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The Case of Ireland-Northern Ireland (United Kingdom) – Regions and Innovation: Collaborating Across Borders

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ABSTRACT

The island of Ireland, which includes both Ireland and Northern Ireland (United Kingdom), is home to 6.4 million people and has a combined economic output of USD 205 billion. Several cross-border institutions were created in response to the 1998 Belfast/Good Friday Agreement to recreate functional economic linkages across the border. InterTradeIreland is a rare example internationally of a cross-border entity to promote trade and innovation that is co-funded by respective governments. These efforts have led to stability in funding such programmes. The differences between the public sector driven economy in Northern Ireland and the dual economy of Ireland (outward looking multinationals and the local small and medium-sized enterprise base) are a challenge for cross-border efforts. This case study is part of the project *Regions and Innovation: Collaborating Across Borders*. A summary of this working paper appears in a report of the same name.

JEL classification: L52, L53, O14, O18, O38, R11, R58

Keywords: regional development, regional growth, innovation, regional innovation, regional innovation strategy, science and technology, cross-border, Ireland, United Kingdom, Northern Ireland, InterTradeIreland

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EXECUTIVE SUMMARY

The signature of the Belfast/Good Friday Agreement in 1998 has opened new possibilities for developing cross-border innovation linkages across the island of Ireland. Innovation promotion can help address the economic challenges faced on both sides of the border. InterTradeIreland, a bi-national entity created as part of the Agreement, plays a leading role in supporting cross-border co-operation for innovation. Both the recovering "Celtic Tiger" (i.e. Ireland) and Northern Ireland (United Kingdom) are compelled to increase competitiveness, particularly among small and medium-sized enterprises (SMEs), and stronger cross-border innovation linkages are part of the answer.

Strengths, weaknesses, opportunities and threats for cross-border innovation policy in the Ireland-Northern Ireland cross-border area

Strengths and assets	Weaknesses and barriers
• Strong political commitment to cross-border relationships • Institutionalisation of collaboration through InterTradeIreland • Structural bi-national funding sources for cross-border efforts, limiting dependency on external funding sources (i.e. European Territorial Co-operation funding) • Development and use of strategic intelligence produced by InterTradeIreland • Cross-border innovation co-operation instruments by InterTradeIreland and their positive impacts • Lack of language barriers and limited cultural barriers	• History of social conflict limiting trust and social capital • Accessibility/proximity challenges for the peripheral areas of the island • Different economic structures and innovation potential (Ireland multinational corporations [MNC] base, Northern Ireland public sector) • Insufficient linkages of Ireland-based MNCs with island-based SMEs (both sides of border) • Weak open innovation practices by many SMEs • Differences in university regulations and study programmes • Limited visibility of InterTradeIreland • Public sector-dominated cross-border initiatives (need for more privately led initiatives)
Opportunities	**Threats**
• Greater critical mass of public research and technology development through national policy • Use of European Cohesion funding sources (e.g. ERDF and ESF) for cross-border innovation • All-island branding for foreign direct investment attraction, particularly in key sectors	• Insufficient job creation in the crisis recovery throughout the cross-border • Lack of long-term sustainability of publicly funded efforts

The profile and relevance of the Ireland-Northern Ireland cross-border area for innovation

Two concepts for this cross-border area co-exist: the "narrow border" area and the "all-island" area, with the latter being more relevant for innovation. The immediate border area, a more narrow definition, is mainly a peace- and politically-led definition reinforced by international funding tailored to that area. This narrow definition disconnects the less dynamic parts of the island from its most dynamic parts, thus forming a community of peripheral counties that is a less appealing option for exploiting innovation potential. The focus on innovation activities and partnerships implies a broadening of the relevant spatial scale compared to the traditional treatment of local border issues.

The "all-island" cross-border area, the focus of this report, is not yet a functional area. Cross-border flows are below their potential at present in terms of: trade, commuting, business networks, access to public procurement, sales of design services, students, tourists, and collaboration between research and technology development (RTD) centres and between these centres and industry. Furthermore, engagement of actors a significant distance from the border can be difficult. Despite a strong socio-cultural proximity,

the creation of the border and the resulting conflict had severed many cross-border ties that take time to rebuild.

There are significant differences between the two sides of the "all-island" cross-border area (scale, economy and innovation performance). Ireland generally has stronger economic and innovation performance than Northern Ireland (United Kingdom), including dynamism, export openness, attraction of foreign direct investment (FDI), intensity of R&D, patenting and SME innovation propensity. Their current industrial structures differ markedly. The Irish economy includes several prominent sectors such as: food and beverages; printing, publishing and reproduction of recorded media; chemicals and chemical products; and electrical and optical equipment. The Irish economy is more of a dual economy, as it has a multinational sector that remains generally disconnected from the local SME base. In contrast, the Northern Ireland economy suffered to a greater extent from industrial restructuring and social unrest. Today, its economy is relatively more dependent on the public sector. Its current economic development strategy seeks to rebalance the economy for a greater private sector share, focusing on innovation, R&D and creativity as tools to do so. SME internationalisation and progress in R&D investments could result in important sustainable economic growth and job creation on both sides of the border. Local studies show that SMEs with cross-border linkages perform better than those that do not have such linkages. In some cases, those cross-border linkages serve as a stepping stone for access to EU and world markets.

Driving force and key actors for the Ireland-Northern Ireland cross-border area

The main driving force for building the cross-border area is shared political will to capture the peace dividends, including innovation-driven economic growth. This could be supported by creating greater critical mass of innovation-related assets. For example, the Irish and the Northern Ireland authorities are supporting research centres in similar fields: ICT, life sciences, nanotechnology, agri-food and aerospace. In total, there are more than 100 centres in Ireland alone, which suggests that there are likely opportunities for synergies and complementarities across centres on an all-island basis. While the industrial structures differ, studies have noted opportunities in common areas of specialisation to support collaboration as well as complementarity. Bringing together actors with complementary expertise that are linked to different networks and markets could be an opportunity of mutual benefit. While political recognition is not an issue for Ireland since the all-island area includes its capital, many innovation-related resources for Northern Ireland are managed by UK authorities. The need for joint external branding is less of a consideration than in other cross-border areas since some potential FDI investors already take an all-island view, and that approach is used by both sides in the tourism sector.

The key actors for policy in the cross-border area are the Irish and Northern Ireland (UK) governments, which have devolved some aspects of economic development promotion with a cross-border dimension to InterTradeIreland. Respective counterparts are Invest Northern Ireland and Enterprise Ireland. Local authorities (the beneficiaries of European Territorial Co-operation – Interreg – funding) lead efforts for the actions in the "immediate border" area. Bottom-up initiatives play a minor role in the development of cross-border efforts. The so-called "triple helix" appears thus as unbalanced, with strong public sector involvement but a weaker role for the other two legs, the private sector and higher education/training sector. To address this, InterTradeIreland uses its convening power to bring triple helix partners together and to co-develop programmes.

Higher education and research establishments as well as firms can therefore play a greater role in innovation in the cross-border area. The main barriers for cross-border linkages among research and technology centres and with companies are: the lack of information on the potential available on the other side of the border and the weak internal incentives for cross-border collaboration. For universities, differences in arrangements for intellectual property, technology transfer management and the organisation of academic studies remain important hurdles for cross-border co-operation in technology transfer and

education. For scientific collaboration, their vision is on a global scale. The limited degree of openness of innovation-active companies further hampers the development of cross-border partnerships for innovation.

Governance of the Ireland-Northern Ireland cross-border area

InterTradeIreland plays the key role in implementing cross-border innovation efforts, with strong political backing. Cross-border economic co-operation has acquired recognition and legitimacy. The concept of "mutual benefit" is at the core of this high-level political commitment for economic relations between Northern Ireland and Ireland. The establishment of InterTradeIreland ensures structural funding and continuity for the promotion of cross-border economic and (increasingly) innovation activities. But there seems to be relatively few strategic linkages between the scattered projects of local authorities in the narrow border area focused on addressing "peripherality" and community-based development (funded by EU Peace and Territorial Co-operation funds), versus the programmes of InterTradeIreland (funded jointly by the respective governments). There are opportunities to use a larger share of European Territorial Co-operation funding and other EU regional funds for promoting cross-border innovation. An active strategy already exists to jointly pursue EU Framework Programme funds with entities on both sides of the border, yet another financing vehicle for building stronger cross-border ties.

One opportunity to strengthen the governance of cross-border co-operation in innovation is greater alignment of policies on both sides. In general, authorities in Ireland have taken a somewhat more open approach, relative to that of Northern Ireland, in allowing public funding from one jurisdiction to finance actors from the other. The development of two "smart specialisation" strategies in the context of EU requirements, one for Ireland and one for Northern Ireland, with little connection between the two exercises, limits cross-border co-operation potential. Incorporating the cross-border dimension in the relevant regulatory impact assessment exercises is another tool to facilitate cross-border innovation ties.

Ireland-Northern Ireland cross-border innovation policy mix

There are several publicly funded instruments and initiatives acting on a cross-border basis and an all-island scale. Individual initiatives by different organisations are not tracked and therefore difficult to estimate. The main public instruments are managed by InterTradeIreland, but there are other noteworthy programmes with a cross-border dimension:

- InterTradeIreland delivers a range of company support programmes for cross-border trade and innovation, which all work cross-border by design and are funded by Irish and Northern Ireland authorities, with a total annual budget for programmes of around EUR 8.5 million.
- The Innovation Vouchers scheme is a shared programme between Invest Northern Ireland and Enterprise Ireland, with an annual budget of EUR 4 million.
- The US-Ireland R&D Partnership programme promotes joint research activities. The programme is supported by research funding bodies in each of the three jurisdictions. The average annual budget since 2006 has been around EUR 3.5 million. InterTradeIreland plays the role of facilitator.
- European Territorial Co-operation (Interreg), including also Western Scotland, funds some innovation-oriented projects, with an annual average of EUR 3.7 million during the latest seven-year programming period.

There is a broad base of joint actions in the cross-border innovation policy mix. This is unusual for cross-border areas and is due to the presence of a dedicated agency. Experimentation is supported by both InterTradeIreland as well as European Territorial Co-operation (Interreg) projects that address the immediate border area. Most of these Interreg projects tend to be fully publicly funded: this situation creates a difficulty to ensure full adequacy of projects to firm needs, additionality and sustainability after

the public funding period. Alignment of policies, such as for the Innovation Voucher programme, is an example of the utility of incorporating the cross-border dimension into respective jurisdiction programmes where relevant. Greater bottom-up engagement of firms, higher education institutions (HEI) and other intermediaries needs to be further promoted.

The use and effectiveness of the instruments implemented, notably by InterTradeIreland, demonstrate that there is a potential for innovation-oriented co-operation on the island. Given the large number of universities, institutes of technology and public research institutions on both sides of the border, opportunities for research co-operation to reach critical mass do exist. Cross-border company networks and clusters in common areas of expertise are also part of the largely untapped opportunities. One more option for new cross-border co-operation relates to the promotion of multinational corporation (MNC) engagement in innovation partnerships on the island.

Recommendations for cross-border innovation policies in Ireland-Northern Ireland

Cross-border area: Use the all-island definition to include innovation hubs, building on relevant statistics and policy intelligence, to stimulate co-operation and measure its progress

- Use the all-island definition, as opposed to the narrow border area definition, for cross-border innovation support so as to capitalise on the innovation hubs on both sides.
- Continue to provide relevant analyses and statistics on the progress of cross-border flows, in addition to strategic policy intelligence.
- Identify complementary strengths on both sides of the border to stimulate bottom-up cross-border co-operation.

Governance: Build on InterTradeIreland's experience for greater cross-border policy intelligence and more strategic use of innovation-related EU funds (Territorial Co-operation and Structural Funds)

- Adopt more strategic use of the innovation-related European Territorial Co-operation (Interreg) funds, including by involving InterTradeIreland as a partner to deliver certain Interreg programmes.
- Bring the cross-border dimension explicitly into respective efforts for innovation strategy development, such as the current "smart specialisation" strategies, and incorporate the cross-border dimension into mainstream Structural Funds programmes.
- Demonstrate the cross-border "additionality" gained through InterTradeIreland instruments as a basis for future policy development.

Innovation policies and instruments: Ensure consistency of cross-border efforts with strategic objectives, consider cross-border elements in certain domestic policies, build greater bottom-up cross-border support and target InterTradeIreland's efforts by technology or sector

- Ensure cross-border policies and projects are in line with the strategic objectives of both jurisdictions for greater impact and sustainability.
- Consider the cross-border dimension in the programmes managed by Enterprise Ireland and Invest Northern Ireland where relevant, as a complement to the work of InterTradeIreland.
- Encourage stronger cross-border leadership and financing by private and non-profit stakeholders.
- Target InterTradeIreland programmes towards technologies, research fields, sectors or value chains of particular cross-border value added.

INTRODUCTION

History plays an important role in assessing the potential and barriers for economic cross-border relationships between Ireland and Northern Ireland (United Kingdom).[1] In the 19th century, the island was a poor agricultural region part of the United Kingdom, the epicentre of the industrial revolution. The Great Famine mid-century led to a 25% drop in the population, including through massive emigration. The northeast part of the island suffered less, as the Belfast area enjoyed the benefits of heavy industrialisation, notably in shipyards and the textile industry. Ireland became independent in 1922, while Northern Ireland remained part of the United Kingdom. Northern Ireland was granted devolved administration status in the United Kingdom in 1998, with its own parliament and devolved government. From the late 1960s until the mid-1990s, the people of Northern Ireland endured a period commonly called "The Troubles", with its associated civil unrest along religious lines (Protestant and Catholic). After ceasefires in 1994, the peace process gathered pace and resulted in the Belfast/Good Friday Agreement in 1998.[2]

The period since the Agreement has opened a new era of possibilities for developing cross-border linkages across the island. Institutions and policies have been enacted jointly by Irish and British authorities, with support from the EU and the international community, to promote peace on the island. These institutions serve to restore trust across the border in addition to economic ties. The willingness to "reap the benefits of peace", relying on mutually beneficial exchanges, is currently high on the political agenda. Beyond the contribution of economic exchanges to the consolidation of the peace process, the new question in this report relates to the potential for innovation-oriented co-operation for the delivery of economic growth, employment and competitiveness on the island of Ireland. Cross-border co-operation is one way to reinforce strengths on both sides of the border by capitalising on proximity linkages to expand innovation possibilities. The promotion of cross-border co-operation goes hand-in-hand with the promotion of openness towards EU and world markets. The two strategies complement, not substitute, each other.

CHAPTER 1

THE IRELAND-NORTHERN IRELAND CROSS-BORDER AREA AS A FUNCTIONAL REGION

Table 1.1. **Snapshot of the functional region for innovation**

(Ireland/Northern Ireland in bold)

Characteristic	Specification	Comments
Region settlement patterns	Metropolitan area **Network of small and medium-sized cities** **Sparsely populated with small towns**	The island of Ireland is characterised by the presence of two medium-sized metropolitan areas on both sides (Dublin and Belfast) as well as several smaller cities. Much of the area on the island is sparsely populated.
Internal accessibility and flows *(geographic proximity)*	Strong **Moderate** Weak	Motorways connect most of the larger cities; however, the size of the island renders internal accessibility challenging in some parts, such as from the Southern and Western areas with Northern Ireland.
Industrial and knowledge specialisations *(cognitive proximity)*	Similar with complementarities Same **Different**	The two regions have different economic structures. There are, however, several areas of common specialisations, such as agri-food and ICT, among others.
Socio-cultural context *(social proximity)*	**Very similar** Somewhat similar Different	This is a cross-border area with a very similar socio-cultural context. However, some civil unrest related to historical issues has limited other aspects of social proximity and trust.
Innovation system interactions	**Pervasive** Hub-to-hub On the border	Some SME business and community development issues are addressed at the border, largely supported by EU funds, but most innovation potential is between large urban hubs. InterTradeIreland activities focus on cross-border interactions more generally, across the island.
Level of innovation development across border	Balanced, strong Balanced, weak **Unbalanced**	There are several imbalances between the two sides of the cross-border area that impact the level of innovation development. Ireland itself is a dual economy. However, looking on an OECD-wide basis, Ireland and Northern Ireland have relatively similar innovation performance as compared to many other OECD regions.

1.1. Spatial definition of the cross-border area

Today, both a narrow and a wide definition for the Ireland-Northern Ireland cross-border area coexist:

- the **"narrow border"** definition is mainly a peace- and politically-led definition, reinforced by the availability of international funding tailored to that area.
- the wider **"all-island"** definition is more relevant for economic and innovation issues that go beyond local border issues (such as public transport infrastructures or shared municipal services).

The "narrow border" area consists of the UK region of Northern Ireland and six Irish counties adjacent to the border (Figure 1.1). The first definition has emerged mainly from political considerations. It is used for European Territorial Co-operation programmes, which includes both Interreg and the special PEACE programme, as well as by the International Fund for Ireland. The reconciliation and peace objective are important motivations for promoting integration within this cross-border area. The main justification for this cross-border area definition is to address the problems created by the existence of the border for those communities most directly facing truncated markets and impeded mobility. Its constituent parts share similar characteristics and face similar challenges of economic disadvantage compared with Ireland and the United Kingdom more generally, notably given their peripheral location, and in many cases rural nature.

Figure 1.1. **Narrow border area of Ireland-Northern Ireland**

Note: This map is for illustrative purposes and is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Source: Special EU Programmes Body and © EuroGeographics.

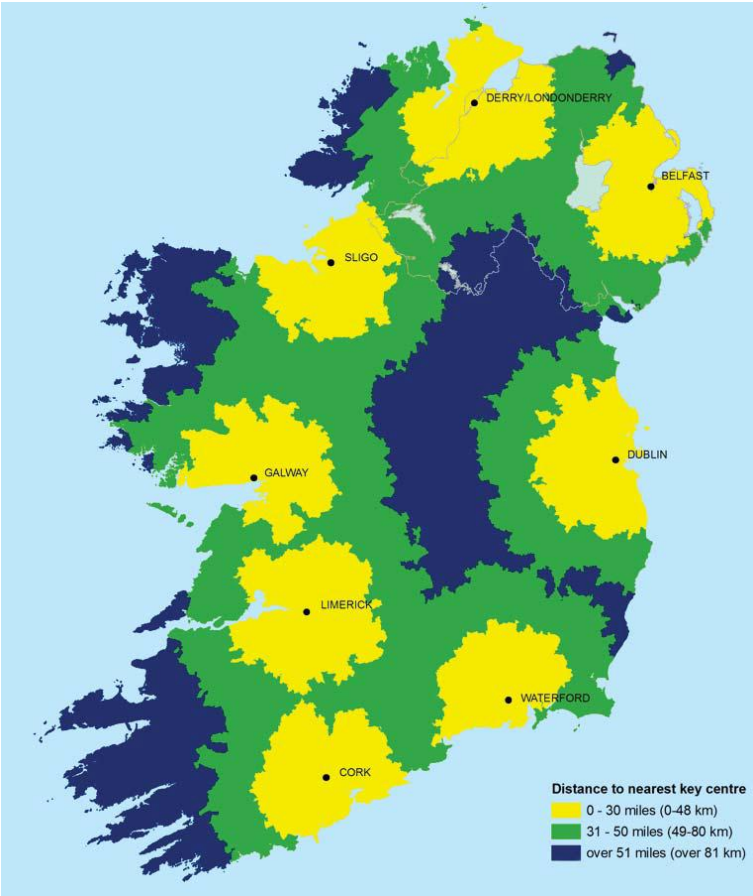
The "all-island" area corresponds to the physical maritime boundaries of the island, thus covering the Northern Ireland region and Ireland in their entirety (Figure 1.2). The second definition is more politically sensitive since it corresponds to the boundaries prior to the creation of the border almost a century ago. However, through the peace process and the North-South Ministerial Council, there are activities that go beyond the "narrow border" definition. InterTradeIreland is an agency with the mission to promote cross-border trade and innovation (see Chapter 3). The spatial remit of this agency has always been on an all-island basis, which makes sense since the spatial scale of economic relationships extends beyond the six Irish border counties to include other Irish innovation hubs.

This report focuses on the "all-island" cross-border area, which appears more relevant than the "narrow border" definition for innovation co-operation. As the latter area definition includes six sparsely populated and peripheral border Irish counties, it disconnects Northern Ireland from the most dynamic parts of the island. A third definition could, in theory, be proposed for the cross-border area, in between the above two definitions, expanding the scope within Ireland to the entire Border, Midland and Western (known as BMW) Region. However, the BMW is mainly a statistical construct developed for participation in EU Regional Development programmes and remains less dynamic than the other Irish statistical region, South-East, that includes Dublin.[3] Chapter 4 shows that indeed many public-private

technology co-operation projects span the whole of the island (e.g. see InterTradeIreland's FUSION programme, Box 4.3).

Figure 1.2. **The all-island area and its city-regions**

Grey line denotes border between Ireland and Northern Ireland



Note: This map is for illustrative purposes and is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Source: Irish Academy of Engineering and InterTradeIreland (2010), *An Infrastructure for an Island Population of 8 Million.*

1.2. Key economic characteristics of the cross-border area

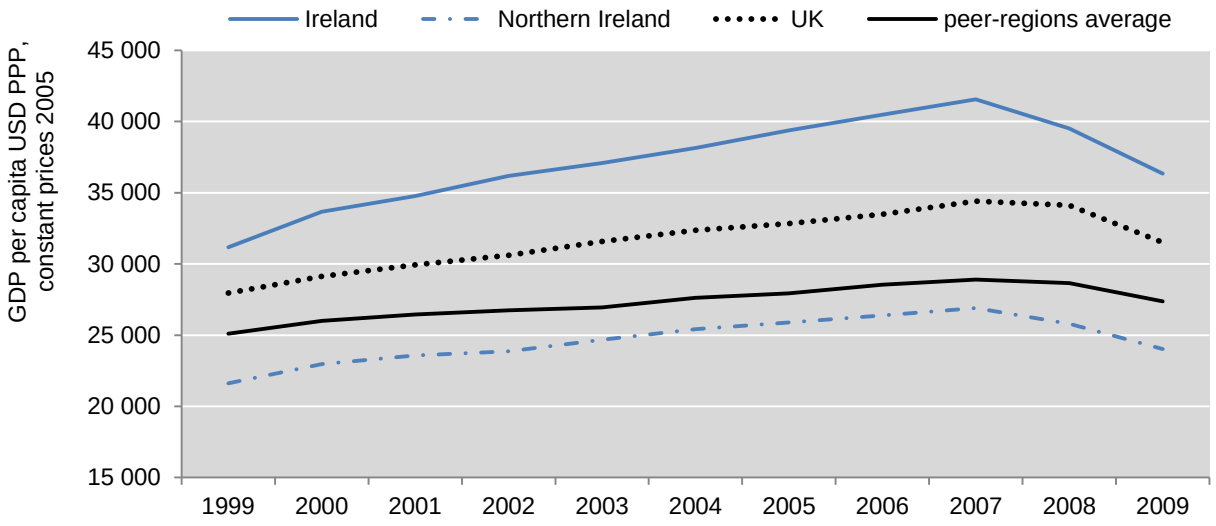
The "all-island" cross border area is unbalanced in many ways with respect to several socio-economic and geographic indicators. Ireland covers more than 80% of the territory and 71% of the population of the island (Table 1.2). The cross-border area is also very large, covering over 84 000 square kilometres, and a total population in excess of 6 million people. Northern Ireland is more than twice as densely populated as Ireland, which contains many rural areas. Overall economic performance, as measured by GDP per capita, is higher in Ireland, around 50% higher than that of Northern Ireland. Seen in an OECD perspective, Ireland has higher, and Northern Ireland lower, GDP per capita than a group of peer regions (defined along knowledge economy indicators) (Figure 1.3). Unemployment rates, however, have been more favourable in both parts of the cross-border area than in the comparable regions, until 2009, when the Irish rate surpassed that of those regions due to job losses in several sectors, including low-skilled jobs in the construction sector (Figure 1.4).

Table 1.2. **Socio-economic overview of the cross-border area**

Variable	Ireland	Northern Ireland
Surface (km²)	70 283	14 148
Population (2011)	4 588 282	1 810 910
Population density (inhabitants/km²)	66	128
Main cities	Dublin 28% of island population	Main city: Belfast 18% of island population
Unemployment rate (Q2 2012)	14.8%	7.8%
GDP per capita (2009) (USD PPP constant prices 2005)	36 346	24 014

Sources: InterTradeIreland (2013), "Background report for OECD study on cross-border regional innovation policies: Ireland-Northern Ireland", InterTradeIreland, January; OECD (2013), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en.

Figure 1.3. **Evolution of GDP per capita in Ireland and Northern Ireland**

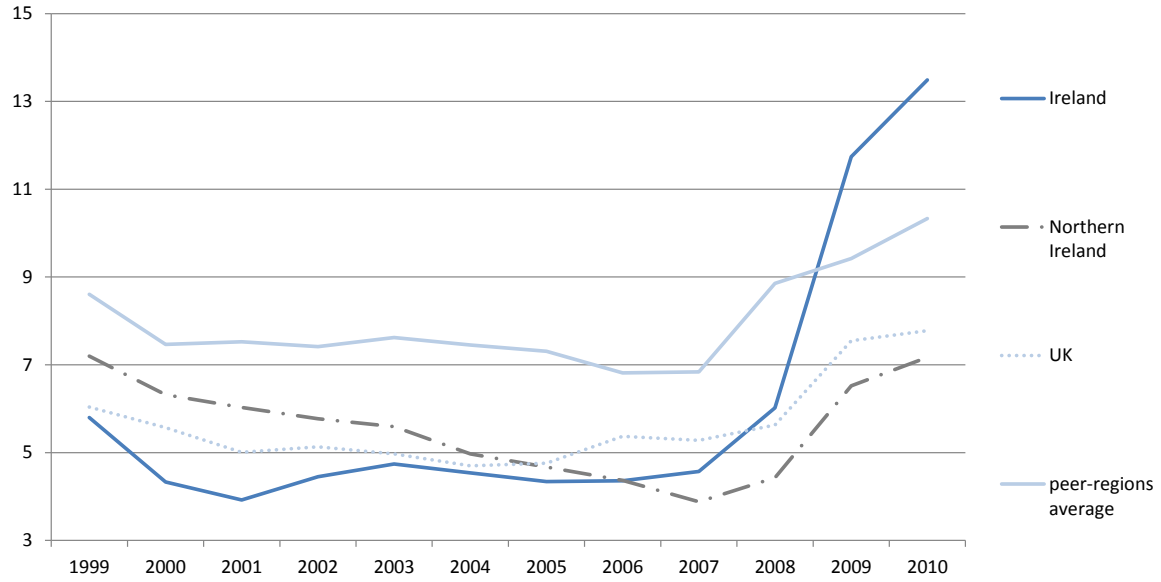


Note: Peer regions average: average of the cluster "Medium-tech manufacturing and service providers". For a definition of peer regions on the basis of knowledge economy indicators, see the OECD categorisation of regions with respect to innovation-related indicators developed in Ajmone Marsan and Maguire (2011). In this paper, OECD regions with sufficiently similar characteristics have been grouped together by means of a statistical methodology called "cluster analysis", on the basis of 12 socio-economic indicators related to innovation and economic performance.

Source: OECD (2013), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en.

Figure 1.4. **Evolution of the unemployment rate in Ireland and Northern Ireland**

In per cents



Note: Peer regions average refers to the average of the cluster "Medium-tech manufacturing and service providers". For a definition of peer regions on the basis of knowledge economy indicators, see the OECD categorisation of regions with respect to innovation-related indicators developed in Ajmone Marsan and Maguire (2011). In this paper, OECD regions with sufficiently similar characteristics have been grouped together by means of a statistical methodology called "cluster analysis", on the basis of 12 socio-economic indicators related to innovation and economic performance.

Source: OECD (2013), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en.

1.3. Innovation potential of the cross-border area

Both sides of the border face similar challenges in ensuring that the more peripheral parts of the island enjoy economic growth. This applies both to the narrow border region and to other parts of the territory outside the main cities. The Irish counties bordering Northern Ireland are less advanced in the knowledge economy than the southern and eastern areas, thus reinforcing the relevance of an "all-island" cross-border approach for innovation purposes.

The Irish economy, which historically lagged behind Northern Ireland, shows stronger innovation performance today. Ireland transitioned rapidly from a poor agricultural economy in the middle of the 20th century towards an open and dynamic economy, nicknamed the "Celtic Tiger". Some of the labour-intensive, low productivity traditional industries have been replaced by high-growth, high-tech and capital- and R&D-intensive companies. Thanks to a proactive national foreign direct investment (FDI) policy, the Irish economy is characterised today by a strong presence of multinational companies (MNCs), mainly from the United States, and most notably in the ICT and biopharma sectors. Foreign-owned companies perform 70% of the business expenditure on research and development (OECD, 2011b). MNCs are located in urban centres, and clusters of domestic companies have formed around them, spurred by investments in education and the formation of high-skilled labour markets. The rate of innovating firms is high in international comparison, but less so for domestic SMEs. The Irish economy is a strongly outward-oriented economy with, at the core of its competitiveness, big companies serving the world market. However, wealth and innovation potential is centred in the south-eastern part of the country and the dual nature of the economy (domestic firms and multinationals) creates internal imbalances on the Irish side of the border.

The Irish economy has been severely hit by the recent economic and financial crisis and national recovery plans emphasise innovation-related competitiveness. With the crisis, GDP levels fell considerably and unemployment more than doubled, especially among the less skilled, resulting in Ireland's call for support from the EU and IMF in 2010. The government is looking towards R&D infrastructure, commercialisation of research, university-enterprise co-operation, and innovation and entrepreneurship promotion, especially among the country's domestically owned SMEs, as levers for the recovery. Such SMEs account for around 90% of private sector employment, and need to become more innovative and export oriented (OECD, 2011b). Among key new measures are a revision of R&D tax credit schemes to make it more attractive to both MNCs and SMEs, and the establishment of the Innovation Fund Ireland. However, the sectors driving the export-based recovery are not creating jobs, especially for low-skilled workers.

Northern Ireland is seeking to reduce dependence on the public sector by rebalancing its economy towards higher value-added private sector activities. The area was an active participant in the industrial revolution in the mid-19th century, but has experienced a decline of traditional industries since the 1960s. Industrial losses have occurred in the apparel, textiles and shipbuilding industries along with the associated engineering activities. Northern Ireland businesses are focused on the UK domestic market. The region also has a slightly lower share of R&D performed by the private sector due, perhaps, to the lack of R&D-intensive sectors and knowledge-based services like those found in Ireland (Table 1.3). Northern Ireland, more so than any other region in the United Kingdom, has a high rate of employment in the public sector, around 40% of all jobs (Figure 1.5). The current economic development strategy seeks to rebalance the economy towards highly productive private sector activities as one of the main priorities for 2030. Innovation, R&D investments and creativity are seen as tools to achieve this goal (Northern Ireland Executive, 2011). Northern Ireland has a good record of FDI in recent years (2006-11). Around 12 000 jobs were indirectly created by these investments, mainly in software and IT, business and professional services, and financial services. Over the period 2006-10, the percentage of new FDI-driven jobs of high value added in Northern Ireland was equivalent to the share in Ireland (both around 53%) (fDi Intelligence, 2012).

The industrial structures of the two parts of the island therefore differ, but there are some sectors of mutual interest. The Irish economy is dominated by a number of sectors, notably: food and beverages; printing, publishing and reproduction of recorded media; chemicals and chemical products; and electrical and optical equipment (that combined account for 63% of manufacturing output). Northern Ireland's strengths are in the areas of agri-food, life sciences, advanced manufacturing, advanced materials, ICT (InterTradeIreland, 2011d). Patent specialisation data also highlight these sectoral differences. In Ireland, patents are concentrated in ICT and pharmaceuticals, while a more dispersed picture prevails in Northern Ireland (Figure 1.6).

Indicators regarding technology-based innovation show that Northern Ireland is generally similar to its neighbouring Irish region (BMW) but that the South-East of Ireland outperforms both. The Southern and Eastern region (which includes Dublin) generally has stronger performance than the other two regions within the cross-border area. This is true for R&D intensity, patenting and innovation propensity for SMEs (Table 1.3). The share of firms that innovate is 59.5% in Ireland and 55% in Northern Ireland. The share of firms that export is 19% in Ireland and 16% in Northern Ireland. Ireland has a patenting intensity twice that of Northern Ireland.[4] In the latest EU *Regional Innovation Scoreboard*, Northern Ireland is in the "moderate innovator" category (third of four) while both regions of Ireland are in the higher "innovation follower" category (second of four) (European Commission, 2012). Recent times have seen the rise of a few high-tech firms in Northern Ireland, notably Bombardier in aerospace, which builds on existing experience in engineering and steel. Knowledge-intensive services are present to a level similar to that in peer regions, and the level of qualifications is also similar, though lower than in the Southern and Eastern part of Ireland.

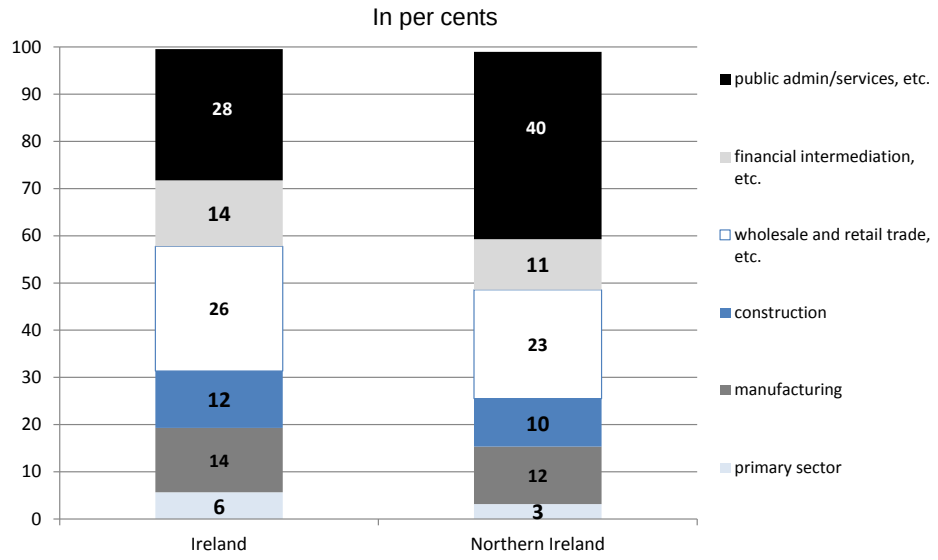
Table 1.3. **Innovation overview of the cross-border area**

Variable	Ireland (Southern and Eastern region)	Ireland (Border, Midland and Western)	Northern Ireland	OECD peer regions average "Medium-tech manufacturing and service providers"*
Tertiary educational attainment as a share of labour force (2008)	36.4%	29.7%	31.9%	28.1%
R&D personnel (as a % of total employment) (2009)	1.9%	1.4%	1.4%	1.9%
Share of employment in high-tech manufacturing (2008)	42.8%	39.5%	30.9%	39.8%
Share of employment in knowledge-intensive services (2008)	53.9%	48.7%	48.8%	48.9%
Total R&D expenditure as a share of GDP (2009)	1.8%	1.7%	1.6%	1.7%
Business R&D expenditure as a share of GDP (2009)	1.2%	1.1%	1.0%	1.1%
Share of R&D by private sector	70%	66%	63%	65%
PCT patents per million inhabitants (2008-10)	75	81	39	78

Note: Peer regions average: average of the cluster "Medium-tech manufacturing and service providers". *Averages of EU regions only for R&D expenditure and personnel variables.

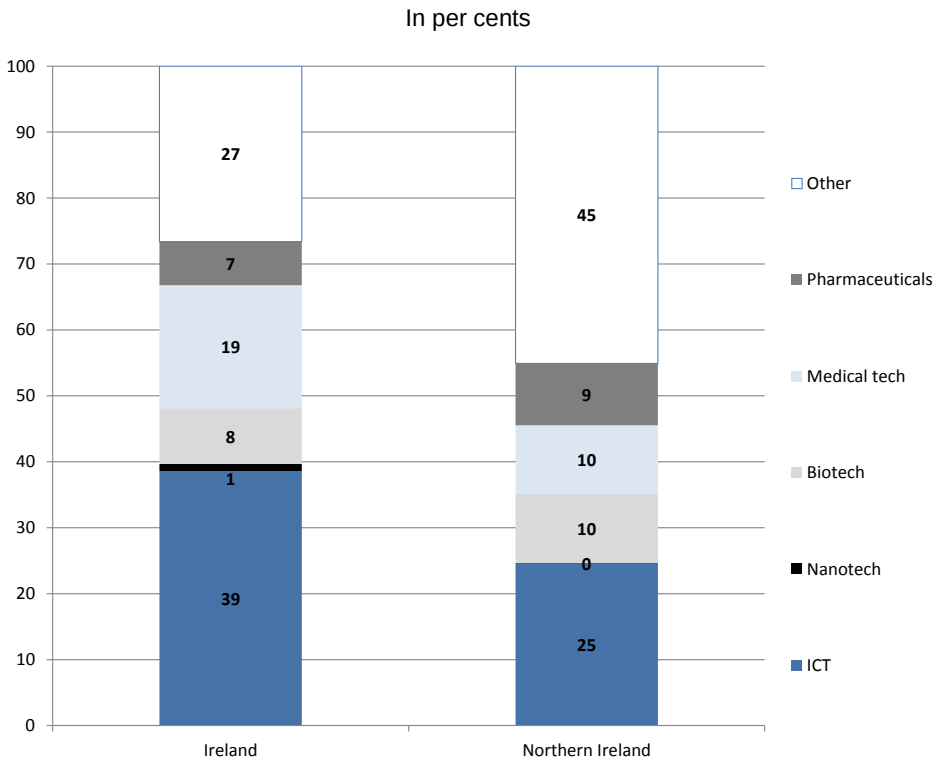
Sources: OECD (2013), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en, June 2013; Eurostat.

Figure 1.5. **Employment composition in Ireland and Northern Ireland (2008)**



Source: OECD (2013), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en.

Figure 1.6. **PCT patent specialisation in Ireland and Northern Ireland (2008-10)**



Source: OECD, *REGPAT database*, June 2013.

1.4. Functionality of the cross-border area

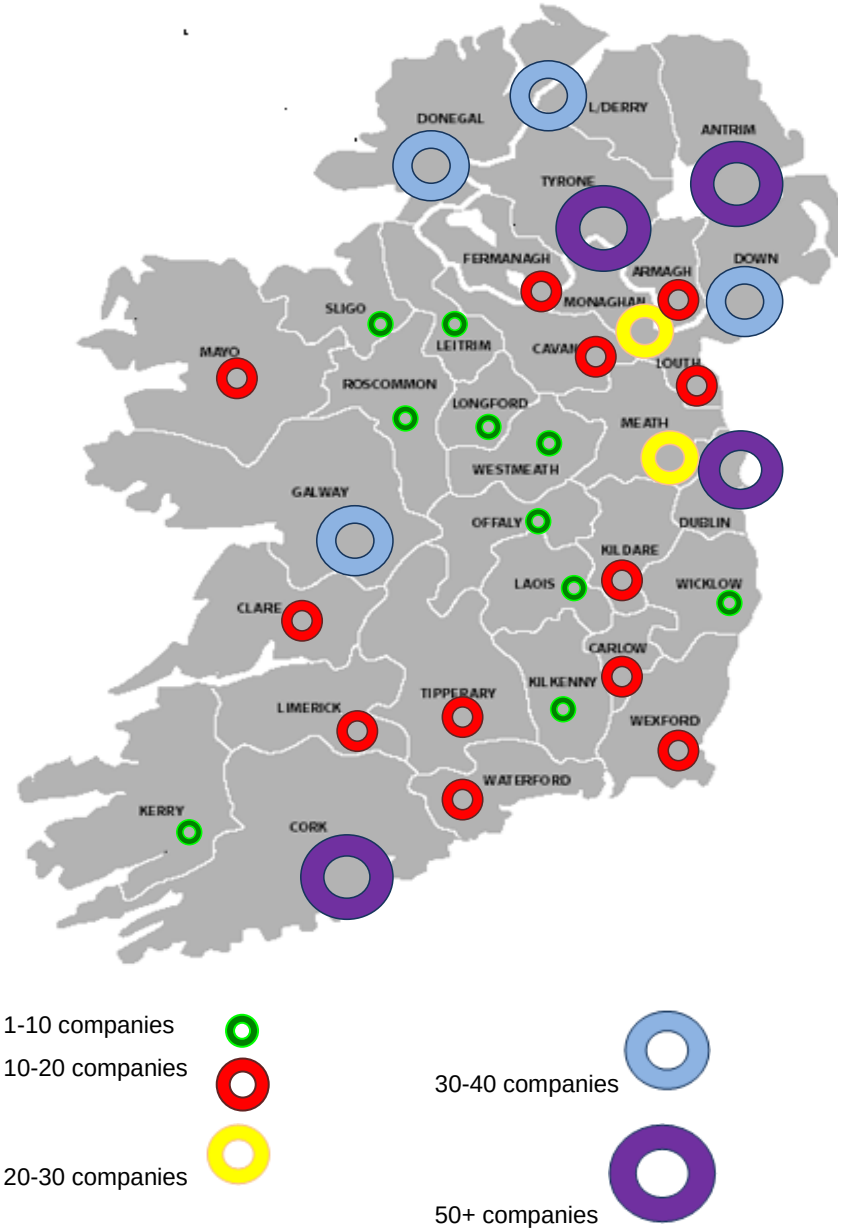
At present, neither the "narrow border" nor the "all-island" area can be considered a functional area. InterTradeIreland seeks precisely to remedy this by rebuilding "networks of trust" and functionality across a border that, due to history, has resulted in different development trajectories and severed economic and social ties. The presence of a national border and the use of two currencies, the additional barriers created by past political and civil tensions, as well as the structural differences between the economies, explain why they have largely evolved in parallel, with limited linkages. Social capital ties need to be reconstructed, which requires efforts to increase trust across the border. Language is, of course, not a barrier to collaboration. There remain some minor practical matters such as visa issues (for example, a foreign researcher from one university may not be able to attend a meeting across the border) or cell phone roaming charges, a common complaint of the business community.

It is well-known that a distance decay effect exists in innovation collaboration, thus the areas far from the border within the "all-island" definition can be difficult to engage, but InterTradeIreland strives for all-island coverage. There are favourable effects of physical proximity in some forms of innovation collaboration through face-to-face contacts. The distance between the two main cities of Dublin and Belfast allows for regular contact, while the value-added of cross-border potential is likely to be more difficult to reap for areas such as Cork in the very south of Ireland or Derry~Londonderry in Northern Ireland, the latter being particularly poorly connected to Dublin, for example. Some parts of the island are more than five hours driving distance from each other. The only cross-border train connection is between Belfast and Dublin (over two hours). Such a distance decay effect is more significant for SMEs and lower technology sectors than it is for MNCs or researchers that source specialised skills, scientific knowledge and technologies globally. Physical accessibility through the building of highways has improved in the last

decades, notably thanks to EU regional development funds, but distances are still an obstacle for all-island connections. Firms participating in InterTradeIreland programmes nevertheless draw from all counties across the island, with a higher representation naturally from the most urbanised areas (Figure 1.7).

Figure 1.7. **Number of companies involved in InterTradeIreland programmes by county (2008-12)**

Thick white line denotes border between Ireland and Northern Ireland



Note: This map is for illustrative purposes and is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Source: InterTradeIreland (2013).

InterTradeIreland is the main provider of data and information on innovation-related cross-border flows, and other entities such as the All-Island Research Observatory (AIRO) work on cross-border statistics.[5] AIRO offers cross-border data and analysis as a resource to underpin cross-border policy efforts (Box 1.1). InterTradeIreland conducts a quarterly business survey, which informs not only on current business trends on both sides of the border, but also on various aspects of cross-border trade. From this survey, it appears that close to one-third (29%) of businesses trade cross-border (27% from Ireland and 34% from Northern Ireland). Overall cross-border trade in goods rose by 131% from 1995-2007, albeit this dropped with the crisis. However, the level of trade flows between the two parts of the island has been analysed and was found to lie below expectations (Morgenroth, 2009). Explanations for these weak trade exchanges are linked to the structural differences between the two economies (InterTradeIreland 2011d):

- The presence of multinational companies in Ireland in sectors such as electronic and optical equipment or chemicals explains in part the lack of cross-border exchanges: these companies are neither producing for, nor sourcing from, the local market.
- The small market size on the island is an explanation for the low level of trade in the textile sector, where business is dominated by a small number of large transactions with foreign-based retailers working on export markets, leaving thus little room for cross-border transactions.
- In other sectors, such as construction material, bio-waste recycling sectors or food, there are generally few barriers to trade across the island, according to sector studies (InterTradeIreland, 2011a; 2012b). These sectors rely on local sourcing and/or experience high transport costs relative to product values, which favour nearby markets. Similarity in tastes across the island favours cross-border business in food.

Box 1.1. **AIRO: The All-Island Research Observatory**

AIRO (the All-Island Research Observatory) is an online portal collecting statistics and undertaking analysis on an all-island basis in Ireland. The main goal of the portal is to gather data, produce analysis, and provide evidence and tools to support policy intelligence and decision making on the island of Ireland. AIRO develops indicators and statistics, mapping and visualisation tools available to online users, policy advice, training and research. AIRO is active on a broad set of themes, from demographics to economics, education, transport, regional and local development, and communications and technology. AIRO works on a number of cutting-edge research topics related to spatial analysis, such as the definition of functional territories, exploiting complementarities between urban centres and rural areas, and mapping social inclusion over space.

AIRO was born as a cross-border initiative sponsored through Interreg IIIA, by the National University of Ireland, Maynooth (where the National Institute for Regional and Spatial Analysis and the National Centre for Geo-Computation are hosted, in Ireland), Queens University, Belfast and Dundalk Institute of Technology, in Northern Ireland, United Kingdom. At the beginning, AIRO was established as a pilot project with the goal to provide cross-border data and information as well as to develop analysis and mapping exercises relevant for the narrow cross-border area. After the pilot phase, AIRO secured extra funding to broaden its activities to the all-island area.

AIRO dialogues with both public and private organisations to improve data collection and data management and to disseminate datasets, mapping exercises and analytical research. With respect to public authorities, AIRO provides indicators and analytical support to different levels of jurisdictions: local authorities, regional institutions and organisations at both the national level and the European level.

Source: www.airo.ie.

Other studies complete this picture of lower than expected interactions across the border. In fact, only 7% of business networks on the island have a cross-border dimension (Enterprise Ireland et al., 2011). Very few companies tender for public procurement calls on the other side of the border (InterTradeIreland, 2009b).[6] The levels of cross-border clientele for design services is small, namely 8% for Northern Ireland companies and less than 1% for Ireland-based companies (InterTradeIreland, 2009c).

The mobility of people, notably commuters, students and tourists, is also quite limited (InterTradeIreland, 2013). The level of cross-border collaboration between RTD centres is low, as are collaborations between these centres and industry (6.5% of such collaborations are cross-border) (InterTradeIreland, 2008).

Analyses of trade flows conclude that there is little cross-border trade in those sectors that are dominated by MNCs, the more technologically advanced sectors. This is mostly attributed to the footloose character of multinationals having established their production base in Ireland, and to differences in economic structure between the two economies, limiting intra-industry trade. Since clients and suppliers are typically reported by firms to be the main sourcing partners for innovation per different studies, this situation does not create the most favourable pre-conditions for cross-border innovation. However, these reasons for low trade relationships may not hold to the same extent for limiting innovation co-operation potential. Deeply hit by the crisis, Ireland is confronted with a need to change its economic development model based on attracting FDI and put more emphasis on the creation and growth of innovative SMEs, anchored in the region and trading globally. Increasing the number of innovation-active SMEs opens more possibilities for cross-border co-operation in innovation.

InterTradeIreland's business survey supports the view of untapped potential from cross-border economic exchanges. For example, firms with cross-border linkages have better business performance and are more innovative than companies that only act domestically. However, it should also be noted that exporters (off the island) have even better performance than firms engaged in cross-border trade (Box 1.2). Cross-border trade is viewed as a stepping stone for off-island exports in a second step, as firms become more advanced. Given the strong outward orientation of the Irish economy, and the necessity for all actors on the small island to be open towards outside markets, developing such on-island relationships goes hand-in-hand with the promotion of openness towards EU and world markets. The two strategies complement, not substitute, each other. Hence the cross-border area (all-island) should not be regarded as a closed entity, but rather as a node in a global world.

Box 1.2. **Cross-border economic and innovation relationships: Evidence from a firm survey**

An InterTradeIreland survey highlights a positive relationship between innovation and export orientation, where firms which export off the island display a higher level of innovation activity compared to those that do not. This positive influence is evident, but to a lesser degree, for cross-border traders, which could signify benefits to businesses of accessing diverse knowledge inputs at the cross-border level. Larger firms (55%) are more likely to be partnering for innovation than smaller firms (36%), while the same holds for exporters (58%) and cross-border traders (53%) compared to domestic firms (31%).

The survey also shows the link between export orientation and firm growth as more international exporters (19%) and cross-border traders (15%) reported being in a growing or expansion mode than businesses focused on the domestic market (9%). Exporters have a systematically higher rating in all kinds of business innovation attributes than cross-border traders, while the latter display higher ratings than domestic firms.

A fifth (19%) of innovators work with cross-border innovation partners. These relationships are focused heavily on clients/customers and suppliers, with collaboration generally much less widespread for other partners.

A quarter (24%) of innovators have international partners. Overall, international partnerships are more widely reported than cross-border relationships for links with suppliers, higher education institutes, intermediaries and business services.

Source: Extracts from InterTradeIreland Business Surveys reports (InterTradeIreland, 2012a) based on the InterTradeIreland Business Survey 2011.

CHAPTER 2

DRIVING FORCE AND KEY ACTORS FOR THE IRELAND-NORTHERN IRELAND CROSS-BORDER AREA

2.1. Rationale for the establishment of the cross-border area

Table 2.1. **Snapshot of the rationale and relevance for cross-border collaboration**

(Ireland and Northern Ireland in bold)

Driver	Explanation	Relevance for cross-border co-operation
Economies of scale	Combine resources for efficiency of investment, larger labour markets or access to wider business and knowledge networks to increase critical mass; often used to overcome peripherality	Strong **Moderate** Weak Not present
Political recognition	Increase the recognition and strengths of areas that are far from capitals to better negotiate and compete for resources from higher levels of government	Strong Moderate **Weak** Not present
Complementarities	Build on diversity of assets in terms of research, technology and economic base, as well as supply chain linkages	Strong **Moderate** Weak Not present
Branding	Increase internal recognition of the cross-border area as well as its external attractiveness to firms and skilled labour	Strong **Moderate** Weak Not present
Border challenges	Address the day-to-day challenges associated with flows of people, goods and services (including public services) across the border	Strong Moderate **Weak** Not present

Note: The assessment of relevance relates to the actual relevance in current cross-border collaboration, not necessarily to the potential relevance.

The case of Ireland-Northern Ireland is very specific, as the main driving force for strengthening cross-border relations, including for innovation, is political. In this case, political recognition is not the goal of a stronger cross-border area but the result. The shared political will to capture the dividends of peace complemented by support from the international community, notably the EU (Territorial Co-operation [Interreg] and the special PEACE programme), is the main rationale for these efforts. While border challenges are a core consideration for the use of Interreg and PEACE programme funds, they are not as relevant for developing the potential for cross-border innovation. Northern Ireland, while a devolved administration within the United Kingdom with certain delegated authorities, remains relatively more peripheral with respect to its political influence for innovation-related policies. Branding issues for external attractiveness are present to a lesser extent, in part because many outsiders already consider the cross-border area on an all-island basis. However, branding for internal identity to rebuild the lost social capital is integral to many of the externally funded programmes in the cross-border area. Such improved trust would facilitate cross-border efforts for innovation.

Economies of scale and complementarities are perhaps among the secondary drivers for cross-border collaboration to support innovation. Both Northern Ireland and Ireland are small and outward-looking economies that, since the economic and financial crisis, require greater export growth. But to compete in a global economy, where proximity helps in building that critical mass, there is an opportunity for cross-border efforts to mutually benefit both jurisdictions. InterTradeIreland studies have also explored some of the commonalities and differences in the industrial structures and research assets. With respect to public research and technological development (RTD) centres, both the Irish and the Northern Ireland authorities are supporting centres in similar fields, such as ICT, life sciences, nanotechnology, agri-food and aerospace. In total, there are over 100 centres receiving aid on the Ireland side of the border alone, which suggests that there are opportunities for synergies and complementarities among centres across the island to help reach appropriate critical mass.[7] Upcoming smart specialisation strategies are another opportunity to identify areas for cross-border action. Furthermore, the cross-fertilisation of ideas and enlargement of opportunities for innovation are possible, by bringing together actors with complementary expertise and linked to different networks and markets.

2.2. Role of key actors in cross-border area establishment and evolution

In the case of Ireland-Northern Ireland, the key actors promoting the cross-border area are the national governments and their delegated entities, such as InterTradeIreland (see Chapter 3). Regional bodies do not play a significant innovation policy role in Ireland, while the devolved government for Northern Ireland is active through its administration and particularly the regional development agency Invest Northern Ireland. Local authorities, beneficiaries of Interreg funding, play a role for supporting activities in the "narrow border" definition of the cross-border area.

The strong public commitment to develop the cross-border area, including for innovation, could be accompanied by a greater bottom-up drive for collaboration. In some cross-border areas, particularly in North America, the public sector is lagging behind the private sector that has already seized cross-border opportunities but could do so more effectively with greater public support. In other cross-border regions, the public sector strategy development is accompanied by a somewhat greater level of private sector and higher education cross-border collaboration and leadership (such as in the Oresund between Denmark and Sweden and particularly the TTR-ELAt area at the intersection of Germany, the Netherlands and Belgium). In the present case, the private sector and the higher education sectors have played a relatively less active role in driving cross-border efforts than in other leading cross-border examples. However, there has been a joint business council for the last 30 years between the Irish Business and Employers Confederation (IBEC) and the Northern Ireland Confederation of British Industry (CBI). The so-called "triple helix" could therefore be better balanced with stronger leadership by the private sector and higher education and training sectors.

2.3. Barriers for cross-border co-operation linked to actors

Table 2.2. **Key innovation actors in the cross-border area**

	Ireland	Northern Ireland
Firms	– 425 000 VAT-registered businesses covering all economic sectors – 1 300 businesses engaged in R&D, of which almost one third spent more than EUR 500 000 – High-technology sectors: IT, pharmaceuticals and software – Strong base of multinationals including very large companies with a commitment to innovation (anchors): Apple, BT, Boston Scientific, Google, Intel, Microsoft, PayPal, Vodafone, Wyeth, etc.	– 70 000 VAT-registered businesses covering all economic sectors – 430 businesses engaged in R&D, of which 50 spent more than GBP 1 million – High-technology sectors: aerospace, chemicals, engineering, functional foods – Several world class companies: Microsoft, HCL Technologies, Firstsource Solutions, Seagate Technology, DuPont, Bombardier Aerospace, Caterpillar, Allstate Northern Ireland, Liberty IT, Santander and Citi
Banks and financial services organisations	– Around 30 major Irish and international banking groups, employing almost 30 000 people and with a EUR 9 billion turnover – 25 venture capital (VC) funds – Several hundred angel investors investing individually and in syndicates via the formal publicly funded Halo Business Angel Networks and an unquantified number of private investors operating outside these formal networks	– Major UK and Irish banks are all present, as well as several global financial services organisations – 6 venture capital (VC) funds – Hundreds of angel investors investing individually and in syndicates via the formal publicly funded Halo Business Angel Networks and an unquantified number of private investors operating outside these formal networks – Smaller numbers in comparison to Ireland possibly reflecting weak demand
Business services organisations	– Technology consultants, commercial laboratories and intermediate institutions (e.g. incubators)	– Technology consultants, intermediate institutions (e.g. Northern Ireland Science Park [NISP] and incubators) and several commercial laboratories
Public research and tertiary education organisations	– 7 research-active universities – 14 research-active institutes of technology – 10 other research institutes and government laboratories – Higher education institutions have substantial and longstanding tech transfer operations – The university system has a significant number of applied research centres working directly with business	– 2 research-active universities – 2 other public sector research institutes (AFBI and CAFRE) – Queens and Ulster have substantial and longstanding tech transfer – HSC Innovations provides tech transfer services for all Northern Ireland health and social care staff – 6 higher education regional colleges addressing the training and service needs of local and international companies

Source: InterTradeIreland (2013), "Ireland/NI background report for OECD study on cross-border regional innovation policies", January.

Firms are not always aware or taking advantage of potential for collaboration, particularly cross-border collaboration. The InterTradeIreland Business Survey reveals that just under half of innovators innovate by leveraging external resources**.** Among these, most use a combination of in-house and occasional external resources, while a small minority of firms innovate jointly with external partners or rely mainly on external resources with some internal input (InterTradeIreland, 2012a). This limited degree of openness of innovation-active companies hampers the development of cross-border partnerships for innovation. In Northern Ireland, in particular, companies are less engaged in innovation activities, and may thus lack the level of sophistication for engaging in such partnerships across the border. The task of embedding multinational companies in the island's economic fabric is also a pre-requisite for developing

more innovation-oriented partnerships in the cross-border area. Firms lack information on opportunities on the same side of the border as well as the other side. These firm innovation practices are a notable hurdle for cross-border co-operation in innovation.

Cross-border linkages among universities are reported difficult to sustain. This is a common problem in other cross-border areas as well for a variety of reasons, including differences in funding streams, degree programme requirements and intellectual property/technology transfer programmes.[8] However, trends on cross-border linkages for research collaboration among universities increased through participation in EU Seventh Framework Programme (FP7) as well as the US-Ireland R&D Partnership. Five out of seven Irish universities list Queen's University or the University of Ulster in Northern Ireland among their top 20 collaborators.[9] Currently, initiatives to promote cross-border co-operation among universities are under discussion: the Industrial Development (Science Foundation Ireland) Bill 2012 proposes to allow Science Foundation Ireland to fund joint research projects of excellence between Ireland and Northern Ireland for the first time. The law is scheduled to be enacted at the end of 2013.

There is a role for higher education and research institutions to support innovation in the economy, but it should not be overestimated. According to latest InterTradeIreland Business enquiry, "*the survey found that the majority of innovative firms place the most importance and valued the effectiveness of their connections with clients/customers and suppliers, partners within their own value chains. Other innovation partners, such as higher education institutes, financial service organisations, innovation support agencies or intermediary bodies, are regarded as less important and effective partners*" (InterTradeIreland, 2012). This common finding of innovation in other countries is certainly true for a majority of SMEs on the island. However, connecting the more innovation-mature SMEs as well as MNCs with RTD centres across the border can help develop innovation-oriented public-private initiatives. Equally, co-operation between RTD centres can help address issues of critical mass and capitalise on complementarities in skills and infrastructures. A 2008 study on RTD centres across the island (most of them located in educational institutions) found that the main barriers for cross-border linkages between the centres, and with companies, were: *i)* the lack of information on the potential available on the other side of the border;[10] and *ii)* the lack of appropriate incentives for cross-border collaboration.

Student mobility across the border, despite the proximity and absence of language barriers, remains low. It is impeded by several factors. There is a different organisation of studies in the two jurisdictions, including a different number of years of study. Technological institutes are poorly valorised in the UK context and thus students are not encouraged to attend, even if an institute lies just a few kilometres across the border. Differences in funding schemes for studies also drive student choices that work against cross-border enrolment. Those hurdles could progressively be overcome by targeted mutual recognition agreements between institutions on both parts of the island, but differences in national university regulations are likely to remain an important constraint to cross-border student enrolment.

CHAPTER 3

GOVERNANCE OF THE IRELAND-NORTHERN IRELAND CROSS-BORDER AREA

Table 3.1. **Snapshot of governance characteristics**

(Ireland-Northern Ireland in bold)

Characteristic	Specification	Comments
National political capitals	Yes, each side **Yes, at least one** None	Dublin is the capital city of Ireland. Belfast is the capital city of the Northern Ireland region, but is located far from the UK capital of London.
Longevity of public co-operation *(social proximity)*	>20 years **10-20 years** <10 years	Formal cross-border activities for innovation, notably through InterTradeIreland, began after the Belfast/ Good Friday Agreement of 1998.
Innovation policy competencies *(institutional proximity)*	Balanced, strong Balanced, weak **Unbalanced**	Many decisions for innovation-related instruments are under the remit of the two jurisdictions. While Northern Ireland has a notable degree of autonomy within the United Kingdom as a devolved administration, it does not manage the full range of instruments as is the case in Ireland with full powers in innovation policy.
Political commitment *(institutional proximity)*	**Balanced, strong** Balanced, weak Unbalanced	Strong political commitment exists at a very high level in the Ireland, Northern Ireland and United Kingdom governments, due to the unique political and historical circumstances.
Institutionalisation and legitimacy *(institutional and social proximity)*	**Present, strong** Present, weak Not present	InterTradeIreland is the dedicated institution responsible for the promotion of business development and co-operation on a cross-border basis. This is a unique asset for a cross-border area.
Actors in governance	**Public sector** University/research actors Firms Mix of actors (triple helix)	The strong public commitment has not yet been matched by as strong a bottom-up engagement from universities or firms.
Funding sources	**Mainly public** Mixed public/private Mainly private	InterTradeIreland, as well as bodies responsible for EU funds in the two jurisdictions, finance these efforts. Some additional resources from the constituent entities for a specific programme (for example, Innovation Vouchers or a multi-lateral R&D programme with the United States) also provide public funds. Private co-financing for participation in InterTradeIreland programmes is generally 50%, but is often lower in the case of European Territorial Co-operation (Interreg) programmes.

3.1. Vision for the cross-border area

The vision for the cross-border area has over time increasingly focused on innovation-driven growth, with an understanding that "mutual benefit" is at the core of such relations. Mutual benefit was officially recognised by British and Irish authorities when setting up the North-South Ministerial Council following the Belfast/Good Friday Agreement. Later, the vision for British-Irish political commitment to cross-border co-operation was further elaborated, with knowledge and innovation given an important role. In 2006, top-level authorities ordered further investigation of the cross-border co-operation opportunities, with the following goal:

> *The vision must be of an island characterised by a strong competitive and socially inclusive island economy with strong island-wide economic clusters whose development is not impaired by the existence of a political border. The aim of policy should be a world-class all-island economy which manifests itself in comparable levels of economic dynamism and performance in both parts of the island. For both, it means building up the competitive strengths, particularly in the areas of infrastructure, R&D and in the areas of skills formation and innovation which provide the edge in securing a strong position in the knowledge economy of the future*. (British-Irish Intergovernmental Conference, 2007)

Innovation policies in the two jurisdictions also incorporate this cross-border dimension explicitly. Imperative 1 of the Northern Ireland Regional Innovation Strategy (2008-11) reads: "*1.1 Ensure that Northern Ireland is playing its full role in the UK, all-island, European, and global innovation arenas."* Furthermore, one of the eight goals of the Strategy for Science, Technology and Innovation for Ireland (2006-13) is: "*greater coherence and exploitation of synergies to mutual advantages in the development of STI policy on the island of Ireland.*" More recently, a report commissioned jointly by the Department of the Taoiseach in Ireland and the Department for Business Innovation and Skills in the United Kingdom sets out current and future opportunities for collaboration between the United Kingdom and Ireland and includes specific recommendations in the area of R&D/innovation. The report recognises the importance of the Ireland-Northern Ireland dimension given the geographical proximity of institutions and their research communities.[11]

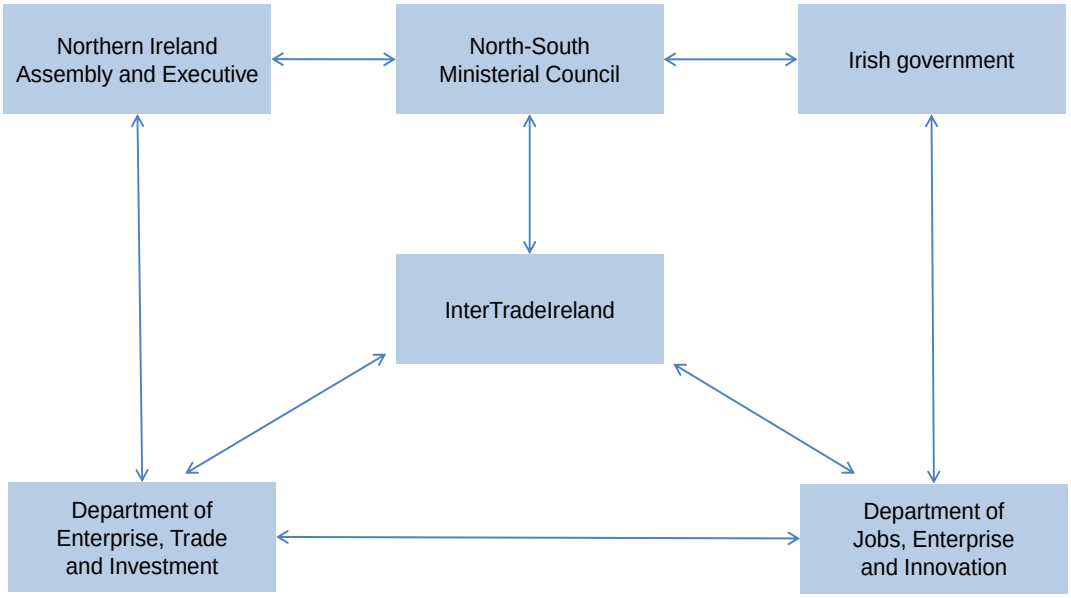
3.2. Institutionalisation and multi-level governance of cross-border co-operation

Cross-border co-operation on an all-island basis is institutionalised through the bodies established by the 1999 legislation voted by the UK and Irish parliaments, an asset providing legitimacy and continuity. There are now seven cross-border bodies and hundreds of individuals working on a cross-border basis, notably the North-South Ministerial Council (NSMC).[12] Several of these cross-border entities have an economic development mandate. Among them, InterTradeIreland focuses on trade and innovation (Figure 3.1). This ensures stability and structural funding to the promotion of cross-border economic activities. It also helps to overcome paralysis due to "fair return" calculations of money invested on either side of the border. The Special EU Programmes Body (SEUPB) is another body established by the North-South Ministerial Council, with the mission to manage cross-border EU programmes.[13]

InterTradeIreland launched its activities in 1999, always focusing on SMEs, but has already evolved on several fronts. InterTradeIreland focuses on SMEs in particular, and with a goal of developing networks and partnerships. The lack of such cross-border networks was considered the main barrier for the organisation to address. A range of programmes have been developed and implemented over the years with demonstration of mutual benefit to both jurisdictions. It also has a unique role in providing cross-border policy research. The team of 40 does not use branch offices to reach clients, rather it works with the responsible entities in each jurisdiction (Enterprise Ireland and Invest Northern Ireland), as well as other groups such as chambers of commerce to reach firms. The organisation has since moved from being seen

as a political entity to one that has a clear economic rationale for its activities. Another shift has been from a focus on trade to one on competitiveness more generally. Indeed, the current name is now somewhat of a misnomer, in the sense that many of its actions are focused on innovation. However, given the name recognition InterTradeIreland has built up, the current name remains.

Figure 3.1. **Institutionalisation of cross-border co-operation through InterTradeIreland**



Source: InterTradeIreland (2013), "Ireland/NI background report for OECD study on cross-border regional innovation policies".

Three long-standing networks of local authorities are the main actors for the promotion of cross-border economic development co-operation in the "narrow border" definition of the area. These organisations were developed on a voluntary basis and pre-date the 1998 Agreement. They include: the East Border Region Committee (1976), the North West Cross-Border Group (1976) and the Irish Central Border Area Network (1995). They are the main authorities involved in the management of Interreg funding. Such local co-operation is therefore fragmented across three groupings of local authorities, which has consequences for the nature of cross-border projects they support. Analyses of this governance fragmentation have highlighted the need for a joint strategy.[14]

The cross-border area is characterised by two different institutional regimes over the border for regions. The institutional regime is one of the factors determining the governance of cross-border collaboration efforts. Ireland is an independent and centralised country. There are two regions and they have minimal institutional powers overall and for innovation. In contrast, Northern Ireland is a UK region that has received devolved powers from the British government. However, it also depends on central decisions taken in London.

The Irish regions have few innovation policy powers as they are defined and implemented from the national level in Dublin, building on the country's competitiveness approach to economic development. Since at least the 1970s, Ireland's economic policy has focused on two key areas: *i)* improving the quality and range of education investments; and *ii)* attracting foreign direct investments, notably through the use of generous tax incentives and subsidies. The international orientation of the policy is remarkable, in line with the small size of the economy. The policy has been successful, and translated into sharply rising levels of competitiveness. The massive injection of EU Structural Funds in the Irish

economy during the 1990s, then eligible for Objective 1 funding along with southern EU countries, helped to improve the infrastructure and boost Ireland's growth. More recently, Ireland has been severely hit by the crisis with a drastic fall in GDP and a sharp increase in unemployment. Still, innovation remains on the policy agenda and public budgets for HEI-industry collaboration and applied research have been safeguarded amidst other budget cuts.

Northern Ireland has greater autonomy for innovation policy than the Irish regions, as it received devolved powers from the British government. Enterprise, trade and investment, as well as employment and higher and further education, are among the competences that have been transferred from London to the Northern Ireland Executive. The Northern Ireland Executive Sub Committee on the Economy, chaired by the Minister for Enterprise, Trade and Investment, has developed a Draft Innovation Strategy for Northern Ireland 2013-2025 which is currently out for public consultation. The draft strategy identifies actions under four themes: knowledge generation, knowledge exchange, knowledge exploitation and cultural change. This strategy recognises the importance of supporting international partnerships and collaborations, including North-South collaborations (Box 3.1).

Box 3.1. **Cross-border elements in the Northern Ireland Draft Innovation Strategy 2013-2025**

Supporting international partnerships and collaborations

"Innovation is an international process where knowledge, resources and personnel freely move across borders. Local researchers, businesses and officials need to more actively engage and collaborate at UK, EU and global levels. Through greater collaboration, Northern Ireland can enhance knowledge and build networks by forging strategic partnerships which will help local businesses access new markets and improve the quality of commercially focused research. These collaborations are essential if we are to establish a global reputation for excellence in key markets and technologies. Our strategic approach will include:

- promoting our research and high technology sectors overseas to attract FDI
- promoting NI as a great place to live, work and invest
- supporting our businesses and researchers to access international markets and collaborative research networks
- ensuring Northern Ireland continues to attract globally mobile capital, technology and highly skilled people
- strengthening our engagement with initiatives within the European Union
- building strategic links with high growth economies

Developing new international partnerships will give Northern Ireland access to new markets and increase our collaborative research partnerships. We will continue to forge strategic partnerships at the highest level with emerging economies in areas where there are alignments with Northern Ireland's capabilities and future market opportunities.

In particular, we will support our key research institutes and centres to develop international agreements. In addition, we will remain fully committed to the development of the US/Ireland R&D Partnership, working closely with our partners in Ireland and the United States."

Source: Draft Innovation Strategy for Northern Ireland 2013-2025.

Finally, the role of EU authorities is an important consideration. In contrast with many other cross-border areas in Europe, the Interreg programme has played a relatively minor role in financing innovation collaboration across the island. However, the EU plays a role in facilitating cross-border initiatives through two main funding sources (both requiring co-funding by the two authorities on both sides of the border), the PEACE and Interreg programmes (Box 3.2).

3.3. Funding for cross-border co-operation

Funding for cross-border co-operation can be classified into three categories:

- bottom-up initiatives
- targeted public funding by the North-South Ministerial Council
- international funding sources

It is difficult to assess the amounts of funding involved in bottom-up initiatives as they are not recorded. The bottom-up sources can be private funding, which supports firm co-operation for innovation, either directly or via business association initiatives. Other organisations may also dedicate their own funds, such as university or research institute funds, which may originate from public or private sources.

The North-South Ministerial Council channels funding for cross-border innovation activities through InterTradeIreland. This is a stable annual funding source for the development of cross-border instruments serving both sides of the border. This situation is an exceptional case among cross-border areas, which do not have a co-funded joint institution to directly deliver policy instruments.

The International Fund for Ireland is one international funding source for cross-border economic development. It is an independent international organisation established by the British and Irish governments in 1986 financed by contributions from Australia, Canada, New Zealand, the United States and the European Union. The fund promotes economic and social advancement, and encourages contact, dialogue and reconciliation throughout the island. In January 2006, its five-year strategy included "*a significant shift in emphasis, moving its focus away from economic regeneration to reconciliation*". This fund therefore no longer plays an important role in economic co-operation or innovation.[15]

EU funding sources promote cross-border collaboration, but could be more strategically managed in general and with other cross-border efforts of InterTradeIreland. The most significant are the above-mentioned EU programmes under the Structural Funds, notably the special PEACE programme and the Interreg programme (Box 3.2). There are opportunities to use a larger share of the Interreg funding for promoting cross-border innovation. Currently only a quarter of the available funds are devoted to cross-border economic promotion. However, the rationale for the EU programme is very much linked with the need to address problems of peripherality, and its management scattered across many local authorities does not provide the best frame or scale for engaging in most innovation promotion schemes. As it is implemented today, Interreg is not ideally suited for the support of innovation promotion, particularly at a scale wider than the current intervention area. The rationale behind Interreg funding has some resemblance with previous approaches in the mainstream Structural Funds: in previous programming periods, the bulk of the funding was concentrated in the poorer Objective 1 regions or industrial restructuring regions, the latter being defined on a relatively narrow territorial basis. This approach has shown its limits and the current approach allows projects to be funded across larger areas, capitalising on strengths rather than focusing only on deprived areas. More efforts to develop linkages between these EU sources (mainly Interreg) and InterTradeIreland would likely improve the impacts of respective cross-border efforts. It may also be relevant to consider InterTradeIreland as a delivery agent for some Interreg innovation-related programmes.

Box 3.2. **EU sources for funding for cross-border activities: The PEACE and Interreg programmes**

PEACE: The European Union's Special Support Programme for Peace and Reconciliation in Northern Ireland and the six Border Counties of Ireland is a special EU Structural Funds programme, known as the PEACE programme. It started in 1994, as a response of the EU to the favourable peace developments on the island. During the first period of operation, 1995-99, it spent EUR 500 million in a variety of fields for several actions: social inclusion, economic development and employment, urban and rural regeneration, and cross border co-operation. A large part of the funding was delivered through local partnerships, voluntary and community groups, and mostly in Northern Ireland (80% of funds). The programme was extended for a second period, 2000-04, with another EUR 531 million, a third period, 2005-06 with EUR 144 million. The 2007-13 programme has EUR 333 million for the same objective. The programme is managed by the Special EU Programme Body, one of the six bodies established by the North-South Ministerial Council after the signature of the Belfast/ Good Friday Agreement.

Interreg: When it was established, the Interreg programme supported the narrow cross-border area between Ireland and Northern Ireland. The programme was implemented in this area for 1990-93 (Interreg I), 1994-99 (Interreg II) and 2000-06 (Interreg III). For the period 2007-13 (Interreg IV), Interreg covers not only the border region of Ireland and Northern Ireland but also West Scotland. It has a total of EUR 256 million of funds (EUR 192 million from the EU and EUR 64 million of national contributions) for developing a dynamic economy and supporting cross-border infrastructure as well as to improve access to services. The Enterprise and Business Development line accounts for EUR 70 million of this total. The evaluation of this programme found that the Interreg I and II programmes were essentially parallel programmes with limited cross-border linkages, while the situation started to improve with Interreg III (Panteia and Partners, 2008).

Source: Special EU Programmes Body; Panteia and Partners (2008), *Ex-Post Evaluation – INTERREG III 2000-2006 – PROGRAMME: INTERREG III A Ireland-Northern Ireland*, report to the European Commission.

The openness of public funding to actors from the other jurisdiction is a little more favourable with Irish sources than with Northern Ireland sources.[16] In Ireland, public R&D is funded by the Higher Education Authority. The Programme for Research in Third Level Institutions (Cycle 5) facilitates collaboration with international partners. Recently, the Irish government approved legislation allowing Science Foundation Ireland (SFI) to expand its remit. This allows the foundation to support research excellence on a wider geographical basis. In relation to Northern Ireland, the SFI can provide funding to research groups in Northern Ireland where they are in partnership with institutions or companies based in Ireland. R&D for the benefit of industry is funded by Enterprise Ireland/IDA and its competence centres. There is some flexibility in competence centre funding to allow expenditure outside the jurisdiction; therefore Enterprise Ireland funding can be spent in Northern Ireland to the benefit of an Irish company. In Northern Ireland, public R&D is funded by the local Department for Employment and Learning (DEL) and the UK Research Councils. R&D for the benefit of industry is funded by Invest Northern Ireland, including the competence centre programme. Those funding sources are not accessible to Irish institutions. However, innovation vouchers are an interesting case of an instrument that is offered on both sides of the border, with both entities allowing funding to actors on the other side (see Chapter 4).

3.4. Barriers for cross-border co-operation linked to governance and funding issues

In addition to InterTradeIreland, each jurisdiction may help align strategies, policies and regulation on both sides of the border, such as in the agri-food sector. This sector is a large employer on both sides of the border. Two broad strategies have been adopted to promote this sector, notably through innovation. *Food Harvest* in Ireland defines a vision for the sector by 2020, with the view to "achieve a competitive critical mass in the international marketplace". *Focus on Food*, in Northern Ireland, develops similar strategic themes for the regional agri-food industry. A sectoral study on the cross-border sector identified 24 proposals for alignment of policies over the border to help exploit untapped opportunities (InterTradeIreland, 2011a). These include the more obvious strategies such as common

branding towards export markets for whole-of-island production and joint actions towards food safety issues which transcend borders, in addition to joint R&D and innovation efforts.

The current development of two "smart specialisation" strategies, with little connection between the two exercises, is another missed opportunity for cross-border co-operation. Nevertheless, putting in evidence the areas of strengths on both sides of the border might help identify relevant areas for co-operation in innovation. The Northern Ireland exercise, carried out by the business-led foresight panel MATRIX, has identified relatively generic specialisation "niches": life and health sciences, advanced materials, advanced engineering, sustainable energy, agri-food, and telecommunications and ICT. In contrast, the Irish research prioritisation exercise identifies 14 more detailed niches, which also fall into the more generic priorities of Northern Ireland.[17]

Also, like in all cross-border areas, differences in legislations and regulations are impeding economic relationships across the island of Ireland (Box 3.3). This raises the need to incorporate the cross-border dimension in the regulatory impact assessment exercises carried out in both countries. This is true for trade issues, but such an analysis could also be considered with respect to differences in programme rules such that funds from both sides of the border could be used in the form of a "virtual common pot" in innovation collaboration.

Box 3.3. **Regulatory barriers to cross-border trade on the island of Ireland**

Difficulty in sourcing equivalent regulations: Companies have to use a variety of sources to identify and map the equivalent legislation North and South. SMEs, in particular, have difficulty in distinguishing the comparable legislation.

Duplication requirements in relation to compliance matters: A business which holds or processes data in Northern Ireland and is also established in Ireland has to register with the data commissioner and maintain that registration appropriately in both jurisdictions.

Subtle, but important, differences in regulation essentially aimed at the same mischief: Pursuant to the distance selling regulations, in the case of telephone communications in relation to distance sales in Northern Ireland, the identity of the business and the reason for the call must be stated at the beginning of the conversation. There is no requirement to do this at the outset of the call in Ireland so long as the identity of the supplier and the purpose of the commercial call are made explicitly clear at some stage during the call.

Differences in the timing for the implementation of regulations: When adopted, an EU directive gives Member States a timetable for the implementation of the intended outcome. Therefore, different Member States will implement the changes at different times with the potential to create confusion.

A failure to recognise differing, yet adequate, standards imposed in each jurisdiction: Where a construction-related contract is performed partly in Northern Ireland and partly in Ireland (for example, haulage activities) the Relevant Contracts Tax scheme needs to be applied to the part of the contract that is performed in Ireland.

Source: InterTradeIreland (2009), *Regulatory Barriers to Cross-Border Trade and Business*, InterTradeIreland, June.

CHAPTER 4

IRELAND-NORTHERN IRELAND CROSS-BORDER INNOVATION POLICY MIX

4.1. Cross-border initiatives and policy instruments

InterTradeIreland manages many of the instruments to support cross-border collaboration in innovation (Table 4.1). All instruments are delivered on both sides of the border. Some instruments directly promote cross-border collaboration for innovation among actors from both jurisdictions. Other programmes are delivered on an all-island basis to achieve economies of scale and scope in programme delivery (relative to separate programmes in each jurisdiction). InterTradeIreland seeks to support the all-island innovation ecosystem through a range of policy instruments. The total budget of the organisation was EUR 12 million in 2011, of which around EUR 8.5 million represents direct programme funding. The funding is provided in a one third/two-thirds proportion from Northern Ireland and Ireland sources respectively. Some of the instruments are very advanced in the innovation policy mix for cross-border areas, such as the Halo Business Angel Network (Box 4.1).

Table 4.1. **Cross-border policy instruments in Ireland-Northern Ireland**

Instruments	**Programmes** *(Budget amounts annual figures, ITI=InterTradeIreland)*
Strategy and policy development	
Benchmarking and policy learning	ITI supports this task to a certain extent by bringing together both jurisdictions on its Board Steering groups on public procurement and FP7/Horizon2020
Analytical exercise (like mapping of clusters or value chains, technology foresight exercises)	First-stop shop line, advisory guide, market reports, statistics and studies on cross-border trade and innovation (ITI)
Joint branding of cross-border area	n/a
R&D support	
Joint public research programmes	**US-Ireland R&D Partnership Programme:** single proposal/peer review for collaborative research across three jurisdictions (multinational competitive process: approximately EUR 3.5 million per year, average annual budget since 2006) **EU Framework Programme preparation:** advice, information and funds for preparatory steps to participation (ITI)
Joint research infrastructure, shared access to research facilities	n/a
Cross-border private R&D funding programmes (generic and thematic)	**Innova:** funding for private collaborative R&D (ITI: EUR 1.7 million)
Technology transfer and innovation support	
Cross-border innovation advisory services (vouchers, intermediaries)	**Fusion:** partnership between SMEs and higher education institutions through graduate placement (ITI: EUR 3 million) **Challenge:** coaching and mentoring programme for SMEs to raise their innovation capabilities (ITI: EUR 0.15 million; all-island but not cross-border) **All-island innovation programme:** conferences and events on innovation, in partnership with universities **Interreg** funds sometimes used for this instrument

Table 4.1. **Cross-border policy instruments in Ireland-Northern Ireland** (*cont.*)

Instruments	Programmes *(Budget amounts annual figures, ITI=InterTradeIreland)*
Advisory to spin-off and knowledge-intensive start-ups	n/a
Other technology transfer centres and extension programmes	n/a
S&T parks and innovation networks	
Cross-border science, technology parks and incubators	**Interreg** funds sometimes used for this instrument
Cluster or network networks initiatives	**Interreg** funds sometimes used for this instrument
Human capital	
Scholarships/student exchanges	n/a
Joint university or other higher education programmes	**Universities Ireland:** exchange of policy and other information **Innovation Academy:** for entrepreneurship courses among doctoral students at universities on both sides (run by Trinity College Dublin, University College Dublin and Queen's University, Belfast)
Talent attraction, retention or mobility scheme; cross-border labour market assistance	n/a
Other instruments	
Financing (venture capital funds or angel networks)	**HALO/HBAN**: Business angel programme based on business angel syndicates across the island; on the basis that this provides more critical mass and allows the development of more focused expertise through specialised syndicates (e.g. in Medtech) (ITI: EUR 0.4 million) **Equity network and seedcorn business competition:** support for companies to secure venture capital funding, business competition (ITI: EUR 0.82 million)
Public procurement	**Go2Tender:** support for public procurement by SMEs (ITI)
Other	**Innovation awards:** a public-private partnership between ITI and the *Irish Times* to increase awareness of innovation. The *Irish Times* is a daily broadsheet newspaper that is circulated in Ireland and Northern Ireland

The US-Ireland R&D Partnership programme is another instrument for cross-border collaboration. The programme is supported by the funding bodies in each jurisdiction and facilitated by InterTradeIreland. It provides the three jurisdictions with an opportunity to develop a single proposal and single peer review system, enabling joint decision making for funding collaborative research involving partners from the three countries. The average annual budget since 2006 has been around EUR 3.5 million.

Box 4.1. **HALO Business Angel Network (HBAN)**

Although in its early stages, this cross-border policy instrument is unique for its emphasis on an under-represented area in innovation policy, financing support through business angel capital. Launched in 2011, the HBAN is an all-island umbrella platform for business angel investors focusing on Ireland and Northern Ireland. This network has the aim to:

- stimulate angel investments
- empower angel investors to build and maintain an investment portfolio
- streamline the funding process for firms

The HBAN works on a regional basis by establishing partnerships with Business Innovation Centres in Dublin, Cork, Waterford and Galway as well as with Halo Northern Ireland. Each of these centres runs local angel networks at a smaller scale. Trust and local social networks are crucial conditions for the well-functioning of syndicates, but at the same time gaining a sufficient critical mass is important to diversify investments. It has a network of seven investor syndicates as well as a large pool of private investors that operate on a cross-border basis. It also collects data on investors and has a database of about 150 private investors ready to meet early phase entrepreneurs. It aims to establish an all-island syndicate of investors in the near future. The HBAN organises matchmaking events between investors and entrepreneurs and has recently launched a guide for entrepreneurs called *Raising Business Angel Investment: Insights for Entrepreneurs*.

Source: InterTradeIreland (2013), "Ireland/NI background report for OECD study on cross-border regional innovation policies", January; interviews during OECD mission 28-30 January 2013; www.hban.org.

Programmes of the Special EU Programmes Body, Interreg and PEACE, all fund innovation projects in the narrow border area, with some concerns about project sustainability at the end of programme periods.[18] Measures include: infrastructure such as incubators, technology transfer programmes, business networks and clusters, as well as training, mentoring and advisory programmes for SMEs. One programme focused specifically on a cross-border cluster in the creative industries (Box 4.2). These projects represent a relatively small share of the total programme funding. In the 2000-06 period, 12 out of 111 Interreg projects targeted innovation (total funding over seven years of EUR 8.5 million) and an additional 2 projects were funded under the PEACE programme (EUR 1.5 million over the period). In the current period, seven Interreg projects target innovation (EUR 26.4 million for seven years out of a total for the whole programme of EUR 256 million) (InterTradeIreland, 2013). The nature of the projects is similar to InterTradeIreland schemes, but the stated difference for these projects is that they target companies that are outside of the scope of the three agencies (Enterprise Ireland, Invest Northern Ireland and InterTradeIreland), because they are more traditional, smaller and less engaged in innovation. Interreg projects thus focus on the first awareness-raising stage.[19] One example is that of the business and innovation advisory services funded by Interreg and delivered by NORIBIC, a business innovation centre.[20] Most of the projects tend to be fully publicly funded. This situation creates difficulty to ensure the real adequacy of projects to firm needs, additionality and sustainability after the public funding period.[21]

EU Framework programmes can support cross-border projects on a bottom-up competitive basis, but (in most cases) with the additional participation of partners from other countries. An all-Island FP7 Steering group facilitates these partnerships as a strategic effort to increase the flow of research funds to both jurisdictions. A reported result has been greater cross-border collaboration in the context of this programme.

The Innovation Vouchers scheme is a shared programme between Invest Northern Ireland and Enterprise Ireland. It deserves attention because of its uniqueness as a joint cross-border publicly funded programme of the "virtual common pot" type. The two administrations provide joint funding for a unique scheme, accessible in both areas (EUR 4.1 million annual budget). Each voucher is worth EUR 5 000 and can be used by the enterprises to employ a knowledge provider (such as a higher education institution) to overcome a technical problem. The firms and knowledge providers can be located either in Ireland or Northern Ireland.

Box 4.2. **The MIDAS project: Cross-border cluster of creative industries**

The MIDAS project is a 2004-06 Interreg project with the aim to increase opportunities for technology transfer, innovation and new product development for SMEs in creative and digital media industries, in the eastern part of the eligible cross-border area of Ireland-Northern Ireland. The budget for the project was EUR 2.3 million: it was mainly funded by Interreg (75%) and co-funded by the International Fund for Ireland and private sector organisations (25%). The lead partner of the project was the Dundalk Institute of Technology in Ireland. Partners were Ulster University, the East Border local authority and private firms on both sides of the border. It was selected as a good practice in the *ex post* evaluation of the Interreg III A programme.

The project focused on five sectors: interactive leisure software (computer games), film and broadcast, design, animation and music technology. The project funded the development of both "hard" physical infrastructure – a Bright Room High Definition Post Production Facility at the Dundalk Technology Institute – and "soft" support activities – the identification of existing market sectors and new opportunities and guidance to SMEs in the development of their company strategies. The project deployed enterprise development and co-operation promotion activities (R&D support, technology transfer, business support, sales and marketing activities, workshops, cross-border and international trade events) for companies on both sides of the border.

The project promoted lasting co-operation practices among firms and academic institutions on both sides of the border. Project results included: the development of 14 new products, the creation of 55 new and mainly high-skilled jobs, and a 35% average increase in export sales for participating SMEs. The project continues after the public funding period: Midas MultiMedia Limited Ltd has been created by eight of the SMEs that participated in the project. It operates as a shared services organisation or umbrella body that brings all members together and helps them enter into joint bids. By 2009, it had secured a number of contracts from large and small public and private organisations (e.g. BBC, Microsoft, Tourism Ireland, RTE and the Bandbridge District Council).

Source: Panteia and Partners (2008), *Ex-Post Evaluation – INTERREG III 2000-2006 – PROGRAMME: INTERREG III A Ireland-Northern Ireland*, report to the European Commission.

There are also initiatives from individual organisations in the public and private sectors that are worthy of mention. Memoranda of understanding between local authorities open ways for lasting co-operation at local level. On the business side, several initiatives do exist to favour cross-border linkages between companies: e.g. the Sustainable Energy Association, an all-island industry body established in 2008 to represent manufacturers, suppliers and installers of renewable energy systems for the microgeneration of heat and electricity across the island of Ireland. Cross-border business associations and intermediaries (such as the Joint Business Council of the two business associations IBEC and CBI, and BioBusiness, the business association of life science sector companies across the island) support cross-border relationships of their members. Engineers Ireland, a professional association, was founded in 1835 prior to the border creation, and therefore its membership has always been cross-border. There are also opportunities through the InterTradeIreland Financial Assistance Scheme for innovation partners to propose specific projects. This has been used as an instrument to pilot tools for possible programmes, and several programmes have been generated as a result of this scheme.[22]

There exist additional *ad hoc* joint initiatives of public research organisations. For example, the Irish Marine Institute has launched calls for research proposals on an all-island basis. An InterTradeIreland study from 2006 suggests that a common position from the funders and agencies on intellectual property (IP) policy, process and mechanics is an essential prerequisite to increased collaboration. At that time, the survey revealed that most collaborative activities were in the nature of sharing information rather than moving towards aligned or joint action. University College Dublin and Trinity College Dublin established framework agreements in 2008 with Queen's University Belfast to promote, facilitate and consolidate co-operation in education and research in areas of mutual interest (InterTradeIreland, 2008). One example of joint cross-border academic co-operation today based on complementary expertise is the Innovation Academy. It is a joint initiative from Trinity College Dublin, University College Dublin and Queen's University Belfast to foster cross-border doctoral researcher mobility and inter-institutional sharing of modules for innovation and entrepreneurship training in doctoral schools.

4.2. Untapped potential for promoting cross-border innovation synergies

As demonstrated notably by InterTradeIreland, there are opportunities to enhance innovation through cross-border partnerships on an all-island basis. The Fusion programme database of projects involves companies and research institutions on both sides of the border (Box 4.3). It has registered 132 companies supported by Fusion funding, involving most of the island's research and academic institutions. The majority of companies belong to the food, engineering and IT sectors. The fact that the impact of programmes is evaluated raises confidence that these policy instruments are effective and respond to a real need. Many opportunities likely exist based on the "smart specialisation" strategies developed in both jurisdictions. To help support such new developments, a clearer view on complementary strengths can be developed, e.g. security and aviation industry in Northern Ireland, biomedicine in Galway, ICT in Cork. Given the range of universities, institutes of technology and public research institutions on both sides of the border, opportunities for co-operation to reach critical mass also exist.[23] Cross-border company networks and clusters in joint areas of expertise are also part of the largely untapped opportunities.

Another opportunity for cross-border co-operation is engagement of the MNCs in innovation partnerships across the island. Enterprise Ireland implements schemes to link MNCs to domestic companies, and these could be extended on a cross-border basis. The same principle could be applied on the other side of the border by its Northern Ireland counterpart. InterTradeIreland's programmes can also support such linkages. In other cross-border areas, the MNCs have played an important role in both taking advantage of the assets on the different sides of the border (e.g. labour market, research centres, firm partnerships, etc.). In the TTR-ELAt cross-border area, Philips has played an important role in promoting an open innovation eco-system throughout the cross-border area through its different affiliates as well as its High Tech Campus, based in Eindhoven that brings together research actors and firms from different parts of the cross-border area.[24] In general, measures that encourage linkages between the SMEs and the MNCs include a range of activities such as information and matchmaking, measures to enhance SME capabilities, encouraging the MNCs to engage in partnerships, or other home country measures (OECD, 2005). Additional recommendations by the OECD for Ireland have noted that developing spillovers from high-tech MNCs to domestic SMEs could be facilitated by the establishment of applied research centres and strong linkages with higher education institutions, as well as SME capacity upgrading for innovation through graduate placement programmes (OECD, 2013a).

A study of the cross-border agri-food industry serves as an example of the potential for cross-border value added through a targeted sector (or technology or value chain). This example identified several paths to promote innovation in this sector, which call for joint use of Irish and Northern Ireland policies (see Box 4.4). Similar approaches could be considered in other domains of priority as identified in the smart specialisation strategies.

Box 4.3. **FUSION: An all-island technology transfer programme linking firms and skilled graduates**

Through FUSION, support packages are available for a business in one jurisdiction to partner with a third-level institution on the other side of the border with the specialist expertise needed and a high calibre science, engineering or technology graduate. The graduate is employed and based in the firm for a 12- or 18-month period with mentoring from the academic partner and a consultant from InterTradeIreland. The funding packages are worth up to GBP 44 250/EUR 52 800 in the area of new product/service development or a 12-month project worth GBP 31 000/EUR 37 000 in the area of process improvement.

The rationale behind the programme was that the border meant that knowledge or technology transfer programmes ran only within the two jurisdictions, and that businesses and academics were unable to work with a collaborator across the border, creating a barrier to knowledge spillovers. The programme was developed as one of InterTradeIreland's first initiatives in 2000 and is currently in its fourth phase. The key actors involved in the FUSION programme are firms, HEIs and graduates, although the programme is also jointly run/funded by InterTradeIreland, Invest Northern Ireland and Enterprise Ireland for approximately EUR 3 million per annum. On average, each company taking part on the FUSION programme benefits from over EUR 1 million worth of sales or efficiency savings in the three years following the project.

Source: InterTradeIreland (2013), "Ireland/NI background report for OECD study on cross-border regional innovation policies", InterTradeIreland, January.

Box 4.4. **Potential for cross-border innovation in the agri-food sector**

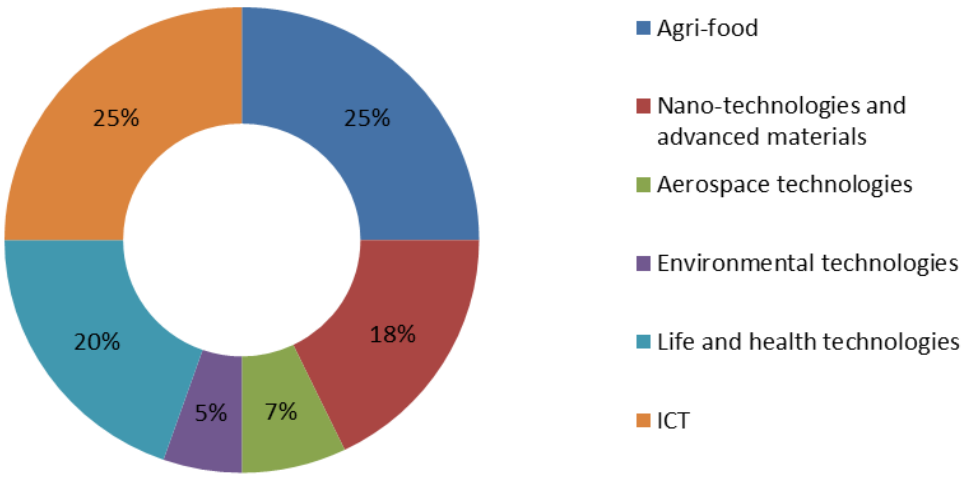
- Take steps to increase awareness and stimulate cross-border proposals under FP7, e.g. workshops and road shows to promote the programme and provide advice to potential applicants.
- Publicise a roadmap of food sector research expertise and use to stimulate collaboration across the island in order to access EU funding streams.
- Designate centres of excellence to share capacities and technologies across institutions; use a roadmap to help define these.
- Consider cross-border application of future major inter-company/research institute R&D projects being supported by state agencies.
- Continue the development of the strategic leadership programme for CEOs/senior management open to suitable food companies from both jurisdictions (similar to EI's Leadership 4 Growth programme in the IT sector).
- Investigate the development of a cross-border graduate placement programme (incorporate/extend INI Knowledge Transfer Partnership, EI Graduate Placement and IBEC Market Orientation Programme).

Source: InterTradeIreland (2011a), *Agri-Food: A Study for Cross-Border Co-Operation*, InterTradeIreland, May.

Joint opportunities in high-tech developments clearly exist, as evidenced by statistics and experiences of institutions. FP7 participation shows that the ICT, agri-food, life/health technologies and nano-technologies/advanced materials sectors are the domains where higher collaboration is found (Figure 4.1). These sectors are also those of the greatest cross-border collaboration potential based on the presence of research and technology centres across the island.[25] With Irish partners being more experienced in accessing FP7 funds, this provides an opportunity for Northern Ireland actors to increase their research funding by teaming up with Irish firms or public research organisations. Experience has shown that applications involving both Northern Ireland and Irish partners have a better success rate in the EU Framework Programme. Another interesting example is that of C-TRIC, the Clinical Translational Research and Innovation Centre located in Derry~Londonderry. One of the cross-border benefits for

collaboration is due to the border; as clinical testing trials can involve new populations as well provide opportunities to access the UK health system.

Figure 4.1. **Joint Ireland-Northern Ireland participation in European Framework Programme 7**



Source: InterTradeIreland (2013), "Ireland/NI background report for OECD study on cross-border regional innovation policies", January.

In addition to high-tech support, other forms of innovation in small firms could be considered for cross-border programmes. As innovation in its broad sense includes not only technological but also non-technological forms, there may be some benefits for such programmes to be delivered on a cross-border basis, particularly for the efficiency of programme delivery or for pilot testing in both jurisdictions. Such innovations could be focused on business processes (organisational and marketing). InterTradeIreland's Challenge programme is one example, focusing on the capability of firms to develop a culture and practice of innovation, in any form. Other SME programmes may be focused more on design, social innovation issues or include more user-driven innovation approaches (Box 4.5).

Given the low levels of cross-border student flows, greater harmonisation of procedures and targeted policy instruments can help address this untapped opportunity. Despite the proximity of higher education institutions on the other side of the border, cross-border student flows are very low. Several other cross-border areas have sought to take advantage of their universities to improve the offer to nearby students through greater critical mass in specific disciplines or to better retain students in the area. Students may also seek opportunities outside of their area by choice, of course, but for those who would prefer to stay, cross-border arrangements are a possible option. One opportunity is for the two governments to address certain barriers due to differences between the Irish and UK higher education systems (years of schooling, credential recognition, cultural differences such as with respect to technical universities and financing systems). Other programmes have been developed either at the level of specific disciplines, which is often easier to achieve than overarching international agreements, or a more intense relationship between specific universities (Box 4.6).

Box 4.5. **Supporting other forms of innovation in SMEs**

Innovations in organisational and marketing methods: Aldatu programme (Basque Country, Spain)

The SME Innovation Support Programme Aldatu provides grants for innovation advisory services to projects aiming to reframe the company strategy, to introduce organisation and market innovations, and to develop innovation capabilities. Criteria for funding are: *i)* the projects selected for support will significantly change the SMEs' business strategy; *ii)* the innovation projects will significantly affect the company's presence in one or more markets. Alternatively, SMEs will seek to improve their services to the customers through the development of new and tailored product strategies, or they will aim to develop new, or substantially changed, communication and interaction channels with customers; and *iii)* the organisational innovation projects will facilitate the creation of new collaboration networks or new marketing networks. They may also support the set-up of new supply or purchase platforms. Aid under this scheme can also be granted for the development of an integral innovation management system. Eligible costs are only the external consultancy costs and may involve collaboration across multiple firms. Services are purchased at market price with public funding of up to EUR 90 000 per enterprise per year, not to exceed EUR 200 000 per enterprise within any three-year period. The maximum aid intensity is 50% of the eligible project costs.

Estonian and Finnish Design Challenge

The Estonian and Finnish Design Challenge, funded under Interreg IIIA, aimed to develop new products, activity models, and networks through co-operation between Finnish and Estonian designers and companies. The lead partner was Baltic Design & Interior Network from Finland, and the other partners were Estonian: the Business and Development Centre of Pärnu County, the Vocational Centre of Pärnu and TEHNOPOL. During the project, ideas and solutions for furbishing public rooms were developed. The results were displayed at an exhibition, "Smart Hotel", which took place in Tallinn and Helsinki. The project also targeted the markets of St. Petersburg. The project resulted in new innovative schedules and prototypes, co-operative networks between Estonian and Finnish designers and companies, a pilot model of "Design Start" and increased knowledge in design.

Source: OECD (2011), *Regions and Innovation Policy*, OECD Reviews of Regional Innovation, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264097803-en on www.euskadi.net; OECD (2013), *Regions and Innovation: Collaborating Across Borders*, OECD Publishing, Paris, based on www.baldesign.net.

Box 4.6. **Promoting cross-border student flows: International examples**

Transnational University Limburg (Netherlands – Belgium)

The Maastricht University (UM) in Dutch Limburg was established in 1976, and is the youngest of the 13 public universities in the Netherlands. With approximately 16 000 students (2012) and, together with UMC+, about 9 000 staff members and a turnover of about EUR 800 million, it is a major driving force for the region. The Hasselt University in Belgian Limburg is also a young university, established in 1971, that organises undergraduate and postgraduate programmes in the fields of medicine, dentistry, sciences, law and applied economics. In 2001, the Flemish and Dutch Ministers of Education signed an international treaty which founded the Transnational University Limburg. Academic staff from Hasselt University (Flanders) and from nearby Maastricht University (in the Dutch Province of Limburg) now jointly undertake research and offer degree programmes in the life sciences and computer sciences.

The Nordic Mining School (Finland – Sweden)

The University of Oulu and the Luleå University of Technology have jointly established the Nordic Mining School (NMS). The NMS offers a new degree programme in fields related to the mining industry. The aims of the NMS are: *i)* to bring the students at masters level in both universities together to reach critical mass; *ii)* to build the best graduate school in mining-related education in Europe; and *iii)* to strengthen the research co-operation in mining, exploration and environmental engineering, mineral processing, metallurgy and process engineering. The initiative, which received funding by the European Union Interreg IVA Nord programme in the period 2008-11, offers students master's degrees in both universities. Students enrol in a relevant master's programme at either of the universities and spend at least six months of their studies at the other university and qualify for a double degree from the Nordic Mining School. A joint professorship in "mineral entrepreneurship" was established to give students knowledge of the economics to start and run businesses in the mining and exploration industry.

Box 4.6. **Promoting cross-border student flows: International examples** *(cont.)*

Eucor, the Upper Rhine University (Germany – France – Switzerland)

Eucor is a network of leading universities founded in 1989 in the Upper Rhine area across Germany, France and Switzerland, including the University of Freiburg, the Karlsruhe Institute of Technology (Germany), the University of Strasbourg, the University of Haute-Alsace (France) and the University of Basel (Switzerland). The Rectors of the five universities and the President of Eucor meet twice per year to define strategic priorities for the network of institutions. The Eucor network has also established a co-ordination office with responsibility to organise thematic bi- or tri-national meetings around cross-border issues like language university policies, doctoral studies, inter-university cultural events and inter-university transport. In 2009, Eucor established a cross-border university Student Council, with the aim to promote Eucor mobility programmes among students. Eucor promotes and creates thematic networks and projects of researchers and students, focusing on similar topics in the five universities of the cross-border region.

Oresund University (Denmark – Sweden)

The Oresund University formally ceased in 2010 but different forms of co-operation continue in specific projects. The Interreg II programme financed the Oresund University, which was a co-operation among 14 universities and university colleges across the Oresund. The co-operation sought to open courses and facilities to students from across the border and to support joint research. The Oresund University was co-financed by Danish and Swedish national and regional sources. The Oresund University also played a key role in establishing and managing innovation platforms in seven different areas and has been a key actor in developing and implementing Interreg projects. The Oresund University managed several programmes that served to build internal identity through a common brand. The association closed down in 2010 as some of the co-funders started to withdraw support. Student financing issues, differences in semester calendars, grading differences and insufficient private sector involvement were among the noted difficulties. Co-operation continues through several projects with different groupings of actors, most notably through cluster-related initiatives.

Source: OECD (2013), *Regions and Innovation: Collaborating Across Borders*, OECD Publishing, Paris.

4.3. Relevance and effectiveness of the policy mix for cross-border co-operation

Table 4.2. **Snapshot of innovation policy approach**

(Ireland-Northern Ireland in bold)

Element of policy mix	Definition	Degree
Information	Mutual exchange of data, actor mappings and policy information	Strong **Moderate** Weak Not present
Experimentation	*Ad hoc* and temporary common initiatives without joint funding	**Strong** Moderate Weak Not present
Alignment	Mutual opening of programmes or structures across borders – no joint funding	Strong Moderate **Weak** Not present
Joint actions narrow	A few cross-border measures, structures and actions with joint funding by actors from several regions	**Strong** Moderate Weak Not present
Joint actions broad	Many joint instruments co-funded by the constituting regions	**Strong** Moderate Weak Not present
Strategic policy mix	Joint common strategy adopted at the level of the cross-border area, translated into common policy mix co-funded by all constituting regions	Strong Moderate **Weak** Not present

Funding for cross-border innovation policy and projects should be coherent with strategic priorities in both jurisdictions. A common problem noted in cross-border areas is that the cross-border initiatives are not taken seriously because they are not perceived as contributing to these broader strategic goals. The policy mix for cross-border efforts can be more effective, and sustainable, if it is in the context of a general strategy that is recognised as having an impact on those goals.

Today, many policy instruments for promoting innovation co-operation across the island of Ireland are channelled through InterTradeIreland, resulting in a "*joint action broad*" approach. This is very helpful to raise awareness and deliver easily identifiable and permanent funding sources for cross-border innovation initiatives. It also secures funding with a greater sustainability dimension than other *ad hoc* funding sources, notably Interreg. It avoids lengthy political debates around the "fair return" issue, which might impede the move towards such policies. The active engagement between InterTradeIreland and entities in respective jurisdictions helps to promote programming in line with their priorities.

The "*alignment*" step,[26] whereby national/regional programmes are mutually open to participants from the other jurisdiction (without joint funding), is in its early stages. The fact that in both jurisdictions, innovation support is centralised in well-identified agencies known to the business community – Enterprise Ireland and Invest Northern Ireland – is a favourable situation for developing alignment between mainstream programmes.[27] InterTradeIreland is known for operating on a cross-border

basis. Alignment is a further opportunity, since the amounts of funding involved might increase dramatically if the domestic programmes also facilitated some aspects of cross-border collaboration, as developed with InterTradeIreland. For example, in the one programme where there is openness to actors on the other side of the border, the Innovation Voucher in each jurisdiction, the annual budget alone is close to 50% of that of all InterTradeIreland programmes. Programmes from Ireland tend to be more open to allowing entities from Northern Ireland to participate than in the other direction.

In terms of "*experimentation*" programmes, many are financed by Interreg. This funding source is around 50% of that provided by InterTradeIreland programmes (and potentially more if innovation were to become a major orientation of that programme in the future programming period). Here the joint funding element is minor, as the bulk of the money comes from the EU.[28] There is a clear need to capitalise more on Interreg projects, and to create more linkages between managing authorities of this programme and InterTradeIreland, to ensure contribution to cross-border innovation. The example of the ACUMEN programme, that was first funded by Interreg and then made all-island and included in InterTradeIreland's portfolio of programmes, is one example. The fact that Interreg projects are, by design, restricted to the narrow border area and tend to be of limited duration creates a complication in establishing such synergies. InterTradeIreland also has experimental programmes in some cases based on a pilot through the Financial Assistance Scheme that allows bottom-up requests for funding.

The "*joint action narrow*" category includes several bottom-up initiatives involving funding from individual actors, such as the reported cases of cross-border academic collaboration. The nature and amount involved in such initiatives is largely unknown; however, they are interesting because they indicate a willingness from these actors to invest in cross-border collaboration based on the identification of mutual benefit. This step constitutes a healthy component of a cross-border innovation policy framework, because it avoids a too-large dependency on public funding sources, with associated sustainability problems. Developing a "*joint strategy*" with related action plan for the area seems less important at this stage than greater bottom-up initiatives and "alignment" to incorporate the cross-border dimension in their design and implementation.

CHAPTER 5

RECOMMENDATIONS FOR CROSS-BORDER INNOVATION IN IRELAND-NORTHERN IRELAND

The high-level political commitment for cross-border collaboration needs to be translated into greater cross-border flows to support the functionality of an all-island cross-border area. InterTradeIreland studies have put in evidence a deficit of information on economic potential on both sides of the border. Levels of cross-border exchanges in several domains, including for the relations between RTD centres, between these centres and companies, and in business networks, are lower than the potential implies, but are increasing. The MNCs in several Irish sectors are mostly oriented off of the island, and the differences in economic structures across the border impede intra-sector trade flows. However, there are opportunities for cross-border co-operation to support innovation, such as economies of scale in RTD, the cross-fertilisation of ideas and the development of complementarities between innovation actors on both sides of the border. The geographic proximity is more relevant for SMEs, as the MNCs and top universities can more easily collaborate globally. The strong political endorsement of cross-border efforts has led to an institutionalisation of the cross-border governance by the North-South Ministerial Council, and continuity in funding support through InterTradeIreland. Programme management by one institution serves to avoid on-going negotiations of "fair return" calculations, as there is an underlying expectation of an overall benefit of approximately one third to Northern Ireland actors and two-thirds to Irish actors in proportion to overall funding. However, greater leadership is needed from other actors (firms and university/research centres) to promote cross-border innovation. Several actions may help increase these cross-border exchanges and the effectiveness of policy efforts to gain value from cross-border innovation-related efforts.

5.1. Cross-border area

Use the all-island definition to include innovation hubs, building on relevant statistics and policy intelligence, to stimulate co-operation and measure its progress

- **Use the all-island definition, as opposed to the narrow border area definition, for cross-border innovation support so as to capitalise on the innovation hubs on both sides.** The narrow border area as defined by EU funding streams such as Interreg is less relevant for innovation beyond very basic SME support, yet increasingly innovation is a category prioritised by the EU for its regional policy spending. In several cross-border areas in Europe, this mismatch exists between the cross-border area defined for Interreg purposes and that defined by innovation-related actors for innovation support. Of course, some parts of the island may simply be too far for many SMEs to be actively engaged in cross-border activities given their greater need for geographic proximity than other actors that may operate on a more global basis.

- **Continue to provide relevant analyses and statistics on the progress of cross-border flows, in addition to strategic policy intelligence.** Data on effective cross-border flows of people, goods, services, capital and knowledge, and on the spatial scale of these flows, help to guide policy efforts in identifying potential opportunities and barriers to cross-border innovation. There are cross-border efforts to map statistics between the two jurisdictions, such as InterTradeIreland's own activities and those of AIRO. One area to pursue is perhaps a greater degree of measurement of flows and economic interaction. The Oresund Region has an index to track changes in levels and flows over time in areas such as the labour market, housing market, business, culture and transport. The tracking of cross-border flows could also consider policy

information, including both publicly funded initiatives and, to the extent possible, initiatives without public funding. Numerous studies on the potential and barriers for cross-border collaboration exist, most of them under the aegis of InterTradeIreland. The good practice of conducting regular business surveys as well as sectoral and thematic analyses on the cross-border dimension, based on data collection and interviews, serves to inform policy making and is a valuable example for other cross-border areas.

- **Identify complementary strengths on both sides of the border to stimulate bottom-up cross-border co-operation.** One area that could be developed further is more detailed data on complementarities, relative specialisation and specific assets for innovation of the various sub-regions. Some of this work has already been done on an all-island basis, and otherwise may be found in the respective smart specialisation strategies of each jurisdiction. The findings could be better used by different public and private actors. The TTR-ELAt cross-border area (at the intersection of Germany, the Netherlands and Belgium) has been focusing its strategy on building such complementarities in niches of excellence in its cross-border area.

5.2. Governance

Build on InterTradeIreland's experience for greater cross-border policy intelligence and more strategic use of innovation-related EU funds (Territorial Co-operation and Structural Funds)

- **Adopt more strategic use of the innovation-related European Territorial Co-operation (Interreg) funds, including by involving InterTradeIreland as a partner to deliver certain Interreg programmes.** Interreg projects draw on a long tradition of collaboration between municipalities split into three coalitions along the border area. Such operators may not be equipped for the development and management of innovation projects of a certain scale and level of expertise. A risk of fragmentation into sub-critical and unrelated projects exists, with a difficulty to capitalise upon achievements. Interreg projects tend to target the first steps towards innovation for less innovation-mature firms, while InterTradeIreland's programmes target somewhat more mature companies. Since the distinction between those two target groups is not always clear cut, and the eligible areas are more restricted for Interreg projects, there is a need for stronger co-ordination of the two types of support. InterTradeIreland's expertise could also be brought to bear on the use of Interreg funds more generally. If it does not reduce its own budget or cause conflict with mission, InterTradeIreland could be an effective operator for the use of such funds targeted at economic promotion and innovation.

- **Bring the cross-border dimension explicitly into respective efforts for innovation strategy development, such as the current "smart specialisation" strategies, and incorporate the cross-border dimension into mainstream Structural Funds programmes.** Strategic areas of support have been chosen in the context of "smart specialisation" strategies developed for the use of EU Structural Funds. Since there are some common areas identified in each of the jurisdictions, the cross-border dimension may be useful to explore in greater detail in those common areas. By allowing Structural Funds to support the cross-border dimension as a tool to ensure each jurisdiction's respective smart specialisation strategy, there is flexibility for using the funds as relevant, whether on a cross-border basis or not.

- **Demonstrate the cross-border "additionality" gained through InterTradeIreland instruments as a basis for future policy development.** The firm-oriented approach of InterTradeIreland, and the monitoring and evaluation practices for its programmes, are commendable. For example, it has been calculated that companies involved in the Fusion programme benefitted from over GBP 1 million worth of sales or efficiency savings in the three

years following the project. Analysis of additionality with respect to cross-border efforts could build on data from InterTradeIreland as well as Enterprise Ireland and Invest Northern Ireland. InterTradeIreland's activities are evaluated to ensure the effective implementation of programmes. However, there is no *comparative* assessment of the effectiveness of InterTradeIreland's action with respect to domestic innovation promotion that would help demonstrate the real value-added of these activities over traditional domestic innovation promotion policies. The information base is there, and co-operation with Invest Northern Ireland and Enterprise Ireland could make such assessments possible. As InterTradeIreland is already at the forefront as a cross-border institution, there are few examples to draw from in this area.

5.3. Innovation policies and instruments

Ensure consistency of cross-border efforts with strategic objectives, consider cross-border elements in certain domestic policies, build greater bottom-up cross-border support and target InterTradeIreland's efforts by technology or sector

- **Ensure cross-border policies and projects are in line with the strategic objectives of both jurisdictions for greater impact and sustainability.** The mix of policy instruments to support innovation on a cross-border basis should seek to support overarching strategic goals. Depending on the funding source, this is more or less true. In order for the whole to exceed the sum of its parts, the collection of instruments and projects need to contribute to a well-founded strategy. The credibility of cross-border work is contingent upon its relevance for economic development and its perceived impact.

- **Consider the cross-border dimension in the programmes managed by Enterprise Ireland and Invest Northern Ireland where relevant, as a complement to the work of InterTradeIreland.** If access to firms or knowledge on the other side of their border is useful for the competitiveness of their firms, the agencies may want to consider when to align or open up their programmes, as was done with the Innovation Vouchers. InterTradeIreland funding is stable and dedicated to cross-border initiatives and the agency is the recognised lead on this issue per organisational mandate. However, the programme budgets are reported to not meet existing demand. Budget increases to successful InterTradeIreland programmes is one option, particularly where there are economies of scale and scope for one agency to manage the programme. Another option is to better leverage other UK and Irish funding sources through the alignment of certain programmes or procedures that may facilitate additional opportunities of the "virtual common pot" form. InterTradeIreland can also pilot test certain programmes on behalf of the respective agencies. Allowing EU Structural Funds to be used for cross-border efforts (in addition to Interreg funds), particularly in line with respective smart specialisation strategies, could also serve this goal.

- **Encourage stronger cross-border leadership and financing by private and non-profit stakeholders.** This is partially true for InterTradeIreland (public co-financing of generally 50%) and even more so for EU Interreg projects that are often publicly funded up to 75%. Ensuring a sizeable part of private co-funding is the best test for the actual relevance of the projects. Complementary strengths on both sides of the border need to be more clearly identified to stimulate greater bottom-up cross-border co-operation. The Board of InterTradeIreland includes the private sector and there are a few private sector-led initiatives. However, to rebuild these cross-border ties, public funding will not be enough. Greater involvement of firms, firm associations, universities and technology institutes, where they see an advantage, needs to be further encouraged.

- **Target InterTradeIreland programmes towards technologies, research fields, sectors or value chains of particular cross-border value added.** There is currently no target area of focus in terms of the fields of cross-border support. Some programmes are delivered to enable access to a relevant collaboration partner across the border. In other cases, a programme is delivered on an all-island basis for economies of scale and scope. Some cross-border efforts are targeted. For example, the US-Ireland Partnership programme prioritises some specialised fields, such as diabetes and energy. Programmes that take advantage of the cross-border element to build critical mass in research, technology or innovation-related competences, greater access by firms to needed expertise, or complementarities across such assets on both sides of the border would seem to promise a greater cross-border impact.

NOTES

1. See, for example, Bradley and Best (2012).

2. The Agreement was signed in April 1998 by the British and Irish governments and most of the political parties in Northern Ireland. It was further supported by public polls in both Northern Ireland and Ireland. The three strands covered by the Agreement include: 1) agreements within Northern Ireland; 2) agreements for North/South co-operation between Northern Ireland and Ireland; and 3) agreements for East/West co-operation between Ireland and the United Kingdom.

3. The BMW Region accounts for 47% of the territory and 27% of population, but only 19% of national gross value added in 2008 and has limited private R&D expenditure. In 2010, the BMW Region received 13% of national public funds allocated to research and innovation, and of these funds 93% went to the only university in the region (Technopolis, 2012a).

4. Northern Ireland's patenting figures are probably underestimated due to the registration of patents at headquarters of companies in London.

5. Cross-border shopping flows are also subject to some measurement efforts. These flows do occur, especially in times of large fluctuations between the British pound and the euro, but because of the volatility of these changes, this is not likely to lead towards lasting benefits on one or the other side of the border.

6. There are more examples of Northern Ireland SMEs winning contracts with buyers from Ireland than the reverse.

7. There are approximately 108 centres in Ireland receiving state funding for being a centre, 97 of which are within the legal structure of higher education institutions (Forfás and the Advisory Council for Science Technology and Innovation, 2012). In an earlier study from 2008, the RTD centres' responses to InterTradeIreland's enquiry confirmed the potential for "*bringing together complementary expertise, shared human and physical resources, marketing and branding the island of Ireland as a biomedical science and engineering research hub, critical mass of expertise to compete globally*" (InterTradeIreland, 2008).

8. In a study on this topic, it was found that the cross-border collaborations in this area were often dependent on the continuity of public funding, as the relationships were not maintained after the end of the subsidised project. On the university side, differences in arrangements for intellectual property and technology transfer management are found to impede cross-border collaboration. Northern Ireland universities have a central government funding stream for their knowledge transfer and technology transfer activities through the Higher Education Innovation Fund (HEIF), while such a mechanism does not currently exist in Ireland (InterTradeIreland, 2006).

9. Data is from Thomson Reuters InCities for the period 2007-12.

10. "*Responding centres have only a general idea of where opportunities lie among academic organisations in the other jurisdiction*" (InterTradeIreland, 2008).

11. For further information, see www.taoiseach.gov.ie/eng/Publications/Publications_2013/British-Irish_Relations_-_Joint_Economic_Study1.html and PA Consulting (2013).

12. The NSMC has a joint Secretariat staffed by civil servants from the respective jurisdictions of Northern Ireland and Ireland. They have held over 200 meetings to date in the form of plenary meetings (discussing general co-operation and North-South institutional issues), sectoral meetings (concerning the 12 agreed areas or sectors with relevant representatives from each jurisdiction) and institutional meetings (with the highest level representation).

13. Other entities that also address economic development with an all-island remit include Tourism Ireland (since 2000) and SafeFood (since 1999).

14. Bradley and Best (2012) highlighted areas for joint action to support SMEs with export potential: tourism and recreation, agriculture, food and fish processing. They also note the importance of developing three dimensions to this economic development collaboration: spatial, sectoral and institutional.

15. According to the fund's official documentation: "*The Fund is focused on projects, schemes and initiatives which promote reconciliation, greater mutual understanding on a cross-community and/or cross-border basis and which address serious disadvantage and deprivation. Within this there is a great deal of variety with projects run by community organisations, arts organisations and voluntary sector bodies*." (www.internationalfunforireland.com). The last evaluation of the fund, carried out in 2010 by Deloitte, indicated indeed that the employment outcomes have been lower than in the previous period, and that this is well in line with its shift of emphasis away from economic development priorities.

16. Among sources, see InterTradeIreland (2008).

17. Those 14 include: 1) future networks and communications; 2) data analytics, data management, security and privacy; 3) digital platforms, content and applications; 4) connected health and independent living; 5) medical devices; 6) diagnostics; 7) therapeutics – synthesis, formulation, processing and drug delivery; 8) food for health; 9) sustainable food production and processing; 10) marine renewable energy; 11) smart grids and smart cities; 12) manufacturing competitiveness; 13) processing technologies and novel materials; and 14) innovation in services and business processes.

18. The coverage area also includes Western Scotland since 2007.

19. Quotes from the evaluation of the Interreg SME-mentoring ICE programme: "*The ICE programme has found a method of successfully and economically stimulating innovative activity in firms which have previously been unreceptive to innovation programmes…Companies were able to progress from participation in ICE to more mainstream innovation support and had the ability to continue to apply their innovation learning after their completion of the ICE programme.*"

20. The programme provides payment for consulting to SMEs. It has been noted that the rules of the Special European Union Programmes Body and EU rules create challenges for such an intermediary. Examples include long periods while awaiting funds, creating considerable cash flow problems, and the onerous procurement requirements for minor bids of consulting services of four days.

21. With respect to the Interreg-funded ICE programme (Innovation for Excellence, an SME mentoring programme, involving Dundalk Institute for Technology, the University of Ulster, the University of Glasgow and Glasgow Caledonian University): "*The current ICE programme comes to an end later this year. This raises the question of how the lessons of the programme can be built into our support for SMEs to ensure that the benefits continue to be realised. One option, under consideration by the DKIT, is to run the programme again in the new 2014-2020 Interreg programme. Other possibilities are to widen the number of regions participating in the programme, perhaps to EU-designated Atlantic Arc regions or the wider North West Europe region, both of which include Ireland and Northern Ireland or to build a ICE approach into the mainstream activities of development agencies such as Enterprise Ireland, Invest NI and Scottish Enterprise*". For further information, see Regional Development Centre (2013).

22. The Financial Assistance Scheme remains authorised, but is currently not open due to budget constraints.

23. The 2008 study of RTD centres on the island found opportunities for research collaboration in agri-food, ICT, bio-medicine and environment technologies (InterTradeIreland, 2008).

24. For more information, see www.hightechcampus.com.

25. Research centres with a strong potential for collaboration are noted in agri-food, ICT, bio-medical and environment sectors (InterTradeIreland, 2007).

26. A pre-requisite for this is the mutual exchange of policy information, which can greatly be facilitated by InterTradeIreland.

27. "*While one third of businesses (34%) are aware of InterTradeIreland as an organisation fewer are aware that they provide business support (27%). Awareness levels for support are lower among those based in the South (25%) compared with NI businesses (32%). As a benchmark, 84% of NI businesses are aware that Invest NI provides business support and 90% of Southern businesses are aware of this role by Enterprise Ireland*" (InterTradeIreland 2011c).

28. If this co-funding is taken into account, it could be argued that such instruments belong to the "joint actions narrow" category of policies.

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