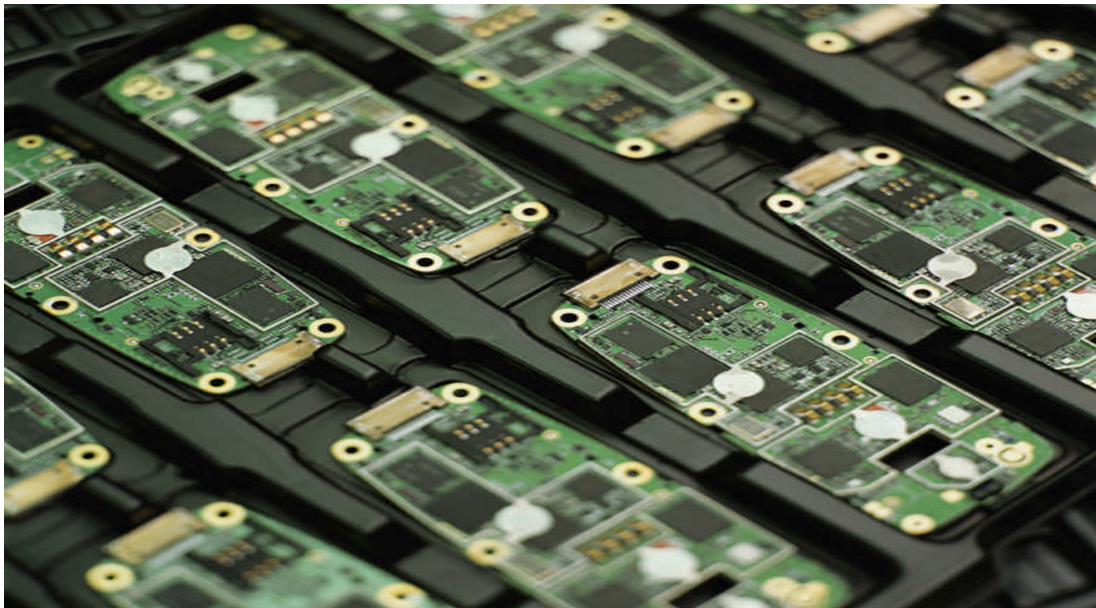


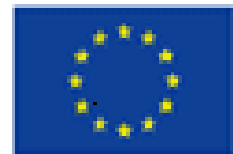
Department of Enterprise, Trade  
and Investment

Updated evaluation of  
Information Society activity  
supported through EU Structural  
Funds



Final report

April 2007



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# Executive Summary

## Introduction

- 1.1 This report is an update of progress that has been achieved on Information Society activity supported through the Structural Funds in Northern Ireland under the 2000-2006 programming period. Building on a previous review that was conducted in 2003, the report examines progress of Information Society activity in Northern Ireland towards the aims and objectives of the i2010 action plan. From this analysis, the report also reflects on progress towards achievement of the Lisbon agenda, identifies gaps in current provision and provides recommendations for targeting future financial resources in Northern Ireland.
- 1.2 In 2005, the Commission set out a strategic framework for the Information Society, Strategy i2010 – a European Information Society for growth and employment. Strategy i2010 builds on its predecessor, the eEurope 2005 Action Plan, and promotes an open and competitive digital economy with an emphasis on ICT as a driver of inclusion and quality of life. Overall, the i2010 Strategy, set forth three objectives, as follows:
- A single Information space offering affordable and secure high bandwidth communications, rich and diverse content and digital services;
  - World class performance in research and innovation in ICT by closing the gap with Europe's leading competitors;
  - An Information Society that is inclusive provides high quality public services and promotes quality of life.
- 1.3 Within the context of the renewed Lisbon process, the Commission has expressed the view that the EU Structural Funds should aim at promoting investment in the Information Society<sup>1</sup> and advancing progress towards eEurope 2005 and Strategy i2010.
- 1.4 In Northern Ireland, the EU Structural Funds have supported a range of activities over the 2000-2006 programming period that contribute towards developing Information Society. However, while acknowledging that the impact of current initiatives and funding had not yet been fully implemented, an evaluation report conducted in 2003 noted that progress towards each of the eEurope objectives varied extensively between each of the measures and between the respective implementing bodies involved.
- 1.5 Now that the 2000-2006 programming period has just finished, opportunity exists to update the analysis of 2003 and provide an overview of progress towards the aims and objectives of the new i2010 Action Plan. It is within this context that PricewaterhouseCoopers were commissioned in December 2006 to conduct an update evaluation of Information Society activity supported through the EU Structural Funds.

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<sup>1</sup> COM(2006) 129, Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions *Bridging the Broadband Gap*

## Terms of reference and methodology

1.6 The terms of reference for this assignment are as follows:

- To map the current provision of Information Society activity funded through the EU Structural Funds and provide a comparison with the 2003 findings in order to report progress;
- To identify gaps in the current provision;
- To report on the extent to which the provision has advanced Northern Ireland's progress towards achievement of the Lisbon Strategy;
- To provide practical recommendations vis-à-vis targeting of future financial resources in order to address any shortfall in provision or lack of progress in key areas.

1.7 The work undertaken for the evaluation involved the following:

- **Desk based analysis:** this involved a review of key EU policy documents, reports and documents made available from Project Steering Group and other stakeholders, reports and available data on performance indicators in relation to the EU Structural Funds in Northern Ireland;
- **Interviews with key stakeholders involved in the delivery of Information Society measures:** the EU Structural Funds have supported a range of activities that contribute towards developing the Information Society. However, following consultation with the Project Steering Group, it was agreed that the evaluation should largely focus on the measures in the Structural Funds Programmes that are specifically focused on developing the Information Society. On this basis, interviews were held with the representatives from implementing bodies that were responsible for the following measures:

**Table 1: Specific Information Society measures funded through the EU Structural Funds in Northern Ireland**

Programme / Initiative	Measures specially focused on Information Society activity
PEACE II	1.8a Innovation Technology and Networking
	1.8b Information Age
BSP	1.2 Research and Technology Development and Technology Transfer
	1.5 Information Society
	1.7 Telecommunications
	2.5 Education and Training ICT and Infrastructure Support
INTERREG IIIA	1.2 Knowledge Economy
	2.1c Telecommunications

- **Interviews with key stakeholders involved in mainstream funding:** Taking forward views of the Project Steering Group and one of the lessons from the 2003 evaluation report, consideration was also given to examining the impact of other EU and mainstream government initiatives on the Information Society. This analysis was conducted to provide a more comprehensive and strategic overview of Information Society activity and examine the degree to which Structural Funds complement other broader initiatives. To this end, interviews were also conducted with representatives from the DFP Delivery and Innovation Division and the Abacus Partnership, which is responsible for the 6th EU Framework Programme (FP6) in Northern Ireland.

## Progress towards Strategy i2010

- 1.8 The EU Structural Funds in Northern Ireland have made an important contribution to delivering Strategy i2010. Since 2003, for example, broadband has been established across Northern Ireland, further investment has been provided by businesses for R&D, an increase in the level of ICT skills has reduced the knowledge gap and accelerated e-commerce, and greater infrastructure has been provided for some public services. Overall, substantial progress has been achieved under each of the key elements of Strategy i2010.

### A single information space

- 1.9 Since 2003, one of the key areas of progress has been in the delivery of broadband infrastructure. Indeed, while the 2003 report found that the infrastructure initiatives were mainly at the feasibility and piloting stage, 100% broadband coverage has now been achieved across Northern Ireland and cross-border communication linkages have increased.
- 1.10 In combination with activities to raise awareness of broadband availability, the level of take-up has increased significantly with over half of the 45% of households in 2005/06 which accessed the internet using a broadband connection. In addition to this, activities are focusing on increasing competition among providers to reduce costs and enhance the level of provision.

### Innovation and investment in research

- 1.11 The experience of the 2000-2006 programming period has shown that the Structural Funds have made an important contribution to R&D and enhancing support for research and innovation in businesses. The Structural Funds, for instance, have established RTD centres of excellence (4 of which are specifically related to Information Society), promoted research placements within businesses and helped to increase the level of business expenditure on R&D. The EU Research Framework Programme has complemented this activity by also promoting R&D.

### Inclusion, better public services and quality of life

- 1.12 A further key outcome of Structural Funds activity has been enhancing the level of e-commerce within business. There has been a strong level of participation by business in ICT measures and activities have helped to increase the awareness of the benefits of ICT, assist in the development of e-business strategies, and generally to upskill businesses and encourage the usage of ICT processes. In this regard, the Structural Funds have worked to enhance the level of working and participation in the knowledge based economy and have continued to build on the strong progress made in this area that was outlined in the 2003 report.
- 1.13 In addition, the Structural Funds have provided support to encourage the development of better public services. The provision of broadband infrastructure, for example, has

helped to enhanced teaching and learning environments in third level education, facilitated meetings of local government and provided access to visitor information for tourists. In regard to developing public services, the C2k initiative has been one of the main activities under the Structural Funds and has established a comprehensive ICT infrastructure across a network of schools.

- 1.14 In recent years, mainstream government activities have also worked to facilitate greater co-operation and sharing of information between government departments and agencies. Increased efforts, for example, have been made over the last number of years to progress the Digital Inclusion Strategy and establish common networks across the public sector. While the outcomes of these initiatives have yet to be fully realised, it is evident that the required infrastructure is being put in place to ensure the development of the e-government agenda.

### Progress towards 2003 recommendations

- 1.15 Overall, most progress has been made towards increasing awareness of eEurope objectives. With a view to raising awareness of the eEurope Action Plan, the ISWG organised two European conferences. These conferences showcased best practice and discussed progress in Northern Ireland towards the objectives of the eEurope 2005 Action Plan.
- 1.16 Other recommendations of the 2003 Report have been also addressed by the ISWG. In particular, an Action Plan for the progression of recommended action has been proposed and endorsed by the CSF Monitoring Committee. ISWG ensured that the plan was consistently implemented.

### Gaps in provision

- 1.17 While much progress has been made in developing Information Society activity in the 2000-2006 programming period, gaps in the current provision and areas in which more progress needs can be highlighted. These include:
- **International and cross-border connectivity:** while 100% broadband coverage in Northern Ireland has been achieved and much progress has been made in developing cross-border communication links, areas still remain in which the infrastructure can be enhanced. This specifically relates to increasing the level of connectivity both on an international and cross-border basis which will help to facilitate greater competition, ensure security of supply and enhance the level of provision to more remote areas along the border corridor;
  - **Enhancing take-up of broadband and ICT:** in the 2000-2006 programming period, the provision of 100% broadband coverage has provided an ICT infrastructure which is available across Northern Ireland. During this time, the level of take-up of broadband has increased significantly: 42% of households now have a broadband connection.<sup>2</sup> The latest Northern Ireland Chamber of Commerce Business Monitor also indicates that 61% of businesses have a broadband connection<sup>3</sup>. This level of take-up of broadband and ICT, however, is not evenly balanced as a skills gap still exists among some businesses and organisations. In addition, geographic disparities are evident as businesses that are located in the east of Northern Ireland show a greater level of uptake than those in the west. This suggests that further efforts need to be made to stimulate the demand in ICT by raising awareness and addressing skills gaps;

<sup>2</sup> Northern Ireland Omnibus Survey 2006, NISRA

<sup>3</sup> NI Chamber of Commerce Business Monitor, 2007

- **Security, interoperability and data transfer:** in the 2000-2006 programming period, much emphasis has been placed on ICT infrastructure such as providing 100% broadband coverage or ICT facilities across schools. However, although the infrastructure has been set in place, increased levels of co-ordination between government departments and agencies has not followed in all cases. The experience of the C2k initiative, for example, has highlighted that a number of constraints to enhancing ICT exist including interoperability, standardisation of information and data protection. While some mainstream government initiatives are focusing on data protection and the transfer of information, it is evident that more progress needs to be made in this area. This is particularly important as interoperability and security are outlined as key elements in the i2010 Strategy (under the theme of a Single Information Space) and are necessary conditions to enhancing the development of the Information Society and making public services better. In addition, interoperability can increase economies of scale;
- **The commercialisation and ownership of research:** under the Structural Funds and the EU Research Framework Programme, support has been provided to promote R&D and facilitate linkages between business and universities. While much progress has been made in developing research activities, as highlighted by the number of research placements and the increase in expenditure on R&D, some difficulties were experienced in establishing linkages between business and universities, particularly under the EU Research Framework Programme. These difficulties were mainly centred on issues over the levels of risk between partners, the ownership of research and which partner has responsibility for commercial development. These issues have the potential to become a major barrier to R&D and collaboration between business and university and need to be addressed if further progress towards i2010 and the Lisbon Agenda is to be achieved.

## Recommendations

1.18 From examining progress towards Strategy i2010 and identifying gaps in current provision, a number of recommendations for targeting future financial resources have been identified. Many of these recommendations specifically focus on the gaps in provision.

- **Recommendation 1:** It is recommended that further consideration is given to reviewing the level of broadband infrastructure to ensure it is updated in light of ongoing technological developments. Given Northern Ireland's peripheral location, consideration should also be given to enhancing the security and speed of supply, this includes developing connectivity on a cross-border and international basis and with other international networks.
- **Recommendation 2:** It is recommended that consideration is given to stimulating demand for the up-take and inclusion of ICT. This could be achieved by raising awareness through promotional activities, introducing measures to further increase competition among suppliers, and addressing skills gaps through the continued provision of training and support for e-business processes.
- **Recommendation 3:** With a view to developing greater linkages between government departments and agencies, it is recommended that further support is provided to address issues of interoperability, standardisation of information and data protection / security. This could include further development and expansion of the Government Gateway project which aims to promote greater internal and external security.
- **Recommendation 4:** It is recommended that consideration is given to developing activities that promote a more integrated approach to R&D between universities and business. This approach should ensure the development of partnership

arrangements based on agreeable terms of ownership of research and the sharing of risk. An integrated approach would ensure the universities' research products and ideas are recognised but would also allow business to play a key role in the commercialisation of research outcomes.

- **Recommendation 5:** It is recommended that research is conducted on the development of C2k to learn and build on this investment and transfer the lessons to other ICT approaches within the public sector. In addition, given the important role that schools play in the local community, opportunity exists to extend accessibility to C2k ICT infrastructure to other sectors and groups beyond primary and secondary schools. This could include, for example, utilising the infrastructure to provide training courses for the unemployed, SMEs or farmers.
- **Recommendation 6:** It is recommended that consideration is given to further maintaining and enhancing the C2k infrastructure within schools and encouraging the integration within educational provision. This could include initiatives to develop and enhance the skills of teachers, increase bandwidth and develop collaborative schools projects such as video conferencing which will facilitate greater networking between schools.
- **Recommendation 7:** In regard to future cross-border initiatives promoting Information Society activities, it is recommended that consideration be given to promoting a more strategic approach to development. This approach would be more prescriptive in terms of what Information Society initiatives are required and would provide less opportunity to develop project led / demand based activity.

# 1 Introduction

## Aim of report

- 1.1 The aim of this report is to provide an update of progress that has been achieved on Information Society activity supported through the Structural Funds in Northern Ireland under the 2000-2006 programming period. Building on a previous review that was conducted in 2003, the report seeks to examine progress of Information Society activity towards the aims and objectives of the i2010 action plan. From this analysis, the report will also reflect on progress towards achievement of the Lisbon agenda, identify gaps in current provision and provide recommendations for targeting future financial resources.
- 1.2 Before this, however, this section provides a background to the evaluation by outlining the policy context of Information Society and presenting an overview of Structural Funds in Northern Ireland. In addition, this section details the terms of reference for the evaluation and outlines the methodological approach.

## Background and policy context

- 1.3 In recent years, the ICT sector in the EU has continued to experience a higher than average growth rate with estimated revenue increases of 3.6% in 2005. The ICT sector remains a source of growth and competitiveness and it is the most innovative and research intensive sector in the EU, representing 25% of the total research effort and 5.6% of the GDP between 2000 and 2003<sup>4</sup>. Despite this growth, EU investment in ICT research is still lagging behind the EU's competitors. The US, for example, consistently invest almost twice as much as the EU since 2000. In addition, it is recognised that the take-up of ICT by businesses in the EU remains sluggish. Some positive trends, however, have emerged in digital convergence with increasing investments in networks, growing broadband subscriptions and offering of converged services by telecom and cable operators.<sup>5</sup>
- 1.4 There are a number of policies which have impacted on progress in the development of the Information Society in Europe over the last few years. These are outlined below and discussed in more detail in the following paragraphs:
  - eEurope Action Plan 2005;
  - eEurope 2005 mid-term Review;
  - Information Society Benchmarking Report;
  - i2010 (European Information Society in 2010).
- 1.5 The eEurope Action Plan 2005 (an Information Society for All) is a key element in the Lisbon Strategy with potentially significant impact on growth and productivity, employment and social cohesion in Europe. The objective of the Plan is to provide a favourable environment for private investment, to boost productivity, create jobs, modernise public

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<sup>4</sup> COM (2006) 215, i2010 First Annual report on the European Information Society

<sup>5</sup> *Ibid*

services and to give everyone the opportunity to participate in the global Information Society. The Plan envisaged that by 2005, Europe should have:

- Modern online public services (e-government, e-learning services, e-health services);
- A dynamic e-business environment;
- Widespread availability of broadband access at competitive prices;
- A secure information infrastructure.

1.6 The Plan identified four tools for achieving these targets including policy measures, exchange of good practices, benchmarking and coordination of existing policies. A mid-term review of the Action Plan conducted in 2005 reported that important progress has been made across the EU in the areas of broadband connectivity, on-line government services, and increased political support at the national and EU levels. Some key conclusions are summarised in Table 1.1.

**Table 1.1: Summary of the mid term review of the Action Plan 2005**

Action Plan 2005 Target	Overall Progress in EU	Future development
e-government	Growth of basic online government service from 17% to 43% in 2001-2003	<ul style="list-style-type: none"> <li>• Still wide differences between MS</li> <li>• Need for better ICT tools and interoperability</li> <li>• Need to study the demand for e-government services</li> </ul>
e-learning	Rising connectivity to ICT infrastructure in the education and training sector	<ul style="list-style-type: none"> <li>• Need for exchange of good practices and shared results</li> </ul>
e-health	e-health is becoming a central aspect of health policy at regional, national and European level	<ul style="list-style-type: none"> <li>• European wide interoperability in e-health</li> <li>• Safety and security issues</li> <li>• Online health services</li> <li>• EU health information networks</li> </ul>
e-business	<ul style="list-style-type: none"> <li>• Consolidation of legal framework for e-business</li> <li>• Progress in implementation of e-privacy Directive</li> <li>• Continuing growth of e-commerce</li> </ul>	<ul style="list-style-type: none"> <li>• Need for progress monitoring</li> <li>• Interoperability and standardisation</li> <li>• Secure and effective e-payment systems</li> </ul>
Broadband	Expanding broadband market (20 million connections in 2003 against 11 million in 2002)	EU Structural Funds to be used to fill gaps in the provision of broadband in less commercially favoured areas
Security	Political Agreement on the establishment of a European Network and Information Security Agency	<ul style="list-style-type: none"> <li>• Wider market acceptance of e-signatures</li> <li>• Cooperation between MS</li> </ul>
Benchmarking	<ul style="list-style-type: none"> <li>• Completed Surveys supply 26 of the 37 indicators</li> <li>• Pilot work on e-business and e-health indicators</li> </ul>	<ul style="list-style-type: none"> <li>• Review and improvement of indicators</li> <li>• Benchmarking against the rest of the world</li> </ul>

1.7 The benchmarking exercise, which was a key element of the Action Plan 2005, provided the first overview of the state of the Information Society since the launch of eEurope 2005 in 2003. It also took place after the new i2010 strategy was initiated. The main trends identified in the report were as follows:

- Broadband roll-out is a clear success story. The limited availability of broadband connections at the end of 2002 was transformed and access became available to nearly all citizens. There are, however, some regional disparities;
- New platforms for broadband access begin to spread, including DTV and mobile;
- New Member States are still lagging behind but started to catch up;
- Connectivity of enterprises is high and there was some catch-up by SMEs;
- Increasing availability of online public services. Service with full interactivity are available in many Member States;
- Limited progress in the development of an inclusive Information Society.

1.8 In 2005, as the first concrete action under the renewed Lisbon Strategy, the Commission set out a strategic framework for the Information Society, Strategy i2010 – a European Information Society for growth and employment. Strategy i2010 builds on its predecessor, the eEurope 2005 Action Plan, and promotes an open and competitive digital economy with an emphasis on ICT as a driver of inclusion and quality of life. The new strategy sets out three priorities for Europe's Information Society and media policies:

**Table 1.2 Summary of i2010 Strategy**

Priority	Actions
<b>Single European Information Space</b>	Speed: faster broadband in Europe services;  Rich content: increased legal and economic certainty;  Interoperability;  Security: safer internet
<b>Innovation and Investment in Research</b>	Investment in research and innovation;  Deployment and adoption of ICT: new business models, organisational change and skills, e-business solutions;  Reducing barriers between research results and economic rewards
<b>Inclusion, better public services and quality of life</b>	Better, more accessible and cost-effective public services, promotion of e-Government  Quality of life: e.g. ICT enabled health and welfare services  E-Inclusion

1.9 Overall, the i2010 Strategy, set forth three objectives, as follows:

- A single Information space offering affordable and secure high bandwidth communications, rich and diverse content and digital services;
- World class performance in research and innovation in ICT by closing the gap with Europe's leading competitors;
- An Information Society that is inclusive provides high quality public services and promotes quality of life.

1.10 Within the context of the renewed Lisbon process, the Commission has expressed the view that the EU Structural Funds should aim at promoting investment in the Information Society<sup>6</sup> and advancing progress towards eEurope 2005 and Strategy i2010. Indeed, the EU Structural funds have been increasingly used to support the development of the Information Society and overcome regional disparities in the provision of ICT.

1.11 Overall, the Third Report on Economic and Social Cohesion, completed in February 2004, for example, shows that some €700 million a year of finance from the Structural Funds, just under 4% of the total, is allocated to developing the Information Society in Objective 1 regions of the EU<sup>7</sup>. The scale of expenditure from the Funds in this area is determined by factors such as the degree of maturity of the ICT market, population density, the availability of skills to use the technology and the capacity to plan such development.<sup>8</sup> The Third Report on Economic and Social Cohesion also highlights that the overall investment in the Information Society in the UK was 6% of the total Structural Funds for Objective 1 programmes<sup>9</sup>.

### Structural Funds in Northern Ireland

1.12 Under the current round of EU Structural Funds 2000-2006, Northern Ireland is eligible for funds under two Operational Programmes and four community initiatives as set out in the Community Support Framework (CSF). A number of measures supported by EU Structural Funds in Northern Ireland have contributed to the Information Society. The 2003 Report revealed that EU programmes in Northern Ireland supported a range of activities related to Information Society, including, for example, ICT training for rural dwellers funded through PEACE II and Translink Smart Cards, and digital transport systems supported through BSP and PEACE II funding. The EU Structural Fund Programmes and Community Initiatives, however, also include priorities and measures specifically aimed at developing an Information Society. These are outlined in Table 1.3.

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<sup>6</sup> COM(2006) 129, Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions *Bridging the Broadband Gap*

<sup>7</sup> DG Regio, European Commission (2004) Third report on economic and social cohesion, A New Partnership for Cohesion available on: [www.europa.eu](http://www.europa.eu).

<sup>8</sup> *Ibid*

<sup>9</sup> DG Regio, European Commission (2004) Third report on economic and social cohesion, A New Partnership for Cohesion available on: [www.europa.eu](http://www.europa.eu).

**Table 1.3: Information Society related measures funded through the EU Structural Funds in Northern Ireland**

Programme / Initiative	Measures specially focused on Information Society activity	Value of Measure (MEURO)
Peace II	1.8a Innovation Technology and Networking	35.5
	1.8b Information Age	14.8
BSP	1.2 Research and Technology Development and Technology Transfer	66.7
	1.5 Information Society	16.0
	1.7 Telecommunications	29.0
	2.5 Education and Training ICT and Infrastructure Support	61.0
INTERREG IIIA	1.2 Knowledge Economy	5.0
	2.1c Telecommunications	7.2
<b>Total</b>	-	<b>235.2</b>

- 1.13 Direct expenditure in Northern Ireland on Information Society activity through the Structural Funds is €235 million which represents 17 per cent of the €1.4 billion allocated to the region for 2000-2006. This expenditure represents €147 per capita<sup>2</sup>.
- 1.14 In addition to funding of measures related to Information Society activity, Technical Assistance (TA) funds from the BSP and Peace II Programmes have been spent on the implementation and maintenance of a Structural Funds Applications and Management System, website and database. Total TA expenditure to date is £1.1m.
- 1.15 In Northern Ireland, the implementation of EU Structural Funds is monitored by a Community Support Framework Monitoring Committee (CSFMC), which set up several Working Groups to look at particular horizontal themes/ issues. One of these groups, the Information Society Working Group (ISWG), was established in order to monitor Information Society activity within EU funded Programmes.
- 1.16 In April 2002, the Department of Enterprise, Trade and Investment, acting as secretariat to the ISWG, commissioned PricewaterhouseCoopers to conduct an evaluation of Information Society activity supported under the Structural Funds. Overall, the report concluded that a lot of work was being done through EU Structural Funds and mainstream Government expenditure to increase Information Society activity in Northern Ireland. However, while acknowledging that the impact of current initiatives and funding had not yet been fully implemented, the report noted that progress towards each of the eEurope objectives varied extensively between each of the measures and between the respective implementing bodies involved. The key findings in relation to each of the eEurope objectives are summarised in the following table.

<sup>10</sup> Figure based on NI population of 1.6 million.

**Table 1.4: Summary of key findings from 2003 review mapped to eEurope Action Plan**

Objective & Measure		Key Findings
1	Cheaper, Faster internet	A large number of initiatives are being implemented to extend broadband networks. These are however largely at feasibility stage with currently limited availability of broadband in rural areas. Evidence is emerging that work is being undertaken to achieve this objective however due to the timing of this review it is largely at the feasibility and piloting stage.
	Faster internet for researchers & students	Infrastructure and facilities are providing broadband to post primary schools and libraries. In addition significant investment has been made in FE colleges regarding the integration of ICT into teaching and learning. Faster internet provision is being rolled out throughout the Province but has yet to be completed. Accordingly timing implications suggest that full integration has yet to be achieved and there is some degree of evidence that work is being undertaken to achieve this objective.
	Secure networks & smart cards	Projects are currently being assessed which would incorporate the use of smart card and information regarding secure networks. Accordingly evidence has yet to emerge, other than at the feasibility stage, that work is being undertaken to achieve this objective.
2	European youth into the digital age	A number of projects are being implemented by various organisations specifically aimed at youth. These incorporate both training in ICT skills and also in the use of ICT to deliver training in other essential skills. Projects also incorporate the provision of ICT hardware and facilities for use by youth. Accordingly evidence exists that work is being undertaken to achieve this objective.
	Working in the knowledge based economy	A number of projects are being implemented by various organisations specifically aimed at providing skills and infrastructure that allow individuals to work in the knowledge based economy. Accordingly evidence exists that work is being undertaken to achieve this objective.
	Participation for all in the knowledge based economy	A number of projects are being implemented by various organisations specifically aimed at providing skills and infrastructure that allow individuals who may be disadvantaged or socially excluded e.g. women, disabled, rural communities to participate in the knowledge based economy. Accordingly evidence exists that work is being undertaken to achieve this objective.
3	Accelerating e-commerce	Awareness campaigns are being undertaken to stimulate the demand for broadband as well as encourage the use of e-commerce. Online booking systems and virtual trading networks are being developed. The Information Age Initiative highlights that most companies have access to the internet and are aware of the benefits of ICT. Full integration of e-commerce into business activities has however yet to be achieved. Accordingly some evidence is emerging that work is being undertaken to achieve this objective.
	Government on line – electronic access to public services	Public sector organisations are striving to meet the e-Government targets with varying degrees of achievement being demonstrated. Most have web sites with some services being delivered over these. Knowledge networks are being piloted and the aggregation of broadband provision is being considered. The aim of the Northern Ireland Executive is to provide 100% of key Government services electronically by 2005. Each NI Department have produced an e-business strategy and are in the process of implementing the various recommendations. Accordingly due to the timing of this review full achievement of the objective has yet to be made. Therefore some degree of evidence exists that work is being undertaken to achieve this objective.

Objective & Measure		Key Findings
	Health on line	Projects are being implemented that connect health centres to broadband, including electronic prescribing and the use of PDAs by health professionals. These are however have yet to rolled out throughout the whole of Northern Ireland. There is some health promotion work done on line but this mostly achieved through links with the UK Department of Health. Evidence is emerging that work is being undertaken to achieve this objective. However due to the timing of this study it is expected that further progress will be made in the future as pilots are rolled out throughout the province.
	European digital content for global networks	There are a few projects being undertaken or are proposed that incorporate a European network involving ICT. In addition shells and multi mode interfaces are being provided for digital content. Accordingly, evidence has yet to emerge that work is being undertaken to achieve this objective.
	Intelligent transport systems	Electronic display monitors have been installed at bus stations, a new integrated ticketing system for bus and rail has been installed. The Translink web site also provides up to date public transport information. Although evidence exists that some work is being done to achieve this objective, there is scope for further integration of Information Society activity into transport systems.

Source: 2003 Review of Information Society activity supported by EU Structural Funds, PwC

1.17 Now that the 2000-2006 programming period has just finished, opportunity exists to update the analysis of 2003 and provide an overview of progress towards the aims and objectives of the new i2010 Action Plan. It is within this context that PricewaterhouseCoopers were commissioned in December 2006 to conduct an update evaluation of Information Society activity supported through the EU Structural Funds.

## Terms of reference

1.18 The terms of reference for this assignment are as follows:

- To map the current provision of Information Society activity funded through the EU Structural Funds and provide a comparison with the 2003 findings in order to report progress;
- To identify gaps in the current provision;
- To report on the extent to which the provision has advanced Northern Ireland's progress towards achievement of the Lisbon Strategy;
- To provide practical recommendations vis-à-vis targeting of future financial resources in order to address any shortfall in provision or lack of progress in key areas.

## Methodology

1.19 The methodology for this evaluation involved three stages, as outlined and detailed below:

**Stage 1:** Desk based research

**Stage 2:** Interview programme

**Stage 3:** Analysis and reporting

## Desk based research

1.20 As a starting point in the desk based research, we revisited the 2003 report, and reviewed the following key EU policy documents:

- eEurope Action Plan 2005;
- eEurope 2005 Mid-term Review;
- i2010 – A European Information Society for Growth and Employment;
- i2010 Benchmarking Framework - April 2006;
- The first Annual Report on i2010 Strategy - May 2006;
- Rethinking the European ICT Agenda report by PricewaterhouseCoopers – 2004.

1.21 In addition, progress reports, annual implementation reports and available data on performance indicators were examined for relevant Measures supported under the Structural Funds Programmes. Reports and documents made available from Project Steering Group and various stakeholders during the interview programme were also examined. These include, *inter alia*,

- Reports on eEurope4All Conferences organised by ISWG;
- DETI Evaluation of Telecommunications Policy 2001-2004;
- Report on Cooperation in ICT under the Common Chapter 2004-2005;
- EmPowering Schools Strategy, Update Report 2005.

1.22 A list of documents reviewed is included in Appendix A

## Interview programme

1.23 Following consultation with the Project Steering Group, it was agreed that the evaluation should largely focus on the specific measures in the Structural Funds Programmes aimed at developing the Information Society. On this basis, interviews were held with the representatives from implementing bodies that were responsible for the following Measures:

**Table 1.5: Interview programme**

ICT related measures/ programmes	Organisation
<ul style="list-style-type: none"> <li>• PEACE II. 1.8 Innovation Technology and Networking</li> <li>• BSP 1.2 Research and Technology Development and Technology Transfer</li> </ul>	Invest NI
<ul style="list-style-type: none"> <li>• PEACE II. 1.8b. Information Age</li> <li>• BSP 1.5 Information Society</li> </ul>	Invest NI
<ul style="list-style-type: none"> <li>• BSP 1.7 Telecommunications</li> <li>• INTERREG IIIA 2.1c Telecommunications</li> </ul>	DETI
<ul style="list-style-type: none"> <li>• BSP 2.5 Education and Training ICT and Infrastructure Support</li> </ul>	Classroom2000 (C2k)
<ul style="list-style-type: none"> <li>• INTERREG IIIA 1.2 Knowledge Economy</li> </ul>	Northwest Region Cross Border Partnership

1.24 Furthermore, in taking forward views of the Project Steering Group and one of the lessons from the 2003 evaluation, consideration was also given to examining the impact of other EU and mainstream government initiatives on the Information Society. This analysis was conducted to provide a more comprehensive and strategic overview of Information Society activity and examine the degree to which Structural Funds complement other broader initiatives. To this end, interviews were also conducted with representatives from the DFP Delivery and Innovation Division and the Abacus Partnership, which is responsible for the 6th EU Framework Programme (FP6) in Northern Ireland.<sup>11</sup>

## Report structure

1.25 The following sections of this report are structured as follows:

- **Section 2: Detailed findings.** This section presents the key findings of the evaluation and examines progress of Information Society activity towards the aims and objectives of the i2010 action plan. As part of this analysis, the section examines progress since the 2003 report and outlines any gaps in current provision.
- **Section 3: Conclusions and recommendations.** This chapter summarises the main findings that have emerged from the update of Information Society activity supported through the EU Structural Funds. On the basis of these findings, the section then outlines key recommendations for targeting future financial resources.

<sup>11</sup> Delivery and Innovation Division is an amalgamation of the former OFMDFM e-Government Unit, Business Development Service and Public Service Improvement Unit. The Division delivers policy development and technical and business support services to the NICS, as well as, customer-facing telephony and online services to Northern Ireland citizens.

## 2 Detailed findings

### Introduction

2.1 This section presents the key findings of the evaluation and examines progress of Information Society activity towards the aims and objectives of the i2010 action plan. As part of this analysis, the section also examines progress since the 2003 report. As outlined in the previous section, the analysis in this report is based on the findings from the interviews and desk based research. The section is structured as follows:

- **Progress towards the key objectives of i2010:** reflecting on progress since 2003, this examines the extent to which Information Society activity is addressing strategy i2010. This analysis is focused on the main areas of investment supported under the Structural Funds but also considers this activity within the context of mainstream government funding;
- **Progress towards recommendations of 2003 report:** this examines the extent to which recommendations set out in the 2003 report were addressed during the remaining stages of the 2000-2006 programming period.

### Progress towards the key themes of i2010

2.2 Reflecting on progress since 2003, this examines the extent to which Information Society activity is addressing the key objectives of strategy i2010. The key objectives are outlined and in examined in turn below:

- A single information space;
- Innovation and investment in research;
- Inclusion, better public services and quality of life.

### A single information space

2.3 The Single European Information Space pillar of the i2010 strategy combines regulatory and other instruments at the Commission's disposal to create a modern, market-oriented regulatory framework for the digital economy. Digital convergence, which underlies the development of a Single European Information Space, focuses on the speed of broadband, rich content, interoperability and security. Digital convergence also calls for a consistent system of rules for Information Society and media.

2.4 Access to high speed broadband connection is a cornerstone of a Single European Information Space. The 'Bridging the Broadband Gap' Communication from the Commission emphasises that the benefits of broadband are such that the inability to have access to it is an issue which should be addressed urgently<sup>12</sup>. It is recognised that overcoming the 'digital divide', which describes the gap between individuals, businesses and territories in terms of opportunities to access and use ICTs, is key to achieving the

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<sup>12</sup> COM(2006) 129, Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions *Bridging the Broadband Gap*

objectives of the Lisbon Strategy.

- 2.5 Demand for residential broadband services in the EU has been growing fast. The number of broadband access lines has almost doubled in the past two years. In October 2005, there were about 53 million connections in the EU25, corresponding to a penetration rate of 11.5% in terms of population and to roughly 20% of households. These developments have been mainly market driven and enhanced by increases in competition.
- 2.6 The Communication also recognises that despite the general increase in broadband connectivity, access in more remote and rural regions is limited because of high costs due to low density of population and remoteness. Commercial incentives to invest in broadband deployment in these areas often turn out to be insufficient.<sup>13</sup>
- 2.7 Across the EU, there was a significant increase in broadband coverage in 2004 but in January 2005, it was found that an important gap remained between the urban and the rural areas of the EU15 Member States (plus Norway and Iceland)<sup>14</sup>. This scope for public intervention in under-served areas was emphasised in eEurope 2005, which also highlighted the important role that Structural Funds can play in bringing broadband to disadvantaged regions. Indeed, within the renewed Lisbon process, the Commission has proposed that the Structural Funds should aim at targeting investment in knowledge and ensuring availability of ICT infrastructure in areas of market failure.

### **EU Structural Funds**

- 2.8 In Northern Ireland, much focus has been placed under the Structural Funds to increase the provision of broadband. In fact, Measure 1.7 of the BSP Programme was centred on providing broadband telecommunications infrastructure across Northern Ireland, while Measure 2.1c of the INTERREG IIIA Programme was based on developing broadband infrastructure on a cross-border basis within the Border Region of Ireland.
- 2.9 In relation to Measure 1.7 of the BSP Programme, this Measure succeeded in contributing towards a 100% coverage target for Northern Ireland. This demonstrates significant progress within the last number of years as the 2003 report found that the infrastructure initiatives had not advanced beyond the feasibility and piloting stage. As a result of the £9 million investment under Measure 1.7, there are now 3 types of broadband services available to users in Northern Ireland:
- Entry-level service (512 kbps) – mostly for households;
  - Business service (512 kbps) – mostly for small home-based businesses;
  - SME Service (1 mbps).
- 2.10 Under Measure 1.7, the 100% coverage rate in Northern Ireland was achieved within a relatively short space of time and support from the Structural Funds has been instrumental in providing broadband in areas of 'market failure'. Prior to the introduction of the Measure, private companies had installed 11% broadband coverage in Northern Ireland but this was largely based on the more densely populated areas, where the commercial risks were low.
- 2.11 Funding provided by Measure 1.7, however, has provided the necessary incentive or leverage to increase the level of provision across Northern Ireland. In March 2004, a

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<sup>13</sup> *Ibid*

contract with a private company to provide broadband was initiated and in December 2005, coverage across the rest of Northern Ireland was completed. Indeed, compared to the other 12 UK regions, Northern Ireland has now moved up from 10th to 4th position in terms of broadband take-up rates.

- 2.12 The contract for broadband services also included provisions to address issues of competition in the ICT sector. Although the infrastructure was provided by one company, the nature of the contract ensured that provision of the broadband services was open to other providers. While this has been successful in opening up competition in regard to DSL-based provision (around 100 broadband providers offer services in Northern Ireland), fewer companies are operating in the satellite technology market due to the fixed costs involved.
- 2.13 Measure 1.7 is largely based on providing broadband infrastructure, but activities to raise awareness of broadband availability and demonstrations of broadband services and applications in Northern Ireland have also been supported. This promotional activity has focused on stressing the availability of broadband in all areas of Northern Ireland, including more remote areas, and evidence suggests that the level of uptake has increased over the last number of years.
- 2.14 The 2005/06 NISRA Household Survey, for instance, indicates that 45% of households had access to the internet in 2005/06 with 43% accessing the internet through a home computer. Over half (58%) of these households used a broadband connection, which represents a significant increase from 36% in 2004/05. In terms of individual access, over half (56%) of those aged 16+ access the internet and there has also been a large increase in the percentage of individuals aged 60+ accessing the internet, from 6% in 2001-02 to 22% in 2005-06. This increase in internet usage is summarised in Table 2.1.

**Table 2.1. Access to the internet among households in Northern Ireland**

Indicators	2001-02	2004-05	2005-06
Households with access to the internet	29%	45%	45%
Households with access to the internet through a home computer	29%	43%	43%
Households with access to the internet using a broadband connection	-	36%	58%
Individuals aged 16+ with access to the internet	35%	54%	56%
Individuals aged 60+ with access to the internet	6%	-	22%

Source: NISRA Household Survey

- 2.15 Overall, the latest NI Omnibus Survey dated 2006, indicates that 42% of households in Northern Ireland have a broadband connection. As regards take-up of broadband by businesses, the Northern Ireland Chamber of Commerce Business Monitor, published in January 2007, indicates that 61% of businesses have a broadband connection.
- 2.16 To complement activity in the BSP Programme, Measure 2.1c of the INTERREG IIIA Programme has focused on broadband infrastructure on a cross-border basis with the Border Region of Ireland. Under the INTERREG Programme, for example, broadband infrastructure has been provided to remote border areas and greater connectivity on a cross-border basis has also been established. In addition, a broadband awareness TV campaign was launched in Northern Ireland and Ireland to increase knowledge of the increased provision and to help stimulate demand.

- 2.17 Over the 2000-2006 period, the number of cross-border communication links has increased from 4 to 9 and broadband has been provided to some very remote border areas. The INTERREG Programme, for example, provided support to Blackwater Valley Broadband project, as outlined in the text box below:

**Textbox 2.1: Blackwater Valley Broadband project**

**Project background**

The Monaghan/ Tyrone border region around Aughnacloy and Truagh has been among similar remote areas where the provision of broadband has not been commercially viable. As the local community have recognised the potential benefits of broadband for local businesses and individuals, the “Blackwater Valley Broadband Consortium” was formed in 2004 to look at ways of improving the availability of broadband in the area. Based on results of a customer survey, the consortium successfully applied for INTERREG IIIA funding and received a grant of €150,000 from Measure 2.1c to contribute to the €200,000 of total project cost.

**Infrastructure**

The network for the new provision included a backhaul link for the network to the Internet, 11 base stations to distribute broadband to local customers and equipment at customers’ premises.

It should be noted that 4 of 11 base station sites are powered by solar energy with a back up support from a 80 watt wind turbine to carry over the winter months.

**Broadband provision**

While the business model for the project indicated the project would be viable and sustainable with 33 customers, to date around 91 customers have signed up for the wireless service.

The support of the local community was key to project success. In particular, this concerned local landowners whose consent to provide sites for installations was necessary to move it forward.

Although the tariffs may seem higher than other services (€35-47 for domestic and €99 for business users per month), the Blackwater provision is a symmetric service, i.e. the upload and download speed are the same. Several local businesses including an organic egg producer and fit out companies have realised the benefits of broadband availability in the area.

*Source: DETI, Blackwater Valley Broadband brochure.*

**Implications for mainstream government activity**

- 2.18 In support of activities provided under the EU Structural Funds, mainstream government activity has worked to increase competition in the provision of broadband services. For instance, now that the broadband infrastructure has been established, the DFP Delivery and Innovation Division is holding discussions with a range of providers to examine whether broadband and related services such as internet access through mobile phones can be provided on a competitive basis, particularly on a cross-border basis. In addition, the Delivery and Innovation Division works closely with private companies to test new services and explore new developments to assess whether they can be rolled out across government departments and beyond.

2.19 Although much progress has been made under the Structural Funds to provide broadband, some concerns still exist over the level of infrastructure:

- Northern Ireland is a peripheral location in terms of the main communication networks and this has also implications for the speed of data transfer and the security of connectivity to the island;
- Further investment will be required to increase connectivity on a cross-border basis, in particular, in Fermanagh and Cavan border areas, and to enhance the speed of connection and update and maintain the network in light of ongoing technological developments;
- For some sections of society, affordability of provision, among other issues, also remains a barrier to uptake.

### Innovation and investment in research

2.20 The i2010 Strategy highlights that the investment in research and innovation is crucial for the ICT sector to continue delivering jobs and growth in the sector in the long term. Statistics in 2002, for instance, demonstrated that Europe is seriously under investing in ICT providing €80 of investment per inhabitant compared to €350 in the United States and €400 in Japan. It is also recognised that the benefits of ICT come from a wider deployment of ICT through the adoption of new business models, organisational change and skills. In line with the objectives of the Lisbon Strategy, the i2010 strategy actively seeks to reduce barriers between research outcomes and economic rewards. In this light, the EU Structural Funds are considered to have a substantial role in facilitating the take-up of ICT by SMEs and enhancing the development of e-business.

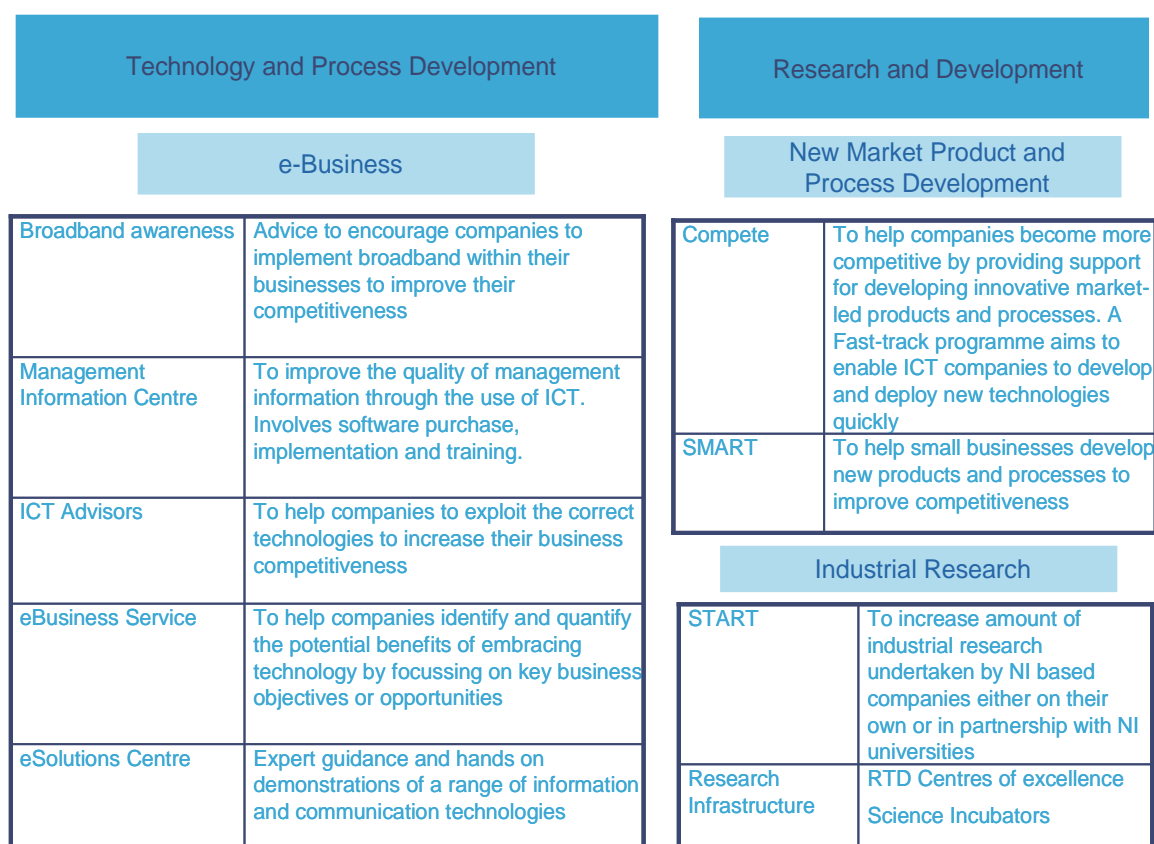
### EU Structural Funds

2.21 The experience of the 2000-2006 programming period in Northern Ireland has shown that the Structural Funds have made an important contribution to the level of expenditure on R&D and enhancing support for research and innovation in businesses. In Northern Ireland, two key measures under the Structural Funds have placed an emphasis on investing in research and encouraging e-business. These include:

- **Measure 1.8a, Innovation Technology and Networking**, in the PEACE II Programme;
- **Measure 1.2, Research and Technology Development and Technology Transfer**, in the BSP Programme;

2.22 The measures included in the PEACE II and BSP Programmes, administered by Invest NI, have supported a range of activities to develop innovation and investment in research. These activities are summarised in the following figure:

**Figure 2.1: Summary of innovation and research activities in Northern Ireland supported through BSP and PEACE II Programmes**



- 2.23 In terms of research, Measures 1.8a (Innovation Technology and Networking) and 1.2 (Research and Technology Development and Technology Transfer) are the key initiatives under the Structural Funds that are focused on this activity. Overall, evidence suggests that these measures have made much progress in promoting innovation and investment in research, particularly within the last number of years as the following paragraphs indicate.
- 2.24 In the evaluation of the Information Society activity in 2003, it was found that the key outcomes of Measure 1.8a of the PEACE II Programme at that stage were largely related to networking events, including the participation of experts in international conferences, trade shows and exhibitions related to best practice in ICT. Since 2003, however, much progress has been achieved. The Measure, for instance, has supported the development of research infrastructure and established 18 RTD Centres of Excellence (matching the set target of 18). With a view to improving the competitiveness of Northern Ireland industry, each of these centres is working to stimulate leading edge, industrially exploitable and commercially focused research. Overall, around €20.5 million was awarded to the 18 centres, supplemented with around €15 million match funding. 4 of these RTD Centres of Excellence are directly involved in ICT research, a summary of their activities are outlined in the following table.

**Table 2.1: RTD Centres of Excellence in the area of ICT**

RTD Centre of Excellence	Grant	Summary
Centre of Excellence for Hard Disc Drive Substrates (Seagate Technology Media Ltd, Limavady site)	£1,289,137	Development and manufacture of high quality, nickel-plated, aluminium substrates for use in Seagate Hard Disc Drives. The Recording Media Substrate Centre of Excellence has enabled the Limavady plant to develop production and inspection processes capable of manufacturing substrates giving a real density up to and exceeding 100Gb per square inch.
The Centre for Software Process Technology (CSPT) University of Ulster	£732,744	CSPT supports the research infrastructure for the software industry and provides regional companies with local access to techniques for improving their capability to develop software. Software Process Improvement (SPI) is a collection of techniques to measure the state of an organisation's software development practices and to identify where improvements can be made. The CSPT is promoting SPI to the local software industry through research, knowledge transfer and tailored dissemination programmes.
The Institute of Electronics, Communications and Information Technology (ECIT) Queen's University of Belfast	£8,282,618	ECIT represents the single largest investment in leading edge R&D infrastructure ever seen in Northern Ireland. The overall aims of the ECIT project are to: <ul style="list-style-type: none"> <li>• Stimulate world-class research and innovation</li> <li>• Create opportunities for commercial exploitation of IPR and know-how</li> <li>• Incubate spin-out and spin-in start up companies</li> <li>• Develop a new generation of high technology engineers and entrepreneurs</li> </ul>
A Mobile Infrastructure Platform Centre of Excellence (Openwave Systems Inc)	£1,252,250	A Mobile Infrastructure Platform Centre of Excellence has been established in Belfast to enable the company to develop the next generation of mobile internet solutions across a wide range of application areas. The overall objective of the centre is to ensure that the Belfast operation has sufficient critical mass, engineering skill and product leadership to play a key role in the development of intellectual property, architectural design and infrastructure component development for the next generation of Openwave's global product and service offerings.

Source: Invest NI

2.25 Measure 1.2 (Research and Technology Development and Technology Transfer) of the BSP Programme has provided support for a range activities implemented by Invest NI, some of which are linked to ICT research including:

- COMPETE Programme: aims at encouraging and enhancing innovative market led product and process development in NI companies;
- START programme: aims at providing a strong R&D capability in NI companies and universities through participation in technology based industrially relevant pre-competitive research and development projects;
- SMART: support for individuals and small firms to improve competitiveness through innovative ideas for products and processes;
- TCS (Knowledge Transfer Partnership Programme): provides graduates with the opportunity to develop their capabilities by undertaking key projects within companies through graduate placement.

2.26 Among these initiatives START and COMPETE draw the greatest amount of BSP funding. Overall as part of the START Programme, 7 projects have been awarded more than £6 million of grants to date (since January 2004). Two of the 7 projects received funding for ICT related research as summarised in Table 2.2:

**Table 2.2: Examples of projects supported through START**

Project Name	Organisation	Grant	Description
<b>Traceassured</b>	Moy Park Limited Trace Assured Ltd	£660,000	Food traceability service. Data centre management.
<b>Audio Alchemy</b>	QUB Electrical and Electronic Digital Theatre Systems (UK) Ltd	£410,030	Creating Surround Sound Gold

Source: Invest NI

2.27 As result of the TCS programme funded by BSP Measure 1.2, much progress has been made in encouraging research in business, with the number of graduates successfully completing placement reaching 95% of the target (initial target of 150 placements) and 55% of graduates being retained by the host firm.

### **Other sources of support for Information Society Activity**

2.28 Outside of the Structural Funds, the EU Research Framework Programme has provided a key source of funding for R&D, including the development of Information Society Technologies. The 6th Framework Programme (FP6), which was implemented between 2002-2006, aimed to strengthen the scientific and technological bases of industry and encourage its international competitiveness while promoting research activities in support of other EU policies.

2.29 Over the 2002-2006 period, FP6 provided a substantial level of financial support for R&D for a range of projects promoted by business and the two universities in Northern Ireland. The following table provides a summary of the number of the funding allocation across the three key stakeholder groups. It should be noted that only some of these projects, however, were directly involved in ICT related research.

**Table 2.3: Allocation of funding under the 6<sup>th</sup> EU Framework Programme (FP6)**

Organisation	EU Funding (total, £)	EU Funding (local share, £)	No of projects
Queen's University of Belfast	48,380,000	3,201,027	13
University of Ulster	17,770,000	1,277,181	7
Industry	13,358,000	492,746	3
<b>Total</b>	<b>79,508,000</b>	<b>4,970,954</b>	<b>23</b>

Source: Abacus Partnership

- 2.30 While the European Commission set out to focus FP6 research on a number of strategic thematic areas, the approach has faced some difficulties in Northern Ireland. Under FP6, new changes in the regulations of the Programme in terms of the level of risk held by lead partners discouraged the two universities in Northern Ireland from fully participating in strategic areas identified by the Programme.
- 2.31 To ensure that FP6 progressed, greater attention was placed on other areas outside the strategic themes and in particular, to developing SME activities under the Programme. Under these activities, opportunity existed to develop more flexible arrangements between partner organisations which included terms of risk that were more agreeable to universities and business in Northern Ireland. This approach increased the number of projects but more emphasis has been placed on process and systems development rather than the development of research which is forward thinking and identifies new products.
- 2.32 Although the full impacts of FP6 will not be evident for a number of years as all projects are still in the implementation / experimental phase of development, the experience of FP6 suggests that consideration needs to be given to addressing issues of risk and commercialisation among research networks. This will ensure the development of a more balanced approach to research which places greater emphasis on supporting innovative strategic research activities and facilitating greater collaboration between industry and third-level education. An increased focus on these activities will be particularly important in light of declining Structural Funds to Northern Ireland.

### **Inclusion, better public services and quality of life**

- 2.33 The third key theme of i2010 strategy, inclusion, better public services and quality of life, recognises the impact of ICT on society in three ways:
- Making sure that ICT benefits all citizens;
  - Making public services better, more cost effective and more accessible;
  - Improving quality of life.

### **EU Structural Funds**

- 2.34 In Northern Ireland, Measures 1.8b (Information Age, PEACE II), 1.5 (Information Society, BSP) and 1.2 (Knowledge Economy, INTERREG IIIA) are the key initiatives focused on upskilling, developing e-business and encouraging greater inclusion in the ICT. Overall, these Measures have continued to build on the strong progress that was

highlighted in the 2003 report and have contributed towards enhancing the level of working and participation in the knowledge based economy.

2.35 Measure 1.5, for example, has focused on the following areas of e-business support for private companies which are key Invest NI clients:

- e-solutions;
- network solutions;
- e-process, Management Information Systems.

2.36 To date, this measure has allocated £6 million across 650 offers. While some difficulties were experienced in encouraging the private sector in the Programme due to the level of match funding required (50% funding was required from private companies in the initial stages of the programme period and this increased to 60% as Northern Ireland progressed through Objective 1 in transition period) and concerns over the length of the application form and the bureaucracy involved, evidence suggests that this support has played a key role in enhancing the utilisation of ICT within private business. For each of the key activities, Measure 1.5 has exceeded performance targets in terms of engaging with SMEs as summarised in Table 2.4:

**Table 2.4. Progress in implementation of Measure 1.5. to end December 2005**

Indicator	Target	Progress to end December 2005
Programmes aimed at making business aware of the benefits of ICT	4,500	8,917
Programmes aimed at facilitating business access to ICT	700	1078
Programmes aimed at assisting business in the development of e-business strategies	70	91

Source: NISRA

2.37 Developing networks between private companies is one area, however, in which less progress has been achieved. Despite an emphasis on promoting the greater mutual benefits that can be delivered due to the exchange of ICT between companies, low levels of collaboration still exist. In many cases, companies in Northern Ireland have been hesitant to co-operate with other businesses in the region as they see them as competitors.

2.38 While Measure 1.5 was focused on key Invest NI clients, Measure 1.8b, Information Age, under the PEACE II Programme, was centred on non-Invest NI clients and generally those organisations which tend to have a lower level of ICT business skills. Measure 1.8b, for example, funded many small businesses and organisations in the public and voluntary / community sector which tend not to receive support from business promotion agencies such as Invest NI. In this regard, the measure has addressed a significant gap in the provision of ICT support and has played a key role in upskilling small businesses and organisations and encouraging the usage of ICT processes. For instance, while the outcomes in terms of job creation have yet to be fully realised, Measure 1.8b has supported 6,580 SMEs over the programme period, an increase of up to 183% on the target (target of 3,600 SMEs).

2.39 Given the specific economic and social problems that exist as a result of the border between Northern Ireland and Ireland, Measure 1.2 (Knowledge Economy) under the INTERREG programme has also provided support for ICT education and training and to

encourage the take-up of ICT by businesses. Although Measure 1.2 did not receive the numbers of applications that were expected at the outset of the Programme, progress has been made in enabling the animation and upskilling of Information Society activity. In particular, the measure has made substantial progress in terms of delivering ICT awareness seminars, exceeding the target by 143%, proving joint knowledge economy initiatives (65% progress towards the target), and encouraging educational establishments to participate in networks (exceeding target by 155%). Slower progress, however, has been made in relation to encouraging the participation of SMEs and community groups in the knowledge economy (17% progress towards target) and business, education and research agencies maintaining linkages (28% progress towards target) as shown in Table 2.5.

**Table 2.5: Progress in implementation of Measure 1.2. Knowledge Economy to October 2006**

Indicator	Target	Progress to October 2006
Cross border awareness seminars, conferences and courses delivered	50	121
Joint knowledge economy initiatives supported	12	9
Joint networks created for increasing ICT awareness and access	14	38
SMEs and community groups participating in joint knowledge economy initiatives	963	166
Business, educational and research agencies with established information linkages at the end of the programme	509	142

Source: NISRA

- 2.40 In developing greater ICT skills and confidence, this measure has complemented the provision of broadband infrastructure and helped to encourage greater uptake of ICT services. However, while a level of complementarity has been established, some concerns have been raised that the Information Society activities supported under the INTERREG Programme have been too project led. It is considered that the reactive, demand led nature of the open call process has restricted the opportunity to facilitate greater integration between Measures and ICT activities and that greater attention in future should be given to promoting more strategic initiatives.
- 2.41 In regard to enhancing public services, one of the key Information Society activities in this area, which is supported by the EU Structural Funds, is the Classroom 2000 (C2k). Funded by Measure 2.5 of the BSP Programme, the C2k initiative has provided infrastructure and skills support for ICT teaching and learning within primary and post primary schools. Over the 2000-2006 programming period, C2k has focused on two main themes that include:
- **Education and technical provision 1998-2003:** this is focused on providing infrastructure support including ICT equipment such as desktops and broadband networks;
  - **Empowering schools 2003-2008:** this action aims to bring IT into classroom for teachers delivering online courses and promoting ICT learning resources.
- 2.42 Within the C2k initiative, Measure 2.5 has contributed towards establishing a

comprehensive provision of ICT infrastructure across a network of schools which will enhance educational development and facilitate broader inclusion of ICT skills. Indeed, further to this, good practice examples have also emerged during the implementation of Classroom 2000. A school in Ballyclare, for example, has been nominated for UK IT award for incorporating ICT into the working practice and teaching within the school.

- 2.43 Evaluations of the C2k highlight that the initiative has made much progress in rolling out ICT infrastructure into schools. Drawing on previous evaluations, the following textbox summarises the financial and physical progress that has been made.

#### Textbox 2.2: Summary of key outcomes from the C2k initiative

##### Progress in numbers

- All schools in Northern Ireland have benefited from funding under BSP Measure 2.5 and have access to broadband connectivity;
- 22,921 PCs have been installed in the 284 schools;
- 2,889 printers have been installed in the 284 schools with the ratio of PCs per printer - 7.93;
- With 158,118 of pupils attending the 284 schools, the ratio of pupils per PC is 6.89. All pupils have experienced using ICT across all areas of the curriculum;
- Local area networks have been installed and linked to a high speed wide area network (WAN) in 282 schools.

##### Expenditure

Year	ERDF (£)	DE match funding (£)	Total
2003	13,287,882	13,287,882	26,575,764
2004	6,553,795	6,553,795	13,107,590
2005	5,181,165	5,181,165	10,362,329
<b>Total</b>	<b>25,022,842</b>	<b>25,022,842</b>	<b>50,045,683</b>

Source: Department of Education

- 2.44 However, while key outcomes can be identified in terms of providing ICT infrastructure in schools, more work needs to be undertaken in terms of in-graining ICT into work programmes and lessons across all schools. Broadly speaking, evidence suggests that primary schools have achieved a quicker uptake of ICT than post-primary schools. This is partly due to the timetabled structure of teaching in post-primary schools and shorter teaching periods, but also closely depends on the extent to which ICT is incorporated into educational developments which are ongoing at present. This includes curriculum reform, the reform of school sector under the Review of Public Administration and reforms to the 11+.

- 2.45 To further promote ICT within schools, evidence suggests that consideration needs to be given to developing new methods and tools for networking between schools. At present, it is generally felt that email is not likely to be the key communication tool for schools and other products such as video conferencing are more appropriate for the education sector. This suggests that continuous investment needs to be placed on the ICT

infrastructure to enhance connectivity and support new technological developments. This also has implications for the future design and development of new school buildings.

- 2.46 In promoting greater collaboration, lessons from the C2k initiative have highlighted that a number of constraints to advancing ICT still exist. Against the backdrop of increasing efforts to facilitate collaboration between Department of Education and the Department for Employment and Learning over 14-18 year olds, a number of barriers have been identified that include:
- **Interoperability:** common ICT systems are not employed between different government departments;
  - **Standardisation of information:** different information requirements by different organisations on individuals and educational initiatives make compatibility difficult;
  - **Data protection:** this creates complexities in the transfer of information between different departments and agencies.
- 2.47 The issue of secure networks was also highlighted in the 2003 report as an area in which limited attention was focused under the Structural Funds during the 2000-2006 period.
- 2.48 While some Structural Fund initiatives may focus on other key elements of i2010 Strategy, they can also make an important contribution to promoting inclusion and better public services. Although primarily centred on providing broadband infrastructure, one of the key outcomes of Measure 1.7 in the BSP Programme has been supporting better public service provision. This is highlighted by one project, the Derry Broadband project, which involved three key components as described in the text box below.

### Textbox 2.3 Derry Broadband project

#### Wireless Campus

This component of the project implements a wireless network covering large areas of the Magee campus of the University of Ulster. This infrastructure will enable flexible access to computing resources and the internet through a wireless network for both academics and students, leading to the creation of an enhanced teaching and learning environment. The North West Institute for Further and Higher Education (NWIFHE) is also involved in the project and will benefit from the creation of an enhanced teaching and learning environments at the Institute;

#### Wireless Council

By seeking to provide services through wireless technology, this strand builds on and develops existing e-government services. This involves the provision of a wireless network for the Council Offices which will be utilised for Committee Meetings, Council Meetings and Management Team Meetings but will also be used to showcase e-government applications to external delegations.

#### Wireless Walls

This strand will implement a wireless/mobile network based upon a Wi-Fi networking standard in the historic walled area of Derry. Network access will be provided along two levels of service, visitor and business. While visitors will benefit from enhanced connectivity, the network will allow visitors to use handheld electronic tourist guides when touring the city.

- 2.49 In addition to funding of measures related to Information Society activity, Technical Assistance funds from the BSP and Peace II Programmes have been spent on the implementation and maintenance of a Structural Funds Applications and Management System website and database. To date £1.1m of Technical Assistance has been spent on the System to ensure efficient management of EU programmes in Northern Ireland. In regard to enhancing public services, the website provides information on programmes, funds and organisations and permits the public to make an on-line application. The Implementing Bodies have been effectively using the database as a management tool to process applications, record management data and monitor progress in relation to the Structural Funds programmes in Northern Ireland.

#### *Implications for mainstream government activity*

- 2.50 Outside of activities supported under the Structural Funds, mainstream government support has been provided to encourage greater inclusion and ensure better public service provision through the utilisation of ICT.
- 2.51 In relation to greater e-inclusion, the DFP Delivery and Innovation Division has funded the Digital Inclusion strategy to encourage the uptake of IT. As part of this strategy, the Delivery and Innovation Division, for example, attracted funding from the private sector to publish a CD ROM which sets out steps in how to use the internet and outlines the areas, such as public libraries, where ICT facilities are available. This CD ROM was provided to all households in Northern Ireland and has contributed towards sharing knowledge on ICT. With a view to providing greater accessibility to ICT, the Delivery and Innovation Division is also working with other departments, most notably the DHSSPS, to provide more public access to the internet in places such as Doctor's surgeries.
- 2.52 The Digital Mapping project also comes under the remit of the Digital Inclusion Strategy and aims to create an information database which is available on all public internet access points and ICT training points throughout Northern Ireland. Digital Mapping will include a diverse range of information such as location of public internet access, opening times, contact details, information about access for people with disabilities and the availability of ICT courses.
- 2.53 In recent years, increased efforts have been made by the Delivery and Innovation Division, in partnership with government departments, to co-ordinate departmental systems and ensure better public service provision through the utilisation of ICT. To date, much emphasis in this initiative has been placed on rationalising the ICT infrastructure. This includes working to aggregate various network facilities into one single broadband network, making it easier to transfer information, and establishing one common website or portal for providing information on the full range of public services in Northern Ireland. The portal, onlineni.net, was launched in March 2004 has links to over 3,500 websites and was developed as part of the e-government agenda to make it easier for citizens to contact government and receive more efficient government services. Currently, users may start a claim or application for various benefits, allowances or pensions. The portal also provides a link to government services, including for example tax returns, fishing licenses and booking for driving theory tests.
- 2.54 To enhance the portal, a citizen email service has been established. Launched in January, the email service provides those who are new to the internet with access to a free local email account, which they can use to build up their confidence and experience of web based technology. This email service is also supported by a central contact strategy unit which seeks to provide one access point to deal with government queries and facilities contacts by the use of email, telephone, text messages or face to face meetings. While these initiatives are still in the early stages of development, processes are being established that will facilitate greater interaction between citizens and

departments and promote ICT in public services.

- 2.55 In addition to this, the DFP Delivery and Innovation Division is working to facilitate greater sharing of information between departments and agencies to ensure that services can be purchased and processed on line and to avoid similar details being completed on a number of paper based forms. However, as with the experience of C2k, difficulties have been identified in relation to data protection and transferring personal information across organisations.
- 2.56 At the same time, concerns have been raised that customers are not assured over the security of some electronic services. To this end, the Delivery and Innovation Division is working with Information Commissioners and legal personnel within the civil service to determine what information can be shared. Further to this, a government gateway was also established in 2004 which provides a single point of access to all government for users that will make and receive payments and provide greater authentication and security for the transaction of services on line. This gateway is currently being used to facilitate tax returns but plans are being made to roll out the system to other services.

### Progress towards 2003 recommendations

- 2.57 The evaluation report conducted in 2003 outlined a number of recommendations for enhancing the development of Information Society in the remaining years of the 2000-2006 programming period. These recommendations largely focused on the activities of the ISWG and the role of implementing bodies in promoting the eEurope objectives. The following table provides an overview of progress that has been achieved towards recommendations of the 2003 review.

**Table 2.6 Summary of progress towards 2003 recommendations**

Recommendation	Progress
<p><b>Proofing of projects funded through the Structural Funds:</b> future projects seeking funds under the PEACE II programme, BSP programme and Community Initiatives should at least be 'proofed' for potential Information Society activity. Where possible, projects should involve the integration of the Information Society.</p>	<p>It was agreed by the Managing Authorities that such project proofing would have major technical and cost implications. This concerned an additional burden in the application process.</p>
<p><b>Monitoring and evaluation:</b> Implementing bodies could record their achievements in terms of the integration of Information Society on the Central Monitoring Database. This will require the identification of key indicators and ensuring that these are measured.</p>	<p>The Managing Authorities agreed it was feasible to introduce a tick box in the Article 4 checks to identify areas that require further development. However changing monitoring targets on the Central Monitoring Database was identified as a major difficulty.</p>
<p><b>Impact of other EU initiatives on eEurope objectives:</b> It is recommended that any future commissioned research by the ISWG includes an assessment of the extent to which other IS related EU programmes impact on the Information Society.</p>	<p>This updated review of IS activity supported through EU Structural Funds has included some assessment of the EU Framework Programme in relation to the Information Society in NI.</p>

Recommendation	Progress
<p><b>The development of an Action Plan:</b> In order to ensure that further progress is made in the achievement of objectives, it is recommended that an Action Plan be developed to address any issues highlighted.</p>	<p>Following on from the recommendations from the 2003 Report the ISWG proposed an Action Plan to the CSF Monitoring Committee. The Monitoring Committee has reviewed progress on implementation of the Action Plan on periodic basis.</p>
<p><b>Research techniques:</b> in order to gather detailed information on Information Society activity, it is recommended that that ISWG should undertake a more formal approach to reviews or evaluations.</p>	<p>This updated review of Information Society activity has adopted a formal approach to evaluation and examined progress made since 2003</p>
<p><b>Quantification of funds currently being used in Information Society activities:</b> In order to more completely assess the extent of funding to IS activities, it is recommended that information be collected through, for example, the economic appraisal process of projects.</p>	<p>It was agreed by the Managing Authorities that this recommendation would increase the administrative burden.</p>
<p><b>Increase awareness of eEurope objectives:</b> The ISWG should aggressively endeavour to increase awareness of eEurope objectives amongst all Government Departments and other bodies responsible for distributing EU structural funds</p>	<p>The ISWG organised two European conferences under the common theme eEurope4all in 2004 and 2006. These conferences have been supported by the EU Structural Funds and aimed at measuring Northern Ireland's progress towards the eEurope 2005 Action Plan and raising awareness of the Action Plan in general. The text boxes below summarise the key outcomes from both conferences. It should be noted, however, that we do not have any evidence of specific impacts of these conferences.</p>

**Textbox 2.4: Summary of key outcomes from eEurope4all 2004****eEurope4all: Best Practice Conference, City Hotel, Londonderry, 15<sup>th</sup>-16<sup>th</sup> of June 2004**

The conference included showcases, exhibitions and workshop sessions to examine Northern Ireland's progress against the eEurope Action Plan 2005 targets. The event attracted over 150 participants from business, public bodies and community groups and provided an opportunity for all those involved in the Information Society to see interactive examples of Best Practice from across Europe. In delivering this innovative conference, an entire designated area was broadband enabled in order to showcase the technology in 'real' surroundings.

As a result of the conference ISWG gained a much better understanding of the local landscape in terms of the Information Society and importantly, a perspective on progress against the targets set out in the eEurope Action Plan 2005.

The conference also concluded that some further action was required to ensure progress towards the eEurope Action Plan. These conclusions reiterated some key recommendations of the review of IS activities carried out by PricewaterhouseCoopers in 2003:

- Need to raise awareness of the eEurope targets
- Develop an individual action plan for NI within the context of the UK Member State activity.

**Textbox 2.5: Summary of key outcomes from eEurope4all 2006****eEurope4all: Cutting Edge Technology, Newry, 2006**

The 2004 event was a great success and feedback suggested that ISWG should seek to organise a follow-up event which would focus on the showcase of cutting edge technology.

The Exhibitors for a follow-up conference were sourced from the shortlisted finalists of the prestigious, annual European Information Society Technology (IST) awards. The event held in 2006 in Newry attracted 150 delegates and presented around 15 showcases of cutting edge technology from across the EU.

The conference was also a unique opportunity for NI government bodies, business and the community sector to contribute to building awareness of the i2010 strategy that will take the EU Information Society forward until 2010.

# 3 Conclusions and recommendations

## Introduction

- 3.1 This chapter summarises the main findings that have emerged from the update of Information Society activity supported through the EU Structural Funds in Northern Ireland. On the basis of these findings, the section then outlines key recommendations for targeting future financial resources.

## Conclusions

- 3.2 The EU Structural Funds in Northern Ireland have made an important contribution to delivering Strategy i2010. Since 2003, for example, broadband has been established across Northern Ireland, further investment has been provided by businesses for R&D, an increase in the level of ICT skills has reduced the knowledge gap and accelerated e-commerce, and greater infrastructure has been provided for some public services.
- 3.3 Therefore, although a number of gaps in the provision of Information Society activities can be identified, the Structural Funds have focused on delivering key elements of Strategy 2010. In this regard, the EU Structural Funds have also made an important contribution to establishing the necessary physical and skills infrastructure for advancing progress towards the Lisbon agenda.
- 3.4 The paragraphs below summarise the level of progress under each of the key elements of Strategy i2010.

### A single information space

- 3.5 Since 2003, one of the key areas of progress has been in the delivery of broadband infrastructure. Indeed, while the 2003 report found that the infrastructure initiatives were mainly at the feasibility and piloting stage, 100% broadband coverage has now been achieved across Northern Ireland and cross-border communication linkages have increased. In combination with activities to raise awareness of broadband availability, the level of take-up has increased significantly with over half of the 45% of households in 2005/06 which accessed the internet using a broadband connection. In addition to this, activities are focusing on increasing competition among providers to reduce costs and enhance the level of provision.
- 3.6 Notwithstanding the progress that has been achieved within a relatively short period of time, some concerns exist over the level of infrastructure. Northern Ireland is a peripheral location in terms of the main communication networks and this has implications for the speed of data transfer and the security of connectivity to the island. Greater opportunity also exists to increase the level of connectivity on a cross-border basis to facilitate greater competition and enhance the level of provision to more remote areas along the border corridor. Furthermore, for some sections of society, affordability of provision and skills gaps remain barriers to uptake which suggests that further attention needs to be placed on measures promoting the demand side.

### Innovation and investment in research

- 3.7 The experience of the 2000-2006 programming period has shown that the Structural Funds have made an important contribution to R&D and enhancing support for research and innovation in businesses. The Structural Funds, for instance, have established RTD centres of excellence (4 of which are specifically related to Information Society), promoted research placements within businesses and helped to increase the level of business expenditure on R&D.
- 3.8 The EU Research Framework Programme has complemented this activity by also promoting R&D. In Northern Ireland, however, early indications suggest this Programme has mainly focused on enhancing research on business processes within SMEs rather than research exploring new innovative processes and products. This shift in emphasis from the key strategic thematic areas, outlined by the European Commission, has largely been due to difficulties over ownership of research and sharing of risks between partners in business and universities. While research on business processes within SMEs is a key activity for economic development, it is generally felt that, moving forward, more consideration should be given to promoting innovative strategic issues.

### Inclusion, better public services and quality of life

- 3.9 A further key outcome of Structural Funds activity has been enhancing the level of e-commerce within business. There has been a strong level of participation by business in ICT measures and activities have helped to increase the awareness of the benefits of ICT, assist in the development of e-business strategies, and generally to upskill businesses and encourage the usage of ICT processes. In this regard, the Structural Funds have worked to enhance the level of working and participation in the knowledge based economy and have continued to build on the strong progress made in this area that was outlined in the 2003 report.
- 3.10 The Structural Funds have also provided support to encourage the development of better public services. The provision of broadband infrastructure, for example, has helped to enhanced teaching and learning environments in third level education, facilitated meetings of local government and provided access to visitor information for tourists. In regard to developing public services, the C2k initiative has been one of the main activities under the Structural Funds and has established a comprehensive ICT infrastructure across a network of schools. This initiative has established a ratio of personal computers to pupils of 6.89 and has ensured that all pupils have experience of using ICT in all areas of curriculum. However, while key outcomes can be identified in terms of providing ICT infrastructure in schools, it is evident more attention needs to focus on in-graining ICT into work programmes and lessons across all schools.
- 3.11 Furthermore, in promoting greater collaboration between schools and other government departments, lessons from the C2k initiative have highlighted that a number of constraints to advancing ICT still exist. These include interoperability, standardisation of information and data protection and security and can be regarded as key barriers to enhancing the development of ICT within the public services. The issue of secure networks was also highlighted in the 2003 report as an area in which limited attention was focused under the Structural Funds.
- 3.12 That being said, in recent years, mainstream government activities have worked to facilitate greater co-operation and sharing of information between government departments and agencies. The DFP Delivery and Innovation Division, for instance, is working with Information Commissioners and legal personnel to determine areas in which information can be shared. Further to this, increased efforts have been made over the last number of years to progress the Digital Inclusion Strategy and establish common networks across the public sector. While the outcomes of these initiatives have

yet to be fully realised, it is evident that the required infrastructure is being put in place to ensure the development of the e-government agenda.

- 3.13 In Table 3.1 below we have mapped the extent of current Information Society activity supported by EU Structural Funds against each of the i2010 objectives. This mapping exercise is based on the specific Measures in the Structural Funds Programmes aimed at developing the Information Society and evidence obtained as part of the interview programme and desk research.

**Table 3.1: EU Structural Funds programmes in Northern Ireland mapped to i2010 objectives**

Programme/ Measure		Single European Information Space	Innovation and investment in research	Inclusion, better public services and quality of life
Key: 0=no evidence/ not applicable, ✓=Low integration, ✓✓= Medium integration, ✓✓✓=High integration				
PEACE II	1.8a Innovation Technology and Networking	0	✓✓✓	0
	1.8b Information Age	0	✓✓	✓✓✓
BSP	1.2 Research and Technology Development and Technology Transfer	0	✓✓	0
	1.5 Information Society	0	✓	✓✓
	1.7 Telecommunications	✓✓✓	0	✓✓
	2.5 Education and Training ICT and Infrastructure Support	✓✓	0	✓✓✓
INTERREG IIIA	1.2 Knowledge Economy	0	✓✓	✓✓
	2.1c Telecommunications	✓✓	0	✓✓

- 3.14 Table 3.1 shows that overall there has been a good spread of EU Structural Funding programmes across each of the key elements of the i2010 Strategy. In particular, projects supported through EU Structural Funds have made a significant contribution to e-Inclusion, improvement in public services and quality of life. It should be noted that while some measures focused on specific areas of Information Society they have had a positive knock-on effect on other objectives of the i2010 Strategy. For example, while Measure 1.8b focused on ICT upskilling for individual businesses, it has also contributed to developing capacities of these businesses to participate in e-commerce and undertake innovative activities. Measure 2.5 of the BSP programme aimed at enhancing educational development and facilitating broader inclusion of ICT skills. This measure, however, has also contributed towards the Single European Information Space as it has established ICT infrastructure across a network of schools in Northern Ireland. Two measures in the area of telecommunications (INTERREG 2.1c and BSP 1.7), which provided funding for infrastructure, have had a positive knock-on effect in terms of better public services and e-Inclusion.

### Progress towards 2003 recommendations

- 3.15 Overall, most progress has been made towards increasing awareness of eEurope objectives. With a view to raising awareness of the eEurope Action Plan, the ISWG organised two European conferences. These conferences showcased best practice and discussed progress in Northern Ireland towards the objectives of the eEurope 2005 Action Plan.
- 3.16 Other recommendations of the 2003 Report have been also addressed by the ISWG. In particular, an Action Plan for the progression of recommended action has been proposed and endorsed by the CSF Monitoring Committee. In line with the Action Plan the ISWG:
- Prepared a paper on eEurope objectives for issue through the 2 EU Structural Funds Managing Authorities;
  - Reviewed gaps identified by 2003 Report and discussed with Implementing Bodies;
  - Reported on the gaps to the CSF Monitoring Committee;
  - Undertook a further formal review of Information Society activity;
  - Provided input to the mid-term reviews of the Operation Programmes by providing a copy of the 2003 report, actions taken to date and ISWG Action Plan to the CSF Monitoring Committee. The 2003 report was included as an appendix to the final mid-term (CSF and BSP) evaluation reports.

### Gaps in provision

- 3.17 From examining the key themes in Strategy i2010, gaps in the current provision for Information Society activity under the 2000-2006 programming period and areas in which more progress needs to be made can be highlighted. These issues are outlined below:
- **International and cross-border connectivity:** while 100% broadband coverage in Northern Ireland has been achieved and much progress has been made in developing cross-border communication links, areas still remain in which the infrastructure can be enhanced. This specifically relates to increasing the level of connectivity both on an international and cross-border basis which will help to facilitate greater competition, ensure security of supply and enhance the level of provision to more remote areas along the border corridor;
  - **Enhancing take-up of broadband and ICT:** in the 2000-2006 programming period, the provision of 100% broadband coverage has provided an ICT infrastructure which is available across Northern Ireland. During this time, the level of take-up of broadband has increased significantly with 42% of households which have a broadband connection.<sup>15</sup> The latest Northern Ireland Chamber of Commerce Business Monitor also indicates that 61% of businesses have a broadband connection.<sup>16</sup> This level of take-up of broadband and ICT, however, is not evenly balanced as a skills gap still exists among some businesses and organisations. In addition, geographic disparities are evident as more businesses that are located in the east of Northern Ireland show a greater uptake than those in the west. This suggests that further efforts need to be made to stimulate the demand in ICT by raising awareness and addressing skills gaps;
  - **Security, interoperability and data transfer:** in the 2000-2006 programming period, much emphasis has been placed on ICT infrastructure such as providing 100% broadband coverage or ICT facilities across schools. However, although the

<sup>15</sup> Northern Ireland Omnibus Survey 2006, NISRA

<sup>16</sup> NI Chamber of Commerce Business Monitor, 2007

infrastructure has been set in place, increased levels of co-ordination between government departments and agencies has not followed in all cases. The experience of the C2k initiative, for example, has highlighted that a number of constraints to enhancing ICT exist including interoperability, standardisation of information and data protection. While some mainstream government initiatives are focusing on data protection and the transfer of information, it is evident that more progress needs to be made in this area. This is particularly important as interoperability and security are outlined as key elements in the i2010 Strategy (under the theme of A single information space) and are necessary conditions to enhancing the development of the Information Society and making public services better. In addition, interoperability can increase economies of scale;

- **The commercialisation and ownership of research:** under the Structural Funds and the EU Research Framework Programme, support has been provided to promote R&D and facilitate linkages between business and universities. While much progress has been made in developing research activities, as highlighted by the number of research placements and the increase in expenditure on R&D, some difficulties were experienced in establishing linkages between business and universities, particularly under the EU Research Framework Programme. These difficulties were mainly centred on issues over the levels of risk between partners, the ownership of research and which partner has responsibility for commercial development. These issues have the potential to become a major barrier to R&D and collaboration between business and university and need to be addressed if further progress towards i2010 and the Lisbon agenda is to be achieved.

## Recommendations

- 3.18 From examining progress towards Strategy i2010 and identifying gaps in current provision, a number of recommendations for targeting future financial resources can be identified. Many of these recommendations specifically focus on the gaps in provision. The recommendations are outlined below.
- 3.19 Since 2003, 100% broadband coverage has been achieved across Northern Ireland and cross-border communication linkages have increased. This represents a significant level of achievement under the 2000-2006 programming period. However, although broadband has been provided, some concerns still exist over the level of infrastructure going forward. Northern Ireland is a peripheral location in terms of the main communication networks and this has also implications for the speed of data transfer and the security of connectivity to the island. In addition, further investment will be required to increase connectivity on an international and cross-border basis, and to enhance the speed of connection and update and maintain the network in light of ongoing technological developments.

**Recommendation 1:** It is recommended that further consideration is given to reviewing the level of broadband infrastructure to ensure it is updated and in light of ongoing technological developments. Given Northern Ireland's peripheral location, consideration should also be given to enhancing the security and speed of supply, this includes developing connectivity on a cross-border and international basis and with other international networks.

- 3.20 In the 2000-2006 programming period, the provision of 100% broadband coverage has provided an ICT infrastructure which is available across Northern Ireland. During this time, the level of take-up of broadband has increased significantly with over half of the 45% of households in 2005/06 which accessed the internet using a broadband connection. This level of take-up of broadband and ICT, however, is not evenly balanced as a skills gap still exists among some businesses and organisations. In addition,

geographic disparities exist as more businesses that are located in the east of Northern Ireland show a greater uptake than those in the west. For some sections of society, affordability of provision also remains a barrier to uptake which suggests that continued attention needs to be placed on stimulating demand.

**Recommendation 2:** It is recommended that consideration is given to stimulating demand for the up-take and inclusion of ICT. This could be achieved by raising awareness through promotional activities, introducing measures to further increase competition among suppliers, and addressing skills gaps through the continued provision of training and support for e-business processes.

- 3.21 The experience of the 2000-2006 programming period has shown that a number of barriers to enhancing ICT continue to exist. Indeed, issues such as interoperability, standardisation of information and data protection can be identified as necessary conditions to enhancing the development of the Information Society and making public services better. In addition, interoperability can facilitate coordination and lead to increased economies of scale. While some mainstream government initiatives are focusing on data protection and the transfer of information, it is evident that more progress needs to be made in this area.

**Recommendation 3:** With a view to developing greater linkages between government departments and agencies, it is recommended that further support is provided to address issues of interoperability, standardisation of information and data protection / security. This could include further development and expansion of the Government Gateway project which aims to promote greater internal and external security.

- 3.22 The EU Research Framework Programme support is a key funding mechanism for providing support to promote R&D and facilitate linkages between business and universities. While much progress has been made in developing research activities under FP6, some difficulties were experienced in establishing linkages between business and universities. These difficulties were mainly centred on issues over the levels of risk between partners, the ownership of research and which partner has responsibility for commercial development. These issues have the potential to become a major barrier to R&D and collaboration between business and university and need to be addressed if further progress towards i2010 and the Lisbon agenda is to be achieved. Indeed, the importance of this issue is enhanced as EU Structural Funds for Northern Ireland are declining and the EU Seventh Research Framework Programme (FP7) has included ICT as the largest research theme in the Cooperation programme. This increase in available funding for ICT research creates an opportunity for companies and research institutions in Northern Ireland to take ICT research forward.

**Recommendation 4:** It is recommended that consideration is given to developing activities that promote a more integrated approach to R&D between universities and business. This approach should ensure the development of partnership arrangements based on agreeable terms of ownership of research and the sharing of risk. An integrated approach would ensure the universities' research products and ideas are recognised but would also allow business to play a key role in the commercialisation of research outcomes.

- 3.23 The C2k initiative has established a comprehensive ICT infrastructure across a network

of schools. This initiative, for example, has installed 22,291 personal computers and 2,889 printers in 284 schools and provided connectivity to a broadband network. Opportunity now exists to share the lessons from this experience and increase accessibility to the ICT infrastructure resource that has been established.

**Recommendation 5:** It is recommended that research is conducted on the development of C2k to learn and build on this investment and transfer the lessons to other ICT approaches within the public sector. In addition, given the important role that schools play in the local community, opportunity exists to extend accessibility to C2k ICT infrastructure to other sectors and groups beyond primary and secondary schools. This could include, for example, utilising the infrastructure to provide training courses for the unemployed, SMEs or farmers.

- 3.24 Although a comprehensive ICT infrastructure has been established across a network of schools, early indications suggest that more work needs to be undertaken to in-grain ICT into work programmes and lessons across all schools. This strongly depends on the extent to which ICT is incorporated into current educational developments, but consideration also needs to be given to developing new methods and tools for networking between schools and enhancing the level of skills in the sector.

**Recommendation 6:** It is recommended that consideration is given to further maintaining and enhancing the C2k infrastructure within schools and encouraging the integration within educational provision. This could include initiatives to develop enhance the skills of teachers, increase bandwidth and develop collaborative schools such as video conferencing which will facilitate greater networking between schools.

- 3.25 One of the key lessons emerging from the INTERREG Programme in relation to Information Society is that activities have frequently been project led which has dissipated the impacts and restricted the opportunity to develop more strategic integrated initiatives.

**Recommendation 7:** In regard to future cross-border initiatives promoting Information Society activities, it is recommended that consideration be given to promoting a more strategic approach to development. This approach would be more prescriptive in terms of what Information Society initiatives are required and would provide less opportunity to develop project led / demand based activity.

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