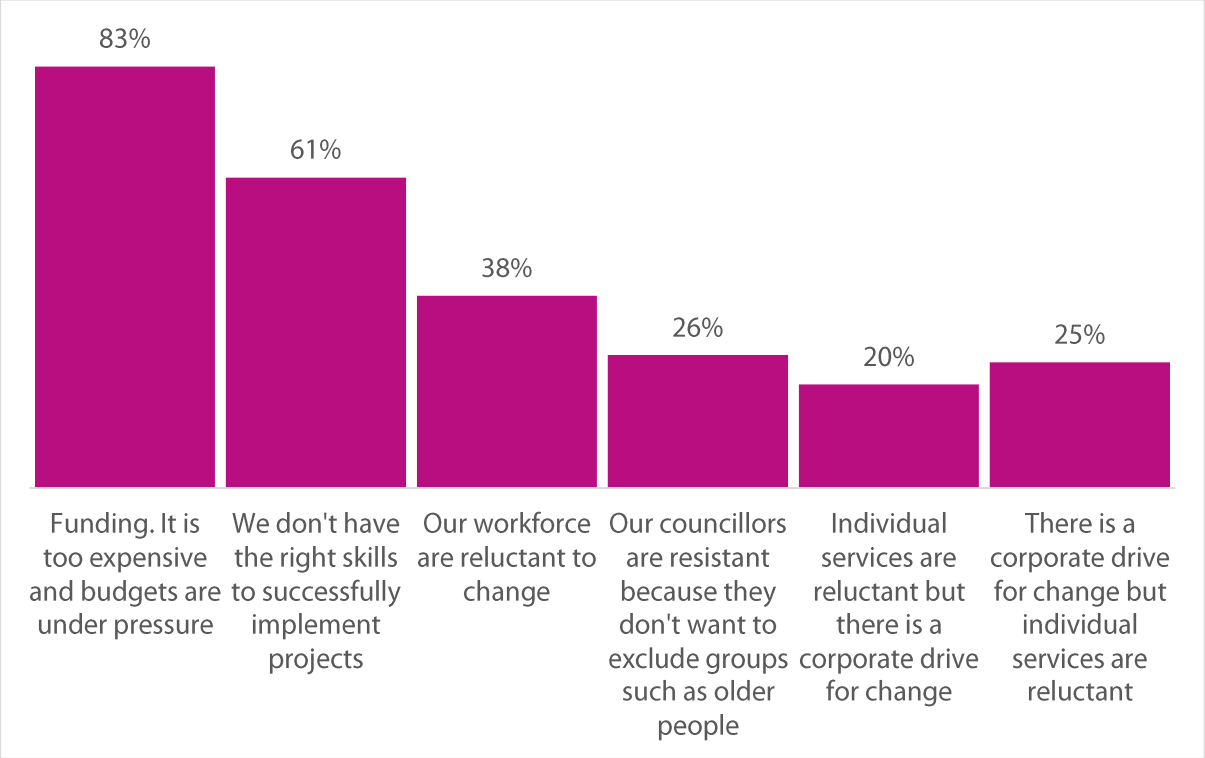
off their monthly and annual costs against their profits, which doesn't work in the public sector." ***Lead Officer in Digital Services, English council***

On the topic of skill shortages, one roundtable participant, noted how:

"The need for technology often does not match up with our resources. Say you implement something simple such as an online form for a certain council service – yes it will stop people having to ring up and talk to someone, but at the end of the day, somebody is still going to have to process those online forms. It's not always a labour-saving device." ***Operations Manager, Scottish council***

Figure 5 also reveals how a quarter of those surveyed believe an unsupportive organisational culture serves as an impediment to improving technological capacity (25%). In the roundtable, a Senior ITDT Analyst at a Welsh Council, remarked:

Figure 5: "What do you see as the barriers to improving your digital/new technology capacity?"



"In the development of our digital platform and journey we were fortunate to gain funding to help. We would consider ourselves one of the sector leaders, especially within our region or Wales. Where many others adopted digital during Covid only - we see this as a journey that will drive the service for the future. There are many other national providers that lead in other ways and we still have many areas to explore and much to improve on." ***Senior ITDT Analyst, Welsh council***

The above quote recognises the importance of a supportive organisational culture and funding to successful technological adaptation on the frontline.

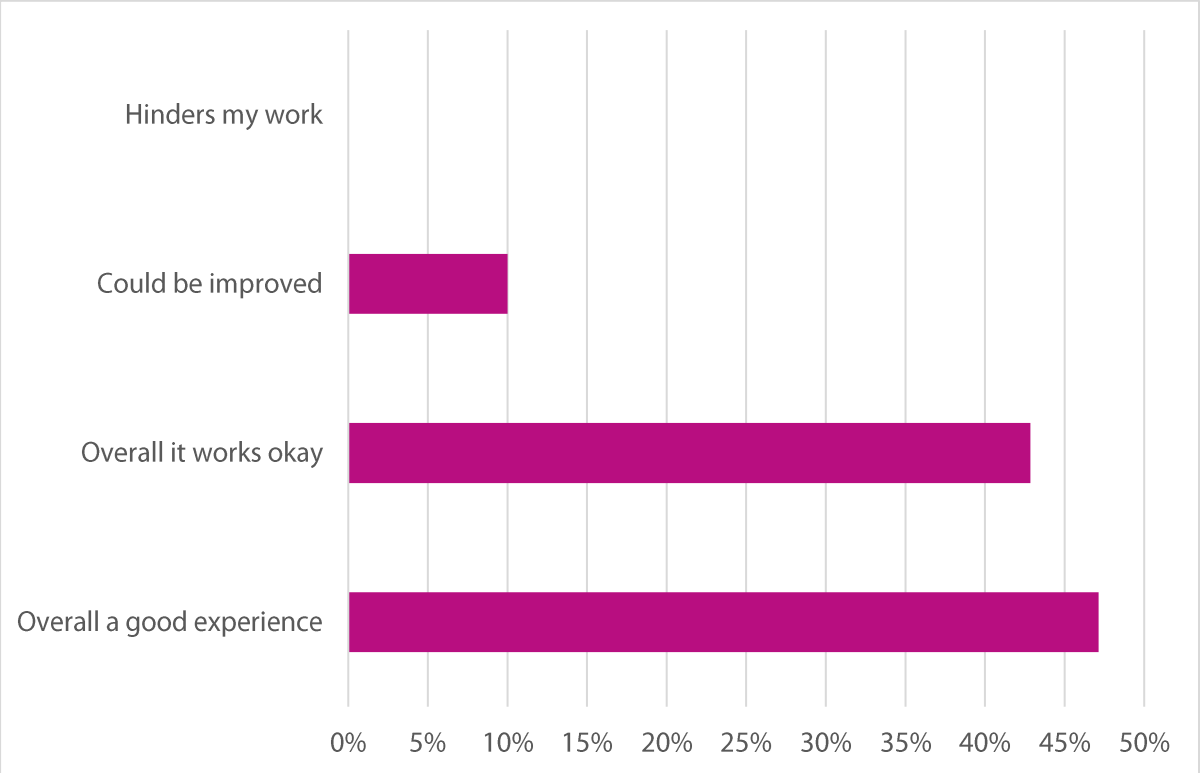
How well do you think the technology works at a corporate level?

Figure 7 shows that, of those surveyed, their experience of digital/new technology at a corporate level is overwhelmingly good/okay (90%).

The corporate systems identified in the survey include:

- Microsoft 365
- Orlo (social media management)
- Bartec Municipal Technologies (waste, highways and streetscene)
- TRP Planday (rota scheduling)
- APSE LAMS
- Civica
- Oracle Enterprise Systems (financials, engineering, HRIS)
- TeamKinetic (volunteer management system)
- WeComply (health and safety)
- Microsoft Power BI

Figure7: "What is your experience of digital/new technology when it comes to corporate system?"



As mentioned on page 17, organisational culture emerged once again during the roundtables as a key element to ensuring the successful rollout of digital/new technology across the organisation. One participant noted that:

"Slow decision making and organisation wide agreement to system type means years of discussion and no action." ***Senior Manager, Scottish Council***

Another participant acknowledged that progress across the council had been uneven:

"We've gone deep on a few services, rather than wide and shallow - so some of our services are leaders, while others are behind the curve." ***Head of Service, English council***

This uneven progress was explained by some as result of a failure of system integration. The issue of system integration across a council - and more specifically the difficulty of achieving it - was raised at the roundtables:

"When looking at the introduction of new systems, things have worked out quite well for us. Those issues that have cropped up are mainly related to the integration of systems – if services are operating a range of different systems, it can be difficult for frontline staff to report issues. If you get an app right and integrate it properly, staff are much more likely to report on issues that they see outside of their remit, such as a street cleaner reporting an issue with a streetlight." ***Operations Manager, Scottish council***

How has your workforce adapted to digital/new technologies?

Figure 8 reveals something of a mixed picture when it comes to workforce adaptation. The popularity of the "somewhat agree" option for "Our workforce have… welcomed new developments" (54%) suggests that, generally, the local government workforce has adapted to new technologies reasonably well.

"Figure 8: Which of the following best describes your experiences on workforce matters when it comes to digital/new technologies?"

Organisational culture emerged once again during the roundtables as a key element to ensuring the successful rollout of digital/new technology across the organisation.

Though the survey data indicates that the local government workforce has – for the most part – embraced the introduction of new technology and the efficiencies they can bring, there remains some issues with adaptation, especially amongst more 'traditional' workers.

Figure 8 reveals 60% of those surveyed somewhat agree that "Some of our traditional workers have struggled to adapt." Compared to the rest of the public sector, local government has an ageing workforce, particularly in frontline services - something that managers and IT teams have to contend with on a day-to-day basis regarding both the ability and willingness of workers to use technology. This also has to be viewed in the context of constrained budgets and limited resources: training can be resource intensive, especially when dealing with workers who may lack basic computing skills. As one participant in the roundtable remarked:

"A big challenge is rolling out new systems to frontline workers who do not have the same level of computer literacy as a council officer might. We have had real kickback from employees, and by extension, their line managers for introducing new systems. There are obviously huge efficiency gains to be made, but some employees simply do not have the skillset, which is a huge challenge." ***Senior ITDT Analyst, Welsh council***

Despite this, the data shows councils are progressing with regards to helping workers adapt to new technologies and digital systems. Figure 8 shows that almost three-quarters (73%) of those surveyed agree or agree somewhat that "We have successfully implemented changes."

Multiple roundtable attendees explained how frontline workers were consulted throughout the build process for new systems and made to feel central in design decisions. This 'co-production' approach to system design was recognised as bringing several benefits to the council. As one attendee put it:

"Involving frontline staff in the creation and design of a new system is fundamental to its success. By engaging with workers and treating them as stakeholders, you are recognising who is actually going to be using these systems day-to-day. In terms of actual training, user guides, videos they can refer back to, help functions built into the system and a continual training process are the best way to go out it. Of course, this all amounts to using up resources, but you'd rather spend that time upfront and get it right

early doors than suffer the consequences further along down the line." ***Business Development Manager, English council***

Though co-production was identified as the preferred option when designing new technology in the roundtables, it was acknowledged that such an approach can be timely, expensive and, ultimately, unviable for many council services. For those who do not have the time and resources to co-produce, one roundtable participant stressed that:

"It's important to consider the kind of language used when introducing new technology; how do you go about introducing it in a way that does not alienate people? How do you minimise the use of technical jargon? How do you describe the opportunities to them and get them on board?" ***Operations Manager, Scottish council***

On the topic of efficiencies, one roundtable participant suggested reluctance to adopt new technology amongst some staff may be attributable to a fear of losing their job:

"I think there is an issue with professional curiosity in some cases. There is definitely a sense where people think 'this is the way we've always done it and why would we change what works?' A problem we find is that people are often quite happy to complain about how certain processes take time, but equally, do not want to change the way they do things because these processes ensure that they are busy. There is a fear that when a new system comes in, it will make them less busy and reveal that the service is inefficient. ***Systems Development and Support Manager, Housing Association in England***

This reluctance to adopt to new technology amongst workers for fear of losing their jobs helps explain why over half of those surveyed (58%) agree or agree somewhat that "We engaged with our trade union colleagues to develop our approach."

The issue of training featured prominently in roundtable discussions. Several of those in attendance noted how their council's IT team struggles to have resources to train or maintain systems. Furthermore, convincing those in senior positions to invest in training can be a "hard sell", as one roundtable attendee noted:

"If you want to get the best trainer in, they are expensive. Obviously, you want to get the best quality training for your people to design most intuitive services. For small authorities, that can sometimes out of reach because justifying spending a lot on a consultant can be a bit of a hard sale, especially if the person you are selling the idea to doesn't necessarily understand that level and why that expertise is needed. So I think there's definitely a potential role for APSE and Socitm to pull together a national training program." ***Deputy Chief Executive, English council***

Helpdesk staff help tackle skills shortage

Walsall Council

Walsall Council is tackling skills shortages by hiring service desk staff who have transferrable skills, providing them with training then encouraging them to apply for bigger jobs. In 2022, Walsall saw 22 of its digital and technology service team successfully applying for new roles, with three-quarters of those moving having started on the service desk. Click here for more information.

How is your relationship with suppliers/procurement?

The issue of procurement routes and establishing healthy and long-lasting mutually beneficial relationships with suppliers generated much discussion in the roundtables.

"Ensuring a system has the flexibility to be used across a range of services" was a big talking point amongst roundtable participants, with one remarking:

"There is definitely an element of needing to strike the right balance between streamlining the number of systems we have, whilst not losing the benefit of specialist systems that are designed to carry out a specific task. You can sometimes find that staff will have to use four or five different systems within their specific service area – that's not even looking at wider departments. Therefore, one of the most important things in discussion with suppliers is ensuring a system has the flexibility to be used across a range of services. Most councils would prefer to reduce the number of systems they operate and procuring those that can be adapted, as opposed to them being hyper specific." ***Business Development Manager, English council***

Another roundtable participant stressed the importance of external help to support procurement stating:

"For me, if you're going to procure any sort of technology I think you should always bring in some external help to support with the procurement in terms of your specification, as well as somebody who understands the vendors in the marketplace that you may be procuring into to de-risk that decision." ***Deputy Chief Executive, English council***

When the issue of low-code was raised in the roundtables, several agreed that it had transformed the speed of processes within their service and across the wider council. Though concerns were raised about the security and scalability of low-code platforms, one roundtable participant seemed to sum up the mood of the sessions when remarking:

"The low-code suppliers are often very in tune with what the organisation is trying to achieve – their products can allow very rapid deployment. This is opposed to larger

'legacy providers', who – talking in quite a general sense – can sometimes overpromise, underdeliver and be very expensive." ***Senior Lead Officer - Digital Services, English council***

A Low-Code Approach

Norfolk County Council

Norfolk County Council has moved towards a more unified and low code approach in the delivery of online services for its local community. It has agreed a five-year, £1.47 million contract with Goss to use its software-as-a-service Digital Platform, which will replace a collection of customer experience technologies in areas such as customer relationship management, content management and forms software. Click here for more information.

When it came to the issue of cyber security and suppliers, the UK Government was identified as potential partner in "*bridging the gap"* between councils and developers. One participant made the point that:

"Looking from the back end of technologies – the cyber security world – there is a huge number of innovative companies that are doing some great stuff, but it's going to be expensive. I think there is a role there for the government to try and find a way to bridge the gap between councils and companies moving at pace in terms of cyber security arrangements. The change of pace is so rapid, there needs to be some sort of solution here to get the eco-system of cyber tech closer to the public sector." ***Deputy Chief Executive, English council***

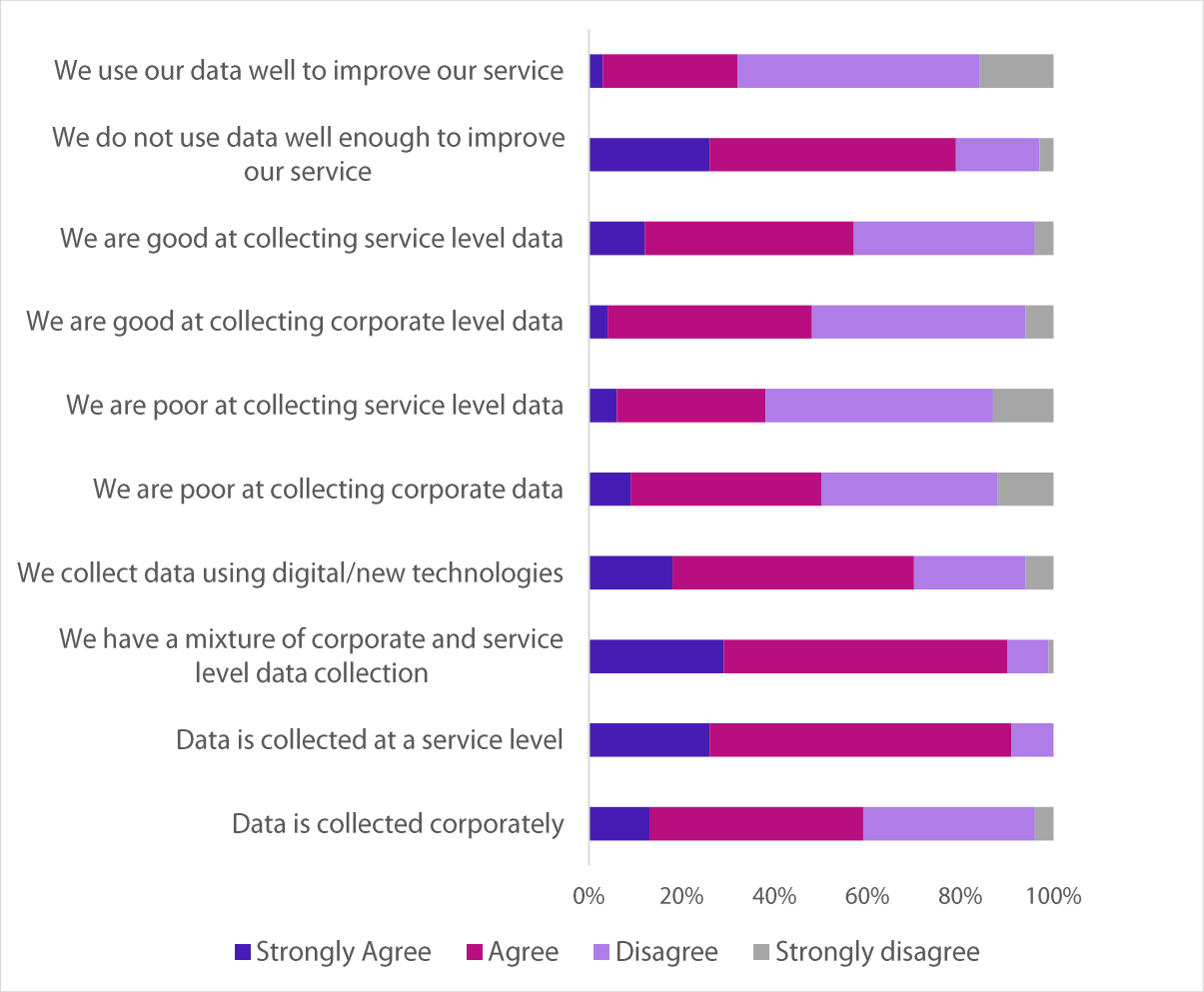
When the issue of low-code was raised in the roundtables, several agreed that it had transformed the speed of processes within their service and across the wider council. Though concerns were raised about the security and scalability of low-code platforms.

How is your data collected and used?

Figure 9 reveals a surprising number of those surveyed feel they are poor at collecting data, both at a service level (38%) and at a corporate level (48%). Figure 9 also shows how digital/new technologies are the preferred method of data collection for a large majority of those surveyed (70%); demonstrating how the old methods – namely using paper forms – are being eased out.

Well over half of those surveyed agreed/strongly agreed with the statement that "Data is collected corporately" (59%), with an overwhelming majority collecting data at a service level (91%). This suggests that the use of data is not simply something sitting at the corporate centre but very much a part of day-to-day operational services, with expectations on operational manager to collate, understand and apply data intelligence to their own services.

Figure 9: "Thinking about your use of data how is this collected and used?"



The roundtables confirmed just how important information and data is to providing intelligence on the impact of service changes; establishing a starting point and identifying future targets. Performance measurement was also identified as a vital mechanism to learn how other local authorities are meeting the challenges and the impact that their service changes are making in terms of cost, quality, productivity and customer satisfaction levels.

APSE' own benchmarking service – Performance Networks - is used by over 200 local authorities across the UK, and was cited throughout the roundtable sessions as a valuable resource for participating local authority frontline teams in delivering continuous improvement. Over 60% of those surveyed are members of APSE Performance Networks.

"We submit to APSE's benchmarking service - Performance Networks – across various service areas including refuse collection, transport, road maintenance and street cleansing. We've been taking part in service since about 2016, with improving outcomes on cost, quality and satisfaction across each of those services." ***Service Manager, Scottish Council***

Performance measurement was also identified as a vital mechanism to learn how other local authorities are meeting the challenges and the impact that their service changes are making in terms of cost, quality, productivity and customer satisfaction levels.

Land Audit Management System (LAMS)

APSE Performance Networks

LAMS is a quality inspection system to monitor grounds maintenance and/or street cleansing. The app allows frontline service teams to measure the quality of their own localities, and at the same time benchmark their data against other local authorities. Used by 62 authorities across the UK. Telford and Wrekin Council has described the System as *"Easy to use and a lot quicker than paper… you get the exact location and pictures to back the grading up."* *Click here for more information.*

Harnessing data guide

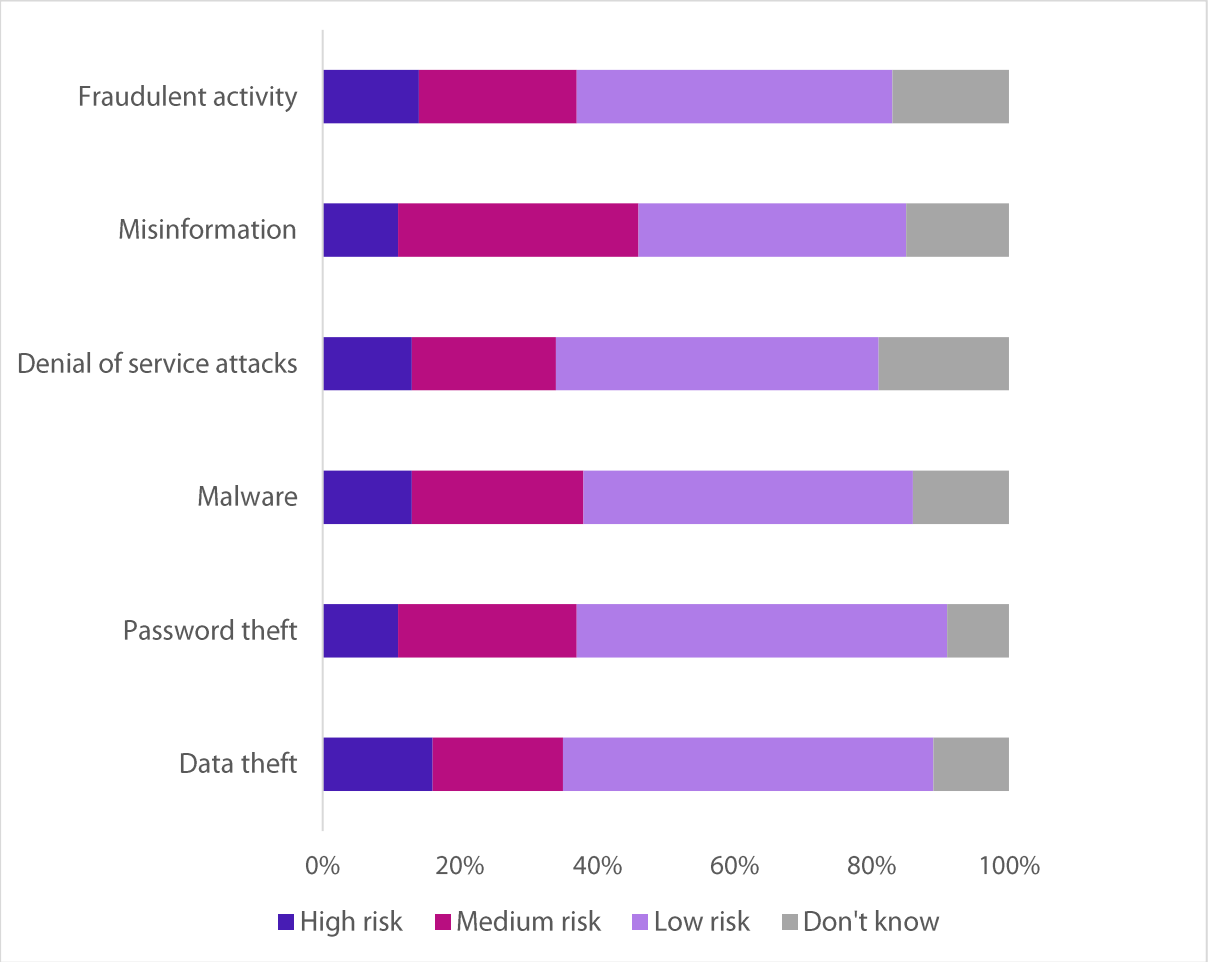
Socitm Resource Hub

This online guide is designed to help an organisation and those with responsibilities for data handling to identify the areas where they need support and to confirm where they may have already display good practice. It is also aimed at different audiences – from the specialists who 'live and breathe data' in ICT and other technical teams, to those who just rely on good data practice to do their jobs. Complete with references and case studies, the guide is available online. *Click here for more information.*

Cyber security

Figure 10 reveals the extent to which cyber risk is perceived as threat to council operations amongst those surveyed.

Figure 10: "Thinking about cyber risks such as data leaks or malware how do you feel about risk to your service/organisation?"



With regards to "malware", 28% of those surveyed regard it as a high/medium risk. One respondent commented that:

"The biggest risk likely relates to Ransomware - as we've seen that in other authorities. Retaining sufficient cyber skills and keep our estate of hardware and software properly updated and protected is a very significant challenge." ***Head of Service, English council***

Another respondent, an Executive Director of Place at an English council, conveyed the seriousness of the malware risk confronting many local authorities when noting that:

"We defend 25,000 attacks per day." ***Executive Director of Place, English council***

"Misinformation" is recorded as the most identified medium/high risk to respondents (46%). Though "Data theft" (16%) and "Fraudulent Activity" (14%) emerged as the cyber risks posing the highest risk to service delivery, it ought to be noted these were identified as high risk only by a small minority. Whilst numerous areas of risk are clearly on the radar for councils, the level of confidence in protective systems and processes is demonstrated by the vast majority of respondents who feel that risk of fraudulent behaviours are generally low. This suggests that councils are testing systems and embedding security measures into their processes and systems.

Although increasingly sophisticated cyber security measures are being developed, these kinds of updates and improvements can be limited to the private sector and critical state infrastructure due to the significant costs involved. If councils cannot afford to keep pace and the widening gap between the cyber security industry and the public sector cannot be closed, ageing local authority systems will face a growing risk of significant data breaches or attacks in the coming years.

Comments from those who attended the roundtables highlighted the belief that cyber security is an organisation-wide responsibility – with managers responsible for instilling a strong cyber security culture and awareness. Increased use of technology and greater digital integration means that the level of cyber risk continues to grow, with IT teams no longer able to shoulder all the responsibility for security. Remote working has exposed organisations to more risks, such as employees connecting work devices to unsecure home networks and using personal devices to store sensitive data.

Furthermore, the impact of AI, particularly in relation to phishing scams, is enabling criminals to create sophisticated email scams. Participants in the roundtable discussed how people who work in technology-related fields often take for granted the fact that they can identify suspicious emails with relative ease whereas those who aren't as digitally literate are more susceptible to these kinds of scams.

"There is an increasing frequency and intensity of cyber attacks against local authorities. A lot of these can be defended through the systems, but you can't get everything. So, it's important to have strong user awareness and training, making sure that everyone is aware of risks such as clicking on suspicious emails and links. Traditionally, cyber risks have been viewed as something that the IT team and the IT team alone deals with, but the reality is that everyone in an organisation has a role to play." ***Samantha Smith, Director of Institute, Socitm***

Government Cyber Security Strategy: 2022 to 2030

GOV.UK

This strategy sets out the Government's approach to protecting and promoting the UK's interests in cyberspace. The online document covers key elements of cyber security from implementation to building a resilient UK public sector. Click here for more information.

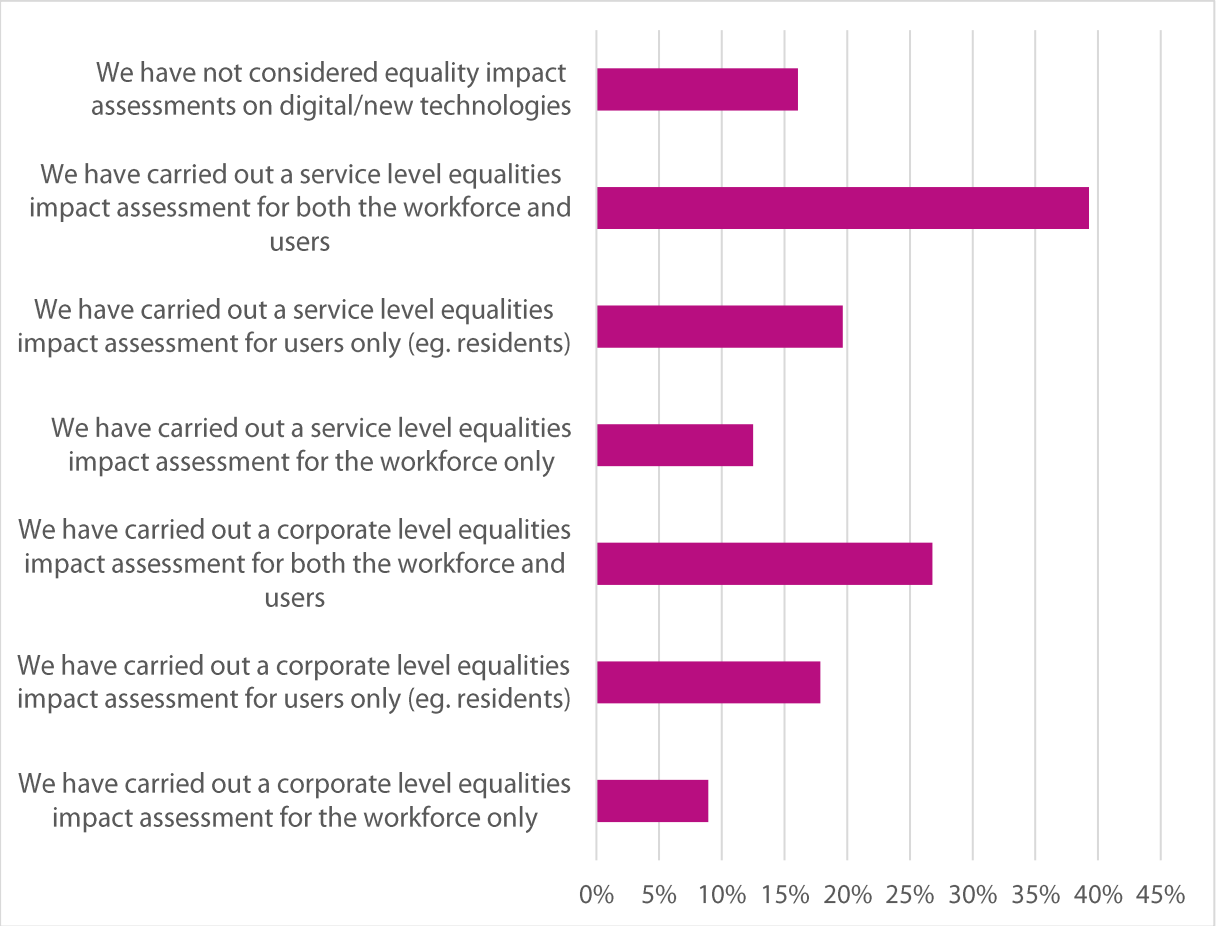
Have you considered equalities and access issues?

The Public Sector Equality Duty (the Duty) requires public authorities, in carrying out their functions, to have due regard to the need to achieve the objectives set out under s.149 of the Equality Act 2010.

The Duty requires a local authority to show all of its functions have been analysed to assess their effect on equality. For councils, this analysis takes the form of Equality Impact Assessments (EqIAs).

Figure 11 reveals the scale of action being undertaken by councils in ensuring protected groups can continue to access services. Just under 40% of those surveyed have carried out a service level equalities impact assessment for both the workforce and users.

Figure 11: "Thinking about your service or council/organisation approach, how have you considered equalities and access issues?"



One respondent remarked that at their council:

"We carry out an equality impact assessment for each project we do covering both workforce and users. We have also written a digital accessibility policy which has been adopted." ***Digital Transformation Manager, English council***

Another respondent summed up their council's approach to qualities and access issues:

"Our motto is digital first NOT digital only. We are trying to move over to digital first and if residents need direct assistance e.g. elderly residents- they can go to libraries and be assisted with form filling etc." ***CX Project Officer, Northern Ireland council.***

However, one respondent noted that the Duty is not without its challenges:

"This is a very challenging topic politically and in practice. Ultimately both politicians and officers want to be there for people who need the extra help, but that does mean we really don't have time any more for customers that are able to use self-serve. In practice though I think councillors find this difficult when residents moan about call waiting times." ***Head of Service, English council***

An estimated 1.7 million households have no broadband or mobile internet access and 2.4 million people are unable to complete a single basic task to get online. Therefore, it is crucial that local authorities continue to support those who lack the skills, confidence or infrastructure to go online. Nobody should be in a position where they cannot access council services and as councils continue to pursue digital transformation projects, they must prioritise digital inclusion strategies to make sure people are not left behind.

Digital Inclusion Programme

Bradford Council

As part of its Digital Strategy 2022-27, Bradford Council conducted a needs assessment to identify the specific needs and challenges of more vulnerable citizens, including those who are elderly, disabled, or economically disadvantaged. A team of Digital Inclusion Officers has been created to help deliver on the targets of the Council's Programme. Click here for more info.

Conclusions and recommendations

Local councils are often accused of being too slow to adapt to technological change. The findings from our state of the market report paint a different story. From predictive technology identifying mould in social housing to drones delivering infant school meals, the survey findings and roundtable discussions reveal a dynamic sector transforming frontline service delivery and securing greater efficiencies and cost savings as well as better customer service for local communities.

However, the report also reveals that adaptation is not without challenges, particularly in relation to those in our population who are not tech-savvy, including those in the local government workforce. Whether it is a lack of access to appropriate technology, lack of digital literacy or a resistance to change, the report highlights just how much work there is still to do for councils in ensuring the ongoing shift to digital is as inclusive as possible. Failure to do so would be an abdication of the local authority's role as a "steward of place".

The 'F' word also looms large over technological adaptation – Funding. Echoing the point made by a roundtable participant: *"The need for technology often does not match up with our resources."* Without the necessary funding from national and sub-national governments, councils will not be able to invest in new technology, which will lead to a lack of innovation, inefficiencies, and a decrease in the quality of services they provide. Poor funding will also increase the risk of cyber-attacks, as councils lack the resources to invest in cyber security. This could lead to serious large-scale data breaches and sensitive information being compromised.

Though progress is uneven across local government, this report highlights just how much appetite there is for digital/new technological adaptation throughout the sector.

Both APSE and Socitm hope this report is the first in a series of many, and will open up further opportunities to share best practice amongst our local government peers; ensuring continuous improvement in the UK's vital frontline services.

Both APSE and Socitm hope this report is the first in a series of many, and will open up further opportunities to share best practice amongst our local government peers; ensuring continuous improvement in the UK's vital frontline services.

Recommendations

Recommendation 1

Leadership teams in local government, both officers and elected members, need to recognise that the 'Power of Digital' is reflected at a corporate and service level, embedding a culture of embracing new technologies to support service improvements.

Recommendation 2

Our research finds that the use of new technology and the 'Power of Digital' is embraced when it is viewed through the prism of supporting people to do their jobs better, rather than a threat to the overall workforce.

Recommendation 3

Local councils provide services across a broad spectrum of the local population. Digital solutions should always enhance accessibility in an inclusive way and should be tested to ensure people at a local level are not excluded from service access by untested technologies and systems. Test, test and test again**.**

Recommendation 4

Invest to save. As highlighted in our research case studies the right technology can improve services, create efficiencies and improve productivity. Investing in the 'Power of Digital' should not be viewed as a drain on resources but a means to future-proof services, generate improvements in productivity and service standards, and enhance the customer experience for local residents.

Recommendation 5

Local councils should make use of local networks within APSE and Socitm to share best practice at an operational and corporate level and engage with suppliers for demonstrator sessions so that new technologies can be tested, and refined before heavy investments are made. Consider collaborating with other local authorities on digital solutions.

Case studies in excellence

East Riding of Yorkshire Council

Migration to an 'OnDemand' cloud-based Asset Management Solution

East Riding of Yorkshire Council (ERYC) was already a long-time user of the Confirm™ Enterprise Asset Management Solution, from Brightly Software. The management software was used across the highways, forestry, and civil engineering departments to keep track of public assets – storing detailed information about their location, condition, valuation and operational requirements.

The Confirm system had historically been hosted and managed by the Council's own IT team, and was used in different ways and to differing degrees by each department. Around two years ago, ERYC decided to upgrade the software and move from hosting the system themselves, to an 'OnDemand' cloud-based version that was managed by Brightly.

This decision was made primarily in order to ease the burden on the Council's IT department. They would no longer have to maintain the system so intensely due to the automated update capabilities of the cloud solution, which allowed the IT team to use their time more effectively and concentrate on other projects.

As part of the migration to a cloud-based solution Brightly – with EYRC's permission - was able to access the Council's data and conducted a comprehensive review of how it was using the software. This included examining legacy processes and operational procedures, such as how data was captured, utilised, processed and stored across all its operational departments.

Productivity

IT Administrator, Digital, Change and Technology: "Prior to signing up to the Managed Services programme, any issues had to be directed to a remote helpdesk. Now, we have access to the best advice pretty much on tap. Our Brightly consultants understand our system, know exactly what we want to achieve and how best we can achieve this, and by working onsite together as part of a cohesive team, we can cover so much ground and get so much work done."

Motivation

Systems Engineer, Highways Technical Services: "Not only have they helped us implement so many process improvements, but they have also played a significant

role in the overall upskilling and motivation of my team. This is so valuable – not just for the Council but for the team members' own personal development."

Planning and resources

Highways Technical Services Manager: "We now have the live tools and working models we need to demonstrate to all Confirm users in the Council, the power of having access to meaningful data and the benefit it brings in helping them make more informed strategic planning and budgeting decisions going forward – which is essential when responsible for both public resources and funding."

Derby City Council

Halving bin visits by using 'fill-level' sensor technology

Prior to the introduction of fill-level sensor technology for their refuse collection system, every litter bin under the responsibility of Derby City Council was emptied as part of a scheduled routine area cleanse. These vary across the city and are determined by the rate at which an area falls below the required standard of cleanliness.

This method is still in place, but previously, outside of routine cleansing, bins were emptied based on refuse team knowledge or complaints from the public – all of which was conducted using a physical paper schedule. Operatives would work through a list, from bin one, to bin two, to three, until they reached the end and started again.

This system created a problem – until the operatives arrived to each of the bins, they had no way of knowing if the bin was full, overflowing, or only half full. Teams had to make an educated guess, based on prior experience, on which bins required their attention.

Derby City Council sought to introduce a digital solution that would make the public bin system more efficient and remove the element of guesswork that the refuse teams had to make.

Provided by REEN, the council trialled a system in 200 litter bins that used a digital sensor to monitor how fast the bin was filling, and provided an alert when it needed emptying. The result of the trial was that – of the bins with the digital fill sensor – the number of complaints of overflowing bins was dramatically reduced and collection efficiency was transformed.

The new system saw some bins being emptied more frequently than before the sensors were installed – impacting the number of overflowing bins the local community were seeing regularly full and overflowing. Also, some bins were emptied less frequently than before, suggesting that prior to a sensor being installed, the teams were arriving to these bins before they had reached full capacity, an unnecessary trip at that time. By cutting out these unnecessary trips and emptying bins only when they were needed, the Council reduced the number of visits to bins by 53%.

Seeing these impressive results, Derby City Council decided to deploy these sensors into litter bins in parks, streets and open spaces across the city. Collection routes are now fully optimised, cutting out unnecessary trips and decreasing the carbon footprint caused by bin collections. This new way of working has improved operations and freed up capacity for operatives to carry out other work. Derby City Council anticipate that as the technology continues to expand, the same team will be able to maintain additional sensor bins, doing 'more with the same' and increasing the efficiency of the service further.

Service manager, Litter Bin Collections: "This digital solution has enabled a smarter, leaner way of working. The capabilities of the technology continue to improve, enabling us to make more intelligence led decisions, such as where to put additional bins, as well as see if any bins are not being used. This allows us to carry out reviews of our current 'binfastructure' and work towards ensuring that we have the right bin in the right place."

Wirral Council

The 24/7 Funeral Director Portal

Wirral Council's Cemeteries and Crematorium service provides burial, cremation and commemorative memorial services to our population of over 320,000 residents. Providing one crematorium and nine cemeteries, they carry out in excess of 3,000 cremations per year and over 500 full interments.

Following the successful introduction of freefall cremators, the council's quest for improvement turned to the introduction of digital systems that would provide more efficient ways of working and modernise its services to customers. By implementing PlotBox, they were able to achieve that.

PlotBox is a cloud-based cemetery and crematorium management software solution that integrates all of the essential functions of deathcare - schedules, deeds, plots,

mapping and more - into a single platform that provides us with more time to focus on the service we provide to families.

The challenges of paper-led processes

The existing database system used to manage all of the cremations, burials and memorials had been installed in 1992.

The functionality had changed very little since its original install and didn't include the provision of mapping which meant that the 9 cemeteries had to rely on disjointed mapping, manually updated.

That posed risk in terms of poor communication, time inefficiencies, with missed slots, inaccuracies and potential lost revenue.

An automatic booking system for Funeral Directors was not compatible with the current operating system; relying heavily on administration staff booking cremations and burials directly via telephone using a paper-based booking diary, which then required the information to be transferred on to the database.

While a weekend booking service for cremations was provided to local funeral directors, this too was paper-based and required them to travel to a booking room to reserve a cremation time.

Understandingly, this resulted in very few being booked over the weekend, an onslaught of phone bookings the next working day and a backlog for staff each Monday morning.

The Covid pivot

Covid-19 had a huge impact in terms of ways of working as Wirral Council sought to deliver services with increasing demand under exceptional circumstances. This necessitated a change in the original timeline of the digital transformation project with PlotBox.

They opted for a modular rollout, allowing the Council to get the cremation module up and running quickly. Staff were then able to adapt quickly, learning the new system as they went along.

The Funeral Director portal

The introduction of the Funeral Director Portal - which provides 24/7 online access to crematorium calendars to provisionally book slots - now means that over 90% of bookings come through via the portal, dramatically reducing any backlog and phone calls, and resulting in a much more seamless experience for families. This too has been embraced by all our local Funeral Directors.

Greater visibility

Having access to real-time, digital data has allowed them to monitor bookings - something that was more difficult to do with a paper-based system. This greater visibility of capacities, staffing levels, and cremation numbers over time now allow them to look ahead and think strategically about how to best meet fluctuating demands on time and resources.

Risk assessments

PlotBox is also helping cemetery teams to streamline their risk assessment processes. Information and photographs can be uploaded and logged directly into the system using the PlotBox app on a tablet device. Linked to other information within PlotBox's main operational system, this is also helping the team to plan ahead and save time to focus on other tasks.

Discovering available inventory

For Landican Cemetery and Crematorium, the reports created throughout the data verification process highlighted several plots that can now be added back into their inventory. Which has made graves available for sale, opening up new revenue streams.

Cemeteries and Crematorium Senior Manager: "There has always been a real cultural ambition here - we want to push ahead, and we're seeing the benefits of PlotBox in practice - not just for our team, but for our families and our deathcare partners."

A-Z list of digital and technology terms you need to know

A

Accessibility

Accessibility guarantees that all people, including people with disabilities (PwD) can use spaces, devices and services safely and autonomously. Digital products also fit here and must be created considering visual, hearing, motor and cognitive impairments.

Agile

In the world of technology, it is related to a technique for incremental software development. It focuses on small incremental deliveries, testing often, and enabling a faster route of correction.

Address bar

The address bar is at the top of your web browser (such as Internet Explorer, Microsoft Edge or Google Chrome). It's where the address of a webpage (or URL) appears. You can type a web address straight into the address bar – for example, typing '*www.ageuk.org.uk*' into the address bar will take you to the website.

Adobe Acrobat Reader

Acrobat Reader is software that allows you to view and read a PDF document (a document that can be seen but not changed). It can be downloaded free of charge from Adobe.

Analogue

Analogue is a conventional method of transmitting data. Standard landline telephones use analogue technology. It is distinct from digital technology, which provides for greater quality and speed of data transmission.

Analytics

It is the term used to refer to the use of data and statistics for analysis and decision making.

A

Android

The ‘software’ that some phones and tablets use to function. It's a type of 'operating system'. Phones and tablets from lots of different brands are Android devices – including Alcatel, Google, HTC, LG, Moto, Samsung, and Sony.

Anti-virus

‘Software’ that detects and prevents known computer viruses from attacking your device.

Apps (applications)

A type of computer program that you can download for your computer, tablet, or smartphone. There are thousands of different apps available for lots of different things – from playing games and puzzles, to online shopping and banking. You download apps from the Google Play Store if you have an Android phone or tablet, or the App Store if you have an Apple device.

API

This stands for Application Programming Interface. An API is how computers and web applications share information with each other.

Apple

A brand of phone and tablet. Apple phones are known as iPhones, and Apple tablets are iPads. If your device isn't Apple, it's likely to be an Android device.

Artificial intelligence (AI)

AI stands for artificial intelligence, which is the simulation of human intelligence processes by machines like computer systems. AI works via algorithms in a computerised system, which are clear sets of instructions that a computer can follow to solve a problem or complete a task.

A-B

Assistive technology

Assistive technology refers to any software or hardware that acts to assist and improve the functional capabilities of people with disabilities. Examples include wheelchairs, prosthetics, voice-to-text technology and text-to-speech technology.

Attachment

Files, such as photos, documents, or programs, which are sent along with an email.

Back End (Development)

The back end is the engine room of a website, software, or IT system. Back-end developers deal with what powers the site and its core functionality.

Backlog

A backlog is a buildup of work that is due to be completed.

Bandwidth

Bandwidth refers to the maximum amount of data that can travel a communications path in a period, usually measured in seconds.

Big data

It refers to the large volume of data, that can be used by institutions to generate products, strategies, and research.

An area of knowledge that studies how to treat, analyse, and obtain information from sets of data that are too large to be analysed by traditional systems.

Bit

A bit (short for binary digit) is the smallest unit of measurement in computing. 8 bits make up 1 byte.

B

Bluetooth

Bluetooth is a wireless communications technology intended to replace cables. It allows short-range connections between two or more Bluetooth-compatible devices such as mobile phones, tablets, headsets or medical equipment.

Blockchain

A blockchain is an expanding list of cryptographically signed, irrevocable transactional records shared by all participants in a network. Each record contains a time stamp and reference links to previous transactions. With this information, anyone with access rights can trace back a transactional event, at any point in its history, belonging to any participant. A blockchain is one architectural design of the broader concept of distributed ledgers.

Bookmark

A bookmark is a saved link to a particular Web page. Microsoft Internet Explorer denotes bookmarks as "favourites."

Boot (re-boot)

To boot (or re-boot) is to load and initialise the operating system on a computer. Think of it as starting up your computer. In Windows you can use the key combination CTRL and ALT and DEL as a "soft" boot. This means restarting the computer rather than turning it completely off and on again, which could cause damage to your computer's hard disk under some circumstances.

Bounce back

An email message that cannot be delivered and returns an error notification to the sender is said to "bounce back". If you receive such an error notification, check that you have typed the address correctly.

Broadband

Broadband is a type of communications technology whereby a single wire can carry more than one type of signal at once: for example, audio and video. Cable TV is one technology that uses broadband data transmission.

B-C

Browser

A software program that allows you to surf the web. Popular web browsers include Google Chrome, Mozilla Firefox, Microsoft Edge and Internet Explorer.

Bug

A software bug is a problem causing a program to crash or produce an invalid output. Most bugs are due to human error.

Business Analytics

Business Analytics is the process of collecting and measuring information and data, to use these analytics to make business decisions.

Business continuity plan (BCP) or business continuity

Business continuity refers to an organisation's ability to continue with essential functions during a disruption (like a cyberattack or natural disaster.) A business continuity plan or BCP is the protocol and processes an organisation follows to ensure that operations continue with as little disruption as possible.

Business intelligence (BI)

Business intelligence or BI refers to the technology, software, and strategies that businesses use to collect, analyse, and present data. Data-driven decision-making is a core concept of business intelligence.

Cache

When you download (read) a web page, the data is "cached," meaning it is temporarily stored on your computer. The next time you want that page, instead of requesting the file from the web server, your web browser just accesses it from the cache, so the page loads quickly. The downside to this is that if the cached web page is often updated, you may miss the latest version. If you suspect that the web page, you're seeing is not the latest version, use the "refresh" button on your browser.

C

Chatbot

It is a chat robot that can converse with a human user through text or voice commands. Utilised by e-commerce, education, health, and business industries for easy communication and to answer user questions.

Cloud computing

Technology that allows you to store and access data "in the cloud", without the need for local servers. This option saves resources and facilitates access to data, which can be checked anytime, anywhere, without compromising information security.

Compression

Compression is the reduction of the size of a file. Compressed files take up less memory and can be downloaded or sent over the Internet more quickly.

Content

Content refers to a website's text and information, as opposed to its design and structure.

Cookies

A cookie is a small piece of data that's stored on your computer, smartphone or tablet when you visit a website. Most websites pop up with a message asking you to 'accept cookies'. Cookies allow the website to track information about your activity on the website, such as how many times you've visited and how long you spent on the website. You don't have to accept cookies, but it might mean that you can't access some websites.

CPU

The central processing unit (CPU) is the brains behind your computer. The CPU is responsible for performing calculations and tasks that make programs work. The higher the speed of a CPU, the faster the CPU undertakes the calculations and tasks.

C-D

CTO

Acronym for "Chief Technical Officer", or Directorate of Technology. Whoever occupies this leadership position is responsible for the strategic vision, planning and execution of all technological demands of the company.

Customer relationship management (CRM)

Customer relationship management (CRM) refers to the software and processes used to communicate with customers and manage customer data. Common examples of CRM software include HubSpot, Oracle, and Salesforce.

Cybercrime

Cybercrime is any type of illegal activity that is undertaken (or relies heavily) on a computer. There are thousands of types of cybercrime, including network intrusions, identity theft and the spreading of computer viruses.

Cybersecurity

Cybersecurity refers to measures designed to protect your computer, device or network from cybercrime. This involves preventing unintended and unauthorised access, change and damage.

Dashboard

Dashboards are reporting mechanisms also known as management dashboards. Data, metrics and evolution of key performance indicators (KPIs) can be monitored through this type of tool.

Data allowance

If you aren't connected to Wi-Fi, using the internet on your smartphone or table uses mobile data, which is measured in megabytes (MB) and gigabytes (GB). Most phone and tablet contracts have monthly allowances for data usage. Once you use up your allowance, you might get charged for additional usage, or you might not be able to use mobile data until your allowance renews the next month.

C-D

Database

A database is an organised collection of information that can be searched, sorted, and updated. This data is often stored electronically in a computer system called a database management system (DBMS).

Data and Analytics

Data and analytics are the management of data for all uses (operational and analytical) and the analysis of data to drive business processes and improve business outcomes through more effective decision making and enhanced customer experiences.

Debugging

Debugging is the identification and resolution of existing and potential issues in software or hardware. Examples of these issues include faulty code (such as source code with logic errors) and manufacturing defects.

Decryption

Decryption is the process of converting coded or encrypted data to its original form. Decryption allows information to be understood without an encryption key.

Device driver

A device driver is a small program that allows a peripheral device such as a printer or scanner to connect to your PC.

Digitisation

It is the process of transforming physical data (on paper) into digital format, with the generation, transmission and access of information completely online.

Digital Identity Management

Digital Identity management is an activity within the identity and access management function that concerns the governance and administration of a unique digital representation of a user, including all associated attributes and entitlements.

D-E

Digital Transformation

Digital transformation can refer to anything from IT modernisation (for example, cloud computing), to digital optimisation, to the invention of new digital business models.

Digital Twin

A digital twin is a digital representation of a real-world entity or system. The implementation of a digital twin is an encapsulated software object or model that mirrors a unique physical object, process, organisation, person, or other abstraction. Data from multiple digital twins can be aggregated for a composite view across a few real-world entities, such as a power plant or a city, and their related processes. Virtual Bradford, a high resolution 3D online twin of the city centre, can be accessed online.

Domain

A domain is a group of connected computers. They typically share account information and security policies. A domain controller handles relevant administrative tasks.

Download

Downloading is the method by which users' access and save or "pull down" software or other files to their own computers from a remote computer via the Internet.

DV

DV stands for digital video.

Email

Electronic mail, or email, is a free and easy way to stay in touch with family and friends, and the main way that organisations and companies will communicate with you. Popular email providers include Google Mail (commonly known as Gmail), Outlook and Yahoo.

E-F

Embedded system

Embedded systems are computer systems that have a dedicated function. They are “embedded” because they exist within a larger mechanical or electronic system.

Encrypted

If an app or a website is encrypted, this means that all the communication between you and the website is secure and can't be read by anyone else. Encrypted websites have web addresses that start with 'https' – the 's' stands for secure.

Endpoint

In cybersecurity terms, an endpoint is a physical device connected to a computer network. Examples of endpoint devices include mobile devices, desktop computers, and embedded systems.

End user

An end user is someone who a piece of software or hardware is designed to serve. End users are the intended users.

Ethernet

Ethernet is the most common way of connecting computers on a network with a wired connection. It is a type of local area network (LAN) technology, providing a simple interface for connecting multiple devices.

Facebook

Facebook is a popular social media platform. It allows you to create a personal profile where you can share your thoughts, pictures, videos and interests on your 'timeline' with your friends and family.

F-G

Firewall

A firewall is a network security device. It creates a barrier between a trusted network and an untrustworthy network. For example, a firewall can restrict internet traffic from accessing your private network. It acts like a gatekeeper, controlling incoming and outgoing traffic according to a predetermined set of security rules.

Front end (Development)

A front-end developer creates the visual front end of an app or website. They create features that are viewable by the user.

FTP

File transfer protocol (FTP) is a common method of transferring files via the internet from one host to another host.

Gamification

Gamification is the use of game mechanics and experience design to digitally engage and motivate people to achieve their goals. It is important to distinguish gamification from video games and loyalty programs, as gamification uses techniques from behavioural science to “nudge” people into achieving their goals.

Gateway

A point within a network that interconnects with other networks.

Generative AI

Generative AI learns from data about existing artifacts in order to generate new variations of content (including images, video, music, speech and text).

GIF

Graphics interchange format (GIF) is a graphics file format. Because GIF files are compressed, they can be quickly and easily transmitted over a network. GIF is one of the main graphics formats on the Internet.

G-H

Google

Google is the most popular search engine on the internet that allows you to find websites and ask questions. You can visit 'www.google.com' then type in some keywords to find out information or look up a website. Someone might tell you to 'google' something, which means to look up information online.

Graphical user interface (GUI)

A GUI, or graphical user interface, displays information and user controls like menus, dialog boxes, and icons. This type of graphics-based user interface (UI) manages interaction between the user and the system.

Hack

An attempt to gain unauthorised access to a computer or account.

Hard disk

The physical place where a computer stores information - applications and files - is known as its hard disk drive (HDD). The bigger the HDD, the more data it can store.

Hardware

Computer hardware describes the physical parts of a computer, including the screen, mouse, and keyboard.

Help desk

The primary goal of a help desk is to help customers troubleshoot issues and teach them how to navigate technology properly. Help desk technicians are IT professionals and specialised types of customer service representatives.

Home page

The page that an Internet browser first opens up to. It is usually the starting point of an organisation's or individual's website.

H-I

HTML

Hyper-text markup language (HTML) is a set of symbols inserted into files intended for display on the world wide web. The symbols tell web browsers how to display words and images – for example; which colour, font and type size to use - and they direct it to link to other pages on the world wide web via hyperlinks.

http/https

Most web addresses start with 'http' or 'https'. It refers to how the information is shared over the internet. Make sure the website you're using starts with 'https' if you're entering personal or financial details – the 's' stands for secure.

Icon

An image or symbol which represents an app or function on your phone, tablet or computer screen. You usually 'tap' on an icon to open an app.

Inbox

The virtual folder in your email account where any emails you receive are stored.

Internet

A set of interconnected networks that allow computers in different locations to exchange information. The Internet includes services such as the world wide web, electronic mail, file transfer protocol (FTP), chat and remote access to networks and computers.

Intranet

An intranet is basically a private, internal internet specific to an organisation or group.

Internet of things (IoT)

The internet of things, or IoT, is a network of physical devices. These devices can transfer data to one another without human intervention. IoT devices are not limited to computers or machinery. The internet of things can include anything with a sensor assigned a unique identifier (UID).

I

Instagram

Instagram is a popular social media platform used for photo sharing. It allows you to create a personal profile where you can share photos with friends and family on your 'Instagram feed'.

iOS

iOS is the software that Apple phones and tablets (iPhones and iPads) use to function. It's a type of 'operating system'.

IP address

An internet protocol address, or IP address, is a string of numbers associated with a computer. IP addresses are used to identify each computer using the internet through a network.

ISP

An internet service provider (ISP) is a company that provides access to the Internet.

IT governance

IT governance is a subcategory of corporate governance. IT governance frameworks provide structure for aligning business operations and information technology systems. The primary goal is the efficient use of company resources through IT management.

IT infrastructure

IT infrastructure (or information technology infrastructure) refers to the systems put in place to operate and manage IT services and environments. There are two types of IT infrastructure: traditional infrastructure and cloud infrastructure. Both traditional and cloud infrastructure typically consist of hardware and software resources. However, cloud infrastructure is accessed via the internet rather than with physical, on-premises software solutions.

J-L

Java

Java is a programming language that is commonly used in the development of client-server web applications.

JPEG

JPEG stands for Joint Photographic Experts Group, which was the committee that created the file format known as JPEG. The format is commonly used for photos displayed online.

LAN

A local area network (LAN) is a system that connects computers and other devices that share a common communications line and wireless link, generally within a limited geographical area such as a home or office building.

Large Language Models (LLMs)

LLMs are a type of Generative AI that use ‘deep learning’ techniques and massively large data sets to understand, summarise, generate, and predict text-based content.

Link (or Hyperlink)

A link can be some text, an image, or a button – you can click or tap on it to access a website. The link may be blue and underlined and may include wording such as 'click here for more information' or 'find out more'.

Log in

If you have set up an online account for anything including email, banking, shopping, or social media, you'll need to use a username (often your email address) and password to access the account – this is known as 'logging in'.

Low-code/no-code

Low-code or no-code are methods of designing and developing apps using intuitive drag and drop tools that reduce or eliminate the need for traditional developers who write code.

M-N

Machine learning (ML)

Machine learning is a specialised technology and branch of artificial intelligence (AI). Machine learning uses data and algorithms to improve the performance of AI by teaching it how to imitate intelligent human behaviour more closely.

Malware

Malware is short for 'malicious software'. A general term describing software that can cause harm to your computer through spreading computer viruses or accessing your personal information.

Megabyte

A measure of computer processor storage and real and virtual memory. A megabyte (Mb) is 2 to the 20th power bytes, or 1,048,576 bytes in decimal notation.

Megahertz

Megahertz is the unit used to measure the speed of a computer's processor (for example 2.8Ghz)

Mobile data

Mobile data enables your phone to get online when you're not connected to Wi-Fi. It's measured in megabytes (MB) and gigabytes (GB), and there will usually be a limit on the amount of mobile data you can use.

Modem

A modem is a device that allows computers to transmit information to each other via ordinary telephone lines.

Network administration

The management, monitoring, and securing of a network is known as network administration. A network administrator is an IT professional who ensures that an organisation’s computer networks are efficiently meeting the needs of an organisation.

O-P

Online

If a computer (or computer user) is online, it is currently connected to a network or to the Internet. Online also refers to resources and services available on the Internet – for example, online banking, online dictionary.

Operating system

An operating system (OS) is system software that manages a computer's resources and processes. They are also responsible for your computer's ability to run and execute programs. Operating systems enable you to communicate with your computer without needing to speak your computer's language.

PDF

Portable document format (PDF) is a file type created by Adobe Systems Inc. PDFs can be read using free software called Adobe Acrobat Reader or another PDF reader.

Phishing

Phishing is a type of email fraud in which the perpetrator sends out emails that appear to come from a legitimate service or reputable company, such as a bank or an email service provider. These emails aim to lure recipients to reveal confidential information that the perpetrator can use for their financial advantage - for example, online banking log-in details and passwords.

Plug-in

A software plug-in is a component that adds to a software program's functionality.

Pop-up

A small window that suddenly appears (or 'pops up') on a webpage, usually an advertisement or an alert.

Processor

The processor is the brains of your computer. It is responsible for performing calculations and tasks that make programs work. The faster the processor, the faster the computer works.

P-R

Protocol

A protocol is a standard or set of rules that computers and other devices use when communicating with one another.

Profile

A description that may include your personal details and is used to identify you on a social networking website. This can be set as public (viewed by everyone) or private (only viewed by certain people).

Program

A computer program is a catch-all term for something that runs on your computer, tablet or smartphone. Examples include apps on your phone and tablet, video-calling programs like Skype and Zoom, or anti-virus programs. You might also see them described as 'software'.

Programming

Programming refers to a technological process for telling a computer which tasks to perform to solve problems. You can think of programming as a collaboration between humans and computers, in which humans create instructions for a computer to follow (code) in a language computer can understand.

RAM

Random access memory (RAM) is usually referred to as a computer's "memory" - it stores information used by programs. Generally, the larger your computer's RAM, the more programs it can run at once without slowing down.

Read-only

A read-only file cannot be edited, modified, or deleted.

R-S

Resolution

Resolution refers to the number of distinct pixels that make up the display on a computer monitor. It is denoted in DPI (dots per inch). The higher the resolution, the finer and smoother the images appear when displayed at a given size.

ROM

ROM stands for read-only memory. It is the part of a computer's memory that cannot be changed by a user. The contents of ROM remain even when the computer is turned off.

Router

A device that connects your computer, smartphone or tablet to a broadband-enabled telephone line and sends out your home internet signal.

SAAS

SAAS stands for software as a service. It is a software distribution model whereby software applications are centrally hosted and licensed on a subscription basis.

Search engine

A search engine enables a computer user to search information on the Internet. It is a type of software that creates indexes of databases or Internet sites based on the titles of files, keywords, or the full text of files. The most popular search engines are Google, Yahoo and Bing.

Secure website

A secure website is encrypted, which means that the communication between you and the website is private and can’t be read by anyone else who might be trying to access personal or financial information. These websites have web addresses which start with 'https' – the 's' stands for secure.

S

Security certificate

This is a piece of information on a website that shows the website is what it claims to be, and that the website is secure. A security certificate is also known as a digital certificate or a Secure Socket Layer (SSL) certificate.

SEO

SEO, or search engine optimisation, is the practice of adjusting certain aspects of a website to improve its ranking on search engines.

Server

A server is a computer that handles requests for data, email, file transfers, and other network services from other computers.

SIM card

A SIM (Subscriber Identity Module) card is a small card that's inserted into a mobile phone, providing it with its phone number and customer identity. SIM cards connect phones to a particular phone network, such as Vodafone or EE.

Skype

Skype is a type of video-calling software. You can either install it as an app on your phone, tablet or computer, or you can access it through your internet browser.

Smartphone

A mobile phone that can connect to the internet as well as make calls and send texts. You can do lots of different things with a smartphone – from sending and receiving emails, reading the news, playing games and puzzles, and banking or shopping online.

Social media

Social media, or social networks, are online communities where you can connect with friends, family and other people who share your interests. Examples include Facebook, Twitter and Instagram.

S-T

Software

Software is a catch-all term for something that runs on your computer, tablet or smartphone. Examples include apps on your phone and tablet, video-calling programs like Skype and Zoom, or anti-virus programs. You might also see them described as 'programs'.

Spam

A commercial email that you didn't request, also known as 'junk mail'.

Spyware

An unwanted program that runs on your computer, which can make it slow and unreliable or make you a target for online criminals. Anti-spyware software helps protect your computer against security threats caused by spyware and other unwanted software.

SSL

SSL, or secure sockets layer, is a protocol that allows Internet users to send encrypted messages across the Internet. It is generally used when transmitting confidential information (e.g. personal data or credit card details). A web address that begins with "https" indicates that an SSL connection is in use.

Tablet

A handheld device with a touchscreen that can connect to the internet and be used as a portable computer.

Tabs

Tabs sit at the very top of your internet browser. You can click on the '+' symbol to open a new tab, where you can visit a different website without losing access to the webpage you're currently on. Some apps might also have tabs at or near the top or bottom of the screen, which you can click on to switch between different parts of the app.

T-V

Troubleshooting

In the context of IT, troubleshooting refers to technical support that focuses on the identification and resolution of problems. For example, suppose your computer keeps prompting you to install a new software update, but when you initiate the installation, it doesn't start. In that case, you may troubleshoot the issue by restarting your computer or making sure all tabs are closed before initiating the installation again.

Twitter (X)

Twitter (X) is a popular social networking site that enables you to create a profile and post short public messages known as 'tweets'.

Unzip

To unzip a zip file is to extract and decompress compressed files from it. If you are sent a zip file via email, you will need to unzip it before you can access the files inside it.

Upload

To transfer files or data stored on your smartphone, tablet or computer to the internet. For example, you might upload a picture to social media or to your cloud storage.

URL

A URL (unique resource locator) or web address is the string of characters you type into a browser to access a particular website or other resource on the Internet. You type the URL into the address bar at the top of your web browser (such as Internet Explorer or Google Chrome) to visit a website.

Viral

If an online video, photo, or article "goes viral", it experiences a sudden spike in popularity in a short period of time.

V-W

Virtualisation

Virtualisation is the creation of a virtual version of something, like a storage device or network resources. A simple way to conceptualise virtualisation is to think of it as software pretending to be hardware. Virtualisation uses specialised software that can mimic hardware functionalities.

Virtual machine

A virtual machine (VM) is not a physical machine but a file that replicates the computing environment of a physical machine. It's like how virtual reality (VR) environments replicate the real world, but virtual machine software emulates computer system functions instead. With VM software, you can run programs and store data without using hardware.

Virtual private network (VPN)

A virtual private network, or VPN, is an encrypted internet connection. VPN services aim to provide a secure, private network connection for safe data transmission from network devices.

Virus

A virus is a piece of programming code inserted into other programming to cause damage. Viruses can be sent in many forms but are often transmitted via email messages that, when opened, may erase data or cause damage to your hard disk. Some viruses can enter your email system and send themselves to other people in your list of contacts.

Webcam

A video camera that allows other people to see you on video calls, such as Skype or Zoom. Most smartphones, tablets and computers have inbuilt webcams (sometimes simply referred to as 'cameras'), but if you have an older computer you might need to buy a separate webcam.

W

Webpage

Webpages provide information through text, images, and videos, and are displayed on your web browser, such as Internet Explorer or Google Chrome. Websites are made up of hundreds of webpages.

Website

A set of related webpages owned by one person or organisation. For example, Age UK's website is made up of hundreds of individual webpages on different topics, but all the webpages begin with 'www.ageuk.org.uk'. You visit websites on your web browser, such as Internet Explorer or Google Chrome.

WEP

Wired equivalent privacy (WEP) is a security protocol used in wi-fi networks. It is designed to provide a wireless local area network (LAN) with a level of security similar to that of a regular wired LAN. WEP-secured networks are usually protected by passwords.

WhatsApp

An app that allows you to message friends and family, make phone calls and voice calls, and send and receive photos and videos. It uses your internet connection rather than your text or call allowances.

Wide area network (WAN)

A wide area network, or WAN, is a type of network that covers a large geographical area. For example, the internet is a WAN.

Wi-Fi

Wi-Fi is a technology that allows computers and other devices to communicate via a wireless signal. Essentially, it means you can browse the internet without tripping over phone cords.

W-Z

Wireless network

This is also known as 'Wi-Fi' and is a way for your computer to connect to the internet without using wires or cables. You can access public Wi-Fi networks or arrange a contract with an internet provider who will provide you with the equipment needed to set up your own Wi-Fi network.

WPA

Wi-Fi protected access (WPA) is a security protocol used in wi-fi networks. It is an improvement on WEP because it offers greater protection through more sophisticated data encryption.

YouTube

YouTube is a popular and free video-sharing website. It contains millions of videos, uploaded by individuals and organisations – from documentaries and music videos to tutorials and funny videos.

Zip

To zip files is to archive and compress them into one file of smaller size using a program such as WinZip. It's a handy way to make files smaller before sending them via email.

Zoom

Zoom is a type of video-calling software. You can either install it as an app or your smartphone, tablet or computer, or you can access it through your internet browser.

NEW MUNICIPALISM

Delivering for local people and local economies

Association for Public Service Excellence
3rd Floor Trafford House
Chester Road
Stretford
M32 0RS
Telephone: 0161 772 1810
Email: enquiries@apse.org.uk
www.apse.org.uk