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Welsh Assembly Government

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Delivering a Digital Wales

The Welsh Assembly Government's
Outline Framework for Action

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Contents

	Executive Summary	3
1.	Introduction	5
2.	Understanding Our Challenges and Goals	7
3.	An Inclusive, Sustainable and Prosperous Society	9
	Social Marketing Campaigns	10
	Regeneration	11
	Cultural Inclusion	11
4.	Skilled and Competent People: Equipping Citizens for the Digital Nation	13
	ICT In The National Curriculum	13
	Beyond Schools	14
	Developing Workforce Skills and Advanced Capabilities	15
	Skills Development Led By The Sector Skills Councils	16
5.	A Thriving and Competitive Digital Economy: Driving Innovation, Productivity and Growth	17
	Developing Wales' ICT Sector	18
	Developing Wales' Creative Industries	18
	Welsh Tourism In The Digital Economy	19
	Fostering More ICT Related Research and Development, Innovation and Technology and Its Commercial Exploitation	19
	The Welsh Assembly Government's R&D Priorities	19
	Promoting Digital Innovation In Higher Education	20
	High Performance Computing – A Global Opportunity	20
6.	Transforming Public Services	21
	The Public Service ICT Programme	21
	Developing A Public Services ICT and Infrastructure Strategy for Wales	22
	21 st Century Schools and Transforming Education	23
	Local Government Services	24
	Health and Social Services	25
	Welsh Assembly Government	25
	Digital Democracy	25

7.	First Class Digital Infrastructure: The Foundation for Digital Wales	26
	Securing Universal Broadband Access	26
	Next Generation Broadband Access	27
	Improving Mobile and Wireless Coverage	28
	Achieving A Successful Digital Radio (DAB) Upgrade	28
	Integrating Our Approach to Infrastructure Developments	28
	Developing Data Infrastructure and Enabling Cloud Computing	28
	International Connectivity – ‘Connecting Wales To The World’	29
	Delivering An Appropriate Regulatory Framework	29
8	Integrating the Strategic Objectives: Underpinning Principles	31
	Addressing Climate Change and Achieving Sustainable Developments	31
	Promoting Wales to the World	32
	Embedding Trust and Security	32
	Accelerating The Uptake Of Good Practice	32
9.	Organising For Delivery – Governance and Finance Arrangements	33
	Digital Wales Ministerial Steering Group	34
	Digital Wales Advisory Board	34
	Head of Digital Wales	34
	Digital Inclusion Management Board	34
	ICT Suppliers Forum	34
	Sector Development Boards	34
	Public Sector Efficiency and Innovation Board	34
	Efficiency and Innovation Public Services ICT Programme Board	34
	Chief Information Officer for Wales	35
	Education Front Line Resources Review Programme	35
10.	References	36

Executive Summary

Digital technologies and online services have already revolutionised many aspects of the way we live and we are heading towards a future where they will play an even bigger part in our lives. That should also mean they will play a *better* part, and **Digital Wales** is the Welsh Assembly Government's agenda for delivering a brighter digital future for everyone in Wales.

Our Vision: Wales – a Truly Digital Nation

We want everyone in Wales to enjoy the benefits of digital technologies.

Solid ICT skills for children and adults.
More convenient and efficient public services with joined-up delivery of education, health and social care.

A thriving economy driven by our technology research and development.
Flourishing Welsh cultural creativity.
Enhanced mobile and wireless coverage across Wales.

These are all part of our vision for making Wales a truly digital nation. To deliver it, we will make sure everyone can access digital technologies and information, and acquire the skills to make the best of them. Clever uses of technology will enhance learning and teaching methods. Our digital and ICT research and development will boost productivity at work, and feed innovative technology into our economy. Our high speed broadband and mobile phone infrastructure will be in place and ready for the future.

Overall, we will be among the best in the world in providing services, information and technologies that make life better for everyone in Wales.

The Challenge

Achieving this vision will not be easy. Digital technologies are constantly evolving. New challenges and opportunities appear on a daily basis. If we are to succeed in moving Wales to the front rank of countries exploiting digital technologies, we need to be both innovative and creative in our approach to developing solutions.

We propose to address this challenge by structuring our activities around 5 fundamental objectives:

Inclusivity: We want Wales to be a more inclusive, sustainable and prosperous society. Making sure everyone can enjoy the benefits of technology is a key part of that.

Skills: ICT skills will be part of all our children's education, and we will use technology to improve teaching methods and learning. Beyond schools, we will ensure that everyone in Wales can acquire the basic skills and confidence to get online and use digital technologies. We will also help train people in more specialist skills for industry.

Economy: We want to drive economic growth. We will support Welsh companies to network with research departments to create and commercialise new digital technologies. We will help more Welsh companies to exploit these developments

to innovate, grow and access new markets, especially in the creative industries, ICT and tourism sectors.

Public services: We will make more public and government services digital so they are easier to access and become more efficient and convenient. Through effective use of technology, people will be able to better deliver these services, and maximise use of resources.

Infrastructure: To deliver all the benefits of digital technology, we expect that all businesses in Wales will have access to super fast broadband by the middle of 2016, and all households by 2020. We are actively working to improve mobile and wireless coverage across Wales too.

The document explores the specific challenges faced in each of the 5 objectives and sets out major targets on a number of issues. We will publish detailed delivery plans for each objective in the near future.

Our Approach

We are taking an integrated, holistic approach to achieve our vision. We will bring together and work with a range of partners, from businesses to community groups. We will use expert advisors on the Digital Wales Advisory Board to ensure we focus on the key priorities.

The Welsh Assembly Government is fully behind making Wales a smarter, better connected society and economy – and helping everyone enjoy the benefits as soon as possible. So we will pave the way for partnerships, and make sure the public sector does whatever it needs to do, to make things happen.

1. Introduction

Digital technology has revolutionised our daily lives. From online banking to booking holidays, shopping to taxing our car, listening to music and keeping in touch with friends, we interact with a wide range of technologies in ways that are often invisible for many of us. The impact on our economy has also been significant with the UK's digital economy accounting for around 10% of GDP¹ and ICTs contributing significantly to productivity growth.

As we emerge from the recession, the Welsh Assembly Government sees the Digital Economy as a central element in Economic Renewal: a new direction², offering businesses across Wales opportunities to innovate and grow. As we now enter a period of tightening public finances, we also see digital technologies at the heart of transforming public services, helping deliver better and faster services at lower cost. Everyone should have the ability and opportunity to enjoy the benefits digital technologies offer. Securing digital inclusion is vital for our future.

The Welsh Assembly Government is proposing a digital agenda for Wales for all stakeholders and partners. It reflects the importance and centrality of digital communications to our economy and our lives and seeks to help realise the benefits that digital technologies hold for the quality of life and well-being of Welsh citizens, and prosperity and growth of our economy.

Through this framework, we are seeking to build a common vision and establish the necessary leadership and governance to ensure Wales can capitalise on the opportunities of the digital age to become a truly Digital Nation.

The Digital Wales Agenda touches almost every strand of public and private sector activity. The sheer scale, combined with the continued rapid pace of technological development, makes this a very complex agenda. Our approach is therefore to focus on activities and interventions that can make, or lead to, real impacts for the people and businesses of Wales. We propose to do this by structuring our activities around five fundamental objectives:

An Inclusive, Sustainable And Prosperous Society. Empowering all citizens to be able to take advantage of digital technologies to enhance their quality of life.

Skilled And Competent People. Ensuring the people in Wales have the necessary skills and competencies, from basic digital literacy for all to specialist ICT skills for industry.

A Thriving And Competitive Digital Economy. Promoting growth through wide scale application, innovation, commercialisation and exploitation of digital technologies by Welsh businesses, and particularly the Welsh ICT and creative industries sectors.

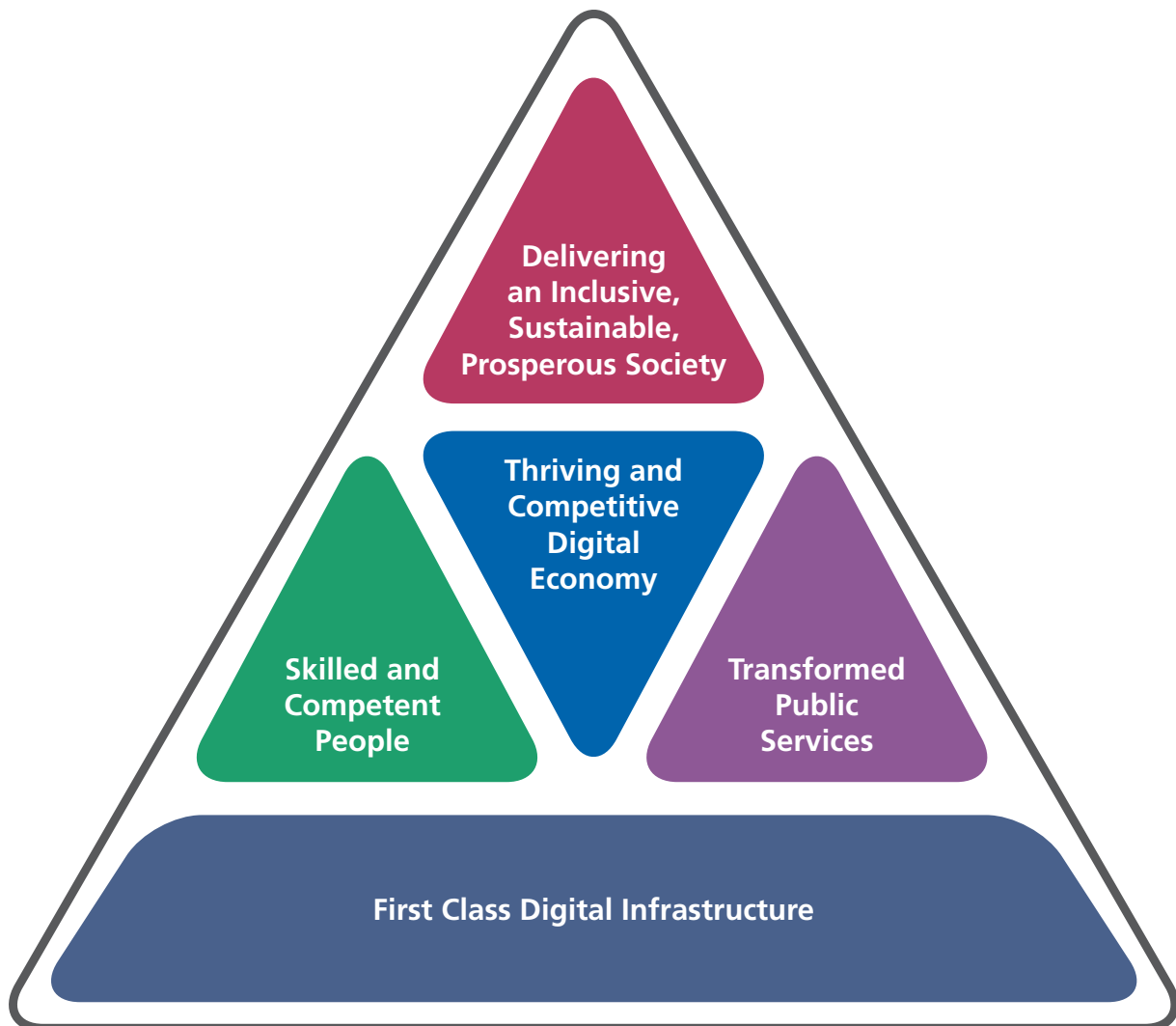
Transforming Public Services. Delivering public services that meet rising public expectations and are citizen or customer-

1 DCMS and BIS (2009). 'Digital Britain'.

2 Economic Renewal: a new direction.

focused, effective and efficient, and less costly.

First Class Digital Infrastructure. Ensuring Wales has the globally competitive, flexible, forward-looking digital infrastructure that underpins the delivery of a Digital Wales.



2. Understanding Our Challenges and Goals

We have seen a steady rise in the number of people in Wales who regularly use the internet as part of their daily lives. The proportion of households in Wales with internet access increased from 49% in 2005³ to 60% in 2009⁴. Early indications for 2010 suggest this is now 74%⁵. Over the same period, the proportion of households with broadband increased from 25%⁶ to 58%⁷.

Nevertheless, an estimated 34%⁸ of the adult population still do not enjoy the benefits that digital technology offers because they are digitally excluded, whether through lack of infrastructure, personal choice (such as believing the internet would be of no use) or socio-economic exclusion (e.g. due to low socio-economic status, low levels of education or a disability)⁹.

We have many successful businesses in Wales who are exploiting digital technologies and 75% of our Small/Medium Enterprises (SMEs) use the internet in some way. However, internet

usage amongst SMEs in Wales lags the rest of the UK (81%). Wales also has a lower uptake of more advanced use of ICT, which is where many will see most economic advantage. In 2006, the proportion of Welsh SMEs that reported having a website (62%) or selling using the internet (36%) were both below the UK average (69% and 39%, respectively)¹⁰.

While we have seen a steady rise in the availability of public services online, less than 35% of the population make use of public services online.

Our goal through *Delivering a Digital Wales* is to accelerate the realisation of benefits from a digital economy and society, facilitating partners to work more effectively together on common objectives, and where justified and necessary, ensuring appropriate public sector action or intervention takes place.

Our vision for success is an inclusive, prosperous Digital Wales expressed in 2020 as:

Digital Wales is available to all. Everyone who wishes has access to digital technologies and content and can acquire the skills and support to make the best of them, at home, in school, in the workplace and on the move.

Digital Wales has driven productivity growth. Our businesses have used digital technologies to drive innovation and strengthen their local and global competitiveness, drawing on a broad

3 Ofcom (2006). The Communications Market: Nations and Regions – Wales, 2006, p.45.

4 Ofcom (2009). Communications Market Report: Wales, 2009, p.94.

5 ONS (2010). Internet Access 2010: Households and Individuals.

6 Ofcom (2006). The Communications Market: Nations and Regions – Wales, 2006, p.195.

7 Ofcom (2009). Communications Market Report: Wales, 2009, p.94.

8 Estimated using Beaufort Omnibus (2009) and analysis from the Dutton et al. (2009) publication.

9 Welsh Assembly Government SRD (Unpublished). 'Baseline study.' Estimate derived from household figures in Welsh Assembly Government SD (2008), 'Living in Wales, 2007'.

10 IFF Research (2007), IFF Research (May 2008).

skills base in the workforce generally and a highly skilled professional ICT and creative community.

Digital Wales has a vibrant and thriving specialist digital and ICT sector. Wales has strong industry and Higher Education sectors built on high quality research, development and innovation in creative intellectual property, services, applications, software and hardware.

Digital Wales has transformed public services. The Welsh Assembly Government and public services throughout Wales have made imaginative and widespread use of digital technologies to be innovative, accountable, responsive and measurably more cost-effective and citizen-focused in engaging with and delivering services to citizens and stakeholders.

Digital Wales supports Wales' unique culture. Welsh content, culture and creativity are thriving as it benefits from diverse and low-cost media with easier access in the digital age.

Digital Wales has transformed learning. Education services have used digital technology to create entirely new teaching and learning experiences as well as enhancing existing ones.

Wales has a first class, globally competitive digital infrastructure. Digital Wales is underpinned by a powerful, flexible, future-orientated communications infrastructure providing universal affordable access to the services that citizens and businesses need along with global standard value added services and facilities such as cloud and high performance computing facilities.

Wales is recognised as a leader. Wales is in the front rank of countries in exploiting digital technologies, content and services to improve the quality of life and well-being of all its citizens.

Understanding our baselines, setting realistic targets and being able to measure progress towards our desired outcomes are crucial. We will develop and publish a Welsh Digital Dashboard to chart developments against key performance indicators and demonstrate socio-economic change. We will benchmark our progress against other UK, European and International regions.

3. An Inclusive, Sustainable and Prosperous Society

Wales has significant areas of social deprivation, and international evidence now suggests that social exclusion and digital exclusion mutually reinforce one another. As more people start to use technologies, and the benefits continue to grow, for those who are left behind, the exclusion becomes even more pronounced.

Many of the digitally excluded in Wales are older people or those already suffering from some form of social exclusion. In 2007, 76% of those of pensionable age were digitally excluded, compared with 12% of those under 25 years of age¹¹. For some with physical or learning challenges, the technology itself can be a barrier as much as an enabler.

Just as with banking, retail and travel, delivering public services online provides real and tangible benefits for citizens as consumers, making their lives easier. At the same time, significant savings and efficiency improvements can be made for service providers – a vital outcome in the next few years given the pressures on public finances. Yet with public services being increasingly delivered digitally (whether online, via digital TV or mobile), it is often the people who need the services the most – to get appointments with the doctor, see social services, or have contact with housing associations – that are most likely to be digitally excluded.

Achieving digital inclusion for the people of Wales is therefore a crucial element of a sustainable society. This especially applies to people being able to use the internet in ways that will enhance their lives and help them overcome other disadvantages which they might face. That is why we are making specific proposals to address digital exclusion in Wales through the Digital Inclusion Framework, which is intended to be launched in December 2010.

Communities and Local Government (October 2008) estimate that addressing digital exclusion in Europe could boost GDP in Europe by €127 billion in the next five years.

Through the Digital Inclusion Framework, we will enhance our understanding of:

- Who is missing out on the benefits of the internet;
- Why this may be happening;
- What steps can be taken to start addressing the issues.

In order to achieve success, there will need to be 'buy in' from a wide range of stakeholders. Market forces alone will not be sufficient to get people onto the internet. Only a concerted effort by the private, third and public sectors can achieve and sustain digital inclusion and participation of excluded citizens.

The Welsh Assembly Government will therefore work closely with stakeholders

11 Welsh Assembly Government Social Research (Unpublished). 'Baseline study'.

to identify and deliver creative approaches to getting people online, align plans and co-ordinate activities to achieve the shared ambition of digital inclusion for the benefit of citizens. We will use a cross-sectoral Stakeholder Group to help develop and take forward the digital inclusion agenda in Wales.

We will provide a common goal to be embraced by the many different and complementary areas of activity that encourage or help people get online in many different environments including:

- On the ground delivery through community based approaches;
- Access through libraries and other locations;
- Learning opportunities through education and lifelong learning, and skills development;
- Social marketing;
- Volunteering.

Communities 2.0

Communities 2.0, is the successor to Communities @One. It is aimed at members of community groups, voluntary sector organisations and social enterprises. It aims to break down barriers for citizens, and help support technologies for economic outcomes. It operates in the most deprived areas of the Convergence area and started in 2009. It has a budget of £19.9m and is supported by the European Regional Development Fund.

We will oversee the delivery of our Communities 2.0 Digital Inclusion initiative in the most deprived areas of Wales.

We will work with public service providers to improve awareness of the issues that

cause exclusion, and bring together the Digital Inclusion and the Making the Connections/e-Government agenda.

We will strengthen the relationship with the UK Government policy and initiatives, seeking to be aligned with parallel areas of activity, such as the Digital Champion. We will also tie in policies and developments emanating from the European Commission.

Through Digital Wales, we will ensure that relevant Welsh Assembly Government policies, strategies and initiatives for economic growth, prosperity, wealth creation and public service delivery are aligned with delivering this vision of a digitally inclusive Wales.

Taking forward this agenda will require attitudinal change within organisations; changing policies and practice of individual services; and getting different networks of organisations to adopt digital inclusion approaches. Considerable resources are already being invested in the digital inclusion of citizens, but we will look for a greater and more consistent impact. We will encourage the sharing and wider adoption of good practice.

Social Marketing Campaigns

There are, and will be, extensive social marketing activities to encourage digitally excluded citizens to start using the internet. Some campaigns will be undertaken across the UK by organisations such as the BBC.

Within Wales, opportunities for social marketing are identified and taken forward by the Wales Media Literacy Network, which is facilitated by Ofcom. The Network includes broadcasters, and stakeholders from the public and third sectors, as well as including BBC Wales, S4C, Film Agency etc. Communities 2.0

will also contribute to this activity. The Network will contribute to existing campaigns that make people aware of the benefits of going online, such as Silver Surfer Day.

Higher education has a valuable contribution to make to digital inclusion. Some institutions are already involved. The University of Glamorgan is a partner

Libraries: digital inclusion in the heart of our communities

Access: citizens have 2,600 free computer and internet access points in over 320 public libraries across Wales, with an increasing number providing free Wi-Fi access.

Developing ICT skills: individuals can develop ICT skills through informal or formal learning opportunities. These range from informal taster sessions to libraries working in partnership with formal and informal learning providers such as LearnDirect, local Further Education and Higher Education colleges.

Helping people get back into work: individuals can prepare their CV, and undertake e-learning to improve their skills. They can have online access to the services of Job Centres and Careers Wales.

Access to information and entitlements: citizens can use libraries to access government e-services at both local and national level and get information about their rights and entitlements.

Adaptive technology: people with specific needs can access specialist computer software and hardware to help them in many libraries across Wales.

in the delivery of the Communities 2.0 initiative. Newport's Institute of Digital Learning has been collaborating with AbilityNet's Wales Remote Assessment Centre team to create a new media guidance resource on the various opportunities available to increase accessibility to the internet using tailored computer hardware and software. Welsh Higher Education Institutes (HEIs) can fill research gaps and institute longer term studies, test evidence about digital inclusion applications, methods and technologies in support of innovative practice.

Regeneration

Nearly all of the ICT developments set out in this strategy document have the capability to underpin regeneration of communities across Wales, for example in developing social enterprises through using ICT and encouraging access to and improving services for local communities. This is an approach which is being explored on a regional basis in the Heads of the Valleys and may comprise enabling small-scale community and voluntary groups to make the best use of new technology in order to enhance the local economies, to training and jobs working with private sector technology companies and working with providers to eliminate poor connectivity. Whilst at an early stage of development, if successful it could provide a model for other strategic regeneration areas.

Cultural Inclusion

Digital technologies offer huge opportunities for people to learn about other cultures and strengthen their own. We will work with relevant partners to reinforce the importance and expand the availability of high quality digital content supporting cultural inclusion.

Many everyday websites such as Google, Facebook etc are available in many languages, including Welsh and much is done across Wales to develop local content in languages relevant to the community. The North Wales Race Equality Network, for example, provides it's online information in Arabic, Bengali, Chinese, Polish, Portuguese, Urdu and Welsh.

We are also actively supporting groundbreaking ICT-enhanced learning in Welsh medium schools, e.g. creating a Learning Plaza in Ysgol Gyfun Gwynllyw in Pontypool, serving four counties and developing Welsh-medium learning content that can be used across the country.

The Welsh Language Board has considerable interest and expertise in this area in relation to Welsh. It has produced a strategy and guide, and has worked with Microsoft on the production of software.

Cultural inclusion through Digital Content

Attractive digital content is a great incentive to go online. Libraries across Wales are actively working in partnership to procure and create high quality digital content with emphasis on Wales' culture and heritage.

A popular **online family history service** can be accessed for free in all Welsh public libraries, local authority archive services and many museums. This is just one example of the National Library of Wales' work in procuring all-Wales deals to secure online content for the benefit of the people of Wales.

A highly innovative web service of Wales' history, heritage and culture, *Casgliad y Werin Cymru / The People's Collection Wales* has been launched, providing access to digital content in Wales' libraries, museums and archives. Individuals and community groups will be able to develop new digital skills to place their own historical content online and utilise existing content available from our national and local museums, archives and libraries as part of the forthcoming People's Collection project.

4. Skilled and Competent People: Equipping Citizens for the Digital Nation

Education is the passport to prosperity and opportunity. The core of any excellent education system is based on talented teachers, sound curriculum and strong leadership. Integrating digital technologies fuels new forms of teaching and learning and helps equip learners throughout our society to participate and prosper in a global digital economy.

Skills That Work for Wales, our overall skills strategy, recognises the importance of ICT and the Digital Economy for producing high value added jobs, both in embedding digital skills in the education system as learners move through it, and in supporting adults who have completed formal learning but have digital literacy and ICT skills requirements. ICT skills are both key to achieving the Government's overall skills aspiration, and a key outcome.

Our approach to ICT skills addresses all ages and skill levels:

- In schools through the 3-19 ICT Skills Framework and the National Curriculum requirements for ICT, and through the development of ICT skills for school leaders, teachers and school support staff;
- For work, including high value sectors such as telecommunications, aerospace, software engineering, electronics, manufacturing and the creative industries;
- In further and higher education, both for learners and educators;
- In adult and community learning, supporting lifelong learning and skills

for citizen engagement, inclusion and safe and secure use of the internet.

'ICT skills' is a broad concept and not restricted to training people to use the tools and applications which are available today. The primary purpose is to develop digital literacy: the transferable, adaptive skills, which give people the competence and confidence to embrace technological change throughout their lives.

ICT in The National Curriculum

Children and young people often lead the way in using ICT and it is important that we are all able to rise to *their* standards in the creative and collaborative use of emerging technologies whilst ensuring that we provide them with the informed and appropriate guidance they need to stay safe online.

While the number of students taking A-level Computing in the years 2005-2009 have seen a decline (32%) similar to that of the UK (35%), the number of students in Wales taking ICT A-levels has increased by 153%, in contrast to a 20% decline over the UK as a whole¹².

The use of ICT in schools has improved substantially over the past ten years but there is still more to do, especially to encourage boys and girls to develop the higher level technology skills which will provide valuable opportunities for them and help grow Wales' digital economy. Activities such as Computer Clubs for Girls, delivered with eSkills Wales, have

12 e-skills UK. (2009). 'Technology Counts: IT & Telecoms Insights 2010.'

an important role to play alongside the formal requirements of the National Curriculum and the development of ICT standards to guide good practice and innovation across all schools.

Our strategy for transforming education is based on the principle of systemic reform: the Welsh Assembly Government, local authorities, schools and practitioners each working towards a clear national purpose for schools with its strong emphasis on community, collaboration and enabling all children and young people to develop their full potential by acquiring skills, knowledge, understanding and attitudes. This is including personal, social and emotional skills, to enable them to become economically, socially and personally active citizens and lifelong learners. Through joint working and a highly reflective culture, strengthened by the use of a national ICT self review framework, we will ensure that all schools are challenged and supported to make best use of ICT in teaching, learning and assessment and to deliver a coherent education programme that captures the best online practice for all learners.

High quality teaching resources are key to supporting innovative and stimulating ICT-enabled teaching and we will continue to support content and service provision in Foundation Phase settings, schools and colleges through the National Grid for Learning (NGfL) Cymru.

ICT skills are a key part of the Skills Framework for 3-19 year olds in Wales with requirements for learners to develop and apply their ICT skills in ways that are holistic and integral across the curriculum. ICT is also a National Curriculum subject in its own right, with a revised programme of study introduced in 2008 which, among other changes, introduced mandatory requirements for teaching safe and responsible use of the internet to learners

One Wales Laptops Pilot

We are using the *One Wales Laptops* pilot to explore new ways of breaking down barriers to learning, extending access within and beyond the school and engaging with families. The project will provide up to 1200 primary school children from disadvantaged communities across Wales with access to laptops to support their learning at school and home.

in primary and secondary schools. New specifications for GCSE ICT have been introduced this year, which have a strong focus on skills and offer greater flexibility, both in terms of the route to qualification and the increased opportunities for using innovative and stimulating approaches to teaching and learning.

In a new development for Wales, we have introduced an entitlement for all learners aged 14 to 16 to develop and apply their ICT skills and, where appropriate, to have these recognised by an accredited qualification. We will be closely monitoring the implementation of these new arrangements over the next two years.

Beyond Schools

In 2007-08, nearly 118,000 people, the majority female, were on IT user courses in Wales¹³. We are ensuring that education and training in ICT skills are embedded in the Credit and Qualifications Framework for Wales (CQFW), including the new Essential Skills Wales, available from September 2010. These replaced the current Key Skills ICT requirements in qualifications such as the Welsh Baccalaureate and

¹³ e-skills UK. (2009). 'Technology Counts: IT & Telecoms Insights 2010.'

Modern Apprenticeship frameworks as appropriate, and have been credit rated in accordance with CQFW guidelines. Our aim is for learners to experience a technology rich environment that prepares them for the needs of the digital economy.

Functional illiteracy precludes access to some of the most basic benefits of technology. Functionally illiterate people (5 million in the UK, or 13% of the population aged 16-65) are amongst those digitally excluded¹⁴. Technology is now a central part of learning and work for an increasing number of young people and adults.

We will work with further education, higher education, local authorities, business and the voluntary sector to consider how learners who are learning at a distance and in the workplace can be supported with, and in the use of, ICT for learning. In this work, we will give particular attention to the skill needs of those working in small and medium sized enterprises. We plan to publish an adult and community learning policy statement in 2010 which will include action on ICT skills.

The new higher education strategy, *For our Future*, identifies the need for new approaches to both delivery and funding – particularly in relation to workforce/ employer, Higher Education learning. We will continue to work closely with Higher Education Funding Council for Wales (HEFCW) to ensure that the importance of ICT is embedded in the *For our Future* Action Plan.

Developing Workforce Skills and Advanced Capabilities

We will seek to strengthen co-operation between public and private sectors,

higher education, trade unions and associations in order to attract highly skilled ICT workers and promote ICT education on a long term basis.

We will continue to work with the Sector Skills Councils, and in particular e-Skills UK, to ensure that the Welsh workforce has the skills it needs to compete with the best in the world. This work will include discussion of the benefits of establishing a Future e-Skills Group.

We have agreed a Wales Action plan with e-Skills and stakeholders to deliver core activity in Wales e.g. research, Labour Market Information, employer engagement and sector specific solutions such as encouraging uptake of IT user skills training, developing the Welsh Baccalaureate in IT, developing the Apprenticeship framework for IT users in Wales in line with employer needs and promoting the uptake of Apprenticeships.

Strategically we are committed to establishing a close alignment between strategic economic development objectives and the support delivered for training and education. We will use the Annual Operating Agreement for Workplace Skills Development to help achieve this.

Work underway on reforms to post-16 funding, notably the development of a Sector Priorities Fund concept, offers the prospect of the Welsh Assembly Government being better able to target investment in skills on those qualifications most valued by the ICT/Digital sectors. In the consultation '*Investing in Skills*' we suggested that some qualifications which align to support specific national policy priorities of the Welsh Assembly Government may be identified for additional funding support. The Digital Wales agenda will be considered as one such policy priority.

14 Communities and Local Government (October 2008). 'An Analysis of Digital Strategies', p.15.

A survey of employers in Wales in Q1 2009 revealed that one in ten Welsh companies with IT and Telecoms professionals, and one in six employers in all sectors, consider the IT skills of their employees at below a minimum standard¹⁵. We will be working with the UK Commission for Employment and Skills on a Skills Audit, mirroring the work undertaken by the Commission for England that was published in March 2010. This work will help establish, in more detail, the strategic skills needs and demands in this and other priority sector areas and will constitute an important source of intelligence to inform future provision planning.

We will explore opportunities for improving joint working between higher education, further education, schools, business and other sectors in order to share expertise and promote good practice. We will encourage take up of the National Foundation Degree Framework, which has been produced by a consortium of ICT employers, HEIs and the Institute of Telecommunications Professionals to meet the needs of the ICT sector.

Skills Development Led by the Sector Skills Councils

Skillset and Creative & Cultural Skills will lead on the requirements and modes of delivery for training in the sector in Wales. The Welsh Assembly Government will work closely with both of them and will encourage and support joined up strategies between the Councils and Government. In terms of higher education, there will be an inter-departmental approach to examine the effectiveness of creative industries provision within higher education

in Wales and, if necessary, make recommendations for improvements.

¹⁵ 'e-skills UK 2009 employer survey', reported in e-skills UK. (2009). 'Technology Counts: IT & Telecoms Insights 2010'.

5. A Thriving and Competitive Digital Economy: Driving Innovation, Productivity and Growth

Exploitation of ICT is key to driving economic performance. Growth in the content and ICT sectors and wider ICT take-up will boost economic recovery and long-term competitiveness. ICT investment drives 30% of EU productivity growth¹⁶. We have identified the digital economy as a key element in Economic Renewal: a new direction and as critical enabler in the rural economy.

The competitiveness of many Welsh businesses depends on their capacity to use ICT. The need to deliver products, goods and services in as efficient a manner as possible is increasing. Directly and indirectly, ICT can reduce transaction costs, remove barriers to markets, shorten supply-chains and affect competitive positioning, resulting in opportunities for growth and improved productivity. It is also a major enabler of innovation in the development of new products and services. Businesses across the Welsh economy must exploit ICT to promote efficiencies, competitiveness and in turn, drive profitability and sustainability.

Significant progress has already been made through previous strategies and interventions across Wales. In 2003, only 7% of Welsh SMEs reported using the internet for sales and the same percentage reported using the internet for purchases¹⁷. In 2006, 36% of SMEs reported using the internet for sales and 68% reported using the internet

for purchases¹⁸. Businesses that need to extensively integrate new and often complex ICT systems can draw upon eBusiness Support; a complete package of skills, resources and finance.

Co-operation and collaboration – with peers, customers and suppliers – is at the heart of doing better business. Small businesses in particular, can achieve more as part of a supported team than by going it alone. Digitally Networked Businesses (DNBs) can identify and grasp expanded market opportunities and benefit from greater efficiencies. The DNB programme, delivered by the Welsh Assembly Government, builds online communities of collaborating businesses, with the goal of mutual benefit. DNBs are equipped with ICT tools such as shared supply chain management, shared invoicing and billing and, crucially, shared tools for communication and ideas generation.

The importance of ICT to future competitiveness means that the Welsh Assembly Government will continue to identify how levels of exploitation of ICT and innovations in ICT can be increased. We will also build upon a number of existing activities, including:

- Seeking to exploit new and niche opportunities for Wales – including mobile services and applications, embedded systems and ambient technologies;

16 Van Ark et al (March 2003). 'ICT investment and growth'.

17 Institute for Employment Studies (2003). 'Annual Survey of Small Businesses: Wales 2003'.

18 IFF Research (2007). 'Annual Survey of Small Businesses' Opinions 2006 / 2007'.

- Providing appropriate solutions and enabling strategies for dealing with e-crime as it relates to business;
- Supporting ICT applications that have an environmental benefit such as improving resource and energy efficiency and reducing the need to travel.

Developing Wales' ICT Sector

We want to see a breadth of companies able to supply competitive services and infrastructure to meet demand in Wales and far beyond, particularly those focused on the creation of innovative content, services and applications.

The Department for Economy and Transport (DE&T) Ministerial Advisory Group has commissioned a study (commenced January 2010) to develop evidenced-based recommendations on the measures required to encourage the development of the ICT sector in Wales. The study aims to report its findings early in 2011.

ICT Sector in Wales

There are currently more than 600 diverse companies in the ICT sector in Wales, of which over 300 are medium and large companies. They employ an estimated 30,000 people – approximately 3.5% of the Welsh workforce – and generate around 5.5% of Gross Value Added (GVA) in Wales.

We have already established an ICT Supplier Forum to enable more strategic engagement on the digital agenda. Under Economic Renewal: a new direction, we will create an integrated team to address the sector holistically and respond rapidly to the plan drawn up in conjunction with the sector panel.

Developing Wales' Creative Industries

The Hargreaves Review¹⁹ of the Welsh creative industries sector was published in March 2010. It sets out how Wales can derive maximum economic and cultural benefit from the sector. The review makes clear that the future of creative industries must be shaped with close reference to the country's broader digital economy.

Creative Industries

In the UK, the creative industries sector accounts for 6.4% of GVA (a total worth of £57.3bn) and grew by an average of 4% per annum between 1997 and 2006. This compares to an average of 3% for the whole worth of the economy over this period.

In Wales, more than 2,400 people work in broadcast TV, cable and satellite, and the independent production sector.

Implementation of the review is underway and will lead to the development of an overarching strategic framework for the sector. Economic Renewal: a new direction sets out a timeline for developments in this sector, including:

- Establishing a Creative Industries Board (Completed October 2010) with a detailed agenda for action established for its first year;
- Creating a new Creative Industries Strategic Hub and appoint a Head of Creative Industries;
- Establishing new Creative Industries Fund (April 2011) to support a wider base of creative businesses;
- Supporting the new BBC drama village/digital media hub in Cardiff Bay (work in progress);

¹⁹ Hargreaves, I. (2010). 'The Heart of Digital Wales'.

- Exploring funding options for film and television locations to ensure continued support for in-Wales sector expertise.

Welsh Tourism in The Digital Economy

Tourism is a hugely competitive, dynamic and constantly-changing industry. It is also a cornerstone of Wales' economy. A new £17.4m Digital Tourism project will help to ensure the Welsh tourism industry benefits from the latest digital technology developments in areas such as online marketing, booking systems and business management. The project will work with all relevant stakeholders to ensure this critical sector remains competitive and maximises growth through the use of digital technologies.

Fostering More ICT Related Research and Development, Innovation and Technology and Its Commercial Exploitation

Sustained investment in research and innovation in ICT will be a fundamental factor in Welsh businesses developing high value-added ICT-based products and services. Experimental research is key to unlocking future creativity, productivity growth and social progress. If we want to know how to help support our ageing population or reduce the impact of climate change, we need very ambitious research to support these goals.

The Welsh Assembly Government's R&D Priorities

We have recently determined our priorities for R&D investment, driven by the need for greater focus in investment decisions and to maximise commercialisation opportunities. A detailed mapping exercise was undertaken which took into account the key sectors, the expertise in Welsh-based academia, the industry base and UK priorities of organisations such as the Research Councils and Technology Strategy Board as well as EU priorities

from the 7th Framework Programme and emerging ideas for the 8th Framework Programme.

One of the four resulting priority research areas is Digital Economy and, specifically, secure communications and creative industries. Also recognised is the importance of cross-cutting technologies such as ICT, product design and engineering.

The potential benefits of this more focused approach are to:

- Drive change in the Welsh economy and the higher education sector;
- Attract high-quality research capability in Welsh universities and businesses;
- Increase business competitiveness;
- Better integrate R&D, skills and infrastructure development,
- Improve success in the commercialisation of technology and intellectual property.

Creating enduring R&D partnerships: the Digital Wales Research Hub

The Digital Wales Research Hub will make it easier and more attractive for leading multi-national companies to access end to end research opportunities that exist in Wales. It will have an underlying structure that enables truly effective collaborations between companies and Welsh academic expertise, providing access to supply chain opportunities across Wales that could add further, substantial value to research projects. Its overriding aim is to ensure that enduring and economically significant partnerships are created.

To help ensure that enduring and economically significant partnerships are created and a greater alignment of future business application needs with appropriate academic research and development institutions is achieved, we will establish a **Digital Wales Research Hub**.

Promoting Digital Innovation in Higher Education

We will ask Higher Education Institutions in Wales to be pro-active in pursuing research to support the Digital Economy Programme. We will also encourage Higher Education Institutions in Wales to develop and champion ICT innovation with funding from the Technology Strategy Board, and to increase our success in attracting UK Research Council and EU research funding. In all instances, we will encourage Higher Education Institutions to work in partnership with business.

We will encourage collaboration with the Science, Technology, Engineering and Mathematics Network (STEMNET), the Technology Strategy Board, business and organisations such as Techniquest to both enhance the take-up of STEM subjects in post-16 education and Higher Education and to improve learners' STEM skills. This will provide employers with the skills they need in the workforce and ensure that the research community in Wales is able to maximize the opportunities afforded by advances in information technology and computational sciences.

High Performance Computing – A Global Opportunity

We will continue to support the University-led initiative to build a globally recognised High-Performance Computing (HPC) capability across Wales. HPC would provide a truly world-class open innovation platform for high performance computation and informatics. It has the

potential to support and lever academic knowledge and build a compelling skills base, promote industrial collaboration and facilitate innovation. It would make Wales a more attractive place for world-class researchers and businesses seeking to work collaboratively and have a long term impact on economic development as the economy returns to growth. The project is at an advanced stage and is being co-funded with £10m from the Strategic Investment Fund (SIF).

6. Transforming Public Services

With the rapid development of technology, consumers today expect to interact with government as easily as internet banking or online shopping. ICT can offer new models for public service delivery and for the ways citizens engage with government. With the public sector requirement to substantially reduce costs, improve services and increase its productivity, innovative application of digital technologies lies at the heart of delivering affordable and sustainable services. We therefore regard digital technologies as integral to the future agenda of the public sector in Wales.

Transactional services from all tiers of government in Wales for both citizens and business have been shifting to a digital platform. Policies such as Making the Connections and programmes for Transforming Citizen Access, Digital Inclusion and Informing Healthcare are nationally led by the Welsh Assembly Government. In addition, there are many locally-led initiatives in local government and education with similar aims.

We recognise, however, that more work is needed. The financial challenges facing public services require a step-change in efficiency and innovation in the way services are delivered, shaped by a clear focus on outcomes for citizens and communities. It is no longer sufficient to simply improve processes. To achieve the depth of cost reductions facing us, we will need to radically change the way we can achieve our outcomes. Exploiting the full potential of ICT as a tool to support this change will be crucial and is

a task now vested with the Efficiencies and Innovation Programme, under the direction of the Minister for Business and Budget.

This programme will be the vehicle for designing, developing and delivering Wales' programme of online public services. A rolling 5 year programme will be agreed with partners which sets out shared goals for ICT-enabled transformation, the benefits that are to be delivered, the scope of the online digital services that will be put in place, the resources available and how they will be deployed to achieve delivery in the desired timescales. This programme will be reviewed annually.

The Public Services ICT Programme

The Public sector in Wales cannot sustain the current level of fragmented and duplicated ICT infrastructure and staff. We expect more coherent and collaborative actions across the Welsh public sector ICT domain to drive significant efficiency gains and accelerate improved access to services by citizens and businesses. This will be achieved by concentrating on four overlapping themes:

- "Buying Better";
- "Using Smarter";
- "Working Together";
- "Working Differently".

Making the ambitious transition to utilising the best and most appropriate developments in ICT, particularly inexpensive (or free) consumer

technology, will place Wales at the leading edge of affordable efficient Public Service Delivery. This re-positioning brings additional risk which will have to be managed, not only by creating closer working relationships within the public sector, but also a more strategic all-Wales approach to working with Universities, JISC/JANET, the voluntary sector and private sector, to exploit their knowledge and experience and seek more innovative approaches. It will require a strong commitment to jointly developing both the capacity and capability of public sector ICT Professionals, sharing resources and engaging in real partnership working which truly places the citizen at the centre of service design.

It will also require investment, beginning with initial funding to kick-start some areas. The Welsh Assembly Government's Invest to Save Programme has already been used to support new ideas, such as the xchangewales e-procurement system in Merthyr Tydfil, projected to save £8million over the next five years, and a scheme to make telephone calls over the public sector broadband network, projected to save millions per annum²⁰. Subsequent delivery and implementation costs will be set out in respective Investment Business Cases so that the Efficiency and Innovation Board can take decisions on relative priorities.

Delivery will be based on rapid incremental deployments that demonstrate benefit, followed by a strong commitment to adopt these as standards of best practice across Wales as quickly as possible.

²⁰ Welsh Assembly Government (October 2009). 'Welsh Assembly Government Invest-to-save Fund: Tranche one'.

Our priorities are to:

- Line up government and public services in Wales around common goals and shared standards;
- Use ICT to give citizens a stronger voice in shaping and delivering services through innovation in service design and customer service, empowering staff to meet citizens' needs with better information;
- Shift resources from administration to the front line of service delivery by transforming the efficiency of government and public services through the use of ICT, collaborating where it will reduce costs and making better use of public assets;
- Drive high performance by stimulating the transfer of good practice and targeting more effectively the support for public services ICT to improve performance, efficiency and effectiveness.

Developing A Public Services ICT and Infrastructure Strategy for Wales

Underpinning the transformational aspect of ICT in public services must be a robust and comprehensive approach to the public sector ICT and infrastructure. The architecture and approach for this will be detailed in the Welsh Public Services ICT strategy.

A coherent pan-Wales approach to public-service infrastructure will provide the underpinning services that need to be put in place to collect, store and share information securely and confidentially.

One major component is already in place in the Public Sector Broadband Aggregation (PSBA) network. This network is recognised globally as presenting a huge strategic advantage for future collaborative service delivery as well as offering the potential to influence local broadband availability in communities served by the PSBA.

PSBA

One of the first totally integrated Public Sector Networks in the UK, connecting more than 2000 sites across Unitary Authorities, Hospitals, General Practitioners, Universities, Further Education Colleges, Emergency Services, and a growing number of organisations funded by the public sector.

We will expect public sector organisations to focus on the strategic benefits of using the PSBA and accelerate its widespread adoption. Teaching and learning will be transformed through digital technology so schools in particular need to invest in higher speed fibre-based facilities unless there is an overwhelming case not to.

To help ensure a business and benefits led approach to public services ICT, we will establish a 'National Benefits Register' with an Annual Report of Achievements published to demonstrate the value of previous investment and to justify future spend. It will track the improvements made to people's lives and monitor the realisation of the return on investment.

This enabling programme cannot be delivered without the private sector and we will create a '**single point of coordination**' within the office of the Welsh Assembly Government's Chief Information Officer (CIO) to manage supplier contacts more strategically.

Early in 2011, Ministers will set out a number of key policies that will frame important technical approaches, taking into account the wider European and UK context, including our approach to:

- Identity Management for Access and Authentication control;
- Online Safety for Children;

- Government Cloud Computing;
- Citizen and Staff Access Portals;
- Data storage and security;
- Sustainability in the use of ICT;
- Interoperability Standards for information sharing across national boundaries;
- Professional Development of ICT staff.

Wales' activities on technical design and standards will be led by the Welsh Assembly Government CIO and linked into the wider UK approach via Wales' membership of the UK CIO Council. We will use European and UK standards as the basis for Wales' national technical infrastructure but to allow departure from this where a sound case for adopting a different approach can be made.

Looking out to the UK and other devolved administrations, our approach will be to:

- Gain maximum leverage for Wales from UK investment in ICT;
- Harmonise Welsh and UK ICT policies wherever possible and beneficial to Wales;
- Develop specific links and working relationships on ICT matters with the other devolved administrations in Scotland and Northern Ireland, and with European regions undertaking comparable approaches;
- Implement the Professional Skills Framework and work closely with all sectors to co-ordinate and optimise the benefits of development programmes for all ICT and related professionals.

21st Century Schools and Transforming Education

Innovation in education is vital to developing the next generation of innovators and entrepreneurs. The Welsh Assembly Government, together with

local government in Wales, has launched its flagship programme to rebuild or refurbish all schools in Wales over the next fifteen to twenty years. The 21st Century Schools programme will include a national standard for ICT in schools, building on the best practice from across Wales and beyond.

The aim of this programme is to enable transformational change across all aspects of the education system, redefining how teaching and learning are delivered in the 21st Century. Young people are increasingly digital natives. We aim to make our schools and colleges places where they are empowered to take full advantage of a digital Wales. Future learning needs will drive the shape of ICT, so that education is made more effective and efficient through greater connectivity and the possibilities of emerging technologies. For example, we will develop a nationally co-ordinated approach to the use of Learning Platforms which:

- Supports communication with learners and parents/carers and collaboration between learners, practitioners and institutions;
- Delivers applications, tools, services and content in sustainable ways;
- Supports personalised learning and allows learners to take part in learning anytime, anywhere;
- Will be integral to teaching, learning and organisational effectiveness, raising the consistency and quality of educational outcomes.

We also wish to ensure that ICT services for education are delivered efficiently and effectively as part of a joined up approach to public services in Wales, providing an opportunity to share specialist expertise and resources across the different sectors and as well as improving partnership working between the different agencies

which support children and their families. We will ensure that the work streams in the Efficiency and Innovation Programme and Front Line Resources review are aligned.

Local Government Services

Average costs for a local government service transaction face-to-face are estimated at £10.53; the same transaction conducted over the phone costs £3.39 and only £0.08 online²¹. Local Government should accelerate the shift to relevant services being available primarily online, automated or self-service. The services should be convenient, accessible and useable by clients and reduce costs for service deliverers. Authorities should seek to further reduce costs through collaborative regional or national procurement of systems and services and better engagement with suppliers. Duplication and replication should be reduced so that resources can be redirected to those most in need. We expect authorities to integrate ICT support for schools into the overarching public sector ICT delivery programme.

Fundamental to a successful shift to a substantial digital service delivery is the recognition that Digital Inclusion must be addressed at the same time. Although many more people can now access digital services, whether online, through their smart phone or via digital TV, many of the greatest users of public services are also those most likely to be digitally excluded. Selecting key public services to be only available online, for example school registrations, may be a strong incentive for people to go digital.

²¹ McNish, J. (2008). Quoted in PriceWaterhouseCoopers (October 2009).

Health and Social Services

NHS Wales is implementing a national ICT strategy, through a Strategic, Workforce and Financial Framework that will:

- Enable new healthcare service delivery models to be introduced safely and efficiently;
- Ensure the secure, confidential and authorised sharing of personal information;
- Contribute to patient safety by providing accurate and reliable information on demographics and identity;
- Support clinical staff through electronic communications and the facility to carry out online transactions;
- Provide common 'look and feel' portal access to health records for clinicians and patients;
- Promote national education, training and professional development programmes for health informatics staff;
- Enable information sharing with other sectors e.g. social care, education, and UK home countries;
- Increase value for money through joint procurements and shared service delivery, particularly with Social Services.

Welsh Assembly Government

The Welsh Assembly Government will play its part as a public sector organisation in Wales. We have already invested substantially in an internet service and internal capability with which to deliver modern online communications and services for Welsh citizens while securing the financial benefits of a shared hosting platform. We will launch an updated internet service early in 2011.

Tools have been developed to enhance our engagement with citizens, and we

have introduced social media to our communications channels.

We are investing in the Government Gateway to enable secure access to services across the public sector in Wales by citizens and businesses. A number of Welsh Assembly Government services are already delivered online, such as applying for European funding through the Welsh European Funding Office (WEFO), and others have been targeted for online delivery. A Digital Services Group has been created and is tasked with setting and maintaining a clear, efficient strategy for the development of Welsh Assembly Government owned digital services in the context of a Wales-wide approach to digital public services.

Digital Democracy

Digital technology offers real opportunities for people to interact and influence all levels of Government. The National Assembly for Wales, for example, is pioneering in its use of technology to develop e-democracy to engage citizens with the democratic process. The Assembly communicates via Twitter, Facebook and email. It has an e-petition system in which ten people can register to demand that a petition is considered by a committee of the Assembly. It has held e-consultations on areas of scrutiny – such as presumed consent for organ donation. It is the only chamber in the UK and Ireland which is fully equipped with terminals with email and internet access and all Assembly documents are available online, enabling members to continue to work on a range of matters whilst the Assembly is sitting.

7. First Class Digital Infrastructure: The Foundation for Digital Wales

To be a truly digital nation, enjoying widespread economic and social benefits, a globally competitive, flexible digital infrastructure is absolutely essential. The majority of the attention at present is on broadband.

A recent investigation by the UK communications regulator, Ofcom, into the communications market suggested that broadband, mobile and Digital Audio Broadcasting (DAB) remain challenging issues in Wales compared with other parts of the UK²². An earlier report into average broadband speeds found that respondents in Wales were significantly less satisfied with their broadband service than those in most other parts of the UK, and that Wales had the lowest average and maximum download speeds of 'up to 8Mbps' subscribers of all UK regions²³.

In its Digital Agenda for Europe, the European Commission proposes:

- Basic broadband for all by 2013;
- By 2020, all Europeans having access to much higher internet speeds (30Mbps or more). 50% or more of European households will be expected to have subscriptions above 100Mbps.

The Welsh Assembly Government will take forward tangible actions to ensure that the digital infrastructure in Wales is modernised and upgraded to drive its social and economic objectives.

Securing Universal Broadband Access

The challenge of universal access in Wales is three-fold:

- Widespread geographical coverage;
- High quality or bandwidth;
- Affordability.

As digital services develop and become more pervasive, so there will be a need for greater bandwidth to provide an acceptable minimum service, at a cost within the reach of Welsh citizens.

Our existing actions to address the availability of basic broadband services has been accelerated during 2010. The Regional Innovative Broadband Support (RIBS) scheme has been supplemented by the introduction of a new complementary infill grant scheme²⁴. The aim is to achieve near universal access to a basic level of broadband throughout Wales by the time that a new UK-wide universal service commitment for broadband is introduced.

These activities will therefore support the UK Government's intention to introduce new Universal Service Commitment (USC) of 2Mbps across the UK by 2015. We will ensure that our relationship with UK Government's Broadband Delivery UK (BDUK) is clearly articulated and is sufficiently robust to influence UK Government decisions on investment and activity via the delivery of the Commitment in Wales.

²² Ofcom / Ipsos MORI. (10 June 2009). 'Accessing the Internet at home'.

²³ Ofcom. (8 January 2009). 'UK broadband speeds 2008.'

²⁴ <http://wales.gov.uk/topics/businessandconomy/broadbandandict/broadband/?lang=en>

The introduction of the Universal Service Commitment enables the Welsh Assembly Government to look towards the future and concentrate on next generation broadband services.

Next Generation Broadband Access

Residential high speed broadband services are already commercially available in Wales from companies such as Virgin Media and BT. The commercial roll-out of high speed wireless broadband, next generation mobile broadband and faster satellite services are also at various stages of development and will together offer consumers in Wales a diverse range of broadband solutions to suit different needs.

Evidence gained from the roll-out of a range of technologies suggests, however, that market deployment of next generation broadband infrastructure in Wales will, to a large extent, remain concentrated in the more densely populated urban centres of South Wales and parts of the North East. Indeed, the UK Government²⁵ report predicted that natural market deployment of next generation broadband services could realistically reach 60-70% UK population coverage but that public sector intervention would be required to stretch this further. Additional research placed the Wales population coverage figures at around 35% and so it is reasonable to conclude that large swathes of rural Wales will only see rapid, early deployment of new digital next generation infrastructure with some form of public sector intervention.

Wales is not alone or unique in this regard – this is an issue facing regions across Europe and beyond. The challenge is to identify an appropriate approach to public sector intervention that

complements rather than stifles natural market deployment by the private sector. We wish to set a challenging, yet meaningful communications infrastructure ambition for Wales. Achieving this ambition will require a sensible balance between wholly private led infrastructure deployment and private sector deployment that is facilitated by public sector behaviour.

Where Government investment is required to enable the private sector to roll out next generation broadband infrastructure, we will ensure that this investment causes a significant change to the underlying infrastructure in order to mitigate against the risk of the need for repeat investment at a later date. Any public sector intervention must be scalable and future facing to ensure sustainability and value for money now and into the future, while satisfying State Aid requirements.

We therefore believe an ambitious, yet reasonable, challenge to the private sector is to think beyond the limitations of the current infrastructure and to work with us to rapidly achieve full access to ultra-fast broadband throughout Wales.

Work is underway to understand the likely reach of the private sector next generation service footprint in Wales and to prepare the business case for next generation broadband intervention through a range of commercial models and procurement options. This work will identify mechanisms to maximise the impact of Welsh, UK National and European funding to meet the social and economic objectives of the Welsh Assembly Government through infrastructure intervention.

We will seek to ensure that market led private investment in next generation broadband and additional next generation deployment through public

25 Digital Britain, 2009.

sector intervention, will together deliver high-speed broadband services throughout Wales. We expect that all businesses in Wales will have access to next generation broadband by the middle of 2016, and that all households will be enabled by 2020.

Furthermore, we will ensure that any next generation broadband infrastructure funded through public sector intervention will be capable of delivering broadband services of at least 30Mbps, and ideally 100Mbps, to avoid the need for repeat investment at a later date.

Improving Mobile and Wireless Coverage

We are actively seeking to improve mobile and wireless coverage across Wales through strategic engagement with Ofcom and the mobile industry. This may require trade-offs between coverage and competition, for example, network-roaming agreements in rural areas, or sharing of infrastructure such as base stations and sites, especially where there are planning constraints. Where trade-offs between competition and coverage are required in remote areas, we will expect the regulator to place considerable weighting on coverage. Going forward, there may be a need for more direct investment to improve mobile broadband coverage, which presently lags behind other parts of the UK. The barriers to be overcome are substantial and achieving improved mobile coverage will be a significant challenge. We will work with both Ofcom and the industry to identify coverage gaps as a priority.

Achieving A Successful Digital Radio (DAB) Upgrade

Digital radio should allow for more local stations, community radio and potentially support more Welsh language broadcasting. The Welsh Assembly Government will work with Ofcom and the Department of Culture Media and

Sport to ensure the migration to DAB is designed in such a way as to reflect Welsh circumstances and meet Welsh needs.

Integrating Our Approach to Infrastructure Developments

The Welsh Assembly Government is well placed to facilitate market-led roll out of communications infrastructure through improved policy co-ordination across policy areas. Planning, land, property, housing, transport and energy policies each have relevance; and careful consideration of the individual cross-over could contribute to achieving a unified approach to Wales's wider infrastructure.

There are possible early gains in faster broadband services to new build housing and business developments, improvements to Wales-Ireland connectivity via planned sub-sea energy links, improved data centre opportunities leveraging public sector influence as anchor tenant, opportunities for telecommunications ducting in transport, improvements in energy consumption and management through Smart Grids. The Welsh Assembly Government will consider how best to seize these and other opportunities to support the delivery of communications services across Wales into the future.

Developing Data Infrastructure and Enabling Cloud Computing

Wales has benefitted from high profile investment in data storage sites over recent years, including state-of-the-art facilities at BT's datacentre in Cardiff Bay and in Next Generation Data's facility at Newport. This investment reflects widespread recognition that there is a shortage of secure, resilient and energy efficient data centre storage and hosting facilities across the UK & Europe.

This shortage presents an opportunity for active engagement with the data

centre industry, to stimulate a competitive market for the full-range of data centre services in Wales through private sector investment. Industry engagement will highlight the opportunities that exist in Wales for commercial data centre operators – as a result of existing infrastructure (such as suitable, Welsh Assembly Government owned, power-rich property, accessible by several carrier networks) and Welsh Assembly Government policy (for example on sustainable development, to support businesses looking to reduce energy consumption). We recognise, however, that data centres are very power hungry and will focus on energy efficiency and sustainability as a key criteria in line with our wider sustainable development obligations.

Cloud computing is a global phenomenon whereby organisations and businesses can access cloud services served from data centres from any location, UK or world-wide. There are, however, generic security concerns arising from this approach and specific issues for public sector and Government organisations, in particular, around the location of data. Such concerns will drive a requirement for in-Wales hosting of data and services.

Whilst it is early days in the evolution of cloud services, there remains an opportunity to maximise engagement with the major private sector organisations already developing services and applications to exploit benefits for enterprise, SMEs and public sector bodies in Wales.

We will work with stakeholders to determine the business case and options for design, deployment and configuration of data centres across Wales that would support the distribution of content and services by cloud service providers in addition to wider data centre utilisation

requirements for both private and public sector organisations.

International Connectivity – ‘Connecting Wales to the World’

In addition to an advanced next generation broadband and data centre infrastructure, it is also necessary to ensure that Wales is connected to the rest of the world through international high-speed internet connections. With the continued growth of internet traffic, there is currently a heavy reliance on London as a major international gateway for all internet traffic. Major international carriers are actively looking for alternative routes which avoid London, due to the potential risks faced by them in the event of a large scale power outage or terrorist attack.

The Welsh Assembly Government’s investment in FibreSpeed in North Wales has directly led to a private sector investment announcement in December 2009 of €15million to build a sub-sea fibre interconnect between Holyhead and Dublin. We will develop a clear strategy that drives further investment to connect South West Wales to the Republic of Ireland where a number of transatlantic routes can be accessed

We will undertake further work to determine the type of international connectivity solutions required in North, South & East Wales, along with the optimum delivery mechanism, to ensure Wales is strongly positioned as an ‘internationally connected’ nation.

Delivering An Appropriate Regulatory Framework

The Welsh Assembly Government favours network infrastructure development and operation to be undertaken by private sector entities working in a market regulated in the public interest. Responsibility for reporting the market falls to the UK communications regulator, Ofcom.

Ofcom regulates at the UK-market level and has not always been in a position to focus on sub-UK market differences. This situation may change following new duties placed on Ofcom through the 2010 Digital Economy Act to report on the state of the UK Digital infrastructure.

Ofcom has previously taken steps to identify and assess sub-UK markets with a view to reducing regulation where competition is strong. However, there may be an opportunity to enter into dialogue with Ofcom to extend this approach and develop better targeted regulation that reflects the specific needs of Wales through intelligence gathered by Ofcom under its new duties. We will therefore seek a Memorandum of Understanding with Ofcom for shared access to data regarding Welsh infrastructure gathered through Ofcom’s new duties.

8. Integrating the Strategic Objectives: Underpinning Principles

Delivery against the strategic objectives separately will not in itself achieve our vision of Wales as a leader in the exploitation of digital technologies, content and services to improve the quality of life and well-being of its citizens.

It is only through the integration of these objectives – increasing skills and engagement, infrastructure and content developments and improved public services – that the step change and sustainable developments will occur that will enable us to deliver the vision.

For example, education, learning and skills development underpin and enable many of the objectives in terms of digital literacy for inclusion, ICT skills for employability, exploitation of ICT by business and high-level ICT skills for R&D; achieving high levels of digital inclusion is essential if digital public services are to deliver genuine benefits and substantial delivery savings.

In addition, many of the underlying developments are associated with a set of inter-related and converging technologies which permeate many aspects of life – economic, social and cultural. New modes of behaviour continue to emerge including new and modified means of personal communication and interaction, which will have a direct impact on the way citizens will seek to engage with Government for public services, the way that people will seek to work and what they do with leisure time, as just a few examples.

Users are connecting to networks at any time and the systems are becoming more intelligent, intuitive and user-focused than ever before. As the next generation of digital natives mature, the utility of such technological developments will have impacts beyond their original intention.

We have therefore identified a number of key principles that underpin our approach to Digital Wales and will be used to shape future policy and programme development:

- Addressing Climate Change and achieving sustainable developments;
- Promoting Wales to the World – enhancing our digital footprint;
- Embedding trust and security;
- Accelerating the uptake of good practice.

Addressing Climate Change and Achieving Sustainable Developments

ICT has a significant contribution to make to the challenges posed by climate change. This can be through de-carbonising energy production, increasing resource efficiency and helping to reduce energy demand and CO² emissions.

Increased exploitation of ICT by businesses and organisations will reduce the need to travel through video-conferencing, home-working and other developments. Citizens and communities can also find that better exploitation of ICT will reduce the need for travel.

Yet ICT is one of the highest consumers of power and has a carbon footprint second only to the aircraft industry. It is therefore essential that we embed sustainability into our Digital Wales approach and fully consider the impact of our decisions.

Promoting Wales to the World

We have an opportunity for Wales' digital footprint to be far greater than its geographical one. We intend to be in the front rank of countries in exploiting digital technologies, content and services to enhance our global visibility, economic growth and improve the quality of life and well-being of our citizens. We will seek to work with all stakeholders to use Welsh online presence as a virtual ambassador in every state around the globe.

Embedding Trust and Security

Users of digital services need to have trust and confidence that these services are safe and secure. They also need to understand and recognise the risks and know how to effectively protect themselves. E-Crime Wales estimates that the number of e-crime victims in Wales has more than doubled over the course of last year²⁶, and e-crime currently costs Welsh businesses £373million a year²⁷. It is therefore vital that we ensure children and adults in Wales have the confidence and trust to be able to use the internet safely, securely and responsibly. Our role will be to facilitate and influence all areas of society and the economy to enable an environment of trust. Action on e-Safety and e-Crime will be joined up to ensure that we develop consistent advice and guidance which meets the needs of young people, parents/carers, voluntary organisations and employers, mainly through the Wales Internet Safety Partnership.

²⁶ BBC News Online (5 May 2010). 'E-crime in Wales more than doubled'.

²⁷ e-Crime Wales (2010). 'About us'.

Internet Safety

Internet safety is now taught through the National Curriculum in Wales in both primary and secondary schools and we are developing materials which schools will be able to use when they engage with parents on internet safety issues. Through our e-Crimes programme, materials to help businesses understand and address their challenges have been developed.

We are also working with the UK Council for Child Internet Safety to ensure that there is a Welsh dimension to their work on safeguarding children and young people online. The *Click Clever Click Safe* campaign was launched bilingually in Wales in February 2010. The One Stop Shop being developed with the Child Exploitation and Online Protection Centre (CEOP) will provide a single point of access for advice and information on internet safety for children, parents and adults working with children.

Accelerating the Uptake of Good Practice

There are many examples of good practice in this field. The challenge is to make them visible and available to others. Where it works, more widespread transfer and adoption should be the norm. We will encourage more learning from successful experiences within and across sectors, both in Wales and around the World. Moreover, we will play an active role in relevant European and international forums and networks to share and promote our experience and expertise and learn from others in order to accelerate the delivery of benefits.

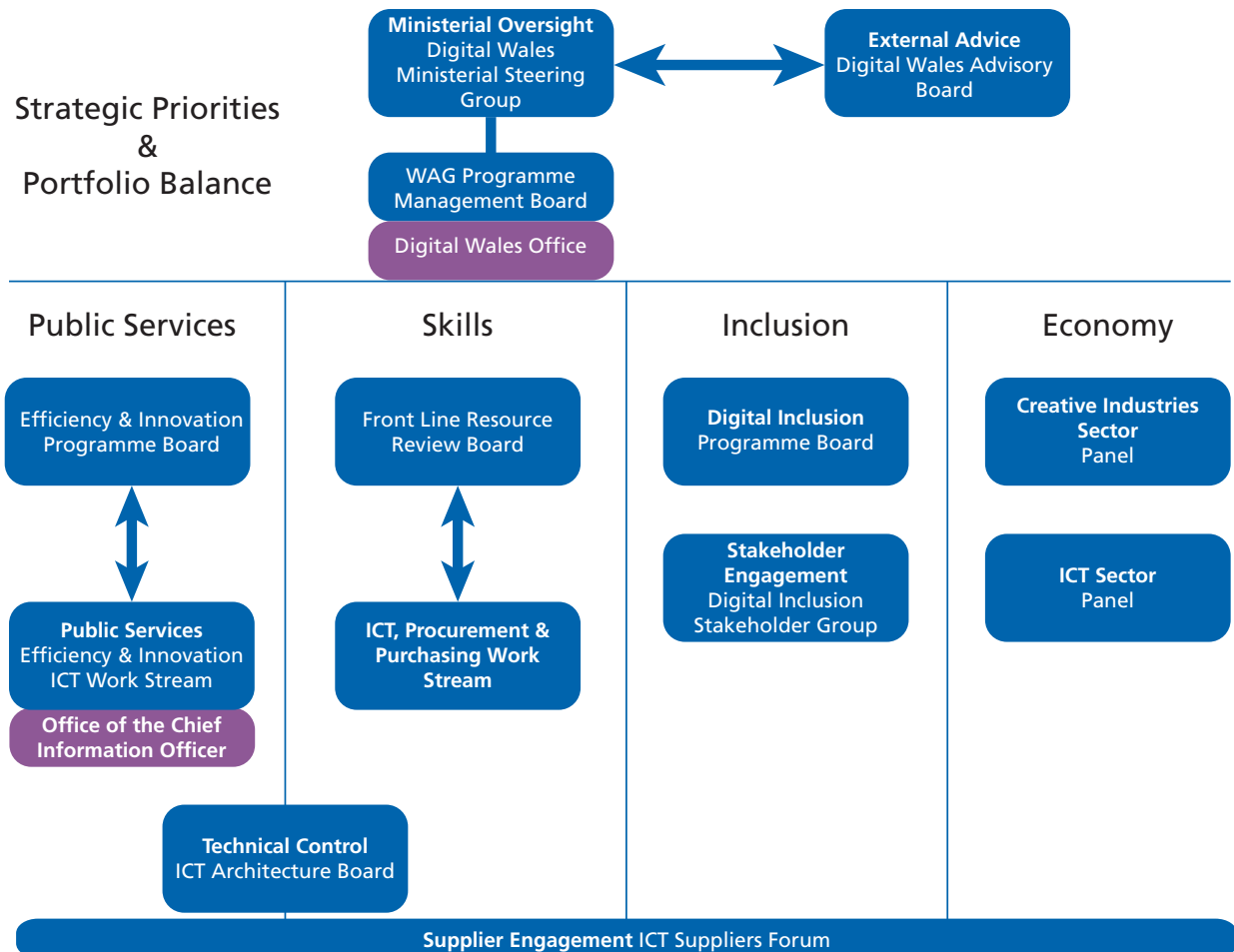
9. Organising for Delivery – Governance and Finance Arrangements

Delivering a Digital Wales will require a high degree of coordination, integration and collaboration across a very wide section of stakeholders and actors. However, in a field noted for its innovation and fast pace of change, the governance arrangements we propose will seek to achieve the leadership and coordination through a light, but effective, touch.

The role of government and the public sector will have several dimensions – as regulator and standard-setter, as provider of services to citizens, in its own use of

digital technologies, in building skills and capability, in addressing market failures, in ensuring inclusion and fairness, and as an influencer and champion for the wider benefits of digital technologies to business, citizens voluntary and public sector.

Governance arrangements are established in each major objective area to match the sector needs, programme risk and reward. High level Digital Wales governance will seek to ensure coherence and consistency of focus on high impact outcomes across



all portfolios and programmes. A summary of the main elements of governance arrangements are set out below.

Digital Wales Ministerial Steering Group

Chaired by the Deputy Minister for Science, Innovation and Skills, this group takes strategic decisions, provides ministerial policy steers, provides challenge and holds officials to account. Major infrastructure developments and decisions will also continue to be considered by the Digital Wales Ministerial Steering Group during 2010-11.

Digital Wales Advisory Board

The Digital Wales Advisory Board, through an independent chair, will advise Ministers on ways to exploit opportunities and manage risks arising from the growth of the digital economy in Wales.

Head of Digital Wales

The Head of Digital Wales will lead the implementation of *Delivering a Digital Wales*. He will be accountable to the Ministerial Steering Group and a member of the Digital Wales Advisory Board.

Digital Inclusion Management Board

A Digital Inclusion Management Board has been established to oversee the implementation of the inclusion element of *Delivering a Digital Wales* by bringing together key external stakeholders and relevant lead officials to ensure an integrated and coherent approach to policy development and delivery. It is chaired by the Director General of Public Services and Local Government Delivery

ICT Suppliers Forum

A Digital Wales Supplier Forum has been established to enable more strategic and coherent engagement with local and global ICT companies. The Forum must add value and make a positive contribution to the delivery of Digital

Wales, in particular the infrastructure and economy objectives.

Sector Development Boards

Sector development boards are being established to take forward the Economic Renewal: a new direction focus on key sectors. The Creative Industries and ICT sector boards will have a particular role to play in developing this component of Digital Wales.

Public Sector Efficiency and Innovation Board

At the first Welsh Public Service Summit in February 2010, Ministers clearly laid out the challenges facing the public services in Wales and established the Efficiency and Innovation Programme and Board, chaired by the Minister for Business and Budget. The First Minister outlined four key principles for the work of the Board:

- Placing the citizen and front line delivery at the centre;
- Workforce engagement and empowerment;
- Sustainability – environmental, social and economic;
- Collaboration within and across boundaries.

Seven work streams have been established along with a pan public services communications group to support engagement and communication with citizens, stakeholders and the public service workforce

Efficiency and Innovation Public Services ICT Programme Board

The immediate formulation of the Public Services ICT Programme will rest with the ICT Programme board of the Efficiency & Innovation Programme. Led jointly by the Chief Executive of the Welsh Local Government Association (WLGA) and the Chief Information Officer for Wales with representatives from all policy and

delivery sectors, it is responsible for delivering the portfolio of projects in the public service delivery programme.

It will:

- Define programme priorities;
- Manage the programme plan;
- Approve the scope of individual projects;
- Monitor project plans;
- Manage dependencies between projects;
- Allocate resources – staff and funding;
- Ensure appropriate stakeholder engagement;
- Manage the implementation of new online and infrastructure services.

Chief Information Officer for Wales

The Welsh Assembly Government Chief Information Officer will lead the implementation of the *ICT Strategy for the Public Sector in Wales* through a Public Services ICT Design Authority which is comprised of technical experts from a range of disciplines, organisations and sectors across Wales and which will be responsible for developing Wales' ICT strategy and directing the design, architecture and technical standards.

Close working with the private sector is envisaged so that Wales is at the forefront of the latest developments in digital technology by taking advantage of knowledge exchange, innovation and application of global best practice in ICT design.

Education Front Line Resources Review Programme

The Front Line Resources Review Programme Board, chaired by the Minister for Children, Education Lifelong Learning, is implementing the findings of the "Review of Administering the Education System in Wales – Phase 1".

The ICT infrastructure, procurement and purchasing workstream within this programme will work closely with the Efficiency and Innovation Board workstreams to maximise opportunities for synergies and joint working to shift resources to front line education services.

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