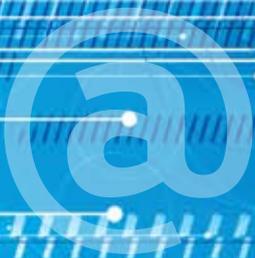


DIGITAL

Northern Ireland 2020



Executive Summary

The Digital Northern Ireland 2020 project was initiated following consultation with a number of players across Northern Ireland. There was a consensus of opinion that to realise the full potential of the investments made in our digital infrastructure, we should take a proactive leadership approach to its exploitation.

The first step of this programme was to undertake a short study to identify the range of opportunities and to propose how to rapidly move forward with creating momentum for the exploitation of Northern Ireland's Digital Platform.

This Study Report documents the output of this study and puts forward a top level plan for the rapid progression of the Digital Northern Ireland Initiative.

The report firstly describes the nature of the Northern Ireland Digital Platform and identifies those areas where it has the potential to positively impact progress, both in economic and social terms. It provides a top level review of the nature of opportunities across the various sectors, and identifies a set of concrete projects which could be launched in the year ahead, to create real momentum to the creation of a vibrant Knowledge Economy in Northern Ireland.

The report concludes with proposing the creation of a programme leadership role, which will be essential if the initiative is to achieve results and sets out a top level plan for the next three years.

1. Introduction

The starting point of the DNI 2020 study was to initiate a body of work identifying the opportunities which existed in the short, medium and longer term for the economy of Northern Ireland and for the population as a whole, arising from the significant investment which has been undertaken in building a high speed communications infrastructure for Northern Ireland.

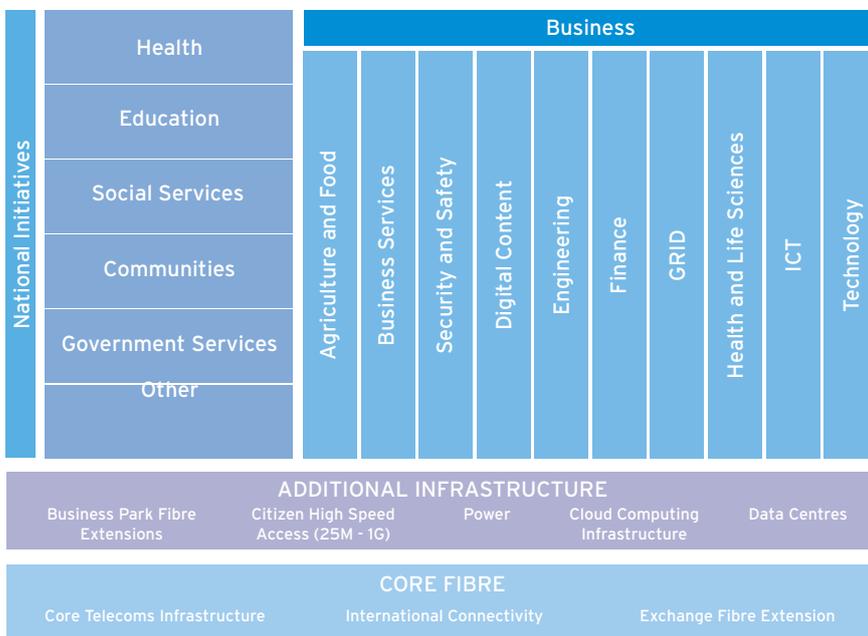
The study is a first step in this work and follows on initiatives undertaken by the Northern Ireland Science Park (NISIP) and the Matrix Programme (<http://www.matrix-ni.org/>), along with many other interested parties, which included seminars in Belfast and Derry, interaction with government bodies and canvassing of various business players, all of which indicated significant support for undertaking a proactive approach to accelerating the realisation of these opportunities.

The primary premise of the DNI 2020 initiative is that Northern Ireland stands to reap considerable benefits in terms of both economic and social uplift as a result of the advanced communications capability which has been and continues to be deployed. However, these benefits will not be realised to the full unless leadership is given to facilitate collaboration and to pursue a proactive approach to maximising the realisation of the many opportunities which can be enabled by the Digital Platform.

2. Opportunities

In the short period of the study, a series of meetings has been held with industry experts in Northern Ireland, the UK and internationally, and consultation has been undertaken with a selection of government and community bodies (see Appendix A for details). This work has confirmed there exists significant opportunities in a number of areas and a summary of these will be set out in this report.

2.1 Types of Opportunities



Broadly speaking, the opportunities fall into the following categories.

- Business opportunities in and across various business sectors.
- Community and social opportunities across a range of areas.
- A number of key strategic projects which if realised would significantly enhance Northern Ireland's position as a Knowledge Economy.
- Opportunities for FDI by significant players across major business areas, including the ICT and digital technology areas.

The study also identified several areas of additional "infrastructure like" initiatives which would be required over time for Northern Ireland to be able to realise the full potential of the Digital Platform it now possesses.

These opportunities will be expanded upon in the following sections and a top level plan for progressing the work set out in this study will be presented in accordance with the terms of the study. One of the first steps in any follow on to the DNI 2020 programme will be to expand and consolidate this plan.

2. Opportunities

continued

2.2 Key Elements of Northern Ireland's Digital Platform

The Digital Platform is described briefly in the report. At this point, however, it is worth stressing the nature of the opportunity this provides and its potential significance to Northern Ireland's future.

It is widely recognised that access to high quality communications and digital technology platforms will be of significant importance for countries to develop both their economies and to develop their services to citizens and improve the quality of life of citizens in the coming decades.

- The American Recovery and Reinvestment Act of 2009 (Recovery Act).
<http://www.fcc.gov/cgb/broadband.html>,
- Digital Agenda for Europe.
http://ec.europa.eu/information_society/digital-agenda/index_en.htm
- OECD: The role of communication infrastructure investment in economic recovery).
<http://www.oecd.org/dataoecd/4/43/42799709.pdf>
- COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Transforming the digital dividend into social benefits and economic growth {SEC(2009) 1436} {SEC(2009) 1437}.
http://ec.europa.eu/information_society/eeurope/i2010/index_en.htm

2. Opportunities

continued

Recognition of this has led the government bodies of Northern Ireland to invest in ambitious Digital Platform enhancement initiatives in partnership with industry, and a number of these are now coming to fruition, notable amongst these are:

- The direct transatlantic Kelvin link, in collaboration with Hibernia, which complements the existing link of the island of Ireland to North America and also the numerous links via the mainland UK to the rest of Europe and the world.
- The Next Generation Broadband programme being undertaken in collaboration with BT, which extends fibre to a significant proportion of the exchanges in Northern Ireland and onward to the street boxes.
- Previous waves of investment in core fibre capacity across Northern Ireland, resulting in a situation where approximately 95 per cent of the population is within three km of fibre access.

These investments result in a number of potential benefits to businesses and citizens of Northern Ireland, which a proactive approach to realisation will accelerate over the coming years. It is important to understand that there are a number of aspects, rather than any single one, which together give Northern Ireland what might be termed a “pole position” in the race to achieve economic success in the 21st century digital age. These are:

- Fibre coverage across Northern Ireland to all major urban and business centres.
- Dual links to the North American continent from the island of Ireland, with full interconnection between the fibre networks in Northern Ireland and the Republic of Ireland.

2. Opportunities

continued

- Extension of fibre to a significant proportion of exchanges and street cabinets, resulting in guaranteed high speed broadband being available to a very high percentage of businesses and citizens.
- Possibility for significant proportion of businesses to have direct fibre access, thereby giving access to very high speed communications (1G and beyond).
- Possibility for communities to plan and deploy fibre directly to residential accommodation, thereby opening up very high speed interactive services, which in and of itself act as a spur to economic and social activity.
- Shortest latency across the Atlantic, which when combined with the density of the fibre core, the resilience and robustness of the fibre infrastructure and easy secure access to major business parks, makes Northern Ireland an ideal location for Cloud Computing technology centres.
- Several high quality university and research centres, which when working in collaboration with industry, are an essential component of the eco system of any modern knowledge economy.
- Extensive high quality mobile network.
- Excellent lifestyle potential.

These are impressive credentials, however, it is also important to note that other areas in the world including our direct neighbours are planning and investing to achieve similar types of competitive edge, therefore the full realisation of the benefits will depend critically upon a proactive coordinated approach to the exploitation of the full potential for Northern Ireland and its citizens. This report will propose a way forward for this. It is also worth noting that the Digital Strategy recently set out by the European Commission and referenced earlier, highlights a number of key features for success which Northern Ireland is already well on the way to be able to realise.

3. Infrastructure

Whilst the study has confirmed that Northern Ireland has deployed significant fibre in the core, in the area of international connectivity and also to local exchanges and street cabinets (all essential elements in making a very high speed connectivity capability available at the point of use), it has also identified several areas which will require additional infrastructure-like investment, such as:

- Fibre extensions to business parks, creating web service ready business facilities.
- Very high speed connectivity to housing developments allowing the full benefits of the Digital Platform to be accessible to the citizens and also to improve the quality and timeliness of government service provision to the citizen, whilst simultaneously reducing the cost of provisioning these services.
- Very high speed local access capability. By building on the work of the Next Generation Network project, targeting 100M access plus, as the base norm for service delivery.
- Datacentre infrastructure (Data storage and application servers). This will require coordination across a number of sectors, particularly environment, energy generation and skills development.
- Power.
- Cloud computing infrastructure.

3. Infrastructure

continued

In any subsequent programme it is recommended that support is given to the development of costed proposals across all of these areas. These projects will be largely, if not exclusively, implemented through deployment of private capital. However government, national and local will have a role to play in supporting their progress.

For example, in the case of power, the national strategy should ensure that potential development of commercial opportunities in large scale datacentres are taken into consideration. This would also need to address how to ensure power can be produced at globally competitive rates.

In the case of fibre extensions, a proactive co-ordinated approach should be taken to accelerate the creation of web service ready business parks across Northern Ireland and to avoid unnecessary and needless duplication of multiple fibre connections to single locations.

For future housing developments the requirement for very high speed connectivity infrastructure should be built in as a contract condition. It is always considerably less expensive to do this at the time of construction than in a piecemeal fashion following completion of construction. Authorities should also aim to include Smart Home capability in future developments as a standard requirement.

Where there is competitive advantage to be gained at national level by taking a collaborative approach to developing capability, there will be a role for government to provide financial support in well defined areas of strategic interest, to accelerate these collaborative approaches.

4. Business Sectors

A number of activities are already underway in business sectors. For example:

- Business park fibre connectivity.
- Collaborative project to create Cloud Computing eco system for small to medium ICT businesses - NISINE (Northern Ireland's Software Innovation Network).
<http://www.NISINE.com>
- Pathfinder project in the Digital Media Production area.
- Connected Health initiative, led out of the The European Centre for Connected Health based in Belfast.
<http://www.echcampus.com>

However the overall level of potential high value exploitation of the underlying infrastructure, and also substantive milestone plans to deliver initiatives, are limited. A parallel initiative, being undertaken under the auspices of the Matrix Programme, has laid foundation work identifying opportunities for and challenges to successful exploitation in key business sectors. It also notes that government investment in the creation of our digital infrastructure will not realise optimal returns to Northern Ireland unless a proactive approach is taken to its exploitation. A key goal of the DNI2020 initiative will be to ensure that the recommendations of the Matrix Telecoms Report are proactively followed through.

Based upon this work the DNI 2020 study has determined that a number of business sector projects could be launched in the next six months.

4. Business Sectors

continued

Within the study and with the assistance of Northern Ireland Science Park (NISP), a pathfinder activity has been started in the Digital Media Production sector, with the goal of creating a cluster of activity in this sector, leading to the launch of a number of projects which will create significant additional business activity for the sector.

In the next phase of the DNI 2020 programme, a set of similar collaborative initiatives will be launched in other business sectors. The aim will not be to produce a unitary solution for each sector but rather the creation of vibrant clusters to encourage collaborative working together on key elements which will enable players in the business sector to realise their own particular business goals more effectively and efficiently.

It will, of course, not be necessary for these collaborative groups to be in place for other high value projects to be launched in any of the individual business sectors and the DNI 2020 programme will offer support to these singleton projects. Ultimately however, the goal is to create collaborative clusters where cross learning, knowledge sharing and business dynamics can help launch and deliver projects, encourage scale and which will, in their turn, deliver significant economic benefits and success to Northern Ireland.

In support of this work the study has been in contact with and is currently working with a limited number of urban and community leadership teams to help them develop plans for the economic uplift of their areas, exploiting the Digital Platform (e.g. Derry/Londonderry, Coleraine, Craigavon, Belfast).

4. Business Sectors

continued

Again the goal would be to use the experience gained from these pathfinder projects to create an effective planning and execution template for all such programmes, which would accelerate delivery and realisation of benefits.

One approach we trialed during the period of the study is a “town hall” session, where local business people can come together to learn about and debate the opportunities which the NI Digital Platform can support in their area. This is an important two way process, as it not only provides information on the potential of the technology, but also crystallises the real issues facing local businesses and communities in harnessing this potential. At the Coleraine event, for example, a number of opportunities were identified which were relevant to the Coleraine area and the discussion and follow on from the town hall session has enabled a clear plan of action to be developed, which is currently being followed through. A characteristic of this follow on plan which will be common to all future town hall sessions, is that it focuses on specifics rather than generalities, and where sources of potential advantage are identified, these are described in a clear, concrete and actionable way.

In any follow on programme, the DNI 2020 programme would run a series of such town hall sessions on an ongoing basis, to create and maintain exploitation momentum.

One business sector where work has already progressed to a proposal stage is ICT. The NISINE programme has developed a proposal for funding support to create a Cloud Computing eco system infrastructure, which would encourage the development and growth of Cloud Computing capability across a number of the ICT firms in Northern Ireland, and help them win and grow business activity, thereby delivering economic benefit to Northern Ireland. The proposal is currently under review. In the follow on to the DNI 2020 study, the DNI 2020 programme would work proactively to support the development of similar proposals for other areas.

4. Business Sectors

continued

Northern Ireland's infrastructure and international connectivity make it an ideal location to exploit the Cloud paradigm. There are a number of options.

- Probably the most straightforward is to ensure that business premises are made web service access ready. By that is meant that business parks and major business buildings have very high speed and capacity communications access readily available so that any company setting up its operations can immediately link up online to their corporate systems. This will both increase the speed at which they can be up and running, significantly reduce start up costs and help set the foundations for successful business development. This approach is applicable to businesses of all sizes, and it can also help smaller local companies win contracts with larger supply companies, by being able to easily work at distance with primary contractors.
- A second opportunity is in the area of acting as a major application server node on the global network. Increasingly companies which are spread over a number of locations will be looking for secure facilities to host their applications and also to access applications from a range of server providers without having to set up bespoke computing environments. Cloud application server nodes act as the repository for applications making them available anywhere in the world as and when they are needed. Such nodes need to be located in secure environments, have access to skilled staff, excellent high speed high capacity communications and not be excessively geographically remote. Northern Ireland can satisfy all of these criteria for a number of significant economic regions in the world.
- A third opportunity is for groups of smaller companies to come together in virtual partnerships on a contract by contract basis thanks to the flexibility provided by cloud based application development. This would enable them to get engaged directly in larger programmes and also to be able to exploit their agility and specialised knowledge more effectively and efficiently than larger competitors.

5. Foreign Direct Investment

The Digital Platform provides a critical element, especially when combined with the additional infrastructure elements, to create an eco system which would be very attractive to Foreign Investment. For example, easy access to very high speed secure IP connectivity makes it considerably easier for companies to establish operations in new locations. Further, access to robust and resilient Cloud services, allows new entities to easily access existing corporate business information systems. These advantages, which put Northern Ireland on an equal footing with other leading regions, are applicable to all types of business area FDIs. One of the goals of the DNI 2020 initiative will be to assure the availability of web service ready business premises, where companies can have immediate access to reliable high speed and high capacity communication facilities.

For operational entities such as data centres, web services applications server nodes, post production businesses in digital media, financial transaction centres etc, access to very high speed, robust and resilient connectivity is critical for such types of FDI to be viable.

Whilst obviously there are many other elements, the DNI 2020 programme will work proactively with all relevant players to exploit the Digital Platform asset in order to successfully attract substantive inward investment.

5. Foreign Direct Investment

continued

This is particularly important in the area of ICT and digital technologies, where Northern Ireland despite having a number of very successful home grown businesses and inward investment technology companies, has few large scale ICT operators with substantive delivery and production facilities based here. It is these types of company which are capable of successfully attracting large scale commercial contracts, which would in turn have positive impacts on other smaller ICT players based in Northern Ireland. Unchanged, Northern Ireland will inevitably under realise the full potential of the Digital Platform in the ICT area. It is worth noting that when large ICT entities are successfully attracted to creating a facility in Northern Ireland, a key recognised strength of the region, is the ongoing access to well qualified technical staff, which allows companies to grow in a sustainable manner without dilution of their skill base, in line with the evolution of their business.

The DNI 2020 study has identified a number of players in this area, whom it is proposed should be addressed in the follow on phase over the coming months, with the goal of securing a number of successful inward investment wins. Target areas include Design and Operations Centres for Global ICT companies, deployment of at least one Cloud Computing Application Server Node, High End Technical Service Centres etc.

6. Northern Ireland Regional Programmes

The final area of opportunity is that of National (i.e. Northern Ireland region) Programmes. The study has determined that there is a significant unrealised opportunity to exploit the Digital Platform to transform positively areas such as education, health, social services and administration and to provide significant support to local community groups. A consequence of proactively realising the potential across these areas would be to improve the overall quality of life of the citizens of Northern Ireland, as well as making many of the administrative services both more effective and more efficient.

In the period of the study only a limited area has been able to be assessed, but the study deliberately looked across a wide cross section to be able to give a view of what could be possible.

Education & Skills

In education and skill development, for example, by exploiting the ease of access to knowledge systems through the spread of online access, either at the personal or at the school and college level, there is real potential to deploy high quality content to support and complement existing skill development methods.

One of a number of areas would be exploiting content developed under the auspices of the UK e-Skills programme, to ensure all school leavers have attained a certain level of e-skill capability on the e-passport scheme, which would equip them to better exploit digital technology both in their work and their personal lives.

6. Northern Ireland Regional Programmes

continued

Health

Another is that of digital health, where the study has been able to look at several examples across the globe where digital technology has made health care more effective and efficient, and also improve the life experience of the citizen by giving them easy and ready access to information on wellness. The Connected Health project has significant potential here, particularly if it can also spin off business opportunities to entities based in Northern Ireland, which could then develop into players in the larger international initiative.

Community

At the community level, the study has taken the opportunity in the short period to interact with some community groups to explore how digital technology can support the goals of the community group and also help them interact both at a local and international level. Whilst often considered a “soft” benefit, this capability can lead to the realisation of significant social uplift and economic activity.

One proposal which has been discussed and would be progressed further is to accelerate the creation of “smart homes” at all social levels, which would not only provide ready access to knowledge systems and services and reduce the cost of government service provision to the citizens, but also accelerate the greening of Northern Ireland through more efficient and effective use of power sources.

7. Strategic Projects

This section concentrates on what are termed a number of key strategic projects which would, in effect, give the DNI 2020 programme legs. They vary in scale and are complementary, and one of the goals of any follow on programme would be to facilitate the progression of these “in concert” with each other and with the other strands of the DNI 2020 programme.

7.1 Access Extension - Fibre to Business Parks/ Communities/Home

Ninety-five per cent of the population of Northern Ireland is within three km of fibre. This is a remarkable penetration of fibre and lays the foundation for ubiquitous access to very high speed communications. However, to complete this, it is necessary to extend access to the point of usage. The DNI 2020 programme would, in any follow up, work with access supply companies and target client areas, to facilitate the realisation of significant direct fibre access deployment. Areas will include Business Parks, major businesses, hospital facilities, educational establishments and residential building programmes. Clearly direct fibre access will come at a cost to the user and over time, as penetration grows, so market dynamics will reduce the cost of deployment. The programme will work with the above target areas to help them understand the financial benefits of enhanced communication access and facilitate extension of very high speed direct access.

7. Strategic Projects

continued

There are a number of examples across Europe of communities which have taken the initiative and extended fibre to all users.

- Case Studies Report, <http://www.packetfront.com/openup/>
- Fibre to the Home Council for Europe, <http://www.ftthcouncil.eu/>
- FTTH Handbook, FTTH Business Guide, Open Networks and Services, Swedish Post and Telecom Agency Report Number PTS-ER-2009-32).

The DNI 2020 programme will help communities in Northern Ireland make contact with and understand the dynamics which lead to this being a viable financial option. It will also aim to ensure that Northern Ireland acts as a pathfinder to similar activities across Europe, thereby enabling it to play key roles in subsequent business opportunity exploitation.

7.2 Web Service Ready Business Parks

To attract new businesses, encourage growth of existing businesses and provide premises for new start up businesses, the creation of a number of web service ready business parks should be encouraged. This will progress through a combination of enhancing the digital infrastructure within existing business parks and also encouraging investment in new parks. The role of the DNI 2020 programme here will be to work with Business Park owners, local administrations etc, to facilitate this transformation of our business park infrastructure and to encourage service providers to make readily available the required service infrastructure.

7. Strategic Projects

continued

In effect the DNI 2020 programme will aim to create a small set of blueprints which can be used to speed up the provision of such facilities. A key goal will be to ensure that when connected, any client who comes to the business park to set up business can immediately gain very high speed access to the web and have seamless access to all of the parent company applications and services which are web ready. This will significantly reduce start up times for new investors. An important element of these business parks will be the creation of a number of business incubation facilities, which will allow new companies to establish a presence quickly and when successful grow out into larger premises easily.

7.3 First Wave ICT/Technology FDI Companies

It is anticipated that the existence of the Northern Ireland Digital Platform will encourage FDI across a number of business sectors, and the support of this will be covered in the various clusters as discussed in the Business Sector section of this document.

One area which is worthy of specific attention is that of attracting a number of internationally recognised major players in the ICT/digital technology areas to invest in Northern Ireland. Relative to other economies Northern Ireland has few significant development and production facilities of major global ICT players, although these companies do have a commercial presence. It does, however, have several internationally recognised home grown ICT companies and has provided senior staff to many of the world's major digital economy companies. Indeed Northern Ireland's universities are recognised as leaders internationally as is evidenced by the recently announced India-UK Advanced Technology Centre of Excellence in Next Generation Systems and Services at the University of Ulster.

7. Strategic Projects

continued

To create a vibrant digital eco system and to attract design and development elements of some of the iconic digitally enabled transformation programmes to Northern Ireland, it will be necessary to have some of these major international companies establish design, development and/or production facilities here.

A priority for the DNI 2020 programme will be to provide support to all of the activity aimed at attracting this type of investment, and to help ensure we develop strong and compelling cases for these companies to consider us as a primary location target. The type of companies which should be targeted are:

Google, HP, Oracle, SAP, TCS, Infosys, Wipro, Mahindra, Ericsson, Alcatel-Lucent, EMC, Real, Norton, IBM etc.

The presence of a handful of these types of companies will transform the outside perception of Northern Ireland as a base for digital economy design and operational activities, and act as a positive spur to the overall economy.

7. Strategic Projects

continued

7.4 Global Cloud Computing Node

During the study discussions with industry players confirmed the potential of Northern Ireland for the creation of a Cloud Computing eco system capable of delivering web service applications on a global basis. Cloud Computing as a concept is not in and of itself new. However recent advances in technology, particularly in the area of robust high speed digital communications, have significantly increased the scale of its potential. For major businesses to transition to the deployment of Cloud services, which bring with them greater flexibility, reduced cost and the ability to react at speed in rapidly moving marketplaces, they will need access to resilient, robust, secure and highly accessible (in digital terms) application server nodes. It is in this area that Northern Ireland has significant potential advantages over many other locations.

A first step in any follow on programme would be to flesh out the proposals for a Cloud Node, working with industry leaders to establish its viability, and also to put in place Cloud eco system elements to enable local ICT companies to exploit its potential. The WHISPLE collaborative network addresses this later point.

With the establishment of this Cloud Computing node it would be possible to build business opportunities in the areas of:

- Hosting Cloud applications.
- Design and development of Cloud applications.
- Operational support of Cloud applications.
- Hosting environment for Cloud infrastructure.

7. Strategic Projects

continued

7.5 Design and operations Centres

The communication infrastructure of Northern Ireland gives it the potential to act as a design and operational centre for applications which have been developed elsewhere. Key to this is the quality and resilience of our direct connections with North America and the connections to mainland Europe and Asia via the UK. Software development has seen significant levels of outsourcing to developing economies over the past two decades and this is likely to remain a feature of the digital economy in the years to come. However, whilst significant development work has been offshored, for a number of reasons companies have been reluctant to offshore design and operational activity. Northern Ireland is in an excellent position to take a part of this as yet under developed business opportunity. This is as a result not only of its Digital Platform capability and connectivity, but also its geographical position between the US and Europe and also India (all key centres for digital technology consumption and development).

It is proposed that the DNI 2020 programme works on developing the business case for the creation of such a design and operations capability which has the potential to grow to significant scale in the years ahead as Cloud platform uptake increases.

7. Strategic Projects

continued

7.6 Data Centre Facilities

The Digital Platform provides Northern Ireland with the opportunity to host a number of significant data centre facilities. The economics of these centres is a specialist field, and their creation and operation a highly specialised business area. However, given the availability of excellent sites, skilled personnel, the security of the overall environment and the interest already being shown in Northern Ireland as a potential location, focused attention should be given to the progression of current activity towards successful deployment and operation. Whilst large scale data centres are not, in and of themselves, direct sources of high levels of new job creation, their presence has potential for additional skilled job growth in a number of associated spin off areas.

In addition to potentially acting as a location for globally connected data centres, the Digital Platform provides the potential to significantly increase online access for Northern Ireland government services. The very high extent of connectivity which can be achieved across the population of Northern Ireland, provides opportunities for improvements in the effectiveness, quality and efficiency of these services. The Digital Platform will enable local service data centres to be created, thus assuring both performance and security.

Another model offered by the Digital Platform will be the creation of a set of distributed data centres across several geographical locations. These will in effect be able to act as a distributed computing engine, offering the potential for very high levels of flexibility, speed of deployment and complementing the Cloud Computing eco-system discussed elsewhere in this report.

7. Strategic Projects

continued

7.7 E-skills Development Programme

Ubiquitous access to digital connectivity gives communities and individuals the potential of exploiting it to enhance their lifestyle and their careers. However for this to happen effectively, it is important to take a proactive approach to the development of these e-skills, rather than just leaving it to random chance. There are clear economic benefits in taking this approach. A population where the majority are conversant with the potential of digital technology to help perform tasks effectively and efficiently, ultimately has competitive advantage over societies where this is not the case. The DNI 2020 programme would work with the e-skills sector skills council to use the material and approaches they have developed in this field over the past few years, and with educational bodies to ensure all citizens have access to the means of acquiring relevant e-skills.

Access to very high speed communication infrastructure opens up the possibility for the creation of what might be termed virtual campuses. In effect colleges in Northern Ireland could team up with colleges in, for example, the east coast of the United States, to create unified courses, where students on both campuses could participate in a virtual campus as part of their degree programme. This would have the advantage of extending the field of opportunity and experience to a large number of students, building relationships between the students and also between the establishments, and over time leading to the creation of tightly bound, distributed research clusters. Realisation of this would be likely to have a very positive impact on Northern Ireland's standing in a number of important academic areas.

7. Strategic Projects

continued

7.8 Cloud R&D Centres

Building on the existing position of Northern Ireland's academic establishments in facets of Cloud Computing and the importance of establishing a positive perception of the strong credentials of NI in this area, the programme would work with universities and industry players to encourage the building of a body of internationally recognised R&D activity in this area.

7.9 Technology Enabled Social Regeneration

Not only has the Digital Platform a key role to play in business development, it also has a critical role to play on social regeneration. Digital technology infrastructure is in many ways unique inasmuch it is an infrastructure which can deliver just as readily social benefits as macro economic benefits. At its simplest this is because it provides citizens, no matter where they are, with access to knowledge bases and personal development opportunities which allow them to realise their full potential and take ownership of improving their own and their communities' quality of life.

One of the themes of the DNI 2020 programme will be to work with local community leaders and government agencies to identify opportunities to deliver these benefits. At one end of the spectrum will be a drive to ensure that new housing developments of all types make provision of smart home type technology a standard feature. At the other end of the spectrum, identifying how technology can help improve the quality of life of older people, socially isolated people and other vulnerable groups.

7. Strategic Projects

continued

As set out briefly in the national projects section, given access to digital services, it will be possible to improve the quality of health care, delivery of social services and education services, both for school children and also for adults, as we move to an era of quasi continuous skill development throughout each individual's lifetime. In effect the world enabled by the Digital Platform has the potential to give individuals much more control of their own life choices, and one of the threads of the DNI 2020 programme will be to realise this in Northern Ireland to the benefit of the citizens.

7.10 Business Area Pathfinders

Building on the progress being made in the Digital Content area, and also drawing upon expertise in technology of safety and security and the recognised expertise of ECIT and interest shown from initial discussions with finance sector businesses, the establishment of pathfinder projects in these areas should be a priority.

8. Onward DNI 2020 Exec Leadership/ Facilitation Role

Ultimately for this to progress at the required pace, it will be necessary to have a small but respected central leadership function for the DNI 2020 programme, taking a proactive approach across Northern Ireland and internationally, to assure the full realisation of the potential of our Digital Platform, both in economic and social terms.

One element of this leadership role will be to create a DNI 2020 Advisory Service. This would provide proactive timely support to businesses, urban administrations and government bodies on exploitation opportunities relating to the Digital Platform, as well as community groups.

Examples of activities include:

- Business Sector Collaborative Network Leadership and Co-ordination.
- Championing creation of digitally enabled Business Parks.
- Championing the deployment of digital skill development programme across all of the community, to ensure that this investment acts as an inclusive enabler for social regeneration.
- Providing proactive support to local administrations to help develop the potential of the Digital Platform in their areas. This would include town hall type of information events for local businesses and ongoing advisory services.
- Expert support for highly technical programme activities, such as Data Centre development, Cloud Eco System development and very high speed access deployment and exploitation.
- Providing support to the efforts of agencies involved in attracting FDI opportunities.
- Proactively ensuring Digital Northern Ireland has an international visibility and awareness.

The DNI 2020 Programme Leader would also own the plan for the overall set of initiatives related to the programme and work in conjunction with stakeholders to establish a set of metrics to measure progress in realisation of the benefits of the Digital Platform.

9. Conclusions

Create DNI 2020 Leadership role, funded over a two year initial period, which would:

- Set up semi permanent advisory service.
- Support the progression of the set of strategic projects.
- Support the establishment of a set of Collaborative Business Clusters.
- Support the progression of a set of national projects.
- Support projects targeted at completing the Digital Platform infrastructure.
- Assist in targeting FDI in the ICT/digital technology area, including the creation of a Design and Operations capability.
- To ensure that industry, academic establishments, health services and government departments are fully aware of the capability and potential offered by the NI Digital Platform to National Programmes create an outreach programme to work with key players. This will take several forms including briefing sessions, workshops and providing access and connections with expert support in subject areas.

Towards the end of the two year period, based upon assessment of both performance to date and the changing nature of the opportunities and challenges which will have arisen, a decision will be taken on how best to continue with the leadership of the DNI 2020 initiative.

Appendix A

List of people and organisations contacted during the study period

Name	Company	Sector	Country
Adrian McAloon	Real Networks	Digital Technology	US
Aideen McGinley	Ilex	Government	NI
Alan Costello	Spirit of Ireland	Energy	Rol
Alan Watts	Halo	NISP	NI
Alastair Fee	QUB/ Oxford/ Trinity	Research	Europe
Alastair Hamilton	Invest NI	Government	NI
Bernard McKeown	DETI	Government	NI
Bill McCluggage	OFMDFM	Government	UK
Bill Montgomery	Invest NI	Government	NI
Bob Barbour	CforC	Business Development	NI
Brendan Crossey	EMC	Technology	Rol
Brian Thompson	Universal Telecoms/Global Telecoms expert	Technology	US
Bro McFerran	AllState	Insurance	NI
Bryan Keating	Axis Three	Engineering & Software	NI
Craigavon Chief Exec	Craigavon Borough Council	Government	NI
Darryl Collins	Banjax	Media Production	NI
David Gavaghan	SIB	Government	NI
David Simms		Media	NI

Appendix A

continued

Name	Company	Sector	Country
Declan Kelly	US NI Economic Envoy	Government	US
Denis Murphy	Anaeko	ICT	NI
Drew McGinty	EMC & Ulster American Society	Technology	US
Ed Vernon	Synetics	Technology	NI
Eoin Lambkin	Groupe Intellex	Technology	NI
Feidhlim O'Neill	Yahoo	Technology	UK/Europe
Fergus Innes	Hibernia	Communications	UK
Frank O'Donnell	PA Consulting	Consulting	RoI
Gavin Campbell	Bombardier	Engineering	NI
Gerry Parr	University of Ulster	Academia	NI
Graeme Kelly	YellowMoon	Media Production	NI
Grainne McVeigh	Invest NI	Government	NI
Greg Maguire	ZooGloo	Media Production	NI
Ian Graham	Momentum NI	ICT	NI
Jake Jakeman	Culturlaan	Community Development	NI
Jan Mul	Fairfax County, Va, Business Development	Regional Development	US
Jayne Brady	InTune Networks	Technology	NI
Jim McLaughlin	University of Ulster	Research	NI
Jim Smith	CIDO	Business Development	NI
John McCanny	ECIT	Technology	NI

Appendix A

continued

Name	Company	Sector	Country
John Nicholl	Titanic Quarter	Property Development	NI
John Simpson	Economic Consultant	Technology	NI
John Simpson	Atlas-Bytel Group	Communications	NI
Kevin Maloney	PA Consulting	Consulting	RoI
Maggie Robinson	LSDA	Education	NI
Mairtin O'Muilleoir	Belfast Media Group	Media	NI
Mark Donaghy	BizNet	Technology	NI
Mark Feeney	E-Skills	Education	NI
Mark Finlay	Presidents Club	Property Management	NI
Mark Huffam	Generator Entertainment Ltd	Media	NI
Martin Spollen	SIB	Government	NI
Matt Peachey	Derry City Council	Government	NI
Michael Docherty	CEO - Craigavon Council	Government	NI
Michael Graham	Titanic Quarter	Property Development	NI
Michael Murray	BT	Communications	NI
Michael O'Neill	First Derivatives	Technology	NI
Mike Smith	Titanic Quarter	Property Development	NI
Moira Mann	Coleraine Council	Government	NI
Padraig Canavan	Singularity	Software	NI
Panos Lioulis	QUBIS	Research	NI

Appendix A

continued

Name	Company	Sector	Country
Paul Brewster	Pure Marine Gen	Energy	NI
Phillip Morrow	Wild Rover Productions	Media Production	NI
Pierce Moore	Nerve Centre, Derry	Media	NI
Prof Stan Scott	Queens University Belfast	Academia	NI
Raymond Sexton	Tangible Ireland	Economic Development	RoI
Richard McConnell	Aepona	ICT	NI
Rob McConnell	SQS	ICT	NI
Roger Wilson	CEO Coleraine Council	Government	NI
Scott McClelland	BlueBox	Telecommunications	NI
Stephen Lusty	Google	Technology	Europe
Tanya Wishart	NIAUR	Energy	NI
Tim Brundle	University of Ulster	Academia	NI
Tom Ekin	Weavers Court	Business Park	NI
Valerie Watts	Derry City Council CEO	Government	NI
Wavell Moore	Coleraine Borough Council	Business Development	NI
Wilson Wright	Unitas Software	ICT	NI