CHESHIRE AND WARRINGTON DIGITAL STRATEGY: DRAFT

Version 6.0

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PCSG

Foreword

Foreword from the Leaders of the three Councils or Heads of Economic Development

EXECUTIVE SUMMARY

A digital strategy can help to address important issues in the way local authorities and public bodies deliver and improve services, the way local employers do business, how people live, work, learn and play, and by improving the way we protect human health and the natural environment.

Taking a digital approach can lead to improved employment opportunities, more affordable housing, better access to local services, better health care and a better quality of life.

This is the first Digital Strategy for Cheshire and Warrington and the first step on the journey to realising the potential opportunity digital technology presents for the region.

The drivers

In Cheshire and Warrington, the principle drivers are two-fold: (REVIEW THESE)

1. The challenge of sporadic connectivity in a region with both rural and urban areas, with the cost of 'the last mile' balanced against the value of connecting every home and business
2. To improve public service delivery, economic prosperity, opportunity and experience, supported by digital infrastructure and skills to enhance social inclusion

Our joint vision

"Creating digitally-empowered, connected communities to support, grow and future-proof the vibrant local economy through a digital revolution"

Digital maturity

Digital maturity for a region is a measure of the extent of digitalisation in strategic management service provision. While there are already some great examples where tentative first steps are bearing fruit, from the local authorities, education providers and local businesses, Cheshire and Warrington still have a long way to go to reach digital maturity.

The economic case

Affordability of service delivery is a key concern and additional investment in transforming series can be met with resistance.

This initial analysis highlights the opportunity for up to £7.5 million savings for capital delivery, £8.3 million across whole-life operational delivery and a further £53.6 million in service provision across the LEP and council budgets through digital transformation.

This total potential cross-sector benefit saving of £69 million represents a significant potential growth opportunity compared to the existing £7.5 million capital delivery budget, and will be an important step towards realising the ambitions growth targets set for the region.

The next steps in of this strategy is to analyse these figures in more details and identify the programme of works to realise the opportunity.

Strategic priorities

There is a clear recognition of the opportunity for digital technology to ensure that Cheshire and Warrington remain ahead of the competition. To achieve this, collaboration between public and private sectors will be needed, from driving up the skills base to ensuring infrastructure development is carried out in a way that will support the region's digital future.

- **Digital people and digital services**: Presenting a clear need case for connectivity and the 'last mile' cost-benefit; incentivising digital options and services; supporting businesses and communities to make the transition and invest; embedding a digital first culture
- **Digital revolution:** Maintain the level of productivity and competitiveness, driving skill development and attract people to the area; high quality jobs in attractive and exciting places underpinned by digital innovation
- **Strategic planning, collaboration and funding:** using shared data and information to transform strategic planning; cross-sector programme implementation to enable the full realisation of benefits

What happens next

This is the start of an exciting, innovative and valuable journey, one which can deliver the right kind of economic growth with the greatest value for local communities, whilst providing the best kind of environmental protection for Cheshire and Warrington.

The next steps are clear. In order to reap the full projected benefits, significant organisational and cultural change will be necessary - a 'digital first' approach must be enabled in order to move forwards. The enabling stage will ensure the ground is well prepared.

Cheshire and Warrington must then produce a clear, Strategic Outline Case, clearly setting out the economic, financial and commercial case, balanced by the social and environmental benefits assessment supported by a detailed plan.

Let's be clear: investment is needed. But the cost is far outweighed by the benefits that a Digital Cheshire and Warrington will deliver for everyone who lives, works, learns, stays and plays in this important part of Britain.

1 | A DIGITAL CHESHIRE AND WARRINGTON

Digital technology presents major opportunities for communities to benefit from. Technology is an enabler of economic growth and driver of productivity gains ensuring our manufacturing industries to connecting isolated rural communities in a way that has not previously been possible. However, this technology that enables innovation, growth and improved livelihoods also has the potential to create uncertainty and alienation for those who are left behind.

Cheshire and Warrington

The Cheshire and Warrington LEP has recognised the opportunity of digital technology to drive and retain the high economic growth in the region and are leading the development of Digital Cheshire and Warrington.

This is the first Digital Strategy for the region and is the first step on the journey to realising the potential opportunity digital technology presents for the region.

The strategy has been driven through the collaboration of the LEP and its partners, as well as local businesses and organisations which contributed to stakeholder interviews and the strategy workshop. It has brought together input from a range of public and private stakeholders to establish the vision and priorities for action. The approach, developed and led by digital and sustainability experts from PCSG, aligns to the UK's Digital Strategy and aims to enhance delivery of regional plans and policy through a digitally enabled service.

It has been founded on the framework for digital sustainable communities specified in the international standard for smart cities and communities (ISO:37106). This standard presents a working definition of a smart city or community developed by the ISO Technical Management Board which is adapted for a rural community such as Cheshire and Warrington:

> *A digital authority can be described as one that dramatically increases the pace at which it improves its sustainability and resilience, by fundamentally improving how it engages society, how it applies collaborative leadership methods, how it works across disciplines and its diverse urban and rural geography and how it uses data and integrated technologies in order to transform services and the quality of life for those in and involved within the authority (residents, businesses, students, visitors).*

The Strategy

This strategy sets out the community vision, identifies the strategic priorities for action, the economic opportunity and a roadmap to guide the next steps towards the realisation of a Digital Cheshire and Warrington.

These next steps will be the systematic identification of the priority actions to take based on key factors from strategic, financial, economic, social and environmental impacts.
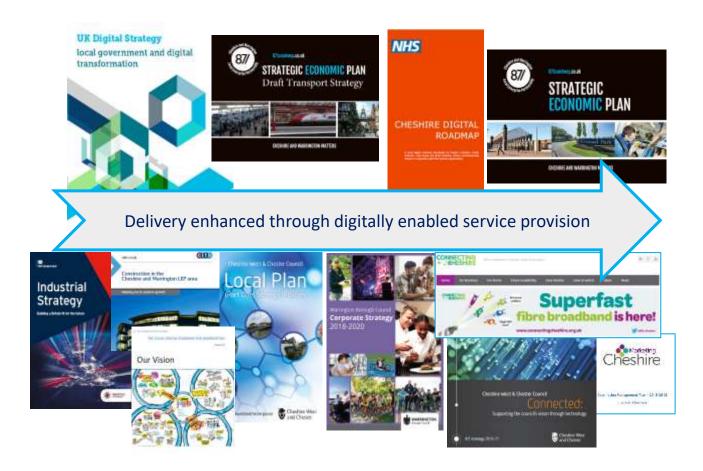
While there are a number of existing digital initiatives in the region, digital transformation is still in its infancy. In the more rural areas, the process is stifled by low levels of connectivity and in other areas by a lack of adequate skills, knowledge or the business case for change.

Vision

Our shared vision for a Digital Cheshire and Warrington is based on core principles and objectives shaped by stakeholders and driven by the environment and the economy that characterises Cheshire and Warrington.

"Creating digitally-empowered, connected communities to support, grow and future-proof the vibrant local economy through a digital revolution"

Delivery enhanced through digitally enabled service provision

2 | WHY A DIGITAL STRATEGY?

National to local policies and priorities - what the current plans reveal

Economy

Cheshire and Warrington Local Enterprise Partnership (LEP) has responsibility for over £200m of public money across the local growth fund to support infrastructure, skills and innovation. With the aim of unlocking a further £280m investment over next 10 years, it is the strongest performing economy in the North of England. The LEP economic plan's stated aim is to grow the economy to £50bn GVA from the current £29bn, to be 20% more productive per resident than the UK average, and create an additional 127,000 jobs. Cheshire West and Cheshire Council (CWCC) is looking to support 1,780 new business start-ups in the borough, create 5,000 new jobs, and support farming and diversification in rural areas. The Weave Network is one example of an industry-led group to promote creative and digital networks to address an important skills gap.

Productivity

The ambitious target of growth and productivity levels set across the region (exceeding the UK target by 20%) are supported by the recognition that digital technology will be a key enabler to achieving this growth. However, locally based companies providing technology to digitally manage the whole product manufacturing life-cycle, enabling customisation (future delivery of Industry 4.0) and delivery of the circular economy, have found limited local uptake and greater interest with the American market.

Manufacturing is a significant part of the regional economy and generally product-driven by lean manufacturing processes and some digital technology. The sector acknowledges the need to embrace technology to ensure that in future, competitiveness with China and other international markets remains. Larger companies are keen to share their experience and approach with SMEs and suppliers as this ultimately improves their own product, service and price to their customer. In other sectors, such as farming, productivity is currently low, particularly compared to European farms. Parts of this sector area likely to be hit by changes to European subsidies and will need to become more competitive and increase productivity to remain viable.

Skills and employment

There is a need for upskilling as well as a cultural shift to more creative and innovative thinking. 'Creative ecology' is needed to enable the widespread uptake of digital technology. Digital transformation requires a different way of thinking, not only in creative areas but across all sectors.

World-leading businesses such as AstraZeneca, Bentley Motors, Unilever and Jungheinrich are located in the region, with the challenge of addressing key issues in order to remain competitive. These include replacing an ageing, highly-skilled workforce (230,000 jobs by 2025), a deficit of up to 60,000 graduates, 25% of workers earning below the living wage and working unstable, low-hours contracts, and losing graduates to surrounding cities.

Currently there is a clear discrepancy between the skills employers need and the skills individuals choose to acquire, particularly in relation to Science, Technology, Engineering and Mathematics (STEM) and digital skills, and concern that there is a large gap in school leavers being 'work ready'. Maths and English literacy alone can be limited in certain areas before 'digital literacy' can be considered. Increasingly, people smart phones for digital apps and social media at home, but this practice is not often taken across into the workplace. There are some cases (e.g., in the NHS) where people use screens in their work along with digital technology, but they are not using apps or technology in analytics or work management. There is also concern that digital technology will displace jobs rather than reduce repetitive work, improve quality, eliminate errors and prioritise human input where it is really needed. The technology actually enables increased productivity and the value of the individual's role, rather than displacing the role entirely.

Skill development programmes such as apprenticeships have met with mixed success. It has been successful within larger companies able to provide mentoring and time off for apprentices, but it is more difficult to manage for small and medium enterprises (SMEs). There are also a limited number of apprentice programmes in the digital sector and only 11.5% of all apprenticeship starts were in STEM subjects, compared to 15% nationally and 16% in the North West. To improve the level of education attainment and readiness for work, CWCC has set a target of all 162 schools and academies being rated as 'Good' or 'Outstanding' by Ofsted. Its Skills and Education Plan has the ambition to put employers at the heart of inspiring and informing residents about career and progression opportunities and making the curriculum fit for purpose.

Infrastructure

£200mln public investment – infra, skills, innovation

£280mln unlocked

Skills

230,000 jobs needs replacing by young workforce by 2025

11.5% apprenticeships in STEM and digital

Transport

The Cheshire and Warrington region is generally well-connected with good access to Manchester airport, major motorways and rail networks. The planned High Speed 2 services will include a new rail hub at Crewe, bringing associated development and access benefits. However, whilst transport connectivity is good into the town centres, the rural areas suffer where public transport is limited and access is mostly by car. Digital technology provides an opportunity to connect these remote areas where digital connectivity can be a flexible working enabler, benefitting individual productivity

and environmental conditions by keeping cars off the roads. Future planned developments have clearly stated aims to give priority to walking, cycling and public transport.

Housing and development

There are around 1 million people in the Cheshire and Warrington LEP area, with population growth of around half the national average at 4.2%. The target is to build 127,000 additional homes, with planned development including £1bn in non-housing construction and £753m in new housing. Cheshire East Council's plans for 2010-2030 include a new sustainable village near Manchester to meet housing needs.

Population
1 million people
180,000 in rural areas

Young people
17.8% population 20-35 yr age bracket
Compared to **21.5%** national average

CWCC is planning 4,400 new houses, 1,000 of which will be affordable. £277m capital investment has been committed to regeneration, housing and key infrastructure, with the aim of creating 5,000 new jobs, ensuring 5,500 council homes to meet the decency standard, and to develop Chester as a sub-regional city. As with all regions, the delivery of enough affordable homes is crucial to ensure that local community employment prospers, particularly in the more rural areas. Digital engineering approaches can assist in the delivery of greater number of affordable homes, with reduced costs per unit as well as potential benefits from wider engagement with local suppliers.

Within the region, Warrington New City is already one of the most dynamic and fastest growing urban economies in the UK. It will deliver 26,000 new homes (8,000 affordable) and between 31,000 and 55,000 jobs across the economic hinterland, coupled with a financially self-sustaining 'city' with no requirement for any additional Government funding. There is also 277ha of employment land to be developed in Warrington by 2027.

Healthcare and wellbeing

With the younger population continuing to migrate to Manchester and Liverpool, there is an aging rural population within the region coupled with finite local authority budgets. While the region is relatively affluent, there are significant areas of deprivation and challenges in coordinating and delivering healthcare.

Traditional ways of delivering local authority and health services will not meet the needs of the population going forward. Digital technology can help at the point of care by enabling self-care scenarios to manage long-term conditions before they become illnesses. There is a need to adopt new approaches but being risk-averse can stifle innovation. New products are available, but development often lingers in the 'valley of death' from education and proof of concept to commercial realisation.

A good example of self-care has been seen in a programme to manage hypertension in pregnancies. Traditional methods with visits to the GP / hospital and attendance by a midwife costs around £3,000. This compares to just £90 for monitoring equipment supplied to expectant mothers at home with results relayed digitally back to a medical team, with follow-up visits only required where necessary. While there is a clear financial case for this example, some benefits of digital technology across health and social care can be difficult to prove.

Directly linked to the provision of housing, a key target for the region is to keep people in their homes and the community for longer. CWCC aims to avoid 100 people being admitted to long-term residential care by supporting them at home. It also has a target having 70 fewer children in care and 1,730 complex families (those where adult partners bring together children from previous relationships) turned around.

Health
Ageing population
4.2% population growth
compared to **7.8%** for UK

Housing
127,000 new houses by 2040
9000 more than current local plan

Local environment

Cheshire East is adjacent the Peak District National Park which seen as a desirable place, providing green infrastructure and accessible green spaces which support health and wellbeing. CWCC has a 60% recycling target, positive adaptation to and action on climate change, and supports the transition to sustainable living.

The region recognises the national goals of 80% reduction in carbon emissions by 2050, and with nationally significant industrial users in the region, energy is clearly a challenge. The energy innovation centre in Ellesmere Port has an aspiration to be at the forefront of research and development activity in power and energy systems. 30% of regional energy consumption is by transport, of which 45% is by non-domestic users. Fossil fuels account for 70% of the total energy consumption in the sub-region. 10% of homes in the region (c. 40,000) currently experience fuel poverty.

Environment
80% reduction in carbon by 2050
70% energy from fossil fuels

Council budgets
£130 million budget cuts for WBC
One Public Estate pilots

Sense of place

As already stated, Cheshire and Warrington is losing its younger population to regional cities, attracted by higher salaries and a more vibrant lifestyle. This is also true of large digital companies which are recruiting young people with digital degrees or skills and paying higher than average salaries.

The region needs to create a reason for young people to want to live there – the image of the location is important as promoting it. The creative and digital sector will attract young people for work, but do they also want to live in the area? Some digital employers wait for individuals to be trained and settled with young families, and then recruit them.

A potential way to address this is the 'smart regeneration' of areas where there is exceptional connectivity to attract innovative and digitally-enabled businesses.

Council services

Warrington council needs to reduce its budget by £130m by 2020. At the same time, the region aims to improve the integration of public services and scale-up One Public Estate 'Pilots' to transform and integrate local service delivery by developing a network of integrated Hubs across the sub-region. To realise these ambitions, there must be a focus on reducing demand on public services, enhancing productivity and driving growth, specifically through ensuring transport and digital connectivity to support an economy that will be more than twice its current size.

Connectivity

'Connecting Cheshire' is a digital infrastructure collaborative funding programme running until 2020. It states that fibre broadband is now available to over 97% of homes and businesses across Cheshire and Warrington. Further action needed to incorporate the remaining 3%. The programme will benefit 1,470 SMEs and is expected to create 441 additional Full Time Equivalent jobs, generating a net growth of £42m GVA. This represents a return of £5.80 for every £1 invested. Business and domestic voucher scheme appears to be working well.

The BT Openreach monopoly is causing problems for rural areas where the cost / benefit is beyond the return for the BT shareholder. Smaller providers struggle to break into the market generally, but these may well be the solution where BT Openreach is unable to deliver. Connectivity can be overcome through self-investment; this has already succeeded in some areas. Independent providers can offer more certainty with time-scales and delivery plans that BT, and this is will attract individual businesses and communities to self-invest.

The actual level of connectivity in rural areas is unclear, but it is believed that large areas remain unconnected to fibre broadband. This may be reported to the premises or the cabinet.

Easing the local authority planning process could help. While this is largely required in new construction, it could also be enabled through S106 agreements / planning gains, although this appears to be reducing or being eliminated on appeal and fibre cables are being laid along routes

adjacent to existing houses but not connecting to them. There is also the potential to enable Wi-Fi masts as an alternative solution.

There has been success with collaboration between regional businesses for the £3,000 Government grants to enable fibre broadband to be brought into offices. This could also work for domestic properties with facilitation from parish councils.

While the focus is currently on 5G, 6G will be implemented in the near future and more sophisticated and data-hungry technologies and applications will continue to fill the bandwidth. It is widely believed that Wi-Fi will become ubiquitous and probably free to use within 5 years.

3 | ECONOMIC OPPORTUNITY

Affordability of service delivery, infrastructure and housing delivery is a key concern for the Cheshire and Warrington Councils, aligned with the changing demographics and increased expectation of service levels. As a result, the region, like many UK regions, faces a widening fiscal gap.

In this context, it is vital that the LEP and local authorities within the region consider significant changes to the way services are delivered and infrastructure is planned and delivered to reduce whole-life costs.

Equally, it is critical to ensure the right service is delivered and social outcomes are achieved. Digital enablement can provide a platform for integrated planning, improved design, driving efficiency in construction and delivering a 'digital twin' to optimise asset operations.

This section identifies some of the high-value opportunities that can be unlocked by developing and implementing a digital strategy for Cheshire and Warrington.

Economic Analysis

Current spending across the Cheshire and Warrington LEP and the 3 councils (Warrington, Cheshire West & Chester and Cheshire East) has been divided into broad categories of capital expenditure, operations and maintenance, and service delivery.

The expenditure figures outlined in Figure 1 below have been complied using an average taken from the last 3 years of the respective councils' budget papers and the published UK Government gross value added (GVA) figures for local authorities.
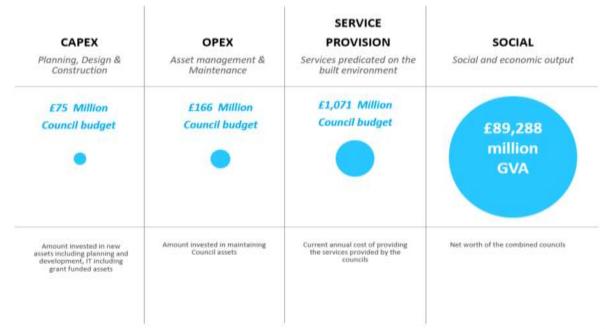

Figure 1 Summary of expenditure categories over the last 3 years for Cheshire and Warrington Councils

CAPEX – Planning, Design and Construction

The figure presented is the average combined CAPEX expenditure for the 3 Cheshire and Warrington councils from their core budgets, as well as the spend from Cheshire and Warrington LEP. This includes all capital expenditure on both physical and digital assets.

OPEX – Asset Management and Maintenance

The OPEX figure presented is the average combined OPEX expenditure for the 3 councils from their core budgets as well as the spend from Cheshire and Warrington LEP.

These costs extracted from the annual budget figures that related to the operation and maintenance, repair, refurbishment and energy use of council assets. Typically, CAPEX to OPEX ratios are:

Infrastructure Category	Ratio CAPEX: OPEX
Buildings / Housing / Property	1:3
Roads / Water	1:0.42
Rail / Electricity / Health	1:6

Service Provision – Services that are predicated on the Built Environment

The service provision figure presented is the average combined service provision expenditure for the 3 councils from their core budgets as well as the spend from Cheshire and Warrington LEP.

Whilst built assets are developed and exist to provide services to an end user, natural assets also play an important role in the Cheshire and Warrington economy. The quality and performance of the built assets has a direct effect on the cost and quality of the services supported and delivered across the built environment. The service provision of these built assets has been estimated from the annual budget figures for the 3 councils.

Social outcomes: Gross Value Added (GVA)

The mean average GVA for the LEP area, across the 3 councils is presented to provide a sense of scale and to indicate the extent of the council services in supporting the contribution to the overall regional economy.

This highlights two key factors:

1. The significance of the region's productivity and the council investment in both built assets and service provision to support this regional economy.
2. The opportunity for cost saving across council spend when the built environment and service provision is considered holistically.

4 | CURRENT DIGITAL MATURITY

Regional digital maturity can be examined across strategic management and service provision. While there are some isolated areas of excellence, Cheshire and Warrington is undoubtedly at the start of its journey towards digital maturity.

Strategic management

Strategic collaboration / cross-sectoral benefit realisation: Delivery must be collaborative; this is already demonstrated in some areas, such as health and education. There is also a need for integrated care. Existing housing could be adapted for connectivity to keep people in their homes for longer. This process should be easier for new homes by incorporating it into the design process. However, the time taken to adapt to new systems and processes in some sectors is too long. Development within the NHS has so far taken 17 years, so it will need to adapt to overnight digital app updates in the future.

Sharing 'lean' digital knowledge through the supply chain will improve costs and productivity. There is a need to improve the image of towns and the wider region to 'sell' skills and opportunities. Initiatives such as the NHS-Innovation programme are looking to improve the healthcare sector economy – this will lead to increased wealth and therefore healthier people. The region must develop the idea of 'creative economy' built around skills and infrastructure but focus on creative thinkers to develop digital transformation.

The realisation of benefits in this area is difficult to demonstrate. Quantifying the value of deliverables, including natural capital and social benefits, will unlock new funding opportunities. Embracing the whole region but with particular focus on boosting the economy in rural areas will bring wide benefit. There must be opportunities to showcase the return on investment from installation of connectivity in rural areas. A simple demonstration is the idea of removing connectivity - people would have no choice but to go about their business by car which would increase congestion and pollution. The value of natural capital should also be considered in evaluating benefits, particularly with the Rural Economy Bill promoting valuation of public good for the environment.

To ensure Cheshire and Warrington's successful journey towards digital maturity, the collaborative engagement started in the development of this strategy needs to continue. In addition, extending collaborative working across the wider North West region and linking to the urban centres of Manchester and Liverpool which are further advanced in embracing digital technology could offer valuable insight, as well as potential economies of scale through opportunities to integrate into existing technology.

Service provision

Service provision / citizen-centric: There is already significant activity in transferring manual council services to online. The Warrington digital strategy is focused on how citizens access services with technology and upskilling. In the near future, apps will need to work on the 3G/4G network or Wi-Fi to ensure maximum uptake and accessibility. The Planning portal is already online but essentially comprises PDF documents which can be accessed to view rather than enabling digital queries, analysis and interaction. In some cases, digital healthcare access has been given to patients and the uptake is promising. When accessing personal healthcare data online, consent must be given for the data to be used for specific purposes; each individual must be in control of their own information.

Uptake and skills: Generally, uptake to digital services and the required skills to use them is low. In the healthcare sector, this is particularly prevalent in the older generation. However, even though 90-year-olds probably don't use screens, it may be possible to engage 50% of older people. The younger generation are generally healthier and have a lower demand on healthcare, but will embrace digital access to their records and making GP / hospital appointments online.

Farming is currently a 'low-tech' sector and will require significant upskilling. In Germany and the Netherlands, the agricultural industry is very focused around technology and productivity - 84% of farms are managed by up to 38-year-olds, whereas UK farms are mainly managed by the over 60s.

In manufacturing there is a general lack of awareness of the opportunity, although it is recognised as an enabler of achieving productivity gains and growth, particularly around digital management of the product life-cycle.

For the delivery of digital services to the community, there is a need to ensure digital inclusion, by, for example, having iPads available in community centres to support online access to services.

IT architecture: The lack of interoperability can be a barrier to digital transformation. The lack of digital technology in the farming sector is an issue, particularly in the light of future BREXIT and changes to land payments, etc. IT systems within the manufacturing tend to be quite advanced.

Digital construction / infrastructure: The built environment has seen on-going commitment from the UK Government through the Digital Built Britain[1] programme, setting targets for delivering and realising significant cost savings across major infrastructure projects.

There is currently minimal use of digital engineering approaches in infrastructure developments in the region. While the benefits of digital engineering are recognised in ongoing building operations and maintenance, there is a need to demonstrate its tangible value (particularly through Building Information Modelling (BIM)) in capital delivery.

The planning process is the ideal opportunity to engage with developers in this area. Tentative first steps have been taken in enabling planning officers to access and utilise real time information on

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[1] Centre for Digital Built Britain: https://www.cdbb.cam.ac.uk/

site. This should be an enabler to make developments smarter and better connected to attract people into rural and urban areas alike.

Building 'smarter' using digital engineering techniques can deliver a number of benefits, not only reducing the traditional cost of construction but also increasing local supply chain opportunities and supporting new skills development. It can enable more homes to be built quicker, cheaper and better. This is linked to wider opportunities to digitise the planning and development control process.

Building 'smarter' buildings will also enable the cross-sector benefit realisation that is possible through a digital built environment.

Data sharing: This is under-utilised at present due to concerns over data security. While secure data sharing is a challenge, it can be implemented successfully with the appropriate controls in place.

In healthcare, the ultimate objective is to create one digital record per patient. In the public sector, there is a challenge to delivering public / private platforms such as for planning.

Future plans: Further funding for digital technology and infrastructure is essential. Digital technology is continuing to evolve at pace, though fundamental step-changes such as Artificial Intelligence (AI) are currently in the testing phase.

Summary of current maturity

A Digital Workshop was held to gain high-level stakeholder engagement across the region. It was attended by 30 business leaders and representatives, council officers and service delivery managers – all with substantial budget responsibility.

During the workshop, participants evaluated the current level of maturity across a range of digital aspects based on the criteria set out in ISO:37106. These aim to benchmark Cheshire and Warrington so that progress towards these key criteria can be tracked over time. While this is a very simplistic approach, it still provides an initial high-level assessment.

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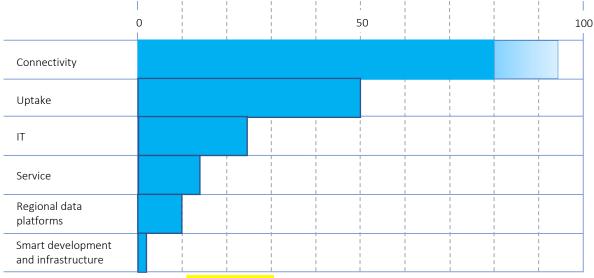

Figure 1 Summary digital maturity NEEDS UPDATING

5 | BENEFITS ANALYSIS

The next steps of the Digital Cheshire and Warrington journey will be to carry out strategic, outline and final business cases of the implementation options to provide clarity about the social, economic and environmental benefits by adopting digital for the combined authorities. This will ultimately develop the business case for funding the region's digital transformation.

In order to estimate the potential economic benefit of a Digital Cheshire and Warrington across the lifecycle of the three Councils' spend, reference has been made to several case studies, consultancy reports and business cases relating to differing levels of digital application. Appendix A shows a breakdown of some of the most recent and relevant business case outcomes and analytical reports relating to the economic benefits of digital engineering adoption.

Utilising the economic analysis from the Digital Built Britain strategic outline business case Figure 3 below demonstrates the potential savings that can be realised across the CAPEX, OPEX and Service Delivery aspects of the combined authority budget's respectively.

Annual CAPEX	Resulting Whole Life OPEX	Annual Service Provision
CAPEX	OPEX	SERVICE PROVISION
(10% Savings)	(5% Savings)	(5% Savings)

Figure 2 Economic benefits analysis

This initial analysis highlights the opportunity for up to £7.5 million savings for capital delivery, £8.3 million across whole life operational delivery and a further £53.6 million in service provision.

This represents a potential cross-sector benefit saving of **£69 million.**

6 | STRATEGIC PRIORITIES

It is essential to ensure that solutions are targeted at the right problems to help reduce the cost of service provision and deliver better outcomes. The workshop and subsequent analysis have identified the following strategic priorities to address the challenges identified. Alongside these is the start of the identification of measures that could be implemented. The next steps will be to comprehensively evaluate the measures against a series of economic, social and environmental factors in order to target resources and prioritise action, mapped against the key priorities.

Strategic priorities

There is a clear recognition of the opportunity that digital technology offers to ensure that Cheshire and Warrington remain ahead of the competition. To achieve this, collaboration between public and private sectors will be needed from driving up the skills base to ensuring infrastructure development is carried out in a way that will support the region's digital future. Based on the non-digital and digital challenges, seen in table 1, identified during the stakeholder engagement, three clear strategic priorities have been identified, these are:

1. Digital people and digital services
2. Digital industrial revolution
3. Strategic planning, collaboration and funding

Non-digital challenges	Digital challenges
• Policy and interventions priority; fully connected; understanding gaps; future planning • Collaboration and engagement; break down silos • Transparency of information • Widespread exposure to upskilling • Digital brand / destination brand • Confidence • Create an environment for creative industries • 'Place' offer; vibrancy for young people; cultural offer • Skills and college offer; incubation; university links • Transport and accessibility; difficult for rural, need for co-working space • 'Grown up' spatial planning • Inclusion; avoiding social isolation	• Infrastructure in the ground; future-proofing • Ongoing review and utilisation of technologies • Plan for growth; evolving strategy • Support for public sector; match-funding, incentives, pressure on Government, competition • Digital hubs • Connectivity that's readily available; fibre connectivity for rural areas • Smart data analysis • Lack of mobile connectivity • Skills pipeline / workforce career paths • Awareness of issues / opportunities, technology and inspiration • Infrastructure; 'plumbing' and how systems talk to each other

Table 1 Non-digital and digital challenges identified by stakeholders

Priority 1 - Digital people and digital services

The challenge

The greatest challenge identified by stakeholders was that of 'getting people digital'. Connectivity is inconsistent, and coverage is unreliable - there are gaps in the current service which makes it difficult to commit to a large-scale shift of services and thus to encourage people to adopt digital technology.

Whilst connectivity is generally good, there is concern over the 'last mile' and the remaining 5% who will become increasingly marginalised without connectivity. In addition, new building and connectivity upgrades need to be future-proofed to ensure that further enhancements can be achieved both easily and cost-effectively as new technology comes online.

Digital services will require providers to work together to deliver these services in a coherent and accessible way. There are also a broad range of disparate decision makers to influence and due legislation to be met, so a balance must be found between collaboration and competition to ensure that all parties are satisfied and progress is unhindered.

For some, poor skills or awareness can lead to a lack of confidence and /or understanding of how best to engage, adopt, upgrade or change current methods of operating. This is exacerbated by concerns over use of personal data (particularly in understanding the General Data Protection Regulations) and the security of online services. In some sectors there is a reluctance to progress to a digital culture within Cheshire and Warrington. There is clearly a transition to be achieved from continuing with 'business as usual' to embracing innovation and creating a sense of place through a forward-thinking digital brand identity for the region.

What needs to be done

- Provide sufficient connectivity for all users, including homes, SMEs and business
- Drive uptake by ensuring that getting online is simple, affordable, readily available and reliable
- Foster an unbiased / non-political collaborative culture and build an appetite for change by demonstrating the tangible benefits of adopting a digital strategy
- Ensure clear advice and support is in place to enhance skills and knowledge to access online services
- Provide assurance that personal data is secure and that legislation is in place to ensure privacy in conducting business online
- Take a cross-generational approach to the transition to a digital Cheshire and Warrington, starting early for younger people and valuing the experience (and appreciating the inexperience!) of the older population

Ideas

1) Collaborative connectivity

Currently commercial viability is measured on return on investment for the provider, e.g. the number of homes or businesses that can be connected and the number of subscribers to a BT service. On this single measure, it is unrealistic to expect that connectivity will be delivered to every property across Cheshire and Warrington.

Connectivity becomes viable when productivity and requirements to access local authority services is considered. Government is providing financial incentives for businesses and individuals alike to install high speed broadband. The organisations which are able to bring companies and individuals together are able to pool their resources to bring the necessary investment to install the required level of connectivity.

2) Hubs of exceptional connectivity

Stimulate the creation of central hubs of exceptional connectivity to drive long-term innovation, creativity, skills, networking, business generation, opportunity and social interaction. Not only in remote, hard to connect areas but also in towns, colleges and business centres, where they could contribute to creating the 'sense of place'.

Community hubs can also address concerns over social isolation, deliver support for SMEs and provide human contact that alleviates pressure on other resources e.g., health and social care, council services.

3) Smart housing provision

Using digital technology to evaluate the viability and rapid evaluation of land opportunities can enable more sites to be processed quicker. It will also allow greater quantities of social and affordable housing to be delivered at a lower economic and environmental cost using space, time and materials more efficiently.

Ensuring (and making it a requirement that) these buildings are smart, connected homes delivers additional social and health benefits in the short, medium and longer term. Ensuring that housing is adaptable will enable people to stay in their homes for longer. Connectivity should be required as a planning condition and treated as a 4th utility connection at the point of handover to the occupier.

These efficiencies must continue through improved operation and whole-life performance of buildings, and easy access to information by occupiers, estate managers and owners to ensure that buildings perform 'as designed' in use, for example reducing carbon emissions by an estimated 20%.

4) Transformation of local authority service provision – 'one service'

Transferring council services to online operation can deliver cost and efficiency savings for local authorities and improve the quality, flexibility and access for residents and customers.

INSERT DATA FOR DIGITAL vs Face to Face contact

Transformation of services needs to do hand in hand with ensuring connectivity, uptake and the right level of skill or support is available to access these services.

Digitising services across aspects of education, social care, housing and so on is critical not only to cost effectively improve access to services, but to improving outcomes for residents, taxpayers and society.

Priority 2 - The digital revolution

The challenge

Making the case for the transition to a digital Cheshire and Warrington is clearly a significant task. People generally find comfort in 'business as usual' and are often reluctant to even consider change, let alone embrace it. A lack of understanding of all things digital only increases the want to stay with the 'status quo'.

There is an assumption that a digital strategy is unaffordable, particularly within the current political climate of ever-increasing budget cuts to council services. Upgrading digital infrastructure can be expensive and there is a constant requirement to keep up with the pace of change in technology and digital processes.

The transition from traditional operational and procurement models to digital online services is also seen as a fundamental challenge, particularly in the skills and training required to use them.

> Words from vision
> o   Creative ecology
> o   Cultural shift
> o   Leaders of innovation
> o   Dynamic digital revolution
> o   Transformation
> o   Agility
> o   Digital disruption
> o   Future proof (progressive, responsive, dynamic)

What needs to be done

- Adopting a more flexible approach to work patterns will encourage people to periodically work from home or at remote locations, thereby embracing digital connectivity by default
- Creating attractive spaces to work to appeal to a new potential workforce of digital innovators
- Encouraging a collaborative approach to advocate and accelerate the necessary cultural and political change
- Developing a culture of creative thinking and an enthusiasm for upskilling and attaining agile digital qualifications
- Encouraging a rethink of local policies and commercial / industrial strategy to facilitate a digital future for the region

Ideas

1) Productivity

Add content for this section

2) Procurement

Local authorities spend a large proportion their budget in the regional economy. Digital procurement can be used to stimulate local economic growth, facilitating the use of local SMEs and minimising the administrative burden of multiple small contracts.

Digital information management and a 'digital first' approach to attracting, selecting and interacting with SMEs and other local and regional suppliers will ensure that growth and opportunities are enjoyed by local areas first.

Housing development supported by a local digital supply chain is a good example of combining both a planning system upgraded and improved through digitalisation, and building the right kind of

homes better, quicker and cheaper using the best local suppliers. The use of digital tools can foster greater collaboration between planning authorities, housing authorities and service providers, which, together with their local supply chain, will bring wider reaching local benefits.

2) Employment, skills and economic growth

Providing skills support and training to employees, SMEs and residents is an important part of the transition to a Digital Cheshire and Warrington.

The support requirements for developing skills are wide-ranging and include:

- Embracing online tools to access services
- Adopting and using social media to market more effectively, reach target audiences or branch out into new areas more efficiently (including export markets)
- Investing in design services, professional advice and hardware such as 3D printing to enable rapid prototyping

All these requirements require a cultural shift; a major change-management process but one that will enable both public and private organisations to benefit from Industry 4.0 and maximise the valuable opportunities afforded by digital technology.

SMEs and other organisations will require support in making the transition to a Digital Cheshire and Warrington to make the most of the opportunity and collaborate in the right ways. There must also be a strategy to retain and attract young people and families and ensure they are not lost to the urban areas of Manchester and Liverpool. This will be crucial in retaining the appropriate talent and skills for the region.

Priority 3 - Strategic planning, collaboration and funding

The challenge

Agreeing and demonstrating the measurable benefits of adopting a digital strategy will be difficult. The presence of silo budgets and funding regimes is a tangible barrier to encouraging investment and acknowledging the financial gains to be made.

There is a lack of long-term vision for adopting a digital strategy in Cheshire and Warrington. Traditional business models still prevail within the region, and there are concerns over commercial viability within the private sector.

The public sector is renowned for being very slow to adopt change. This lack of ambition is fuelled by deficits in information and data and a lack of governance / collaboration within the local authority and public service structure (there is a perception that the Cheshire and Warrington councils and their agencies are not willing to work together). Existing public procurement rules stifle the formation of partnerships which can bring innovation and value to public services.

Equally, businesses being reluctant to work together to develop best practice, co-invest and cooperate with public sector service providers must also be changed. Concerns exist over data security, IP ownership and GDPR responsibilities when organisations collaborate, but can be overcome.

What needs to happen

- Multiple benefits accounting – the leveraging of investment on apportionment of value (including social value)

- The pooling of budgets and the enabling of devolution by the UK Government

- Facilitating collaborative bidding (public / private partnerships) on public service contracts to inject innovation and forward thinking into service delivery

- The use of public policy as a driver for change, i.e. the need for economic growth, improving healthcare services, etc.

- Tax incentives for adopting a digital strategy, particularly for businesses when upgrading the network infrastructure

- Bringing the appropriate governance and collaboration to the strategic planning and delivery of public services

- Creating a skilled, focused and adequately funded 'digital unit' within the Local Enterprise Partnership

Ideas

1) Digital infrastructure plan

ADD section here – likely to be an expectation that the strategy will indicate a high-level digital infrastructure plan

2) Digital planning

Local planning authorities possess much of the necessary information to assess the viability of development plans. However, this information may not be in an accessible, digital format and the tools to rapidly assess viability may not be available within the authority. Further efficiencies flow from the digitisation of viability assessments and information provision, including the rapid review of planning applications, planning assessments and agreements to semi-automated (or even fully automated) building control checks, ensuing that what is built is 'as was permitted'.

3) Regional information collaboration

The same data can be used multiple times to support the efficient delivery of a range of different services. Good information management is efficient, digital and security. Local authorities adopting digital information management approaches buy their data once, have access to reliable, up to date information and deliver better services.

There are already some promising first steps being taken in Cheshire and Warrington, particularly around mapping and the information databases used by different departments in the two local authorities. However, much more could be done in this area to assist with getting people digital, supporting the right kind of economic growth and unlocking the true potential of the region through collaboration.

Centralising, sharing and linking data and analytics can benefit multiple council responsibilities, such as:

- Planning and development

- Biosphere reserve, nature conservation and land use change

- Environmental management and monitoring

- Service provision, service efficiency and demand management
- Customer relations / 'one-stop-shop' services by improving convenience and uptake
- Information services, i.e. tourism, travel, education, health, social care and youth
- Self-monitoring, semi-automated services and service efficiency
- Procurement and business engagement
- Consultation and community engagement

For example, integrated travel planning apps could enable customers to see where buses are, plan inter-modal journeys, access tourist information, books seats, gauge walking / cycling distances between public transport points or places of interest, set reminders, improve access to remote areas or places of interest, and find hotels and restaurants in remote areas.

4) Delivering local housing needs using digital technology

The Construction Products Association has identified the potential for digital engineering and a digitally configured residential development supply chain to delivery more for less[2]. Using a digital viability assessment tool to evaluate the delivery of the identified 127,000 homes between now and 2030 presents interesting and valuable data. The benefits measurement approach measures the impact of digital technologies in the construction of the houses, considering locality, planning constraints and assumes a range of standard housing models. Three scenarios have been modelled UPDATE THIS SCENARIO FOR C&W.

1) **Traditional approach:** This assumes 30% affordable homes is achieved through a requirement under planning consent.

2) **BIM Level 2:** This approach uses digital engineering, Building Information Modelling (BIM) (where savings are achieved through better clash detection) and adequate information to make better informed decisions, resulting in the potential delivery of an additional X% of affordable homes.

3) **BIM Level 2 plus a pre-configured digitally connected supply chain:** The project is delivered using digital engineering (BIM) alongside an outcomes-based digital procurement approach. Digitisation of the supply chain helps to identify gaps in procurement, timing and capability, and can drive additional benefit by enabling greater engagement with the local supply chain. Savings estimates identify an additional X% of affordable housing could be delivered resulting in a total of X% affordable housing delivered across the same sites.

While there is a significant collaboration and transformational change in approach required to move towards a digitally connected supply chain, the opportunity looks significant. The potential benefits across the different scenarios are outlined below:

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[2] Construction Products Association, 2016. The Future of Construction Product Manufacturing: Digitalisation, Industry 4.0 and the Circular Economy

Scenario: To deliver 127,500 homes and maximise affordable housing provision	Traditional approach	BIM Level 2	BIM Level 2 plus a digitally connected supply chain
Additional affordable dwellings that can be delivered as a result of digital engineering technology for the same investment	0		
Percentage of homes which are affordable (assumes baseline of 30% is achieved through current, traditional approach)	30%		
Additional costs required to deliver shortfall in affordable housing - assuming a target of X%, additional affordable homes are required			
Efficiency across project delivery results in projects being finished earlier. Average weeks homes can be occupied due to early finish			

7 | DIGITAL CHESHIRE AND WARRINGTON ROADMAP

The next two stages which must be successfully delivered to help bring the Cheshire and Warrington digital programme to fruition are shown in Figure 4 below. These add detail to the strategic priorities and create an extensive list of 'ideas', providing a benefits assessment framework to develop a deliverable digital programme. We have been careful to maintain a progressive approach and identified three critical enabling steps to ensure the programme is planned and costed accordingly.
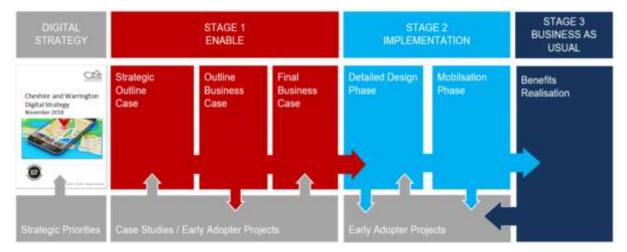

Figure 3 *Digital Programme Stages*

Stage 1 – Enable

Effective and proactive management of benefits realisation around the social, economic and environmental outcomes is a core responsibility for the leadership and governance of the digital programme.

In the past, many regions (mainly cities) and councils have often failed to manage the downstream benefits proactively after an individual project or programme has been completed, particularly where it affects multiple interested parties. ICT programmes in particular are often considered complete once the technical implementation is initially operational.

To make full use of the projected benefits (e.g. efficiency savings, customer service improvements), ongoing management is essential, often involving significant organisational and cultural changes.

This stage is critical to ensure what has been promised to residents can be delivered, and identifies the overall Digital Cheshire and Warrington Plan, the strategic priorities, and importantly the environmental, social and economic opportunities for the programme.

The next stage is to systematically identify what can be achieved and what the most effective next steps should be, based on a prioritisation business case assessment.

The approach presented below is based on the UK Government Treasury's Green Book for investment business case assessments and will primarily asses the social, economic and environmental outcomes and benefits of adopting a Digital Cheshire and Warrington programme

1.1 Strategic Outline Case – the scoping stage

The strategic outline case (SOC) will help Cheshire and Warrington to formalise the need for the proposed digital programme. It will demonstrate the case for change, presenting a clear rationale for making an investment against the strategic objectives of the regional authorities.

This process will provide important evidence and will set out robust assumptions at this early stage in the development of the Digital Programme business case. It will also explain how the various options have been assessed and distilled into a preferred scheme and programme. Fundamentally, it will provide Cheshire and Warrington with a preferred programme of projects.

The five steps of the SOC are:

1. **Strategic Case**

This will set out the rationale and the context for the Digital Programme proposal and will make the case for change at a strategic level. It will detail the background to the proposal and explain the objective that is to be achieved. The strategic policy context and alignment with the wider Cheshire and Warrington policy objectives will also be referenced, as will any interaction with or dependency on other council programmes.

Areas which will be specifically addressed include:

- The underlying strategic requirement for the change and adoption of Digital for Cheshire and Warrington
- Key objectives and critical success factors

2. **Economic Case**

This will assess the economic benefits of the Digital Programme and optimise value for money. Several areas will be specifically addressed, including:

- The formulation of options to be considered
- The economic benefits quantified (Rough Order of Magnitude) for each option
- A cost estimate for each short-listed option
- Identification of the preferred option

3. **Financial Case**

This will assess the financial viability of the Digital Programme. A number of areas which will be specifically addressed, including:

- A summary of financial appraisal
- Consideration of overall affordability
- Funding Sources
- Risk Contingency

4. **Commercial**

This will assess whether the Digital Programme is commercially viable. Several areas which will be specifically addressed, including:

- Consideration of capability and capacity in the supply chain and Digital Marketplace to support the change
- Procurement options and expected approach

5. Management

This will assess whether the Digital Programme can be delivered successfully, and address several specific areas, including:

- Project Management approach
- Internal capacity and capability considerations
- Benefits Realisation, including Financial (both cashable and cost avoidance) and Non-Financial
- Risk identification and Mitigation
- Recommendation

1.2 Outline Business Case – the detailed planning phase

The next step following the strategic outline case is the outline business case (OBC). Its purpose is to revisit the SOC in more detail and identify a preferred option which demonstrably optimises value for money (VFM). VFM will account for the full range of economic, social and environmental benefits. It sets out the Digital Programme plan, demonstrates its affordability and details the supporting Procurement Strategy, together with management arrangements for the successful rollout of the programme.

This stage will provide the following:

- The Strategic Case – revisited
- The Economic Case – completed according to the Green Book
- The Commercial Case – outlines the envisaged Digital Programme structure
- The Financial Case – contains a detailed analysis of affordability and any funding gaps
- The Management Case – develops in more detail how the Digital Programme will be delivered with an outline of the proposed programme / project management plan

Testing the Digital Cheshire and Warrington Framework on early adopter projects

Before moving to the final business case, we recommend introducing a period of testing to ensure that the newly developed technologies and ways of working are user-friendly, effective and deliver the anticipated outputs.

This would typically include the consideration of using early adopter projects to validate the new methods of working and better understand the impact of implementation on 'business-as-usual'. Lessons learned should be captured and addressed prior to rolling out technologies more widely. In selecting early adopter projects, it is necessary to assess whether they will enable new ways of working to be tested within the timescales required by the implementation plan.

1.3 Final Business Case – detailed final phase

Following the OBC, a Final Business Case (FBC) will must be developed to support ongoing investment.

The purpose of the FBC is to revisit the OBC and record the findings of the subsequent procurement activities. It will also enable the recommendation of an affordable solution which continues to optimise VFM and detail the arrangements for the successful delivery of required goods and implementation of services from the recommended supplier(s).

This stage will provide the following:

- The Strategic Case – revisited and revised if required
- The Economic Case – record the findings of the procurement included in the analysis
- The Commercial Case – the drafting of the recommended Digital Programme
- The Financial Case – affordability and funding issues resolved
- The Management Case – recording the detailed plans for delivery and arrangements for the realisation of benefits, management of risk; and post evaluation

Stage 2 – Implementation

Upon agreement of the Strategy and FBC, the Implementation Stage should commence which will focus on designing and mobilising the Digital Cheshire and Warrington Task Group. The role of the group will be to coordinate and deliver proposed workstreams that will actively change practices and standards within the region to drive digital adoption, operating consistently and within predefined timeframes.

These activities will be necessary to counteract sub-optimal digital development driven by individual supplier interests instead of overall industry efficiency. This type of intervention will include creating and issuing policies requiring the application of a defined standard or procurement approach.

We recommend that the key focus of the Task Group follows the successful formula developed for the UK Government's Digital Built Britain program, enabling a core team to coordinate the delivery of funded work streams under the governance of a Steering Group.

Stage 3 – Business as Usual

This stage includes activities related to embedding technologies so that it becomes 'business-as-usual', and to also provide support structures to ensure that the new ways of working are followed. A program of lessons learned, commenced during the early adopter projects, should be continued so that challenges that arise from the new working practices are addressed.

As these new practices become business-as-usual, a process of measuring the required benefits should be undertaken, to justify the program expenditure and to drive continual improvement.

Continuous Improvement and Feedback

This phase includes activities related to embedding technologies so that it becomes business-as-usual and that support structures are in place to ensure that the new ways of working are followed.

The program of lessons learned, commenced during the early adopter projects, should be continued so that challenges that arise to the new ways of working are addressed.

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To be completed

APPENDIX A: BENEFITS CASE STUDIES

These are broadly in two groups: firstly, the implementation of Digital Engineering (BIM) within a specific government department or cluster; and secondly the broader application of digital transformations (e.g. DE/BIM, IoT, analytics, Smart technologies) and the resulting economic benefits across whole-of-government. Each business case and analytical report has differences in scope and approach to benefit estimation; however, the results suggest general corroboration of the predicted benefit within each group.

	Source / Department	Description of Scope and Approach to Benefit Estimation	CAPEX	OPEX	Service Delivery	Reference
Group 1	Transport for NSW	*Application of BIM at a similar maturity to Level 2, individual project example.* Benefit quantification determined by applying expert opinion to recent project examples, (CAPEX phase only) identifying the benefit BIM application would have created if applied.	1.7%			TfNSW Digital Engineering Conceptual Business Case (2016)
	UK Government Department (Transport Infrastructure)	*Application of BIM Level 2, across departments.* Analysis of the various benefit components with emphasis on risk mitigation and reduction of projects contingency (approx. 1%)	2%	1%		BIM Implementation Business Case
	Scottish Futures Trust BIM Program	*Application of BIM Level 2, individual project.* Provision of an RoI tool, requiring the input of project data to derive a predicted BIM RoI. A return is automatically calculated for CAPEX based on survey data of expected benefit during design and construction phases and other relevant case studies. CAPEX benefit of 3% indicated based on broad and comprehensive application of BIM Level 2. (OPEX RoI is also available but requires more subjective assessment of benefits).	3%			Scottish Futures Trust BIM Level 2 Return on Investment Calculator
	PwC BIM Benefits Methodology Digital Built Britain	*Application of BIM Level 2, individual project sample.* Application of a comprehensive BIM Benefit Framework across a sample of recently completed government projects to measure realised benefit. Level of BIM application also measured, with projects typically applying some, but not all, aspects of BIM Level 2.	Whole-life savings estimate ranging from 1.5% to 3%			PwC BIM Benefit Measurement Methodology (via Centre for Digital Built Britain).

	Source / Department	Description	CAPEX	OPEX	Service Delivery	Reference
Group 2	Digital Built Britain (UK BIM Level 3 Program)	BIM Level 3* A combination of relevant case studies and benefit logic analysis, exploiting expert opinion on the impact of digital intervention.	10-20%	5-15%	5-15%	Digital Built Britain: Strategic Outline Business Case (2017)
	BCG Study As reference by: EU BIM Task Group Handbook, 2017; World Economic Forum, Shaping the Future of Construction, 2016	'Full Scale Digitisation', including the adoption of BIM / Digital Engineering, robotics, data analytics, mobile interfaces, virtual reality & simulation. Estimates derived via application of case study data relating to individual technology applications to three theoretical scenarios (building, highway, power plant).	13-21%	10-17%		Digital in Engineering and Construction, BCG (2016)