Doing more with Digital

National Digital Strategy for Ireland

Phase 1 – Digital Engagement

July 2013

Department of Communications, Energy and Natural Resources
Roinn Cumarsáide, Fuinnimh agus Acmhainní Nádurthá

Foreword by Minister Rabbitte

The internet is a resource for everyone. It provides all of us with new ways to interact, communicate, be creative and productive.

This means new possibilities and opportunities in terms of how we live, work, conduct business, and learn.

To achieve more of the potential we need to address the level of engagement with technology, which is enabled by the internet– both its extent and its depth.

It is a central goal of mine that we encourage and help more people and businesses to get online. This goal is at the heart of the first phase of the National Digital Strategy. It is a critically important first phase but I recognise that the digital environment is dynamic and will continue to change rapidly. There will therefore be further phases of the Digital Strategy.

My ultimate goal is the optimal economic and social use of the internet by Business, Government, and Individuals. In the National Broadband Plan, which I published last August, I set out how we would put the necessary infrastructure in place. The National Digital Strategy will establish a framework to maximise the potential of this investment.

I want to see more people and businesses avail of those opportunities. For some that may mean engaging with the internet for the first time. For others it may mean doing more through channels the internet facilitates.

This first phase of the National Digital Strategy therefore focuses on "doing more with digital". It sets out a vision, and a number of practical actions and steps to encourage and assist more people and more small businesses to do more online.

Future phases of the strategy will focus on further digital opportunities.

I urge all therefore to become more familiar with the possibilities of the digital world. There are many new opportunities, whether that's ways to save money, be better connected as a citizen, or to access new markets and grow your business.

Pat Rabbitte

Pat Rabbitte
Minister for Communications, Energy & Natural Resources

EXECUTIVE SUMMARY

Digital contributes 4.4% to Ireland's GDP. The digital part of the economy in Ireland is growing at 16% per year – that is more than 10 times the rate of growth of the economy as a whole[1]. Digital already supports almost 95,000 jobs both directly and indirectly in the Irish economy. These employment levels and positive growth prospects underline the importance of ensuring that digital is at the heart of Ireland's economic agenda.

In its simplest definition, digital is the use of online technology and ICT to enable Government, Business and Individuals to deliver, participate and inform themselves across a vast multitude of economic and social areas. Beneath this simple definition lies a huge level of opportunity to create jobs and improve productivity, service delivery and quality of life in all its various forms.

This National Digital Strategy (NDS) is a foundation step in helping Ireland to reap the full rewards of a digitally enabled society. It is part of the overall Government commitment to a more digitally empowered society which involves a suite of complementary national measures. These include the National Broadband Plan[2], the National Payments Plan[3] , the Action Plan for Jobs[4] and the eGovernment Strategy[5] and the eHealth strategy currently being developed by the Department of Health[6]. These strategies will be enhanced by the digital engagement measures outlined in this first phase of the NDS.

The strategy will be iterative, reflecting the rapid development of technology and on the dynamic manner in which it is changing models for social and business interaction. In this first phase we will deliver a number of measures under three key headings, underpinned by a number of foundation measures. The Department of Education & Skills will support the Department of Communications, Energy & Natural Resources in implementation of the National Digital Strategy through its current eLearning and technology in education policies.

National Digital Strategy – Key Deliverables

The specific measures which this strategy commits to implementing over the next 2 years can be grouped under the following headings:-

- Cross –Government measures
- Trading online and Entrepreneurship
- Citizen Engagement
- Education & Learning

Strand 1 – Trading Online & Entrepreneurship for indigenous businesses.

To get 10,000 Irish businesses online for the first time and to achieve a further 2,000 small Irish businesses trading online over a period of two years:-

- Development of a "trade-on-line" voucher scheme.
- A "Winning With Web" Awareness scheme – highlighting the value for small business of trading online.
- Better Information on online engagement to inform future policy.
- Support digital enterprise development by providing the skills base, research capacity and key financial supports through EI and IDA, and through the Digital Hub Development Agency and the National Digital Research Centre.

Strand 2 – More Citizen engagement:-

To halve the number of "non-liners" (people who have not yet engaged with the internet) by 2016:-

- Instigate an awareness raising campaign with industry stakeholders
  to convey to "non-liners" what they could do online, and to highlight to existing users other ways they could use and benefit from further digital engagement
- Introduction of a new (**Bene*f*IT**) training grants scheme funding digital skills training for citizens
- Develop an online mapping resource to identify digital skill learning opportunities - including what is available and where

Strand 3 – Education & eLearning

To utilise ICT to its full potential across the education system including the use of the internet in learning. Some actions in this area include:-

- Completion of the rollout of 100mbs to all post primary schools
- Peer to peer teacher supports including "Switch on" exemplar workshops and case studies
- Professional development and eLearning initiatives for teachers
- Development of a new ICT Strategy for Schools
- New Framework for Junior Cycle in which ICT plays a role
- Initiatives both inside and outside the school environment focusing on development of digital skills relevant to the workplace
- Development of eLearning opportunities at post leaving cert level and in third level Education and for the labour market
- New research on the nature and extent of children's internet and social network use including issues of internet risks and safety for young people.

- Provision of eLearning opportunities nationally in the further education and training sector.

Cross-Government measures & eGovernment Strategy

An important element in driving the demand for digital technology and skills is the level of interaction which the Government sector has with the provision of online services and information. The eGovernment Strategy (published by the Department of Public Expenditure and Reform) aims to improve the use of technology and in so doing, improve service delivery to customers of Government services. It sets out eight priority actions, including use of new and emerging technologies; designing eGovernment around customer needs, steps to improve take-up, ensuring that public data is available for re-use, use of e-Identification and back-end integration.

The Government's National Payments Plan has important synergies with this Strategy's aim to get more businesses utilizing digital. The NPP aims to double the number of ePayments per capita in Ireland by 2015, leading to a reduction in cash and cheque usage to the EU average.

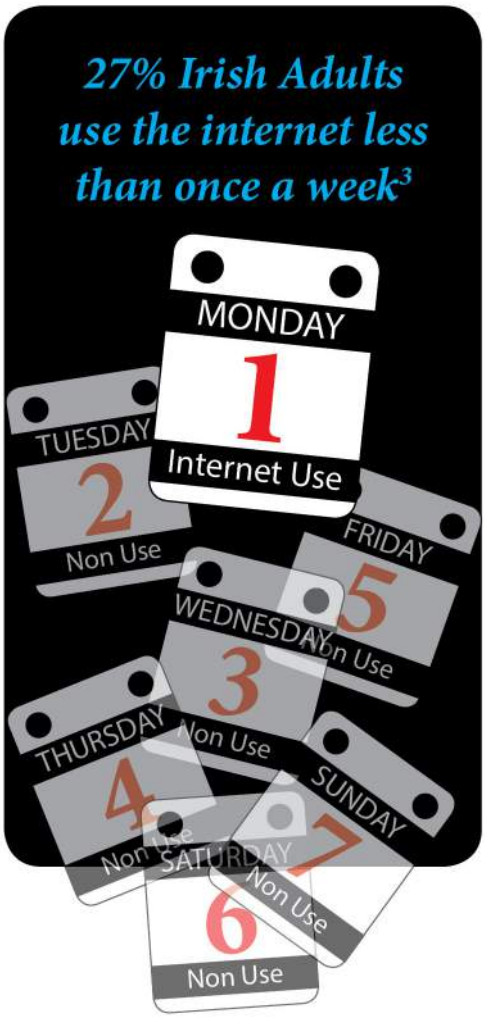
The National Broadband Plan commits to investment by the public and private sector to ensure that all parts of Ireland have access to high speed broadband. Implementation of the Plan is underway and investment by the commercial sector has accelerated since its publication in August 2012. Detailed preparations are in train for a State-led investment in non-commercial areas.

In addition to these initiatives, David Puttnam[7] was appointed as Ireland's first National Digital Champion in December last. His role is to promote digital engagement, working proactively with Government and stakeholders.

A number of cross-Government actions are also being taken in support of NDS objectives. These will include:-

- Engagement with national media to explore how they can assist in promoting digital engagement.
- Better data to underpin policy development.
- A cross departmental group to carry forward the implementation of measures of this first phase and to consider further actions for subsequent phases in consultation with the new Chief Information Officer (CIO) and others.
- Further focus on Web Access & Usability

Beyond the immediate measures identified above for action in this



foundational phase of the strategy it is also recognised that there is a need to focus on other strategic issues including:- trust and confidence, cloud computing, copyright, open data, and privacy. It is intended that these will be further explored in consultation with the Digital Champion and key stakeholders and agreed priority actions will be incorporated in the next phase(s) of the NDS.

The key objectives of the first phase of the National Digital Strategy are to:-

- Identify the socio economic importance and potential of digital for Ireland
- Highlight some of the initiatives (underway or planned) which are seeking to further leverage that potential
- Put in place a number of specific actions to enhance the extent and depth of digital engagement to achieve more of the potential benefits
- Identify other areas for focus in next phase(s) and some mechanisms to take this forward

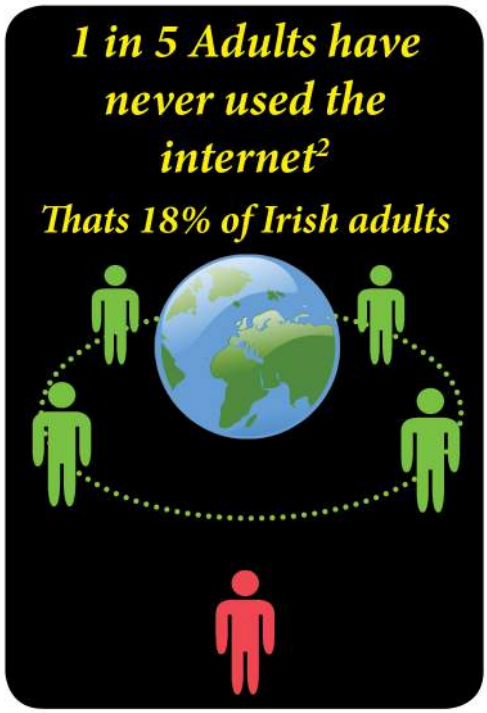
This strategy highlights the social and economic benefits that can be realised from the use of technology and sets out case studies which illustrate the potential of digital. These case studies show practical examples of how people and businesses are engaging with the internet to enable and empower them in new ways. This first phase of the NDS process focuses on a range of practical measures that can be actioned quickly. Some of these actions have already begun. Government will continue to play a key role in facilitating and enabling change but this is a journey which will involve all parts of society, including industry, community and citizens.

A growing number of Irish citizens and businesses are using digital to great advantage in business, education, healthcare public service and in society generally. There is however significantly more potential to digital than is currently being tapped. Engagement with the internet helps reduce the costs of running a business and increase customer reach. It empowers citizens, helps them save money, reduces social isolation, provides them with access to more convenient and efficient public services and access to a wide range of resources and services.

Less than a quarter of small companies in Ireland are selling online. Irish consumers spent c€3.7 billion online in 2012 with about 70% of that spend going out of Ireland. At least 30,000 small Irish businesses do not trade online. For many this means losing valuable opportunities to grow. In learning and education the use of online educational media can positively impact on educational outcomes.

Digital Inclusion by Numbers

- Almost one in five of Irish adults, that is 577,200 people, have never used the internet.
- Almost three in ten adults who do use it use it less than once a week.
- Non engagement with the internet is highest amongst older people.
- Over half (53%) of those aged 60 to 74 - over 280,000 people - have never used the internet.
- Internet use amongst those aged 75 and over is negligible at only about 3%.
- Approximately one household in five (19%) does not have the internet.
- Less than a quarter (22.9%) of small companies were selling on-line in 2012.



Despite these wide ranging benefits almost one in five Irish adults has never used the internet. This calls for an intensified focus on citizen engagement.

Our goal is a society in which everyone will have the opportunity to access the benefits of the internet. To derive more value and further economic and social benefits from communication infrastructure we need to expand and deepen internet use. We aim to ensure:-

- that our small businesses can better serve the fast growing online market
- that all (whether citizens or businesses) can participate and benefit more online
- more awareness of the potential for digital tools to support learning outcomes

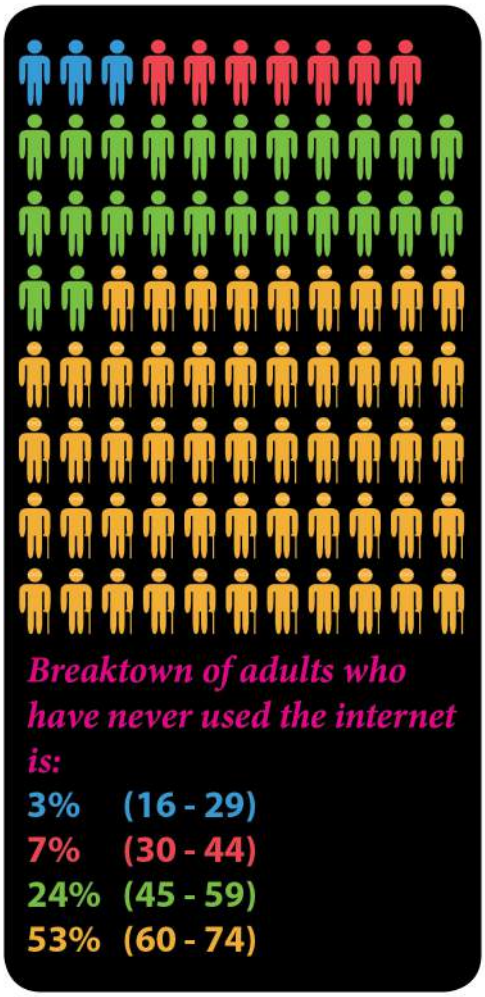
We are setting a target of reducing by half the number of "non-liners" by 2016. We want to encourage and assist more small companies to operate and trade online – to help them access new markets, grow and create jobs. By promoting the potential of digital for eLearning we can also improve educational outcomes.

CONTEXT

Digital is not just about the technology or the content. It is about people. Analysis has shown that "ensuring pervasive Internet access to all parts of society, rural users, the elderly and others - will be at least as beneficial to society as a whole as upgrading to superfast broadband"[8] – and will cost less. That's why this first phase of this strategy focusses particularly on digital adoption. By "Digital Adoption" we mean more widespread use of the internet, more people and businesses engaged and making better use of the internet. Essentially it's about doing more with digital. In formulating the NDS a phased approach is being adopted because digital is dynamic in nature and is evolving fast.

Stakeholder engagement and Future Phases

In developing this strategy we have engaged with key stakeholders from industry, the community & voluntary and the public sectors – see Appendix 1. Subsequent phases will build on actions in this phase, focus on the areas identified elsewhere in this document and will be informed by further stakeholder input. To facilitate the widest possible input those who wish to provide constructive input for consideration in future phases can send any contributions to the Department at, NDS@DCENR.ie. The Minister will have regard to this input and to further recommendations, including from the Digital Champion and the recently appointed Government CIO in determining the focus, content and objectives for future phases of the NDS.



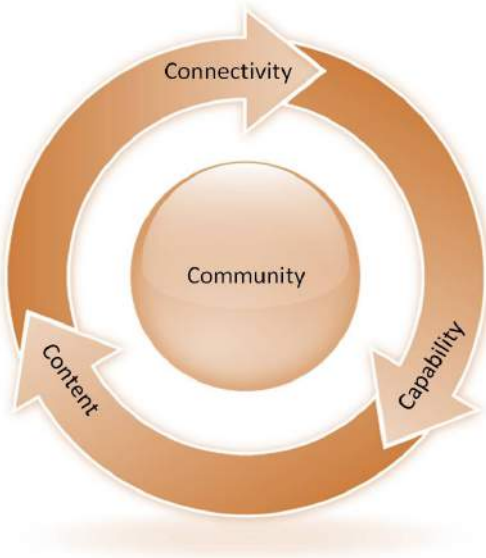
Where are we now

The 2012 EU Digital Agenda Scoreboard for Ireland showed over 74% of the population used the internet regularly (at least once a week). Internet and digital engagement is therefore becoming mainstream. It is however not yet pervasive.

The internet connects billions of people[9] and makes many new opportunities possible. It is increasingly mobile[10] and becoming ubiquitous, enabling "everything everywhere" and paving the way for new services and applications[11]. Half of the adult population now use smartphones, there is an average of four devices that connect to the internet in every Irish home and in the six months to April tablet ownership has doubled[12]. The ability to find goods and services easily online and to make purchases online is a game changer. For citizens it means access to wider markets, a wider product selection and better value. For business it also provides a way to access new markets, improve competiveness, productivity and ultimately create jobs. In many instances, particularly for traditional SMEs, digital adoption is about survival.

The potential of digital for economic development and to enhance the lives of citizens is enormous as is increasingly being recognised internationally. Forward looking national and regional administrations are exploring ways to capitalise on this potential in their particular circumstances. In Dublin for example, The Digital Dublin Masterplan seeks to provide a focus for a range of digital initiatives to benefit citizens and businesses.

Government will use the National Digital Strategy framework to create an environment which maximises the adoption of digital, stimulate economic growth and job creation and better position Ireland for new opportunities to come. The framework provides for four areas of actions: 1. Connectivity, 2. Capability, 3. Content and 4. Community.



Connectivity is about broadband availability.

Capability is about skills and knowledge.

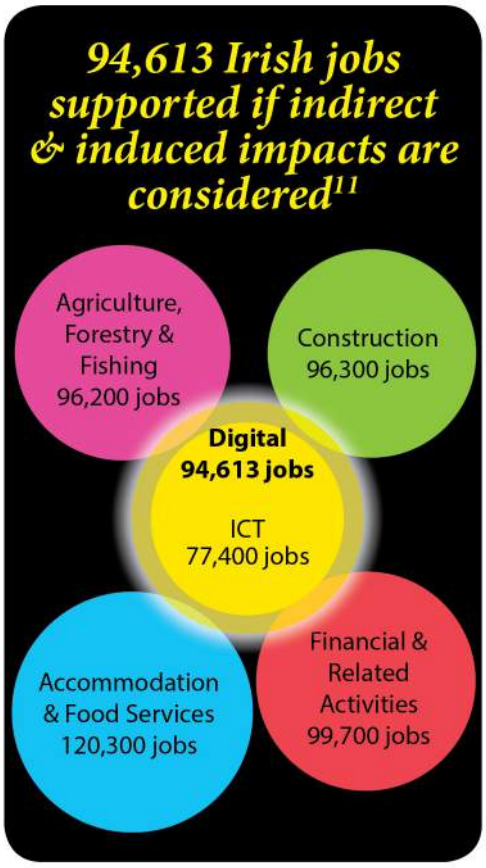
Content is about the applications we use.

Community is about participation.

Economic Importance

Digital, (the internet and digital services) is playing an increasingly important role in Ireland's economy. To quantify the value of digital to the Irish economy for the strategy DCENR commissioned economic research by Indecon which indicated that digital contributes 4.4% of Irelands GDP – that's €7.1 billion[13] . This compares well with other developed countries and illustrates just how significant digital is to the whole economy. Current trends indicate that the digital part of Ireland's economy is growing at 16% per year, more than 10 times the growth rate of the rest of the economy.

Indecon found that 61% of consumers planned to increase their online expenditure over the next 3 to 5 years and conclude that "The …internet economy is likely to continue to grow in importance in Ireland." This underlines the importance of ensuring that digital is at the heart of our economic agenda. Indecon estimate that almost 50,000 jobs are supported directly within the sectors and activities which produce the goods and services purchased by consumers, businesses, government and non-residents . When indirect jobs and induced impacts are considered the estimate is almost 95,000 jobs[15]. They estimate business to business eCommerce to be worth €9.6 billion to the Irish economy during 2012. Indecon also estimate a consumer surplus related to the availability of free content on the internet at €711 per household - in Ireland for 2012.

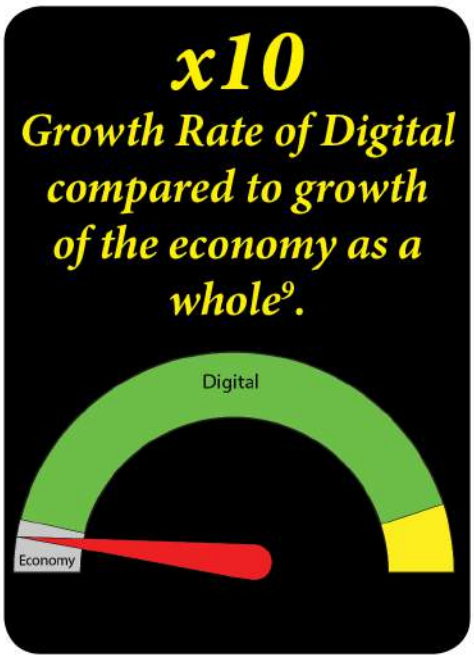


FOUNDATIONAL CROSS-GOVERNMENT MEASURES

1. eGovernment

The Government's Public Service reform plan aims to leverage ICT to deliver public services more cost effectively. The eGovernment Strategy – "Supporting Public Service Reform – eGovernment 2012-2015" focuses on making more extensive use of technology and online services. It recognises the need to improve the take up of electronic services and the importance of a strong focus on the customer. It points to the potential of new and emerging technologies and of portable digital communication devices such as smartphones and tablets and of "apps" and social media for public service delivery. It mandates public service bodies to ensure that the online channel is the most attractive option for customers. It also points to the potential of open data for creation of new and innovative products and services and how the public service might facilitate this better.

Government has recently appointed a new Chief Information Officer (CIO) to drive this agenda across the public service. The CIO role will lead, manage and direct Government Departments to implement an enterprise-wide ICT strategy that will improve the overall performance of the public service and provide better public services.



The new CIO and his team will be seeking to enhance eGovernment services and broaden their use. The objectives of the National Digital Strategy will make a positive contribution in that regard.

2. Appointment of Digital Champion

In December, David Puttnam was appointed as Ireland's first National Digital Champion. As Digital Champion David is providing independent advice on the potential of digital as well as leadership and inspiration to stakeholders, in the drive to achieve the targets set out in this plan, and wider EU Digital Agenda goals. In pursuit of these goals, David will:-

Consult with other Digital Champions to identify relevant digital opportunities for Ireland and share approaches to achieving digital engagement goals.

Host a series of themed practical outcome focused workshops during 2013 involving key stakeholders with the potential to assist or partner in delivering specific objectives of this strategy. It is envisaged that at each session there would be a number of specific goals or "asks". For example,

- the development of online mapping resources to provide information on type, location and contact details of regionally based internet expertise which is available for businesses who wish to develop their on-line capacity. This might ideally include a profile for each internet company and include a feedback mechanism to help businesses select suitable suppliers[16]. The goal would be to identify industry or other partners who could develop or partner in developing such a resource/outcome.
- A "game plan" to deliver on our awareness raising objectives Exploration of the potential to further utilise Irish advantages such as the strong presence of digital multinational corporations in Ireland .
- Engage with Ireland's diaspora, to explore ways in which committed mobile Irish entrepreneurs across the globe can help Ireland to realise the goal of more a digitally connected society and to strengthen the development of the next generation of digital entrepreneurs here in Ireland.

3. Cross-Departmental action on Digital Engagement

A new cross-Departmental group on Digital Engagement is being convened to take forward the implementation of the measures in this first phase and to consider proposals for further actions in consultation with the new CIO and others as appropriate.

Case Study

Service business online Gutterman.ie

Gutterman is a family business, set up by Bernard Hill. They supply and fit gutters, soffit & fascia rainwater systems to new and existing buildings in the greater Dublin area.

Bernard set up Gutterman.ie as an online business in 1999 after doing some research. He saw a gap in the market in that most of the businesses in this market were in the UK and hadn't yet reached Ireland.

Following his research into the market, Bernard did a short course in web design to learn the tools to manage a website. Now he manages his own website, updating it regularly with information on the latest projects completed and including video clips of solutions to problems they have resolved. The website is updated almost every day in order to keep the content current and up to date.

As Bernard describes in the Audio Visual clip Gutterman has been trading for over 12 years. Every job is photographed and entered on the Gutterman blog with a short story for others to view. For new customers, there is a readily available archive of jobs completed online which potential clients can review.

Bernard has found that it's mostly through the internet that his customers find him, he considers his investment in his website to be the best investment he ever made and says that "I don't think there is a business that wouldn't benefit from going online."

The Audio Visual case study can be viewed at www.dcenr.gov.ie/nds

4. Better information

In preparing this Strategy and the accompanying Indecon report on the value of Ireland's Digital Economy, it became clear that there are gaps in the data that is available relating to consumer behaviour patterns and digital engagement by SMEs.

Given the increasing value of this sector and the pervasiveness of digital as a platform for engagement by all segments of society, DCENR is engaging with relevant agencies, including the CSO, ComReg and ESRI, with a view to improving the data that is available to underpin future policy formation and benchmarking of progress.

5. Media Role in Raising awareness

To progress awareness raising goals DCENR will engage with local and national media, to explore ways the media can assist in promoting digital engagement. A range of options already suggested for further exploration include:-

- Ways to convey in popular broadcast media the specific advantages and utility for citizens of digital engagement. The objective would be to resonate with target audiences and approaches might include prominent broadcasting of the benefits of digital engagement; a focus on why digital engagement should appeal to those not yet digitally engaged; interviews with key players or those with an interesting story to tell about different ways their lives have been enhanced by digital.
- A focus on the journey to online trading for a small business and the outcomes
- Explore the potential of using the appeal of archive material and new innovative forms of content to enhance the appeal of digital engagement
- Partnering in a marketing campaign aimed at driving more widespread digital participation
- Support creative and technology sector development of digital services
- Explore the possibility of a specific channel supporting one or more of the focus areas of the NDS.

6. Web Access & Usability

Digital presents opportunities for everybody, including those with disabilities, to engage, participate and communicate in new ways. With 18.5% of the population having a disability[17], it is important to ensure that we realise these opportunities. At its most fundamental, we also need to ensure that people with disabilities are facilitated in accessing online services. Universal Design principles make online

services more accessible to everyone, regardless of their age, ability or disability and attract users away from higher cost channels. To assist public service organisations in achieving better more accessible and more appealing online services the Centre for Excellence in Universal Design (CEUD) has produced a resource entitled "Universal Design guidance for online public services". It offers informed practical guidance to managers, developers and content producers for public sector websites.

An EU proposal for a Directive on the accessibility of public sector bodies' websites has been progressed by Ireland during its Presidency of the European Council. The measures if implemented as proposed will require web accessibility standards to be met by a core set of public service websites and their content by end 2015 .

In light of the forthcoming EU Directive, DCENR in partnership with the CEUD has commissioned research into the level of accessibility currently on public sector websites. The study will look at the state of web accessibility in number of Member States, identify the main types of accessibility barriers that exist and provide an assessment in practical terms of what would be required to remedy those issues. In the context of the proposed new EU Directive the study will also seek to estimate what is practically involved in

Case Study Digital Benefits For Business Connemara Programme

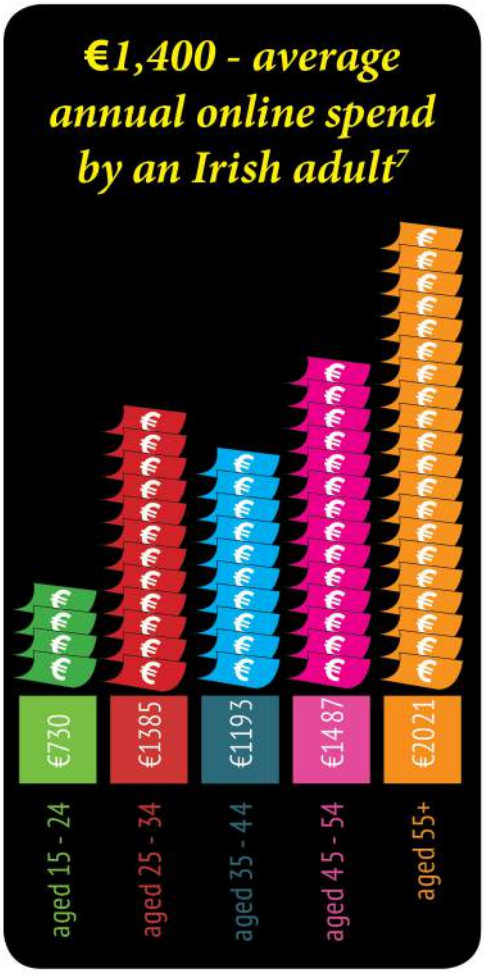
Connemara is a rural area in the West of Ireland where recession hits first and recovery is felt last. The Connemara Programme www.connemaraprogramme.com is a self-funded, non-profit, Connemara based, social enterprise. Established by Colum Joyce and Ellen McDonough it focuses on how local businesses can be helped to implement locally driven recovery strategies. It achieves this by using locally delivered business skill training, individual business mentoring and long term planning and business efficiency support.

The Programme first researched over 650 Connemara businesses and reviewed 1000 research studies. This identified that poor business management skills and inappropriate use of Digital Technologies can damage not improve a business. The first area focused on for action was resource efficiency. Resource efficiency benefits cannot realised without adequate ICT and business process management skills. Initial improvements of over 30% were realised in the test business. To benefit from digital technologies (Ecommerce, Social Media etc.) businesses need exactly the same skills and discipline. These tools and improved business skills offer many new ways to improve performance, service local customers better and reach new markets in a competitive, cost effective, sustainable and profitable way.

The first web based deliverable was Connemara Online (www.connemaraonline.ie). This launched in March 2012. It now lists over 700 businesses, products, services and Connemara information entries. It gets thousands of local and foreign visitors a month. In 2013 the Programme started to help individual and sector with tailored information and support. The Programme is creating short action oriented courses open to all local businesses. The course modules cover 3 themes – Enhancement of business skills, Cost reductions through resource efficiency and Revenue Improvement through the appropriate use of digital technology.

The Connemara Programme runs regular surveys on socio economic issues in Connemara and publishes these on the Programme web site. The Connemara Programme processes are being fully documented for transfer and reuse by other communities.

The Audio Visual case study can be viewed at www.dcenr.gov.ie/nds



achieving meaningful accessibility including the effort and costs involved as well as effective approaches to monitoring.

Public service providers will need to address web accessibility and usability issues. More accessible and effective online services that focus on the user experience will benefit the organisations and their customers. In many cases this will require some redesign and reformatting. The CEUD guidance resource will be helpful to all stakeholders in achieving and maintaining the target.

Business Opportunity

- McKinsey has measured that SMEs with a strong internet presence grow twice as fast and export twice as much compared to non-internet adopting businesses.
- In Ireland 23% of businesses surveyed felt they could achieve an extra 5% growth on top of their current prospects with the right online strategy. A further 18% felt it could be as much as an extra 15%.
- Research from Australia indicates that 54% of small businesses who use the internet gain competitive advantage.
- 75% of the economic impact of digital arises from its use by traditional market segments, rather than from the digital sector itself.
- Irish consumers have expressed a preference for purchasing some types of products and services from Irish suppliers, including groceries/food/alcohol; medical or health related; flowers; furniture; travel/hotel.

National Digital Research Centre

- The National Digital Research Centre (NDRC) sponsors collaborative research between research bodies and commercial enterprises. It assists in translating late-stage research into commercial outcomes and has a three month accelerator programme for small digital start-up projects.
- Investing funds from DCENR, NDRC is exclusively focused on transforming ideas into viable, investment-attracting new ventures. By transforming promising, well-formed ideas into investable ventures the NDRC is a key driver of digital entrepreneurialism.
- Since its establishment, NDRC has supported 75 Start-ups. These ventures now have a market capital value of €40m.
- The Department of Communications, Energy and Natural Resources will continue to support the NDRC in creating high-impact ventures out of opportunities in the research base and by accelerating business model innovations, to the point where the ventures secure commercial follow-on investment.
- The NDRC will build on the over 300 new home-grown digital jobs and over €15m in follow-on investment already delivered in its short history, to provide Ireland with a vibrant base of indigenous digital ventures.

Strand 1

Trading Online & Entrepreneurship for Indigenous Businesses

Online Consumer Spend

Consumer behaviour is changing with citizens increasingly turning to the internet to research and buy products and services.

Irish Business Online Activity

The trend towards increasing online spending represents a real challenge for Irish businesses, with statistics suggesting that only 23%[22] of small companies are engaged in eCommerce sales. This proportion could be even less for SMEs with less than 10 employees[23] .

Opportunities for Irish Business

Tens of thousands of companies in Ireland do not trade online[24]. These companies are potentially losing valuable opportunities (see sidebar) to grow through online engagement. International research points to the benefits of companies developing an online trading presence.

Ireland has grasped many of the opportunities that digital presents – as evidenced in the large internet players who are now based here and in the wider digital industry comprising many smaller indigenous businesses. In the USA it is estimated that each internet job supports approximately 1.54 additional jobs elsewhere in the economy . In Ireland, as a small open economy[25], with a young and well educated workforce, the prospects for growth through digital enterprise are strong. The Digital Content and Technologies Sector in Ireland is thriving. It includes a strong cluster of smaller Irish companies in addition to a number of larger multinational companies focused on the development of both content and platform technologies. These include Cloud Computing and Data Analytics, Media & Entertainment, Education, Healthcare, Retail and Financial Services.

Actions to foster growth in Ireland's Digital Sector

To support the emergence of new Irish digital enterprises The Department of Jobs, Enterprise and Innovation, IDA and Enterprise Ireland have introduced a number of targeted supports including supports for indigenous and FDI companies in the digital space.

The Department of Communications Energy & Natural Resources (DCENR) through the Digital Hub Development Agency and the

Voucher Scheme

- In 2013, the voucher scheme will be tested in one or more pilot models.
- The proposed national voucher scheme will be a competitive process.
- The vouchers will be available to small businesses wishing to develop their online trading presence.
- The voucher will apply at the point of investment of the small business into their use of digital technology and content.
- The voucher can be used to develop an eCommerce website, or an entry to an existing trading platform.
- To qualify, small businesses will need to demonstrate what they want to achieve for their business with digital and actively commence trading online.
- Business owners and managers with little knowledge or exposure to internet can use a portion of the voucher to access suitable expertise, technical or training supports to achieve their online objectives.

National Digital Research Centre is supporting the growth of digital media enterprises and encouraging the emergence of new digital enterprises.

Recent UK research[26] indicates that with customers increasingly shopping online and many shops failing to adapt to the changing business environment one in five high street shops could close within the next five years. There is a need to recognise and where relevant respond to the digital reality. For some businesses accessing wider markets through the internet may determine their future growth or survival. Engagement with the internet and competing for and winning a larger share of the international online spend Irish SMEs can grow their markets, expand their business and create more jobs.

The internet can impact positively on a business in many ways, principally:

1. **Larger markets and increased revenues** - the internet provides access to a wider geographic market and access is not limited by opening hours. This means that a small Irish business in a remote area can look to increase its potential market at very low cost.

2. **Reduced costs** - purchasing, eBanking, stock control, marketing and sales can all be facilitated at low cost using the internet. These efficiencies significantly contribute to improving the bottom line for small business. McKinsey shows a 10% increase in productivity for SMEs who adopt internet.

3. **Better market intelligence** – simple tools to assess consumer behaviour can help businesses tailor their products to market demand.

Nine out of ten SMEs who use the internet surveyed by ComReg say the internet has been a positive influence on their business in terms of better communications, time savings, productivity gains and increased sales. The opportunities range from low impact – like simply having "shop window" web sites, to marketing online (including through social networking channels); to developing an online trading platform. Initiatives such as the Connemara Online Programme (see case study) demonstrate clearly the opportunity digital has for small businesses .

The challenge for Irish Businesses

Experience from the Digital Hub/Digital Skills Academy's "Web Activate" project and Google's "Getting Irish Business On-line" project, together with stakeholder engagement conducted in the preparation of this Strategy indicate that there are a number of challenges which

Digital Hub Development Agency

- With over 60 enterprises, the Digital Hub in Dublin is the largest cluster of Irish digital media companies in Ireland - 90% are indigenous. The companies based at the Digital Hub employ almost 800 people.
- New digital companies require new types of support. The Digital Hub Development Agency model provides these supports in a number of effective ways. The young entrepreneurs who create and run them need flexible structures, networking capabilities and mentoring. The support and cluster advantages available at the Digital Hub have been proven to contribute to business growth. Many companies have thrived at the Hub and gone on to notable success. The DHDA also provides an effective feed for Enterprise Ireland, into programmes such as iGap and is creating new opportunities for digital enterprise, including the development of an eHealth initiative with St James' Hospital.
- The Digital Hub also plays an important role in the local community, fostering digital innovation in the area and developing new initiatives that have helped to inform national policy (e.g. 100Mbps Schools exemplar programme, the Future Creators, WebActivate, and the Connected Health initiative).
- In 2012 the Government agreed that the DHDA should transition to Dublin City Council. The transition is now underway. A renewed vision and strategy for the Digital Hub will be developed focusing on how it can continue to support and grow Ireland's vibrant digital media sector.

Digital Sector Growth

- The 2013 Action Plan for Jobs aims to position Ireland as a global leader in the data and analytics space. A joint industry-Government task force is to be established, and a National Action Plan on Open Government will be developed. A High Performance Computing facility will also be established and a range of supporting measures are to be introduced in 2013.
- For early stage start-up companies including those in the Digital space the Competitive Start Fund administered by Enterprise Ireland provides investment of €50K
- Enterprise Ireland's iGAP (Internet Growth Accelerator Programme) is a management development programme targeted at early stage Internet based digital companies. It includes peer to peer networking as well as the allocation of mentors to support individual company development. To date 96 companies have participated in four iGAP programmes.
- 2,000 additional ICT graduates will be provided in the coming year as part of a drive to make Ireland the internet capital of Europe. 1,300 of these graduates will come from industry-led programmes and 700 from work-employment permits in ICT.
- Project Maths, the new Junior Certificate Cycle, and provision of high speed broadband to second level schools, are longer term initiatives designed to assist in the development of a more digitally literate workforce and encouraging students to opt for digital and ICT as a career choice.
- IDA and EI are funding Technology Centre research programmes in Data Analytics and Cloud Computing and the Government's Research Prioritisation Action Plan specifically recognises the need for further research support in the digital area.

Case Study

Traditional Retail Business moving online - The Happy Pear

The Happy Pear is an independent natural food market in Co. Wicklow. The store stocks fresh fruit and vegetables as well as a range of natural foods. Owned by local brothers, Stephen & David Flynn, the business includes a juice bar, sprout farm, a catering service and they offer courses in healthy eating.

The Happy Pear had a website but became interested in trading online having been inspired while doing a catering job at "F.ounders" (tech conference). As the Audio Visual clip shows, they decided to explore online trading to reach a wider market and to promote diversification of the business. In October 2011 they started working on an online site and began trading online in January 2012. (www.thehappypear.ie).

In 2012, demand for the Happy Heart Course prompted the development of the online course to facilitate customers who otherwise could not participate due to the distance involved. The course, previously run in the restaurant is now exclusively available online (www.happyheartcourse.com).

With the guidance and expertise of a friend, they established an online trading site. Going online was an investment in the business and has meant taking on additional staff as well as contracting out work to build the online Happy Heart Course. Since the brand has been established online, particularly since the launch of the course, these vibrant entrepreneurs have generated business in the UK and elsewhere that they would not have had access to before. As a result of online trading, the Happy Pear has grown its business and:-

- Employs more people
- Has expanded its trading hours (can purchase online anytime)
- Reaches markets that were previously inaccessible
- Has added value to its products by supplying online information on the health benefits of the products and on how to prepare and cook the foods

The Audio Visual case study can be viewed at www.dcenr.gov.ie/nds

need to be addressed to help Irish businesses develop a meaningful online trading presence. These include:

- Awareness - understanding the potential
- Skills and confidence - the ability to use online resources effectively
- Capacity – the ability to source professional assistance
- Logistics - delivery of goods to an expanding geographical market
- Costs - initial set up costs and ongoing banking costs
- Connectivity – the need for appropriate broadband connectivity

Adoption can be improved with intervention. The 2010/11 WebActivate trial[28] demonstrated that almost half the SMEs "activated" began to trade on-line. Google's "Getting Irish Business Online" also succeeded in getting 10,000 businesses to develop an online presence.
This strategy aims to get more Irish businesses online and to help them engage at a level that best suits their needs.

Actions to get Irish Businesses Trading Online

The National Digital Strategy aims to get 10,000 Irish Businesses online for the first time, and to get 2,000 Irish businesses trading online, over a period of two years. The following actions will be undertaken in pursuit of this goal:

1. Development of a "trade-on-line voucher scheme"

The "trade-on-line voucher scheme" developed as part of this strategy, was signalled in the 2013 Action Plan for Jobs. One or more pilot schemes will be rolled out in 2013, with a view to national rollout in 2014. The scheme will make available vouchers valued at up to €2,500 which can be redeemed against the cost of establishing an online trading presence (see sidebar for operational details).

For each of the elements of the integrated programme Government will provide the core incentive, but it is expected that this will be augmented with the support of the digital industry. Opportunities to enhance the offer to SMEs with the inclusion of bundled commercial products and services will be sought. These may include online trade platforms/ services, cloud hosting, billing and customer service platforms, content management systems, advertising and marketing platforms/ services[29].

2. A "Winning with Web" Awareness Scheme highlighting the value for small business of trading on-line

An awareness and promotion campaign will be developed in partnership with industry and community stakeholders and Ireland's Digital Champion, David Puttnam. Elements of the campaign will include:

- Production of a series of audio-visual case-studies which showcase

small companies that have improved their businesses through the development of an online trading platform. The first of these case studies, illustrating some of the impact digital can have on traditional businesses have already been produced by DCENR and are included in this document. Others will be added in due course.

- Companies, organisations or groups who feel they have a story to tell that illustrates the positive impact or potential of digital for them and others like them can produce in line with the DCENR guidelines their own short case study (3 minute maximum) and can submit it to the Department of Communications at, NDS@DCENR.ie for consideration.

DCENR will publish online, as part of the NDS, those that best demonstrate the added value from digital engagement."

DCENR will explore with industry the creation of an award, or inclusion of award categories in established awards events, focusing on illustrating the transformative positive impact of digital engagement on grassroots or traditional business.

DCENR will explore with SOLAS the possibility of extending schemes like WebActivate and FIT and schemes with similar objectives that might provide such help to business.

Consumer Behaviour

- Irish consumers spent approximately €3.7bn online in 2012.
- The average Irish adult spends €116 per month online.
- 70% of online spending is going out of Ireland
- In the UK, forecasts suggest that a third of retail sales could be online by 2022.
- Most Irish internet users (81% of the adult population) use the web to find the best deals and to inform purchasing

Digital Skills Training Initiatives

On basic and further digital skills the

- BenefIT schemes operated by DCENR,
- Getting Started programmes (Age Action Ireland);
- Age Engage (Age Action Ireland and Google),
- "Digitise the Nation" (the Irish Internet Association)
- "Connected Communities" (BT),
- "Log on Learn",
- VEC courses.
- Qualifax provides a database on training courses available across Ireland.
- Good quality resources are also in place to facilitate self-learning or peer supported learning.

These include online resources such as

- Social Computing,
- "Internet Buttons" (UPC)
- " Get Your Folks Online " (Google and Age Action Ireland).

For those seeking employment, more specific or higher level training such as those encompassed by the European eCompetence framework are available from commercial providers or through not for profit organisations such as ICS Skills and ECDL.

Strand 2

Securing More Citizen Engagement

The internet opens up new opportunities for everyone – for many the internet is their "encyclopaedia for life"[30] . It is a valuable and valued resource. One way to assess the value people place on having access to the internet is to use the economic measure of "consumer surplus"[31]. Research for this strategy by Indecon estimate it at €981m or €711 per household. It is clear that people who use the internet appreciate its value – and most value it at significantly more than what it costs them to access it.

Citizen engagement with the internet is important:

- It empowers citizens to participate in community and business activities that they could not otherwise access.

- It can reduce social isolation: Audio visual channels such as Skype, "Facetime" etc. are often reported as valued facilities by people participating in basic internet training. Internet use can also reduce depression. In a US study internet use in adults aged 50 and over was shown to reduce depression by between 20% and 28%[32].

- It enables citizens to communicate in new and often more effective ways, with, each other, business and Government services. Most Irish people now have globally dispersed networks of family and friends whose connections can be greatly re enforced with the help of the internet. As businesses and Government roll out new services online, citizens can access these services[33] from home, without having to go through intermediaries, travel, or have toqueue for services. The advantages of internet access is recognised and appreciated by its users; 78% believe it helps them stay in contact with friends and family, and 72% say it allows them to get things done without having to leave the house.[34]

- It can address work-life balance: the internet facilitates remote working[35].

- It can help citizens save money. The internet provides access to a wider market, making it easier to find the best deals or to make more informed purchasing decisions[36]. For some the internet enables them to acquire things they would otherwise have to do without[37] . Research in the UK in 2009 found that an average household could save £560[38] per year by shopping and paying bills

online. Households not online are missing out on those savings[39]. Nearly six out of ten Irish adults now shop online[40].

As citizens continue to use the internet, they will drive demand for services, better broadband infrastructure and enable business and Government to provide more efficient services to their customers.

Given the wide ranging benefits available to citizens online these opportunities should be accessible to all. The objective of access for all calls for an intensified focus on citizen engagement.
Research indicates that "non-liners" are more likely to be members of one of the groups below:-

- Older people
- Unemployed people
- People who have had less formal education or who have no formal qualifications
- Disadvantaged people – which may include:- people with disabilities, those living alone – particularly in rural areas, single parents, travellers, ex-prisoners, migrants/immigrants.

Accordingly the **Bene*f*IT** schemes operated by DCENR specifically target these groups for digital skills training and these groups are likely to be the main focus of future initiatives.

What is needed?

Based on stakeholder consultation it is clear that in order to get citizens more digitally engaged, two key actions are necessary:

- **Awareness raising:** Citizens will be more motivated to engage with digital if they are more aware of the benefits to them. There is a need to communicate and illustrate simply to "non-liners" what they can do online[41] . For those that are already engaged, there may be new applications that could deepen their engagement and enhance their online experience.

- **Skills development:** Lack of Skills is a major barrier to internet use. The digital skills a citizen needs will vary depending on their circumstances and may range from simple communication skills (email, social networking, information search, online transactions) to higher level skills for those seeking employment.

Existing initiatives

Ireland is fortunate to have a wide range of stakeholders with a track record in providing effective digital training and a range of initiatives focusing on skills.

Actions to get more citizens online

The National Digital Strategy aims to halve the number of non-liners by 2016. This means reducing the number of "non-liners" by 288,000 people. The following actions will be undertaken in pursuit of this goal:

1. Instigate an awareness raising and motivation campaign with industry stakeholders

DCENR will partner with industry stakeholders in an awareness campaign, with a twin focus.

- Explain to "non-liners" what they could do online.
- Highlight to existing users higher level uses they might consider.

As a contribution to this campaign, DCENR is commissioning a series of Audio Visual Case studies highlighting examples of the benefits of citizen engagement to key target groups. These case studies focus on the some of the key benefits of engagement with the internet for older people. The first video clip in the case study focuses on communication and the benefits of email, Skype and social networking. The second looks at how older people are benefiting from transactional use of the internet.

2. Introduce a new BenefIT 4 grants scheme to fund training for citizens

The new scheme - **BenefIT** 4 – will provide funding in 2013 of €1.4m for training for 24,000 citizens at multiple locations across Ireland. Building on previous schemes, **BenefIT** 4 will allow follow-on training, expand the hours of training per learner, provide training on internet access via smart phones and portable devices. The training will focus on key applications that are likely to motivate non-liners to engage. These include online banking, booking flights, TV playback facilities, email and audio visual communication such as "Skype" or "Facetime".

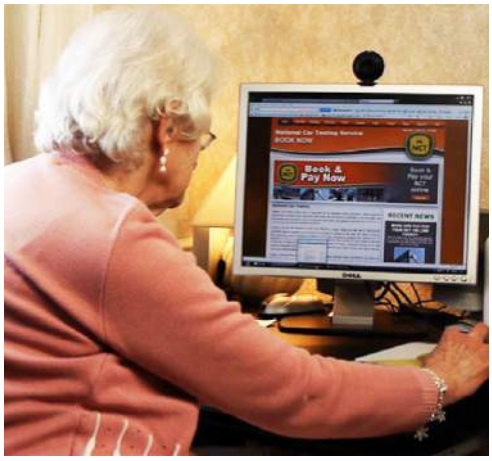
Previous "**BenefIT**" schemes have been very successful. They have helped over 75,000 people to acquire digital skills. Participants have provided very positive feedback, including their satisfaction with the training, their ability to use online services as a result, improved confidence and reduced social isolation. Most "**BenefIT** 3" participants indicated that they would be using the internet themselves from now on. One in three felt able to teach the skills to someone else. 30% of participants said that they were likely to buy a computer, laptop, tablet or similar device as a consequence of participating in a course. The future development of **BenefIT**

will have an impact on other strategies focusing on key skills such as literacy and numeracy and exploring the potential for linkages or synergies between these initiatives.

3. Develop an online mapping resource to identify digital skills learning opportunities – including what is available and where

The Department will work with Ireland's Digital Champion to engage with stakeholders in identifying how a mapping resource could be made available to identify regional availability of digital skills training courses.

Case Study Internet benefits for older people



Most people now use and benefit from the Internet. There are however over 570,000 adults, mostly older people, who have never used the Internet. When they find out how useful the internet can be many, if not most, older people are eager to use it. For those who need it there is help available to learn how. We spoke with older people learning to use the internet. Their stories are captured in two short Audio visual case studies.

One, focuses on communication and talks to learners training with Age Action where they get one to one support. They describe the learning experience as easy, enjoyable and friendly. They comment on how they have overcome their fears are now more confident and are enjoying the benefits of being able to email, Skype and use social networking to stay in touch with friends and family. They speak about the different ways it helps them and the new world of opportunities the internet has opened up for them. They recommend others to get online.

The second case study looks at how older people are benefiting from transactional use of the internet. Two older people who have been using the internet for some time describe some of the practical ways it helps them. They speak about being able to catch up on TV programmes they have missed, access information such as transport routes and timetables, the convenience of being able to conduct government services like paying their car tax or booking a NCT on the internet and the convenience of online banking. They point also the opportunities to source services and products online and save money.

These Audio Visual case studies can be viewed at www.dcenr.gov.ie/nds

Strand 3

Education & eLearning

What is eLearning?

eLearning refers to the use of electronic media and information and communication technologies (ICT) in education. eLearning is broadly inclusive of all forms of educational technology in learning and teaching.

Potential of eLearning

With the necessary broadband infrastructure in place, the internet is potentially a game changer in education. Digital technologies allow information and resources to be created, accessed and shared on virtually every subject matter imaginable. Using digital technology, teachers and students can collaborate and communicate in many different ways. The efficiencies to be gained from eLearning allows more focus on higher level skills such as problem solving, critical and collaborative thinking, team working, creativity and innovation. In addition to enhancing the learning experience, digital skills are a key requisite in the employment market.

A range of Government Departments and agencies are collaborating with a view to helping Ireland to realise the full potential of eLearning and ICT in schools and third level. The Department of Education & Skills through a variety of strategies and initiatives supports greater adoption and use of digital technologies and an increase in eLearning opportunities across all levels of education. ICT is used as a tool in quality learning. It is also used for data collection, sharing etc. Internet access and use at home provides access to educational resources and opportunities. In a recent survey by Eircom 81% of broadband bill payers said that broadband helps their children with their education[42].

eLearning in the Irish education system

eLearning can be seen at all stages in the education system. At pre-school level digital technologies can support children's play by allowing children to respond, take initiative and to choose and lead activities. At primary and post primary schools, eLearning planning is a component of the leadership programmes for School Principals provided by the Professional Development Service for Teachers (PDST) with the view that ICT deployment and integration will

be planned for at all levels in the schools with the ultimate aim of enhancing teaching, learning and assessment.

At higher level education, eLearning is becoming an increasingly important part of the process of teaching, learning and research. The National Strategy for Higher Education to 2030 sets out key policy priorities for the development of higher education in Ireland, in which eLearning is emphasised.

In the area of Further Education, ICT courses feature in the Post Leaving Certificate (PLC) programme, (VTOS). ICT courses feature prominently within "Back to Education" Initiative which provides funding for part time learning opportunities for adults. eLearning is also a key component in labour market training initiatives.

More detailed information on digital technologies in education is included in this Chapter.

eLearning and employment opportunities

The EU has forecast that as we move closer to a digital economy by 2015 only 1 in 10 jobs will not require e-Skills[43]. In addition to facilitating general learning, an enhanced focus on ICT in education will also assist in building the domestic supply ICT skills. The recent "Grand Coalition on Jobs" launched by the European Commission, indicated that there will be up to one million job vacancies in ICT disciplines across Europe by 2015. This is a key challenge for policy makers internationally and Ireland has been to the fore in taking measures in this area.

In January 2012, the Minister for Education and Skills, Ruairi Quinn TD, together with the Minister for Jobs, Enterprise and Innovation, Richard Bruton TD, launched a joint Government and Industry ICT Action Plan: Meeting the High Level ICT Skills Needs of Enterprise in Ireland. The plan is a collaborative system-wide response across the Government, state agencies, education and enterprise sectors aimed at building a pipeline of talented ICT graduates to support the further expansion and development of the ICT sector and support innovation and growth across other sectors of the economy. The plan sets out a range of measures aimed at fostering the supply of ICT skills in short term through reskilling opportunities, while in tandem developing the longer term supply of high quality ICT graduates. The on-going implementation and development of the ICT Action Plan has also been incorporated into one of the seven Disruptive Reform proposals in the 2013 Action Plan for Jobs.

Technology in education - primary and post primary level

There are many positive outcomes associated with using online educational media. These include facilitating improvements to the educational experience, such as:-

- Enabling teachers to bring real-life learning scenarios into classrooms via online access to rich media
- Allowing teachers to become more flexible and innovative in how they access and deliver the curriculum
- Allowing schools to share resources and teachers to access global teaching aids
- Engaging students more deeply through the use of online interactive content
- Enabling students to learn new skills
- High levels of student engagement,
- Wider range of subject choice in some cases,
- Development of social and interpersonal skills,
- Improved levels of confidence and ambition
- Improved performance of the students in other areas
- Improvement in both attendance and discipline
- Increased attainment in formal examinations
- Positive impact on student motivation.

Case Study Broadband Enablement - Warrenmount & Coláiste Bríde Schools

THE DIGITAL HUB

The State is investing in providing 100mb broadband to all second level schools. Supporting schools to take full advantage of the infrastructure will maximise return on this investment. The Digital Hub has partnered with two Dublin schools (Presentation Convent School, Warrenmount, Dublin 8 and Coláiste Bríde, Clondalkin, Dublin 22) to assist them in maximising the value of their 100mb connection.

The objective was to:-

- bring a second level school from non-use to optimal use of the 100mb broadband;
- support teachers to use the connectivity infrastructure to develop their approach;
- help students to enhance their learning and
- assist school management in the running of the school.

The learning and findings from this work are being fed into the schools system, inspiring other schools and help them make informed decisions.

The approach used a combination of Technical and teacher supports, including:-

- Support for students in terms of their learning and subject choice
- Support for the head teacher to use digital technology in the running of the school
- Support for teachers to develop class plans and integrate digital into learning
- Assist with technical issues relating to utilising the 100mb connection
- Advice on procurement of equipment for teachers and pupils

As illustrated in the Audio Visual clip the Impact has been positive. A significant change across the schools was observed extending in some cases beyond the technology impacts envisaged. A model was developed to deliver honours leaving cert maths which utilised a live video link between the two schools. Coláiste Bríde in Clondalkin provided a talented maths teacher facilitating four students in Warrenmount to take a subject which would otherwise not have been available to them. The ambition and level of teaching and operational innovation across the whole school increased. Improved and more efficient school management practices resulted.

The Audio Visual case study can be viewed at www.dcenr.gov.ie/nds

Access to quality online educational content enables teachers and students to have seamless access to high quality learning resources. It may also support the sharing, adapting and reuse of quality content, reduce duplication, lead to greater collaboration and sharing of learning materials, reduce cost of learning resources, and contribute to lighter schoolbags. Ireland's education system has a network of informal digital curators in education. These are teachers who share resources and ideas through social media and other online networks with significant numbers of other teachers.

Actions to enhance learning through digital technology in primary and secondary schools

Research as part of the "EU Kids Online" initiative indicates that internet use by young people in Ireland is "conservative" with many not getting to "higher order" or more creative online activities[44]. The following actions are underway and will help achieve the full potential of ICT and the internet in the learning environment:

Case Study Digital School & Online Teaching Resources

Digital technology and online educational resources are enhancing learning outcomes and assisting teachers. This example is from St Patricks N.S. Greystones Co. Wicklow. Children today engage with digital technology in everyday life. Providing a rich digital media environment at school means children can enjoy and benefit from such media in formal education. This can improve the educational experience and learning outcomes for the children.

St Patricks received its Digital School Award in 2011 and digital technology is used extensively in teaching, learning and administration throughout the school. The school took out a loan (serviced through fundraising and donations) to acquire additional hardware and services and have gone on to use Twitter, Edmodo, class blogs, Reading Eggs (Literacy) and IXL (Maths) on-line curricular support programmes, Aladdin Schools database, Survey Monkey and Mindjet on-line planning and management tools and recently with Microsoft Office 365 and Partners in Learning.

As this Audio visual clip shows the use of the technology and online resources with just a basic broadband connection (of just 15-20MBS download and 1MBS upload) has resulted in a range of beneficial impacts. These include:- valuable online supports for teachers and students and more efficient and cost effective communication/administration. The children benefit from a more engaging, interactive educational experience. For example, rather than telling children about something, or relying on paper images it's now possible to show them - e.g. a lightning storm – teachers can now respond instantly and often convey information in more meaningful or effective way. The interactive nature of digital media is much more engaging. Digital learning products such as IXL explain when you get an answer wrong and allows teacher to monitor progress and intervene if and when needed. Children like the interactivity and being able to work at their own pace. The students now use digital technologies comfortably in their everyday lives. Use of a Blog by 3rd class has helped improve digital literacy skills and confidence and has enabled the students to be more digitally creative using digital photography as well as writing and online publishing skills.

Good quality online resources – such as Scoilnet and TES many of which are free, enable teachers to be more efficient in planning their lessons, assess quality and potential impact in advance, provide access to proven best practice examples including rich digital media lesson modules. This helps ensure the most appropriate and effective and engaging lessons can be made available to the students. Online teacher resources are also beneficial in terms of continued professional development.

The Audio Visual case study can be viewed at www.dcenr.gov.ie/nds

1. Complete Roll out of 100Mbps broadband to all Post Primary Schools.

DCENR, in partnership with the Department of Education & Skills are rolling out high speed 100Mbps broadband to all second level schools. All 750 schools will be connected by end 2014. The programme will enable ICT to play a central role in the development of the digital citizens of the future. In tandem with the infrastructure provisions there is also a focus on building capabilities within schools.

Working with DCENR and the Department of Education and Skills, the ESRI[45] is undertaking research on the impact of high capacity broadband on secondary school teaching and learning. The study will examine impacts in terms of teaching and learning outcomes and assess any impacts on student outcomes in areas such as motivation, attention, discipline, communication and process skills.

2. Development of new ICT Strategy and implementation plan

As part of the research phase of the development of a new ICT strategy for schools, the Department of Education & Skills issued an on-line census to all schools. The main themes addressed in the census are:-

- School-wide planning for integration of ICT in teaching and learning
- The current ICT infrastructural base across schools
- Continuing ICT related Professional Development (CPD) for teachers
- Curriculum-relevant digital content and software resources
- Opportunities presented by integration of ICT in teaching, learning and assessment
- Obstacles to ICT integration and how they could be overcome
- Exploring views and experience on the relevance of ICT in specific contexts (e.g. literacy and numeracy, special educational needs)

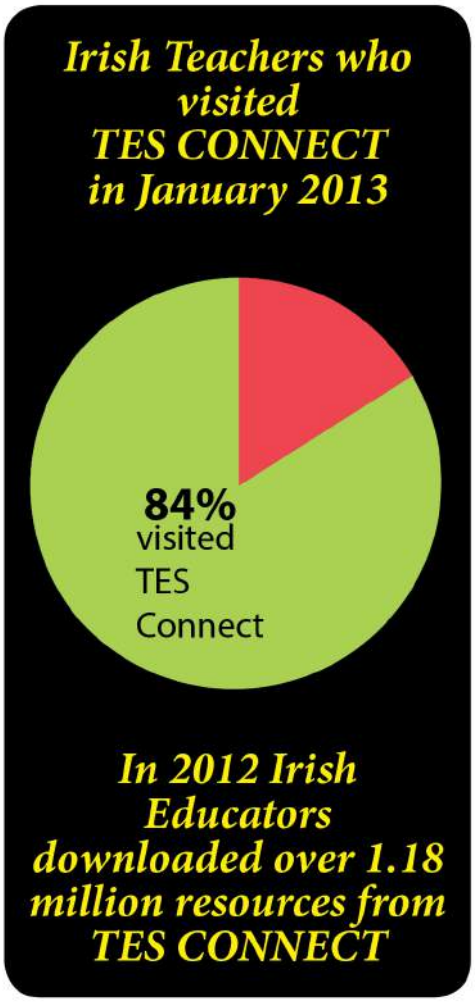
In addition to the school census the Department of Education & Skills will seek submissions from a variety of stakeholders on the role of ICT in education. Feedback from this process and the results of the school census will provide a sound research base to inform policy decisions on the further integration of ICT in teaching and learning over the next five years.

3. ICT in the curriculum

Primary Curricula
The Primary School Curriculum highlights the role of ICT as a resource which considerably enriches the teaching and learning of different aspects of the curriculum. It also emphasises the potential of ICT as a motivational tool in the classroom. A new integrated curriculum for languages is currently being developed by the National Council for Curriculum and Assessment. It will be available for junior classes (infants to 2nd class) in September 2014. The definition of text in the new curricula is inclusive of digital literacy. Digital literacy is embedded in the learning outcomes.

Literacy and Numeracy Strategy.
The National Strategy to Improve Literacy and Numeracy Among Children and Young People was launched in 2011. It focuses on achieving better literacy and numeracy outcomes for our children and young people through the best use of the resources at our disposal. The Strategy sets out a comprehensive range of actions designed to strengthen literacy and numeracy in our schools. These include curriculum reform, extensive professional development for teachers, extending the duration of initial teacher education, improved school leadership and self-evaluation, improved assessment and actions with parents to support their children's learning. The commitment in relation to digital literacy is threaded throughout the document. Digital literacy in included in the definition of literacy in the Strategy[46]. The Strategy seeks to ensure that the re-configuration of the content of initial teacher education (ITE) courses for primary and post-primary teachers ensure the development of their skills in literacy and numeracy teaching including digital literacy and how ICT may be used to support and enrich learning in literacy and numeracy.

In this context, it is worth noting that all programmes of Initial Teacher Education are now required by the Teaching Council to include ICT in Teaching and Learning as a mandatory element. Learning outcomes which are expected of Newly Qualified Teachers (NQTs) are also specified in its Criteria and Guidelines for Programme Providers and these highlight the importance of ICT in the context of establishing cross-curricular links and themes. Where programmes are reviewed by the Council for professional accreditation purposes, reports are published on the Council's website. Many of these contain recommendations and commendations in relation to the integration of ICT into programmes. This reflects the fact that ICT has been defined by the Council in its Policy on the Continuum of Teacher Education as one of three strategic priorities which should receive



particular attention in designing and delivering programmes of teacher education.

PISA Digital Literacy Findings

The OECD released a PISA report, Students on Line: Reading and Using Digital Information on in June 2011. This report contains the outcomes of the PISA 2009 Digital Literacy Assessment which was intended to assess how well 15-year olds respond to digital literacy tasks. Overall, Irish students performed significantly better than OECD average. Students in Irish schools performed relatively well on the digital literacy tests. Ireland's mean (average) score on the digital reading assessment at 509 score points is significantly above the average of the 16 OECD countries in the digital literacy assessment (500 score points).

Post-primary curricula

The new Junior Cycle

The Minister for Education & Skills recently launched a new Framework for Junior Cycle (students aged 12-15). This framework contains 24 Statements of Learning which students should experience and includes:

- using appropriate technologies in meeting a design challenge;
- applying practical skills as s/he develops models and products using a variety of materials and technologies;
- using technology and digital media tools to learn work and think collaboratively and creatively in a responsible and ethical manner.
- The use of electronic portfolios to support ongoing assessment and monitoring of student progress over the three years of junior cycle is being explored as part of Junior Cycle Reform.

Eight key skills will be embedded in all new subjects and short courses for Junior Cycle. Each key skill has diverse elements. Elements of the key skills particularly relevant to this Strategy include:

a. Using digital technology to manage myself and my learning
b. Being responsible safe and ethical in using digital technology
c. Using digital technology to communicate
d. Stimulating creativity using digital technology
e. Working with others through digital technology
f. Using digital technology to access manage and share content

In addition, the National Council for Curriculum and Assessment is developing short courses in digital media literacy and programming/coding which will be available for use by schools from September 2014. It is also open to schools and other agencies

Measures to ensure an adequate supply of digital teaching and learning material supported by DES

- The Scoilnet.ie portal website is providing teachers with access to over 13,000 classroom-focussed, digital content web resources, all of which have been mapped to the Irish curriculum. The site will be further developed to facilitate the sharing of open educational resources (OER) created by Irish teachers.
- The central procurement and distribution of niche digital reference content for all schools will be continued, e.g., an online encyclopaedia and Ordnance Survey Ireland mapping. Encyclopaedia Britannica online and Scoilnet Maps are available to all schools and pupils in Ireland free of charge. In line with the objectives of the National Digital Strategy the development of strategic partnerships with Irish public bodies and agencies that hold relevant cultural and historical content will be pursued in order to transform any valuable indigenous content into useful learning resources.
- The Scoilnet webhosting-blogging service facilitates the development of a school website or school blog (including text, images, audio, and video,). Free hosting is facilitated on the Schools Broadband Network and training supports are provided.
- Science Hooks is a series of innovative bilingual online science resources for post primary teachers designed and developed to encourage wider accessibility of video and support resources to teachers. The series focuses on very short videos that are visual and engaging, with support materials for science teachers, including literacy and numeracy guides.

to develop short courses. The new course for English in junior cycle, which will be finalised in September, includes digital literacy and digital text for the first time. There is an opportunity through the continuing professional development in Junior Cycle to use ICT both as delivery mechanism and for use in classrooms as a pedagogical tool.

Senior Cycle
As curricula at senior cycle are revised, the National Council for Curriculum is embedding five key skills: information processing; critical and creative thinking; communicating; working with others and being personally effective. Elements of these key skills include digital ones such as presenting information using a range of information and communication technologies. There are a range of technology subjects in post primary schools.

4. Empowering Teachers and Providing Digital Content

Evidence to date from the 100Mbps schools broadband programme, suggests that many schools are optimising the learning experience through the use of ICT with digital content providing opportunities for richer, more engaging learning experiences.

The Department of Education & Skills is implementing a number of measures to ensure an adequate supply of high quality, Irish curriculum-related digital teaching and learning material is available and that teachers are encouraged and supported to create and share their own digital resources.

In addition to EU and National Government initiatives, many private and voluntary agencies are developing networks and content for learners. Examples of this content include TED talks, the Khan Academy and TES. Irish teachers are increasingly using online resources to enhance lessons and learning outcomes. The Department of Education & Skills recommends that networks for learning include a high level of communication and collaboration with the learner to ensure active learning methods. The high levels of online educational resource use illustrates the appetite that exists amongst teaching professionals and the value Irish teachers already place on good online educational content. Taking TES as an example, 84% of Irish teachers visited TES Connect in January 2013. Ireland is the third fastest growing market worldwide. Last year alone Irish educators downloaded over 1.18 million resources from the site.

Case Study
Learning from Scratch

'Learning from Scratch' stated in September 2012 as a pilot focused around four National Schools in Limerick City. The goal was to introduce technology skills and basic computer science knowledge to pupils in National Schools in Limerick City & County. Initially, pupils started to learn coding and then other technologies were introduced e.g. Lego Robotics & Mindstorms.

In December 2012 Mary Immaculate College partnered with the project. Fifty 3rd year MIC student teachers were trained in Scratch Programing. These students then trained pupils. In total 350 pupils have been trained in twelve National schools with further plans in the pipeline for next September.

This project was developed to introduce the benefits of coding and explore the linkages to literacy and numeracy skills. It was felt that young people today have lots of experience interacting with new technologies, but a lot less so of creating and building them. Learning at a young age can enable seamless interaction and a creative learning environment where many skills are learnt. Technology learning will enable a digital youth for a digital workplace.

The feedback from schools, students and parents is very positive. Teachers have undergone 'Scratch' training sessions and schools have started working on ICT policies and have updated/installed wireless and bought new computer equipment. The nature and impact of the project is outlined in the short Audio-Visual Case Study.

The Audio Visual case study can be viewed at www.dcenr.gov.ie/nds

5. Peer to peer support & awareness raising

Despite the wide range of online resources available and the possibilities which ICT offers for learning, many schools may need assistance in realising the full benefits of ICT. Research by Nesta[47] has also pointed to the potential to do more to raise awareness amongst teachers of new (digital) tools that support learning.

PDST Technology in Education produce good practice videos. For example dealing with the use of tablet devices and Scoilnet maps in schools. The NCCA junior cycle network of schools also share experiences in the use of technology for learning.

working with key stakeholders and in co-operation with DES DCENR proposes to launch a series of "Switch On exemplar workshops" in schools to showcase examples of what schools can do enabled by high capacity broadband. The workshops will also provide an opportunity for schools to share experiences in the use of technology for learning.

DCENR have also produced some case study material to illustrate some of the potential of digital technology and online resources in schools with a view to using these to illustrate some of the potential and for use as part of the "Switch On" initiative.

6. Professional Development & eLearning initiatives

The Department of Education & Skills is actively pursuing the integration of ICT into teaching and learning through its ICT in Schools programme. eLearning planning will be a core module of all leadership courses provided by the Professional Development Service for Teachers.

7. ICT skills and STEM

The former NCTE in partnership with LERO - the Irish Software Engineering Research Centre and CESI - the Computer Education Society of Ireland supported a programme of teacher CPD in Scratch programming. This led to a roll out of a national programme of CPD for teachers countrywide focused on using Scratch to support specific aspects of the curriculum as well as on developing skills in using Scratch. PDST Technology in Education (formerly NCTE) is continuing this national programme in 2013 and it is expected that a further 300+ teachers will avail of Scratch training in the summer of 2013.

At post primary level a number of schools have been working with

ICS Skills in piloting a computing curriculum based on a "Digital Media Creation" and a "Computational Thinking" module. It is planned to roll out these plus additional modules in September 2013 making these available to schools more widely.

A number of independent initiatives have also evolved that are introducing young people to coding in an environment outside of the traditional classroom. Initiatives like "scratch" and "Coder Dojo" start young people on the road to learning how to code and are growing in popularity.

Some of the code writers of today will be the entrepreneurs of tomorrow. The Digital Hub Development Agency working with NCAD has developed a "Future Creators" project which is providing extra-curricular supports for second level students who are interested in developing coding and digital media skills. The aim of the programme is to provide them with a pathway to third level education. Early Evidence suggests significant positive outcomes (see Future Creators case study for further information).

Case Study CoderDojo

CoderDojo is a movement orientated around running free not-for-profit coding clubs and regular sessions for young people. At a CoderDojo, young people learn how to code, develop websites, apps, programs, games and more. Dojos are set up, run by and taught at by volunteers. The objective is to make development and learning to code a fun sociable experience. CoderDojo is a not-for-profit organisation founded by James Whelton and Bill Liao. It began in James Whelton's school in Cork in 2011 when James setup a computer club and started teaching basic HTML and CSS.

Later that year he met Bill Liao, an entrepreneur and philanthropist, who was interested in growing the project into something bigger. In June 2011 the first CoderDojo was launched in the National Software Centre in Cork where CoderDojo saw extreme success and has grown from there as a movement with the setting up more Dojos around Ireland and subsequently around the world.

"Digital poetry, the world's greatest computer programmers have an exquisite economy of expression coming from years of practice, the best of the best started very young and they are rare. How is it that an entire generation of kids has grown up without learning to code? For two years CoderDojo has been attempting to redress this global deficit with a free collaborative programme that now boasts over 196 locations across Europe and a presence in 27 countries across the world, where thousands of kids have learned the fundamental digital art of computer programming."

Bill Liao (Co-Founder CoderDojo) June 2013

This Audio Visual clip shows some CoderDojo sessions in a number of locations in Ireland and can be viewed at www.dcenr.gov.ie/nds

Case Study
Future Creators

Future Creators is an after school programme in digital technology and content for young people. Run as part of The Digital Hub learning programme, in the Liberties, Dublin 8, it recognises that there are a range of 21st century skills that are not really developed in the formal education system.

The first programme, with 24 young people ran for the 2011-12 academic year, the second programme is almost complete. Young people living in disadvantaged inner city locations have a higher drop-out rate from second level schools. Digital technology and content can provide an outlet for untapped talent in these young people. Developing skills to use and create digital technology and content are key enablers to better future career prospects. The Programme's Academic partner, the National College of Art & Design (NCAD) has taken the lead in curriculum development and tutoring.

The Digital Hub, through its network of schools and digital enterprise provides the admissions process and connection to the real world jobs market. The programme entails:

- An introduction to a range of content and technology areas as a taster of learning opportunities
- Team projects are the main focus after the first term
- Both technical skills such as programming and content skills such as animation are developed
- Links are made between digital content and technology companies throughout the programme
- Student projects are showcased in NCAD in June
- Student accreditation by NCAD

Future Creator graduates have shown a real interest in digital. Key transferrable digital skills and experience have been gained by the participants. Families, schools and the participants report a marked improvement in confidence and participation. Alumni programmes are now established to meet the demand of graduate students for further skills. The results to date show that by developing the team working, problem solving, creativity, innovation and communication skills of young people using digital technology, their confidence and performance inside and outside school improves. The results also show that as a result they have foundation skills that are of key interest to future employers.

The Audio Visual case study can be viewed at www.dcenr.gov.ie/nds

Organisations such as "Techspace" working in the informal education sector with youth organisations are using digital technology to positive effect and providing young people with the opportunity to use technology to become digital creators or pursue their own interests through technology.

A three year partnership involving public and private stakeholders to transform computer science and better enable teachers and students to develop 21st century STEM skills was announced in May between Google and Trinity College's Bridge 21 programme under the Trinity Access initiative. The project will compliment reforms by the Department of Education & Skills and is aimed at providing the next generation of computer scientists and will use a range of interventions focusing on second level including:- training for teachers in 21 century computer science teaching skills, provision of Raspberry Pi's to facilitate practical programming and a national coding competition for students and their teachers.

Technology in Higher and Further Education and Training

FAS Training Services - eCollege

FÁS provides a large number of Online and Blended Learning courses targeting specific skills gaps in the labour market. These courses are delivered through a network of 19 training centres and selected providers nationally. eLearning is increasingly used in the form of Blended Learning courses that combine Face to Face workshops with Online delivery. FÁS eCollege (www.ecollege.ie) is the national online learning provider, delivering tutor supported online courses free of charge to approx. 12,000 unemployed learners annually. eLearning resources are available from FÁS eCollege for use by all learners engaged in FÁS funded training courses.

With the establishment of SOLAS (Seirbhísí Oideachais Leanunaigh agus Scileanna) as the new Irish Further Education and Training Authority and the establishment of the new Education and Training Boards, eCollege will continue to provide eLearning opportunities nationally. eCollege will also be available for use by the entire FET sector in providing access to resources and systems inc. Virtual Learning Environments, virtual labs, virtual classrooms, ePortfolios and content managements systems and eLearning resources.

ICT graduates

There is a broad range of mainstream higher education courses available in ICT and Computing. The ICT Action Plan establishes an overarching target of doubling the annual output from honours degree ICT undergraduate programmes to 2,000 graduates by 2018. Updated projections for ICT graduate output are currently being

finalised. As part of the ICT Action Plan, almost 1,500 places have been made available for graduate jobseekers since 2012 under two rounds of the ICT graduate skills conversion programme. The programmes, which are selected for funding following an open competitive tendering process, are designed and delivered in partnership with industry and equip graduates with core computing and programming skills as well as with a range of specialisations in niche areas of growth potential. In addition, 3,700 people have enrolled on ICT programmes under the Springboard reskilling initiative, which was first rolled out in 2011.

eLearning is also a key component in labour market training initiatives:

- Under the Government's Action Plan for Jobs 2012 DES launched a new Labour Market Education and training fund known as MOMENTUM. This programme will be funded by the National Training Fund (NTF) and will be co-financed by the European Social Fund. Momentum will provide a range of quality, relevant education and training interventions for up to 6,500 individuals who are long term unemployed including an eLearning option through www.eCollege.ie.
- The SOLAS/FÁS Training Specifications have been amended for delivery through Blended Learning and Online Learning which are available nationally.
- Many of the Training Networks under "Skillnets" have embraced the delivery of both pure eLearning and blended eLearning training programmes in a wide range of industries.
- FÁS through its Training Centre facilities, contracted training units and its community training initiatives provides a wide and diverse portfolio of training interventions designed to provide learners with the appropriate IT knowledge, skills and competence to avail of an extensive range of 21st century IT and digital labour market opportunities. The range of skill areas covers a wide portfolio[48] of courses and spans, programming and software development, IT systems, design, digital media and web related skills.

Digital Engagement by young people and Internet safety

Notwithstanding the opportunities which digital presents for learning and development, the EU Kids Online survey[49] found that

- 11% of children (aged 9 to 16) had been bothered by something on the internet.
- Half of Irish parents felt they should do more to make their children's internet experience better.

Initiatives to assist parents, teachers and others in promoting safer internet use by young people include:-

- Webwise.ie - provides advice for parents, teachers and children on

using the internet safely.

- The Office for Internet Safety has made available a range of useful resources at www.internetsafety.ie including "parents guides" covering:- new media technologies; filtering technologies, social networking and websites, and a guide on cyber-bullying.
- The Action Plan on Bullying published this year includes specific recommendations for further actions to address cyber-bullying.
- makeITsecure - provides a focal point and guide to users on security aspects of the internet with specific sections for young and older users as well as business users.
- Interdepartmental collaborations[50] have produced the 'Connect with respect' and 'Watch your space' awareness campaigns to help ensure internet safety. Further supports will be developed in this collaborative way to help ensure responsible use of digital tools.

Building on the EU Kids online Research it is now planned to conduct further research on children's use of mobile devices connected to the internet. With funding support from DCENR, DES, DIT and others Dublin Institute of Technology will lead the research project – "Net Children Go Mobile" - for Ireland. The study will focus on the nature and extent of children's internet and social network use focusing in particular on mobile devices. Part of this study will examine the issue of internet risks and safety for young people including their skills in using the internet safely. It will also explore the prevalence and nature of cyber bullying with a view to informing further strategy and policy approaches.

Next Phase & Medium Objectives

While the focus of this foundational phase of the NDS has substantially been on digital engagement with a focus on measures to deliver more digital engagement it is recognised that there are a range of other issues of crucial importance to achieving the full potential of digital.
Some of these, e.g. "Big Data" are being progressed in other fora[51]. Many have an international dimension and relate to the delivery of a single market and will need to be progressed in that context. Issues which merit a specific focus in the next phase of our National Digital Strategy will include:-

- trust and confidence including authentication, eSignatures and e-identification. Business and consumers need to be assured that their personal and financial data is secure when they embark on online transactions. For this reason, identity and authentication is a key priority in the eGovernment strategy and is also the subject of proposed new legislation which is currently being progressed at EU level.
- secure and affordable system for cross-border online payments,
- Copyright and the need to have in place an appropriate infrastructure to support the growth of the digital agenda. This would include having in place a suitable legislative framework as well as looking to the relevant business sectors to adopt industry led solutions such as for instance the adoption of appropriate licensing arrangements that would, on the one hand recognise and compensate the Intellectual Property holder for the content of the work, while at the same time enable maximum access to the content by a global audience.
- open data - the potential for re use of public service information to unlock the door for entrepreneurs and researchers to provide new and innovative products for citizens and business
- privacy
- standards

Critically, over the coming months, working with industry and Government colleagues, the Strategy will examine international experience in maximising the opportunities of a digital society. Countries such as Singapore, South Korea and others are already excelling at developing their digital economy. Ireland is not alone in addressing this challenge, and by seeking to understand the "best in class" internationally, we will position the Strategy to take better advantage of the natural opportunities which exist for Ireland, including our young, English speaking, well-educated and globally mobile population, the strength of our national and multinational digital sector, and our position within Europe.

GLOSSARY

CEUD – Centre for Excellence in Universal Design
CIO – Chief Information Officer
DES – Department of Education & Skills
DCENR – Department of Communications, Energy & Natural Resources
DHDA – Digital Hub Development Agency
DIT – Dublin Institute of Technology
EGFSN - The Expert Group on Future Skills Needs
EI – Enterprise Ireland
FDI – Foreign Direct Investment
FIT – Fast Track to Information Technology
ICT – Information & Communications Technologies
IDA – Industrial Development Authority
IGAP - Internet Growth Accelerator Programme
NCAD – National College of Art and Design
NDRC – National Digital Research Centre
NDS – National Digital Strategy
PDST – Professional Development Service for Teachers
SME's – Small Medium Enterprise

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APPENDIX 1 - STAKEHOLDERS ENGAGED WITH

Age Action Ireland
Amárach Research
Bank of Ireland
Central Bank of Ireland CEUD - Centre for Excellence in Universal Design
CMOD - Centre for Management & Organisation Development
Computers in Education Society of Ireland
Connemara on Line/Connemara Programme
Denise Leahy
Department of Education and Skills
Department of Enterprise, Jobs and Innovation
Digital Hub Development Agency
Doro
Dublin Chamber of Commerce
Dublin City Council
Dublin City Enterprise Board
Dublin City University
Dublin Institute of Technology
Enclude
Enterprise Ireland
Fintan Mulligan
FIT – Fas Track to Information Technology
Forfás
Google
IBEC ICT Group
IBM
ICS Skills/ECDL
Irish Internet Association
INDIE - Irish network for Digital Inclusion & Engagement
Irish Payment Services Organisation
Jim Devine
LEDP – Limerick Enterprise Development Partnership
Limerick Community Connect
LogonLearn
Mary Becker
Mastercard
Microsoft
National College of Art & Design
National Council for Curriculum & Assessment
NCBI
NDA – National Disability Authority
NDRC – National Digital Research Centre
Padraig Kenny
PayPal
Lord David Puttnam – Digital Champion for Ireland
RTÉ
Senior Helpline
Techspace
The Wheel
Third Age
Trinity College Dublin
UPC
VEC
Visa Europe

INFOGRAPHIC REFERENCES

[1]CSO Information Society Statistics, (Enterprise) Dec 2012.
[2]CSO December 2012 - Information Society Statistics - Households 2012.
[3]CSO 2012.
[4]Amárach Research - UPC Report on Ireland's Digital Future (2012).
[5]Indecon Report.
[6]Amárach Research - UPC Report on Ireland's Digital Future (2012).
[7]Amárach Research - UPC Report on Ireland's Digital Future (2012).
[8]Indecon Report.
[9]Indecon Report - digital growing at 16% a year.
[10]Indecon Report - This consumer surplus estimate is based on Broadband subscription data.
[11]Figures for employment in these sectors relate to Q1 of 2013 and are from CSO QNHS Headline Labour Market Indicators - 2013. The figures for digital are from the Indecon Report.
[12]"Grand Coalition on Jobs" launched by the European Commission.

REFERENCES

[1]Source - Indecon Report – dealt with in more detail later in this document.
[2]NDS digital adoption measures will help stimulate demand for communications services leveraging more value from infrastructural investments. More widespread broadband adoption will facilitate wider and deeper digital engagement.
[3]Better digital adoption and more pervasive digital skills will facilitate more people to transact online and use electronic payment methods. The Plan aims to improve consumer payments systems, modernise business payments, promote electronic payment methods, reduce costly cheque usage, increase the efficiency of the use of cash and ensure that Ireland meets its commitments under the Single European Payments Area Regulation (SEPA). If Ireland were to match best practice in Europe, it is estimated that savings of up to €1 billion per annum could be made to the economy. This would result in better value for the customer, lower back-office administration cost for Government, lower administration cost for business and lower operating costs for financial institutions. The NPP aims to help improve the competitiveness of the Irish economy and efficiency of the payment infrastructure in Ireland. By encouraging businesses to adopt better use of ICT for financial transactions, the National Payments Plan will complement the targets in this National Digital Strategy. Ultimately, digital will have a transformative impact on Government, businesses and consumer efficiency.
[4]Measures developed as part of the NDS process to encourage and help small businesses to trade online, access new markets, grow and create jobs have been incorporated into the Action Plan for Jobs 2013.
[5]NDS measures to widen the number or people online and to facilitate digital skills training including transactional use will broaden the user base of online public services. This will lead to better services for those citizens and facilitate greater efficiencies in public service delivery.
[6]It will aim to improve healthcare through the use of ICT and internet technology, as well as facilitating further efficiencies within the healthcare system.
[7]David Puttnam lives in Ireland and has a strong track record in promoting digital engagement, particularly in the education sector. Lord Puttnam spent thirty years as an independent film producer, his films have won 10 Oscars, 25 Baftas and the Palme D'Or. Since 1998 he has focused on public policy as it relates to education, the environment, and the 'creative and communications' industries. He was founder of the National Teaching Awards, founding Chair of NESTA and The General Teaching Council of England. His former roles include - President of UNICEF UK, Deputy Chairman of Channel 4 Television; Chairman of the several Joint Parliamentary Committees. He was awarded a CBE in 1982, a knighthood in 1995 and appointed to the House of Lords in 1997. In France he was made a Chevalier (1985), Officer (1992) and Commander (2006) of the Order of Arts and Letters. For more information see davidputtnam.com
[8]Economist Intelligence Unit (2012) – Superfast Britain? A study from Vodafone and Ingenious Consulting in 2010 is reported to show that the greater consumer surplus results from investment in the rollout of standard broadband to 100% of households – at €2.25 per €1 invested compared to €0.34 for every € invested in rollout of superfast broadband to 64% of urban areas.
[9]Indeed people with no access to water, electricity or other services may have access to the internet from their mobile phone – OECD Internet Economy Outlook 2012.
[10]With mobile connections accounting for 34% of broadband subscriptions in Ireland.
[11]OECD Internet Economy Outlook 2012 – Highlights P2.
[12]Source – Eircom Home sentiment survey – April 2013.
[13]To inform this strategy DCENR commissioned independent research on the contribution of digital to the Irish economy. The research was conducted by Indecon. The full Indecon Report is being published on the NDS page of the DCENR website (www.dcenr.gov.ie/nds) in tandem with the launch of this NDS. Indecon Report. – Assessment of the Macro-Economic Impact of Internet/Digital on the Irish Economy. (February 2013) The 4.4% estimate is based on their "central scenario" and represents an increase from an estimated 2.7% in 2009.
[14]the purchase of which are facilitated by the internet.
[15]94,613 jobs are supported in the Irish economy through the expenditures associated with the internet/digital – using the "central scenario".
[16]This feedback mechanism might for example be modeled on industry standard approached such as the seller and buyer feedback on eBay, or hotel reviews on TripAdvisor.
[17]National Disability Survey, conducted by the CSO after the 2006 Census, estimated 749,100 persons, or 18.5% of the population - had a disability.
[18]The report provides good practice guidance covering website structure, navigation, graphic design, search facilities, clarity of content, design for mobile devices etc.. It stresses the value providing an effective channel for user feedback as a resource to continually improve service offerings.
[19]Doc. 17344/12 Telecom 250 CONCOM 155 MI 811 CODEC 2936
[20]As currently proposed the directive, once approved would be transposed by June 2014 with a requirement for all relevant websites meet the stipulated standards by December 2015.
[21]Web Content Accessibility Guidelines (WCAG 2.0) to Level AA standard.
[22]CSO, Information Society Statistics, Enterprise Statistics Dec. 2012. Relates to companies with 10 or more persons employed.
[23]No relevant national data on this focusing specifically on very small Irish businesses is currently available.
[24]Estimates vary from 30,000 to 140,000 depending on the definition of a "business".
[25]Quantifying the Economic impact of the internet – HBS Working Knowledge http://hbswk.hbs.edu/cgi-bin/print/6268.html
[26]Centre for Retail Research, The Retail Futures 2018 report
[27]Accent Report November 2011.
[28]The first WebActivate was a trial and operated in Cork, Galway & Dublin, involved training 200 people from the live register and supported 600 companies to trade on-line, conducted in 2010 by the Digital Hub and Digital Skills Academy, supported by the Labour Market Activation Fund. WebActivate 2.0 is now operated by the Digital Skills Academy at the Digital Hub.

[29]This approach has been successfully employed in the past by Dublin City Enterprise Board
[30]"Online is our encyclopaedia for life" – Eircom Household Sentiment Survey – April 2013.
[31]This can be done by assessing the value people themselves believe they receive from the internet access over and above what it costs them to access it. Indecon applied a "prudent" simple technique to derive an indicative estimate of the value consumer surplus for Ireland. Based on data for households in 2012 with a broadband subscription. They estimate it at €981m or €711 per household . Other research approaches such as the loss aversion methodology used by BCG which focus in depth on the consumer surplus produce higher values with a derived a consumer surplus of $1,430 per person in the G20.
[32]Cotten, S., Ford, G., Ford, S., & Hale, T.. (2012). Internet use and depression among older adults. Computers in Human Behaviour, Vol. 28, Issue 2, March 2012, Pages 496-499.
[33]For example, the services provided by the Revenue Commissioners or the Motortax online service.
[34]Eircom Household Sentiment survey – April 2013. Based on survey of broadband account holders.
[35]Recent research indicates that approximately one third of people already work from home to varying degrees and that most people would be keen to work from home more. Source Amárach Research – UPC Report on Irelands Digital Future (2012). Pages 18, 22.
[36]Three out of four Irish adults surveyed in 2012 said the internet allows them to make smarter purchasing decisions. Source - Amárach Research – UPC Report on Irelands Digital Future (2012). Page 20.
[37]Four in ten Irish adults surveyed in 2012 said they wouldn't be able to afford many of the things they want without the internet. Source - Amárach Research – UPC Report on Irelands Digital Future (2012). Page 20.
[38](c €650 at Feb. 2013 exchange rates)
[39]PWC (2009) Champion for Digital Inclusion - The Economic Case for Digital Inclusion.
[40]Source Amárach Research – UPC Report on Irelands Digital Future (2012). Page 10.
[41]The approach will be informed by approaches taken in the Digital Switchover campaign.
[42]Eircom Household Sentiment survey – April 2013. Based on survey of broadband account holders.
[43]EU: Digital Agenda Scorecard 2012
[44]Research for Ireland also indicated that the number of Irish users creating a web page was about half the EU average.
[45]The research is funded by the ESRI Programme of Research in Communications, with support from the Department of Communications, Energy and Natural Resources and the Commission for Communications Regulation. Data will compare pre and post intervention both for the group of schools in the programme and a control group.
[46]Traditionally we have thought about literacy as the skills of reading and writing; but today our understanding of literacy encompasses much more than that. Literacy includes the capacity to read, understand and critically appreciate various forms of communication including spoken language, printed text, broadcast media, and digital media. Throughout this document, when we refer to "literacy" we mean this broader understanding of the skill, including speaking and listening, as well as communication using not only traditional writing and print but also digital media.
[47]Nesta (2012) Decoding Learning: The proof, promise and potential of Digital Education.
[48]The portfolio of courses includes but is not limited to:- Java Programming Levels 1 and 2; Software Developer (includes JAVA, VB, VB.Net and C#); MySQL / PHP; Computer Programming & Game Design; MTA Software and Networking Fundamentals; IT Support Specialist; Software Tester; IT Maintenance; Computer Applications & Office Skills; Manual & Computerised Payroll and Bookkeeping; Computer Network Installation & Maintenance; Digital Web Design; Web Developer; Web Design Introduction; Computer Literacy; internet Skills; Digital Media; Desk Top Publishing; Advanced Digital Imaging; Multimedia Training; 2D and 3D Computer Aided Design; 3D Parametric Modelling.
[49]Research was conducted April to August 2010.
50Involving the 'Garda Schools Programme'; 'Webwise'; 'Stay Safe programme'; and the SPHE support service.
[51]As part of the Action Plan for Jobs 2013 a range of actions, including the establishment of a joint industry-government Big Data Task Force are being taken to make Ireland a leading country in Europe in Big data and strengthen the ecosystem for Big Data in Ireland.

www.dcenr.gov.ie/nds